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Final report

Models of good practice in drug treatment in Europe (“Moretreat”)

AGREEMENT NUMBER - 2006329

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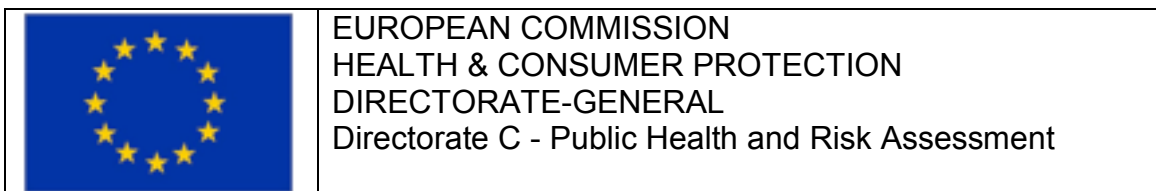
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“Moretreat” – consortium

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Preface

This final report presents the results of the project “Models of good practice in drug treatment in Europe (‘Moretreat’).

The main aims of the project, which lasts April 2007 to August 2008, were to identify and collect evidence of drug treatment interventions, and to evaluate models of good practice in drug treatment in Europe. Based on this investigation good practice guidelines or treatment improvement protocols for the key interventions in drug treatment have been developed.

This report includes the guidelines for 11 areas of interventions or cross-cutting issues. Additionally “short versions” (of fact sheets) of the guidance are presented. They are also available for dissemination in German and French language.

An identified problem in Europe is the absence of a platform for exchange and dissemination of good practice guidance. On basis of a survey this report comprises a proposal for next steps to improve such a platform on a European level. Apart from that the dissemination of the project results is ongoing. The results will be delivered to national platforms, international networks and to the just installed EMCDDA’s “best practice” portal.

The delivered evidence reports on interventions and corresponding recommendations for interventions are not the endpoints of the discussion about drug treatment interventions and their improvement. However, they serve as a starting point and an initiation of a further important development.

We want to thank all involved partners for cooperation in this challenging project and the European Commission for funding.

Prof. Dr. Christian Haasen

1 Summary

Objective of the project “Models of good practice in drug treatment in Europe (‘Moretreat’)” was to deliver guidelines or treatment improvement protocols for key interventions in drug treatment.

This “Moretreat”-project aimed to identify and evaluate models of good practice in drug treatment in Europe. European drug treatment interventions were identified and collected from all European Union Member States. The guidelines are based on the inventory of international and European evidence. Regional European evidence that is not available in English and not represented in international scientific journals has been collected in addition. Based on a consensus process good practice guidelines have been formulated for main treatment interventions as well as for the system level of drug treatment services.

The overall aim of the project was to contribute to guidance in order to improve drug treatment and health care in the EU-Member States. Therefore the report presents recommendations for the improvement of drug treatment in Europe which are to support health authorities, commissioners, providers and professionals.

The following results of the project are presented in this report:

- Reviews of good practice and evidence for different drug treatment intervention modalities and their effectiveness for different target populations.
- Good practice guidelines for the improvement of drug treatment interventions in Europe (short and comprehensive versions with an unified structure).
- A proposal for the development of platforms for treatment guidance on a European level that provides a basis for the continued improvement of drug treatment in the Member States (sustainability).

2 Guidelines for interventions in drug treatment – fact sheets (summary)

In the following the guidelines for the most relevant drug treatment interventions are presented as short versions (fact sheets).

These versions are delivered also in German and French and will be disseminated to the relevant national and European networks for drug treatment and also to the “best practice” portal” of the EMCDDA.

Starting from the summary the detailed “Guidelines for drug treatment improvement” are presented in chapter 6.

2.1 Brief intervention and brief therapies for illicit drug abuse

A Definition and objectives

1 Problem definition

Illicit drug abuse became a significant social and medical problem in the last decades. In spite of numerous attempts to cut the consumption of drugs in Europe, the number of drug abusers remains high as well as the number of urgent, chronic and disabling medical conditions, related to drugs use. High prevalence of illicit drug use and drug use disorders translates into high treatment demands which cannot be completely satisfied by specialised addictions service institutions. This makes various primary care institutions not specialised in addictions the first providers of medical help for those individuals. Specific treatment settings in these institutions require implementation of short-term, simple and cost-effective treatment models as brief interventions and therapies.

2 Aims and objectives of Brief Interventions and Therapies

Brief interventions are short-term clinical practices comprising one or few sessions and aimed mostly to analyse the subject's problem and motivate an individual to minimise the harm from his substance abuse either directly during the intervention itself or indirectly – by seeking additional substance abuse treatment.

Brief therapy is a process of systematic and focused assessment, client engagement, and rapid implementation of actual change strategies. Brief therapies usually comprise more sessions than brief interventions and also differ from brief interventions in that their goal is to provide clients with tools to change basic attitudes and handle a variety of underlying problems.

B Evidence base

1 Data availability

Currently there are numerous studies and meta-analytical reviews showing efficacy of brief interventions and therapies for various categories of patients and types of substance abuse, including poly-substance abuse. While reports regarding the psychosocial interventions are mostly concentrated on cannabis and stimulants abuse, literature on opiates abuse is dedicated prevalently to maintenance treatment.

2 Main findings

Research of efficacy of various psychotherapeutic techniques has shown mixed but predominantly positive results for motivational enhancement therapy, high efficacy of

cognitive-behavioural therapy apart and in combination with MET, positive effects of family and social therapies and appropriateness of implementation of pharmacological interventions in certain cases.

C Recommendations

1 Motivational Enhancement Therapy

The evidence of effectiveness of motivational enhancement therapy is multiple and diversified, mostly presented for cannabis and stimulants abuse and less – for opiates. While certain studies report poor efficacy of MET, most of them show its high effectiveness.

Motivational enhancement should include informational component and be based on the following key points:

- Medical complications and related disorders, common for major types of substance abuse affecting mental and physical functioning.
- Economic aspects of drug use – amounts spent for drugs and economic benefits of abstinence.
- Social aspects of drug use – Social, family and vocational problems related to drug use.
- Legal status of drug. Potential legal consequences of drug acquisition, use and keeping as well as the legal outcomes of actions and emergency situations.
- Drug dependence and its acknowledgement by patient.

2 Cognitive-behavioural therapy

There are multiple evidences of high efficacy of cognitive-behavioural therapy for substance abuse treatment. Most of the patients with substance abuse have certain patterns of using the drugs. These may be certain situations, friends or companies or certain life events. Consequently, there are some associative psychological “triggers” that will obviously lead the patient into temptation to continue using the substance.

Analysis of these triggers, better understanding of psychological grounds of addiction and development of coping skills based on it result in relatively higher abstinence rates in the most of related studies.

3 Social and family therapy

Multiple studies of implementation of family- and/or social-based techniques have shown their efficacy in coping of social deprivation and facilitating the treatment process. Thus, it's desirable that his or her family and friends were involved into the treatment process.

The main goals and potential achievements of engaging the family and friends in the treatment are:

- creating the psychologically comfortable circumstances for treatment;

- encouraging and inspiring the patient;
- preventing “occasional” relapses and
- increasing socialisation of the patient.

4 Pharmacological interventions

While pharmacological treatment is not a part of brief interventions, there may be certain medical complications and related disorders, present or to be predicted. Thus, the implementation of pharmacological interventions is obvious in some cases, both for coping present medical problems and prevention of potential ones.

Pharmacological therapy may and must be used to improve general medical condition of the patient as well.

5 Techniques to be chosen

All psychotherapeutic techniques described in the guidelines are effective. As the clinical evidences show their complementary and cumulative effectiveness we recommend their combined implementation.

6 Number of sessions and duration of treatment

While current evidences report effectiveness of single-session interventions, the effectiveness of treatment is higher when multiple-session therapies are being used.

2.2 Enhancing motivation for change in drug treatment

A *Definition & objectives*

1 Problem definition

Motivational interviewing is a counselling style based on the following assumptions:

- Ambivalence about substance use (and change) is normal and constitutes an important motivational obstacle in recovery.
- Ambivalence can be resolved by working with your client's intrinsic motivations and values.
- The alliance between you and your client is a collaborative partnership to which you each bring important expertise.
- An empathic, supportive, yet directive, counseling style provides conditions under which change can occur. (Direct argument and aggressive confrontation may tend to increase client defensiveness and reduce the likelihood of behavioral change.)

The Motivational Approach (MoAp) started off as a ‘transtheoretical’ model to deepen understanding of the motivation for change among drug users and alcoholics.

The MoAp (and its clinical applications) covers the theme of the subject's attitude, his/her actions and reactions faced with the advantages and disadvantages of his/her consumption.

2 *Aims and objectives*

The motivational approaches are based on the following assumptions about the nature of motivation:

- Motivation is a key to change.
- Motivation is multidimensional.
- Motivation is dynamic and fluctuating.
- Motivation is influenced by social interactions.
- Motivation can be modified.
- Motivation is influenced by the clinician's style.
- The clinician's task is to elicit and enhance motivation.

B *Evidence*

1 General description of the current situation with regard to the available data
Motivational Interviewing is a well-known, scientifically tested method of counselling clients developed by Miller and Rollnick and viewed as a useful intervention strategy in the treatment of lifestyle problems and disease.

Although the demand for treatment of substance abuse continues to far exceed its availability, changes in health care economics are placing greater pressure on providers and their clients. Payers increasingly demand evidence that the services being provided are not only effective, but cost-effective. Clinicians and programs are increasingly challenged if they do not use research-supported, current methods. Public funding is scarce, and third-party payers exert great pressure to provide treatment that is shorter, less costly, and more effective.

In sum, clinicians are asked to do more with less

2 Short description of the main outcomes all studies

The incorporation of motivational approaches and interventions into treatment programs may be a practical and efficacious response to many of these challenges. Recent research (Brown and Miller, 1993; Kolden et al., 1997; McCaul and Svikis, 1991) supports the integration of motivational interviewing modules into programs to reduce attrition, to enhance client participation in treatment, and to increase the achievement and maintenance of positive behavioral outcomes. Other studies have shown brief interventions using motivational strategies and motivational interviewing to be more effective than no treatment or being placed on a waiting list, and not inferior to some types of more extensive care (Bien et al., 1993a, 1993b; Noonan and Moyers, 1997). A

review of the cost-effectiveness of treatments for alcohol use disorders concluded that brief motivational counselling ranked among the most effective treatment modalities, based on weighted evidence from rigorous clinical trials (Holder et al., 1991). Brief motivational counselling was also the least costly--making it the most cost-effective treatment modality of the 33 evaluated. Although cautioning that it was an approximation that requires refinement, the same study found a negative correlation between effectiveness and costs for the most traditional forms of treatment for alcohol use disorders and highlighted a growing trend to favor effective outpatient care over less effective or less studied--but far more expensive--inpatient, hospital-based, or residential care (Holder et al., 1991).

As already noted, MI increases the effect of another treatment, but has not itself been subjected to randomized study. Brief, motivation-enhancing treatment appears to have the same effect as more extensive treatment. The studies, with the exception of Project MATCH, have mainly recruited patients with a lower level of alcohol dependence.

C Recommendations

- MI is considered of great help for professionals of drug treatment. As motivation to change is a predictor for adequate treatment, MI can be used for measuring behaviour and aptitudes of patient toward treatment
- MI is evidence based and its outcomes can be evaluated
- MI approach could be included in several treatment to increase their results
- MI should be used for high threshold treatment
- MI theoretical corpus should be known by the clinicians, even if not directly involved in MI-based intervention
- MI should be intended as an early module of treatment to assess the readiness of patient for residential and semi-residential treatment, psychosocial treatment (residential or not) in prison milieu, psychosocial treatment in general

2.3 Interventions in blood-borne diseases

A Definition and objectives

1 Problem definition

Drug users and in particular injecting drug users (IDUs) are at risk of infections with blood-borne diseases (BBD). These include especially Human Immunodeficiency Virus (HIV) and hepatitis C (HCV), furthermore other hepatitis infections (HBV and HAV) and tuberculosis, but other infections are rather common as well. In 2005, there were around 3,500 new diagnoses of HIV in the European Union which were traced back to injecting drug use (EMCDDA 2007a). The prevalence of HIV among IDUs differs

between the countries and may range from almost zero up to 40%, and the prevalence of Hepatitis C (HCV) among IDUs ranges between 30% and 98% in the European Union (EMCDDA 2007a).

HCV is a virus with potentially devastating hepatic complications, which will get chronic in about 80% of the infected persons, while 20% will clear the virus (Wright and Tompkins 2006). Young IDUs get infected with HCV still in the beginning of their drug use career (EMCDDA 2007a).

Interventions in blood-borne diseases have been developed as an integral part of harm reduction policy with the general aim to minimise harms and reduce risks related to drug use. With respect to the prevention of blood-borne diseases main interventions are

- needle and syringe exchange services,
- drug consumption rooms,
- testing and vaccination and
- information and education.

2 Aims and objectives interventions in blood-borne diseases

In general, interventions in blood-borne diseases aim at reducing the transmission of blood-borne infections in drug users. Priority aim of needle and syringe exchange services is to reduce the sharing of equipment used in drug preparation and injection, and consequently to reduce the transmission of HIV, hepatitis B and C, and other blood-borne infections (Morissette, Cox et al. 2007; Ritter and Cameron 2006; Trimbos instituut 2006). Main aim of testing and vaccination is provide access to testing for hepatitis B and C and HIV, and for hepatitis immunisation in order to prevent blood-borne diseases. Drug consumption rooms aim at reducing drug-related overdoses and mortality, as well as to establish contact with difficult-to-reach clients and reduction of public nuisance.

3 Client group served

- Needle exchange services provide easy access to all drug injectors.
- Pro-active testing for drug-related infectious diseases and vaccination is targeting at all problem drug users that may practice sharing of injecting equipment or unsafe sex (Trimbos instituut 2006).
- Specific target groups for testing, vaccination and related counselling are drug users infected with HCV, new and young injectors, prisoners, drug addicted sex workers, migrants etc.
- Target groups of drug consumption rooms are mainly high-risk drug users and marginalized drug users.
- Information and education is targeted at drug users, their family, friends and the wider community as well.

B Evidence base

Evidence of effectiveness for harm reduction measures in general is rather scarce, compared to controlled medical research. Evidence base is methodological limited in some points.

1 Evidence for needle and syringe exchange services

There is a strong evidence that the increased availability of needle and syringe provision has contributed considerably to the control of HIV among drug injectors (Henderson, Vlahov et al. 2003; Emmanuelli, Desenclos et al. 2005; Bravo, Royuela et al. 2007).

- The use of NSP is associated with clear benefits of decreased HIV risk behaviour such as the decrease in sharing of injecting equipment.
- Needle exchange programmes seem to be less effective in preventing hepatitis C infection.
- The slow decrease of HCV prevalence is attributed to the continued risk behaviour, the infrequent use of NSP services, and the high risk profile of NSP clients (e.g. due to cocaine injecting).
- There is some evidence that increased access to and utilisation of NSP services is effective in reducing the drug use frequency, the transition from injecting to smoking, and the enrolment and retention in drug treatment.

2 Evidence for testing and vaccination

- There is no clear evidence for the effectiveness of testing for blood-borne diseases and counselling as single interventions. Current results suggest that testing for blood-borne diseases might be effective in reducing HIV infections in terms of reduced risk behaviour as a consequence of testing and related counselling.
- Testing and counselling may increase drug users enrolment in medical or drug treatment (Trimbos instituut 2006; Samet, Walley et al. 2007).
- Vaccination against viral hepatitis B have been found to be strongly effective in preventing hepatitis B infection after completing the primary course of 3 vaccinations.
- Vaccination against hepatitis B seems to have also a positive influence on the hepatitis C serostatus.

3 Evidence for drug consumption rooms

- There is evidence that health status is stabilised and shows positive outcomes.
- (Re-) integration into drug help services does take place
- Consumption rooms do decrease public disturbances in the vicinity.

Research on information and education

- Information and education may help to reduce drug-related risks, mainly in combination with other prevention strategies.

C Recommendations

1 Location

- In order to provide easy access to needle and syringe exchange services there should be a comprehensive range of these services on local level, including rural areas.
- Outpatient drug services, drug treatment, health care centres, prisons, general practitioners and further services are suitable locations for testing, counselling and vaccination related to blood-borne diseases (Matic, Lazarus et al. 2008), as well as for information and education.
- Since availability of rapid tests which reduce the time between testing and result, and where testing and counselling is provided in settings convenient to clients voluntary testing has increased markedly (WHO 2007).
- Targeted vaccination for injecting drug users seem to be most effective when done in methadone maintenance programmes, at syringe exchange services or in other community based settings that provide prevention of infectious diseases (Edlin, Kresina et al. 2005).

2 Staffing and competencies

- Professional competencies in needle and syringe exchange as well as drug consumption rooms include knowledge about injecting patterns and the provision of harm reduction advice in terms of safer use.
- In specialised drug agencies or needle exchanges medical staff such as nurses should be employed in order to treat minor infections or offer basis health checks.
- Health care professionals have to be offered necessary training in order to achieve an understanding of the dynamics of drug use and drug addiction (Edlin, Kresina et al. 2005).
- Best practice is to ensure that suitable trained staff is available who have the necessary skills and knowledge to advice clients about blood-borne viruses, testing and vaccination, and further treatment.

3 Treatment environment

- Good practice is not to simply distribute sterile needles and syringes, but to combine NSP with advice, risk counselling, primary healthcare for minor infections, overdose prevention, and advice in housing, social welfare or legal issues. Drug users should also be offered referrals to brief interventions and structured treatment.
- All services should provide information and advice about access to routine screening for hepatitis B, C and HIV. Drug users who do not know they are infected cannot take advantage of treatment, care and support, which can considerably improve their health and quality of life.
- Testing for blood-borne diseases requires that professionals carefully prepare clients for testing by providing information and advice on implications of testing for

hepatitis and HIV. Pre- and post-test counselling is an essential part of testing in order to discuss with the client procedures of testing and further steps to be taken after receiving the test result.

- Testing and related counselling should be voluntary and confidentiality.

4 Access

- In order to improve uptake of testing and vaccination services should ensure high and easy access, and be designed as low-threshold, free of charge, and confidential services.
- These open-access services have to be sensitive for different groups such as young drug users, women, migrants etc. In general, all clients have to be ensured equal access to testing for hepatitis and HIV, pre-and post-test counselling, hepatitis B vaccination or other medical treatment for infectious diseases (National Treatment Agency 2002).
- Needle exchange services and drug consumption rooms are to be made as accessible as possible with no or low thresholds for eligibility. This kind of open-access service includes drop-in service, no waiting list, minimal identification requirements and informal relationships with staff.
- Vaccination for hepatitis B should be made available for all problem drug users.

5 Assessment

- Assessment is an important part of prevention related to testing for blood-borne diseases as it will result in information which is essential for the care planning process.
- In addition health checks and health information should be provided regularly to clients. As well harm reduction messages on risk reduction and the transmission of blood-borne infections (HIV, HBV, HCV) should be given ongoing. Drug users should be given advice on how to prevent harmful behaviour.
- With regard to NSP services it is good practice to carry out a basic assessment of the clients on their first visit. The initial assessment should cover information on the drug use profile and injecting history, the health status, risk behaviour, and history of referrals to treatment or other services.
- For testing and vaccination a broader risk assessments is required which includes additional information on history of sharing injecting equipment, history of sexual risk behaviour, history of imprisonment, alcohol use, previous testing for hepatitis and HIV, and previous contact to health care for screening of blood-borne diseases.

6 Management

- It is of major importance important to implement a comprehensive approach by providing sterile injecting equipment, and by offering condoms, harm reduction

advice, first aid and options for referrals to structured treatment (National Treatment Agency 2002).

- Provider of dedicated needle exchange services should be able to recognise people with physical or severe mental health problems, and to refer them to the most appropriate treatment.
- In prison vaccination for hepatitis B and C, testing and counselling should have a linkage to medical and drug treatment services.
- Drug users should be offered voluntary, confidential testing combined with client-centred pre- and post-test counselling. Counselling has to include an individualised behavioural risk assessment.
- Main competences related to management include (Edlin, Kresina et al. 2005) minimising barriers to participation in testing, vaccination and treatment by allowing flexibility in adherence to appointment schedules and offering drop-in visits.
- In addition, clients have to be informed about appropriate treatments if needed and on adverse effects of treatment. Access and adherence to antiretroviral therapy may be improved if drug users are attending either a medication-based or a psychosocial treatment programme (Altice, Springer et al. 2003; Kapadia, Vlahov et al. 2008). both improved adherence to HIV treatment among drug users.

7 Pathways of care

- Integrated care pathways include that self-referrals and referrals from a variety of services are accepted. Elements of care for drug users comprise a range of preventive interventions covering assessment of risk behaviour, pre- and post-test counselling, offers or referrals for testing for hepatitis and HIV and vaccination against hepatitis A and B viruses.
- Care coordination requires that specialised services for drug users cooperate closely with non-specialist services. Strong linkages with mental health services and the provision psychiatric care are recommended as many IDUs suffer from co-morbid psychiatric disorders.
- As needle exchange services and drug consumption rooms have been found to form a gateway to further treatment clients have to be offered referral to a variety of structured treatment programmes such as brief motivational interventions, counselling, detoxification, substitution treatment with psychological care, and rehabilitation.
- Clients requiring treatment for blood-borne infections or other health problems must be referred to treatment where it is appropriate.
- If testing and vaccination are not provided on-site, local availability of HBV, HCV and HIV testing should be mentioned and those clients who want to be tested should be referred to other services such as GPs, health services or specialist AIDS services etc.

- Clients with hepatitis C are at further risk of becoming infected with hepatitis B. For this reason it is important to ensure that clients with hepatitis C who are not infected with hepatitis B are offered HBV vaccination.
- Countries should increase access to antiviral treatment for drug injectors, and ensure the same access and treatment standards regardless of gender, age, sexual orientation, substance use, imprisonment or migratory status.
- Information and education should be available in all kind of setting for different target groups.

8 Standards

- Standards include assuring quality and efficiency of the needle exchange service. One approach to this task is to transform evaluation results into practice.
- For harm reduction services it is recommended to develop specific working standards and methods – if not already existing – in order to ensure minimum quality standards.
- Data should be collected in a standardised way by adopting the five key-indicators of the EMCDDA to monitor harm reduction.
- For testing and management of infectious diseases a number of guidelines exist at national (Canada, Scotland) and international level (WHO, UNAIDS). To address the problem of undiagnosed HIV infection, WHO and UNAIDS issued a new guidance on informed, voluntary HIV testing and counselling in the health facilities (WHO/UNAIDS 2007).

9 Performance and outcome monitoring

- With respect to performance it is good practice to regard interventions to assess for, prevent and manage blood-borne diseases as an integral part of treatment.
- Performance and outcome monitoring covers to collect routine information, monitor and evaluate needle exchange services.
- Monitoring of performance includes to develop and implement adequate evaluation protocols for the harm reduction services provided (Trimbos instituut 2006).

2.4 Maintenance treatment

A *Definition and objectives*

1 Problem definition

Treatment of drug dependence through prescription of a substitute drug (agonists and antagonists) for which cross-dependence and cross-tolerance exists, with the goal to reduce or eliminate the use of a particular substance, especially if it is illegal, or to reduce harm from a particular method of administration, the attendant dangers for health

(e.g. from needle sharing), and the social consequences (Demand Reduction – A Glossary of terms, UNDCP).

2 Aims and objectives

- Treatment of opioid dependence consists of pharmacological and psychosocial interventions with the intention of reduction or cessation of opioid use and reduction of harms associated with opioid use.
- The aims of agonist maintenance treatment include: reduction or cessation in illicit opioids, reduction or cessation of injecting and other blood born virus risks, reduction of overdose risk, reducing criminal activity and improving psychological and physical health.
- Opioid agonist maintenance treatment is increasingly recognised to be the most effective management strategy. Agonist maintenance treatment is indicated for all patients who are opioid dependent and are able to give informed consent and for whom specific contra-indications do not exist.
- In recent years, the value of psychosocial treatment has also been demonstrated, particularly when used in combination with pharmacotherapy, be it in the context of opioid agonist maintenance therapy, opioid withdrawal or relapse prevention.

B Evidence base

- Methadone maintenance treatment is known to reduce drug-craving as well as morbidity associated with opioid dependence. Furthermore treatment outcome in methadone maintenance seems to be improved with increased dosages and the provision of adequate psychosocial support.
- Cochrane reviews found the efficacy of buprenorphine maintenance treatment to be comparable to methadone maintenance with advantages in some treatment settings, in alternate day dosing, better safety profile, and milder withdrawal syndrome.
- Slow-release morphine might prove as an alternative to methadone and buprenorphine substitution treatment.
- A rather new development is the prescription of heroin to chronic, treatment-resistance, heroin-dependent patients in some countries of Europe. Heroin-assisted substitution treatment might be an effective option for chronically addicted patients for whom other treatments have failed. However, it requires considerable resources as patients usually inject three times per day under supervised conditions at treatment centres, which need to have long operating hours as well as high demands on personnel and security.
- Codeine (Dihydrocodeine = DHC) is an analgesic agent, which is available for maintenance treatment in a few European countries. Due to a shorter bioavailability compared to other opioid agonists, codeine treatment might require closer monitoring as it has to be administered more than daily.

- The buprenorphine/naloxone combination compound contains buprenorphine, a partial agonist at the μ -opioid receptor, as well as naloxone, an antagonist at the μ -opioid receptor. While there is only a limited number of comparative studies available, buprenorphine/naloxone seems to be equally effective as buprenorphine alone, while buprenorphine/naloxone might be less likely to be misused intravenously.

C Recommendations

1 Treatment environment

- Pharmacological treatment programmes and interventions should be integrated or linked with other medical and social services and interventions to ensure possibility of transition of patients to other treatment modalities as their treatment needs change.
- Men and women can be treated in the same facility, providing that culturally appropriate and gender specific needs.

2 Choice of treatment and dosing

- Methadone should be considered the optimal treatment with buprenorphine reserved for patients in whom methadone is not wanted, inappropriate or ineffective, or for whom it is anticipated that buprenorphine will improve the quality of life in other ways. Buprenorphine might be a safer option but there is not yet sufficient evidence to advocate its value over methadone on this basis.
- Buprenorphine is effective for the treatment of opioid dependence and where available should be offered as alternative to methadone for opioid dependent patients. Reasons for use of buprenorphine include: previous response to buprenorphine or lack of response to methadone; short duration of action of methadone in the past; interaction between methadone and other medications taken; specific adverse effects of methadone; treatment availability; and patient preference.
- Patients being treated with agonist maintenance pharmacotherapy, clinicians should be encouraged to use adequate methadone doses, 60-120mg.
- Patients being treated with agonist pharmacotherapy, clinicians should be encouraged to use buprenorphine doses in the range of 8-24 mg.
- To maximise recruitment into, and retention in agonist maintenance treatment programmes, policies and regulations should allow flexible dosing structures, without restriction on dose levels and the duration of treatment.
- Methadone and buprenorphine are not suitable for people with decompensate liver disease (for example cirrhosis with jaundice and ascites) as they may precipitate hepatic encephalopathy. They may also worsen acute asthma and other causes of respiratory insufficiency.

- Other contra-indications listed by the manufacturers are: severe respiratory depression, acute alcoholism, head injury, raised intracranial pressure, ulcerative colitis, biliary colic, renal colic.

3 Diagnosis and assessment

- The diagnosis of opioid dependence and other medical conditions should be made by trained health care personnel. If the diagnosis leads to agonist maintenance treatment it should be done by a trained physician. Social conditions should be determined by social workers or staff trained in social conditions.
- Patient history and self reported drug use are generally reliable, but for making a diagnosis of drug dependence but these should be correlated with other methods of assessment including and history from family and friends, the clinical examination and relevant investigations.
- A detailed individual assessment of treatment needs includes: past treatment experiences; medical and psychiatric history; living conditions; legal issues; occupational situation; and social and cultural factors, that may influence drug use.
- Patients should have proof of identity before commencing treatment with controlled medicines. The patient must be able to give informed consent before treatment.
- Voluntary testing should be offered as part of an individual assessment, accompanied by pre- and post- test counselling.
- All patients who have not been exposed to hepatitis B should be vaccinated against it, with consideration given to accelerated vaccination schedule to improve completion rates.
- Voluntary pregnancy testing should be offered as part of an individual assessment.

4 Management

- In some cases, a simple and short-term intervention such as assistance with opioid withdrawal will result in an immediate and lasting improvement.
- However, in many others, treatment will have to be regarded as a long-term, or even a life-time process, with the occasional relapse. The aim of treatment services in such instances is not only to reduce or cease opioid use, but also to improve their health or social functioning gradually, to encourage them to try again, or to avoid some of the more serious consequences of drug use.

2.5 Psychosocial interventions

A Definition and objectives

1 Problem definition

Psychosocial treatment is an expanding intervention for the treatment of drug dependence. There is not a single method, but a set of different forms of psychosocial interventions offered to people. There are a vast number of psychosocial methods available for drug dependence, even if the methods on one hand might look very different; they have some common aspects:

- Focus on the misuse
- The treatment is structured around the patient/treatment
- Sufficient amount of time for treatment
- Focus on both the misuse and the psychological factors (Fridell 2007)

The psychosocial methods can be divided into supportive methods, re-educative methods and re-constructive or psychodynamic oriented methods (Berglund et al. 2001 p. 12).

2 Aims and objectives

The idea of psychosocial treatment is that the therapist and the client should cooperate. Cooperation is to avoid direct confrontation and instead base the interaction on trust and understanding. A very important part of the treatment is that the patient should be active and learn about his or her specific situation through self-exploration and data gathering. This data is a ground for discussion in the sessions with the therapist. The role of the therapist is to share knowledge about different factors that may be important reasons for drug- or alcohol misuse. The aim is that the client should learn about those reasons and be able to understand why he or she has problems and what to do about it. An important part of the therapy is that problematic drug users become more aware of the negative consequences of the dependence and instead develop a larger self-control, become calmer and more active when it comes to choices of life. Different forms of therapy includes role play and concrete practices when it comes to different social areas and skills, such as not being late to appointments, buying food and contact with the social governments.

Inpatient drug and alcohol misuses treatment programmes are designed for drug and alcohol misuse disorders. The aim is to support the addict to get free from his/her drug use and to create a social context.

The residential treatment takes place in many various settings and includes both long-term and short-term placements in residential treatment facilities, prisons and other criminal justice facilities, involuntary institutions and halfway houses.

B Evidence base

- A great deal of the material in this overview comes from the meta analysis the Swedish council of technology assessment in health care (SBU 2001; Berglund et al. 2001) which was an initiative to establish an evidence-based practice platform.
- An important finding is that psychosocial treatment per se has effects on drug dependence, but no individual form of psychosocial treatment is superior to another (see e.g. Socialstyrelsen 2007; Shulte et al. 2006; Berglund 2003).

C Recommendations

1 Counselling

Counselling can effectively be used in different settings and combinations in reducing drug use and enhance treatment retention.

Structured counselling can lead to moderation of cannabis and cocaine use.

2 Cognitive behavioural therapy

- CBT can be provided in many different settings e.g. privately founded care, through and within the primary care system, inpatient/residential care, etc.
- Treatment for drug misuse should always involve a psychosocial component.
- Homework compliance can be used in a CBT to improve outcomes.
- Psychosocial treatment has effects on drug dependence, but no individual form of psychosocial treatment is superior to another. Family therapy dynamic forms of therapy and CBT are more effective when it comes to continued participation in treatment.

3 Community reinforcement approach

- The community reinforcement approach can be carried out in inpatient programmes and in combination with vouchers, but also in outpatient treatment contexts.
- Community Reinforcement Approach (CRA) in combination with vouchers as positive reinforcers can reduce cocaine use.

4 Group therapy

- It is important that the individuals in the group take ownership of the problem.
- If all members in the group are in a similar situation it might be easier to discuss the problems and get social support.
- Group therapy is particularly effective when it comes to treating depression.

5 Motivational interviewing

- Care givers must try to understand the logical reactions, based on previous experiences, that the patient makes, and from there point out the difference in the experienced situation and how the patient would like it to be.
- Methods of Motivational Interviewing (MI) have shown effectiveness particularly for those with initial low motivation and less severe dependency.
- Motivational Interviewing (MI) can be used to effectively enhance motivation, retention rate, and reduction of use.
- Motivational Interviewing can help even as a single-session intervention.

6 Relapse prevention therapy

- Highly structured relapse prevention seems to be more effective than less structured interventions, with regard to cocaine users with co-morbid depression.
- People who have relapsed should be offered an urgent assessment. Immediate access to treatment should be considered.

7 Contingency management

- The staff needs to be trained in “appropriate near-patient testing methods and in the delivery of contingency management”.
- Vouchers and prizes as reinforcers can be used on the short-term to reduce cocaine use.
- The magnitude and immediacy of reinforcement may be critical to the efficacy of vouchers.
- Contingency management in conjunction with pharmacotherapy may increase treatment retention and compliance for opiate dependence.

8 The 12 step programme

- The 12 step programme can be used in both residential and outpatient care.
- The 12 step programme can be used as a control condition for other treatment interventions.

9 Case management

Generalist case management might be appropriate for enhancing treatment participation and retention. It can be combined with other interventions or with more intensive or specialised models of case management.

Intensive case management is most effective for extremely problematic substance abusers. It is also effective for treatment of chronic public inebriates and dual diagnosed individuals.

A strong perspective on case management might help to enhance treatment participation and retention among persons with little or no motivations for change.

10 Inpatient and residential treatment

- The same interventions as is available in community settings should be available in residential and inpatient settings.
- All the different psychosocial treatments should be carried out by professional staff.
- Short-term and other less intense programmes are better adapted for less problematic clients.

2.6 Detoxification

A *Definition and objectives*

1 Problem definition

Detoxification denotes a set of interventions aimed at managing acute intoxication and withdrawal, so that the effects of drugs are eliminated from dependent users in a safe and effective manner. Detoxification is often used as a first step in the patient's drug treatment career, and has the primary aim of providing symptomatic relief from withdrawal while physical dependence on drugs is eliminated. A range of settings have been used for detoxification, including specialist in-patient drug dependence units, psychiatric hospital wards, residential rehabilitation programmes, community-based settings and prisons. Different settings may suit different users in different circumstances or suit the same user at different stages of their career. It should also be considered that detoxification is often not successful, particularly at the first attempt.

Opioids, cocaine and benzodiazepines are the main problem drugs addressed by detoxification programmes. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) has estimated an average prevalence of problem opioid use of between four and five cases per 1,000 of the population aged 15-64 in Europe and Norway. The EMCDDA further estimates that this rate suggests that 1.5 million people experience problem opioid use in Europe. Similar estimates for cocaine are not available for Europe as a whole but available for only three countries, Italy, Spain and the United Kingdom. Here the estimates from these countries are between three and six problem users of cocaine users per 1,000 adults aged 15-64.

Benzodiazepines are infrequently the primary drug reported by those coming for treatment but are widely used by problem drug users. For example, around 25% of treatment clients recorded by the UK Drug Treatment Outcomes Research Study (DTORS) reported benzodiazepine use (Home Office 2007).

2 Aims and objectives

The aim of detoxification is to eliminate or reduce the severity of withdrawal symptoms in a safe and effective manner when the physically dependent user stops taking drugs (WHO 2006). Detoxification programmes should include the following elements:

- An assessment of the psychological, psychiatric, social and physical status of patients using defined assessment schedules.
- An assessment of the degree of misuse and/or dependence on relevant classes of drugs, notably opioids, stimulants, alcohol and benzodiazepines.
- To define a programme of care and to develop a care plan to carry out a risk assessment.
- To prescribe medication safely and effectively to achieve withdrawal from psychoactive drugs.
- To identify risk behaviours and offer appropriate counselling to minimise harm.
- To assess the longer-term treatment needs of patients and provide an appropriate discharge care plan.
- To assess and refer patients to other treatments as appropriate.
- To monitor and evaluate the efficacy and effectiveness of prescribing interventions.
- To provide referral to other services as appropriate (NTA).

B Evidence base - managing opioid detoxification

1 Methadone

The most extensively tested medication for opioid detoxification is the long-acting opioid agonist methadone. Detoxification with tapered doses of methadone shows fewer withdrawal symptoms and fewer drop-outs than placebo. Methadone has been found to have a better adverse-event profile, particularly in relation to hypotension, compared to clonidine and better detoxification completion rates when compared to lofexidine. Extant studies do not indicate a difference between buprenorphine and methadone for detoxification completion rates but there is no data available to compare abstinence outcomes.

2 Buprenorphine

Available studies suggest that the efficacy of buprenorphine with regard to treatment retention, illicit drug use and suppression of withdrawal symptoms compares to that of methadone, although detoxification with buprenorphine can be conducted more quickly than with methadone. There are also no significant differences in completion of withdrawal.

3 Dihydrocodeine

Limited evidence suggests that dihydrocodeine is less likely to lead to abstinence and treatment completion than buprenorphine in detoxification.

4 Clonidine and lofexidine

A recent major review found there was no evidence that clonidine is more effective than lofexidine for managing opioid withdrawal and, because of its greater side effect

profile, suggested that clonidine is not used in routine practice. Lofexedine has comparable clinical efficacy to clonidine but has a slight advantage of fewer side effects, and in particular less postural hypotension.

5 Buprenorphine and naloxone

It has been demonstrated that rapid detoxification with buprenorphine-naloxone is safe and well-tolerated by patients with positive outcomes for treatment retention, detoxification completion and abstinence rates in treatment.

6 Other medications for symptomatic treatment

Opiate detoxification when properly conducted usually can be conducted without significant patient discomfort. However patients receiving adequate detoxification doses may still complain of withdrawal symptoms such as diarrhoea or insomnia and which can be treated with adjunctive medications. However, there is no systematic evidence that any of the medications work to improve outcomes.

7 Psychosocial interventions in combination with detoxification

The majority of the studies examining psychosocial interventions combined with detoxification have featured contingency management techniques during community detoxification. Contingency management in these studies usually begun after stabilisation and continued through the detoxification process until treatment was completed. Patients receiving contingency management were more likely to be abstinent at the end of treatment and to complete treatment than those patients who did not receive it. This outcome was found with both short-term and longer term detoxification programmes.

8 Managing benzodiazepine withdrawal

The limited evidence available supports a stepped care approach to benzodiazepine detoxification. Those with low dose benzodiazepine dependence normally do not require special treatment. During early abstinence these patients should be given support and reassurance that the withdrawal effects will soon reduce or disappear. If minimal intervention fails then supervised gradual withdrawal can be initiated. The treatment aim for benzodiazepine detoxification should be to prescribe a reducing regimen for a limited period. Adjunctive therapies such as structured psychosocial interventions, counselling, support groups and relaxation may be helpful to alter negative cognitions related to medication cessation, provide patient education and provide cognitive and behavioural techniques for anxiety reduction and sleep enhancement during withdrawal.

9 Managing stimulant detoxification

Antidepressant drugs such as fluoxetine have been used to manage the depressive episodes associated with stimulant withdrawal. There is no evidence that

antidepressants have any effect on the withdrawal effects of stimulants regardless of the type of antidepressant used.

C Recommendations

Due to the limited evidence base for cocaine and benzodiazepine detoxification, the following recommendations largely concern detoxification from opioids.

1 Access to care

Detoxification should be a readily available option for people who are dependent and have expressed an informed and appropriate choice to become abstinent. Information should be made available on criteria for access to detoxification programme. The material should describe who the service is intended for and what are the expected waiting times for entry.

2 Programme duration

Most opioid detoxification treatments with methadone use a linear reduction schedule with regular equal dose decrements from an individually tailored starting dose to zero. Treatment programmes typically last 10-28 days. While research suggests that longer periods in treatment with a critical period of 28 days may predict better outcomes, there is little evidence to support more protracted detoxification schedules which may lead to residual symptoms continuing after treatment has finished.

3 Setting

Inpatient opioid detoxification should provide 24-hour supervision, observation and support for patients who are intoxicated or experiencing withdrawal.

Community-based programmes should be offered to those considering detoxification except for those:

- Have not benefited from earlier community-based detoxification.
- Need medical and/or nursing care because of significant co-morbid physical or mental health problems.
- Require complex polydrug detoxification.
- Are experiencing significant social problems that limit to the benefits of community detoxification (NICE 2007).

In patient care should normally only be considered for people who need a high level of medical and/or nursing support for significant and severe co-morbid physical or mental health problems or need concurrent detoxification from alcohol and other drugs which need a high level of medical and nursing expertise (NICE 2007).

Residential detoxification should normally only be considered for those who have significant co-morbid physical or mental health problems or need sequential detoxification from alcohol and opioids or concurrent detoxification from opioids and benzodiazepines. It may also be considered for those who have less severe levels of

dependence e.g. those who have only recently started their drug use, or would benefit from the residential setting during and after detoxification.

4 Assessment

Those presenting for opioid detoxification should be assessed to establish the presence and severity of opioid dependence, as well as misuse of and/or dependence on other substances including alcohol, benzodiazepines and stimulants.

Assessment should include:

- Urinalysis to aid confirmation of the use of opioids and other drug use/ dependence.
- A clinical assessment of the signs of withdrawal if present.
- The taking of a history of drug and alcohol use and previous treatment episodes.
- A review of current and previous physical and mental health problems.
- Risk assessment for self-harm, loss of opioid tolerance and the misuse of drugs or alcohol as a response to opioid withdrawal symptoms.
- An assessment of present social and personal circumstances.
- A consideration of the impact of drug misuse on family members and any dependents.
- Development of strategies to avoid risk of relapse.

5 Staffing Competencies

Community detoxification should be co-ordinated by competent primary or specialist practitioners. Residential and in-patient detoxification programmes should be staffed by multidisciplinary teams with an emphasis on medical and nursing staff.

2.7 Treatment in Criminal Justice System

A *Definition and objectives*

At any day more than half a million people are imprisoned in 27 EU countries. The prevalence of drug dependence in individual countries varies from 10 to 48 % among male prisoners and 30 to 60 % in female prisoners. Therefore, questions of their health have to be considered of crucial importance from public health perspective.

The aim of this guideline is identification and depiction of the evidence-based best practices in drug treatment in prisons. It is focusing on illicit drug users and especially on problematic drug users who are subjects to prevention, treatment and harm reduction programmes offered in the framework of the Criminal Justice System. The term “prison” is used for all places of detention no matter if the person is in police detention, pre-trial/remand prison, or prison for sentenced inmates.

B Evidence base

To sum up outcomes of studies presented in the guideline, it can be said that majority of services which are offered in a community can be used after necessary modifications in prison settings, including drug-free treatment, treatment of infectious diseases, methadone maintenance programmes (MMP) and harm reduction measures. A number of studies confirmed that both MMT and harm reduction strategies do not produce any serious unintended side-effects that have been feared of or anticipated by prison administration. Nevertheless, specificity of prison environment has to be taken into consideration, prisoners' needs should be respected and their social capital utilised in treatment process. Assuring continuity of care after release is of utmost significance.

C Recommendations

1 Testing for infectious diseases

Testing for infectious diseases and vaccination is a very important tool to promote and secure health in prison. Vaccination for Hepatitis B and A is highly recommended for prisoners.

2 Drug testing

Even though drug testing may play important role in implementing prison drug policy, mandatory drug testing should be carefully applied as it is rather expensive and can be counterproductive, due to an increasing tensions between prisoners and staff.

3 Treatment of infectious diseases

Prison authorities should ensure that prisoners receive care, support and treatment equivalent to that available for people living within the community, including Anti-Retroviral Therapy (ART). Treating HIV-infected prisoners with ART will not only have an effect on the individual's health but also an impact on public health outside the prison. It has been shown that treatment for HCV is also feasible and successful in prison.

4 Abstinence oriented programmes

Abstinence-oriented programmes should be offered for all who are likely to accept drug-free approach. However, it is important for prison systems to develop particular strategies for prison drug treatment (e.g. drug-free wings) rather than simply just reflecting those strategies that exist in the community. Generally there is a growing consensus that drug treatment programmes in prison can be effective if they are based on the needs and resources of prisoners and are of sufficient length and quality.

5 Detoxification

There is no sufficient literature on this issue to formulate recommendations.

In general, detoxification with adequate medication is rarely available in prisons throughout Europe.

6 Substitution treatment

Substitution treatment in prisons is highly recommended. It can reduce sharing injection equipment, results in decreasing opiate use, diminishing drug-related violence in prisons as well as crime following release. In several studies negative side-effects often feared by prison staff, such as a black market for methadone, were reported not to have occurred. A sufficiently high dosage (more than 60 mg) also seems to be important for an increase in the retention rate. Offenders participating in substitution treatment in prisons are more likely to continue treatment after release and their prison readmission rates are clearly lower.

7 Needle exchange

Prison needle exchange programmes (PNEP) should be offered for those who do not accept drug-free treatment or substitution treatment. A number of reviews gathered evidence for the effectiveness of PNEP, so a further discussion on the implementation is needed. Evidence indicates that the implementation of such measures is possible and feasible with no security problems and no problems in an increase of injecting drug use or drug use in general.

8 Provision of bleach

There is no evidence of effectiveness of decontamination with bleach in the community and therefore it seems rather unlikely to be effective in prison. Disinfection as a means of HIV prevention is of varying efficiency, and is regarded only as a secondary strategy to syringe exchange programmes.

9 Provision of condoms

Condoms are likely to be the most effective method for preventing sexually transmitted infections. No serious negative effects of condom provision in prisons have been found, and the provision of condoms seems feasible in a wide range of prison settings.

10 Case management

Available data do not show compelling evidence of its effectiveness. Nevertheless, some positive effects are noted including reduced drug use and relapse rates, increased treatment participation and retention and less violation of judicial conditions.

11 Clients' needs

Programmes offered in prison should be based on the needs and individual resources of clients and their goals, whether this be maintenance or abstinence, and provide adequate support in this regard. The needs of women must be treated specifically.

12 Continuity of care

Sustainability of successful drug treatment in prison requires a continuum of care that takes a drug-using inmate from the correctional environment to the re-integrative processes of community-based treatment. Facilitation of personal links between a prisoner and potential after release treatment is highly recommended.

13 Staff competences

Prisoners have the right to receive state of the art medical care. To secure this right staff should get professional training including not only medical or therapeutic issues, but also attitudes towards drug using prisoners.

2.8 Treatment of substance abuse clients with co-occurring disorders

A Definition and objectives

1 Problem definition

- Co-occurring disorders (COD) refer to occurrence of both substance use (abuse or dependence) and mental disorder.
- A diagnosis of co-occurring disorders is confirmed when at least one disorder of each type has established independently of the other.

2 Aims and objectives

- The co-occurrence of a severe mental illness and a substance use disorder is highly prevalent; about half of the patients in psychiatric and substance abuse treatment suffer from both disorders.
- Clients with COD represent a major public health problem which predicts poor treatment outcome related to medication compliance, physical co-morbidities, poor health, social dysfunction, and poor quality of life.
- Clients with co-occurring disorders also have poorer outcomes such as higher rates of relapse, hospitalisation, depression, and suicide risk.
- The rates of mental disorders increase as the number of substance use disorders increases and complicating further treatment.

B Evidence base

- Current research indicates that at least three types of interventions are probably effective for drug abusing clients with dual diagnosis: group counselling, contingency management, and long-term residential treatment.
- Group counselling effects are consistent across several types of groups, suggesting a non-specific effect based on common elements such as cognitive-behavioural intervention, education, skills building, and peer support.
- Contingency management interventions tend to be narrowly focused on substance use, but results appear to show an improvement of other factors such as housing and employment. Improvements achieved by contingency management are probably not related to motivation and other cognitive factors, which may be an advantage for clients with COD.
- Long-term residential substance abuse treatment is effective in reducing drug use and crime.
- Other interventions have shown minor effects on substance use outcomes but often lead to improvements in other areas. For example intensive case management is effective to engaging and retaining clients with COD in outpatient treatment. Assertive community treatment is a promising approach to treat mental disorders as it reduces re-hospitalisation and improves the quality of life.

C Recommendations

1 Guidelines for core elements of interventions

The following principles reflect the evidence and experience of models how best to provide COD treatment in substance abuse treatment agencies:

- Providing access: A “no wrong door” policy should be implemented at the initial contact with the service system to the full range of clients with COD.
- Completing screening and full assessment: The aims of assessment are to obtain a comprehensive picture of needs and problems through an ongoing process. Screening is a formal process of testing to determine whether a client does or does not warrant further attention at the current time in regard to a particular disorder and, in this context, the possibility of a co-occurring substance use or mental disorder. A basic assessment consists of gathering information that will provide evidence of COD and mental and substance use disorder diagnoses; assess problem areas, disabilities, and strengths; assess readiness for change; and gather data to guide decisions regarding the necessary level of care.
- Adopting a multi-problem, tailored and phased approached viewpoint: As people with COD generally have an array of mental health, medical, substance abuse, family, and social problems treatment services should be able to integrate care to meet the multidimensional problems. Clients are progressing empirically though

identified phases or stages including engagement, stabilisation, treatment, and aftercare or continuing care. The use of these phases enables to develop and use effective, stage-appropriate treatment protocols. As co-occurring disorders arise in a context of personal and social problems, approaches that address specific life problems early in treatment are important. Services for clients with more serious mental disorders should be tailored to individual needs and functioning.

- Providing an appropriate level of care – matching to treatment: A framework should be established for fostering consultation, collaboration, and integration among drug abuse and mental health treatment systems and providers to deliver appropriate care to every client with COD (related to the combination and severity of problems).
- Ensuring continuity of care: As recovery for COD is a long-term process the recovery perspective generates as principles: A treatment plan should be developed that provides continuity of care over time. It is important to reinforce long-term participation in these continuous care settings.

2 Guidelines for interventions and programme elements

Both substance use and mental disorder interventions are targeted to the management or resolution of acute symptoms, ongoing treatment, relapse prevention, or rehabilitation of a disability associated with one or more disorders, whether that disorder is mental or associated with substance use.

- Maintaining therapeutic alliance: Guidelines for addressing therapeutic alliance should be part of all interventions.
- Motivational Interviewing: Several well-developed and successful strategies for motivational enhancement from the substance abuse field should be adapted for COD.
- Contingency Management (reinforcement approaches): Approaches with reinforcement as Contingency Management (CM) maintain that the form or frequency of behaviour can be altered through the introduction of a planned and organised system of positive and negative consequences.
- Cognitive-behavioural Therapy (CBT): Cognitive-behavioural Therapy (CBT) uses the client's cognitive distortions as the basis for prescribing activities to promote change.
- Relapse Prevention (RP): Relapse Prevention (RP) has proven to be a particularly useful substance abuse treatment strategy and it appears adaptable to clients with COD.
- Ensure proper medication: The use of proper medication is an essential programme element, helping clients to stabilise and control their symptoms, thereby increasing their receptivity to other treatment.
- Outpatient programmes with key elements of Assertive Community Treatment (ACT) or Community Reinforcement Approach (CRA): Outpatient treatment programmes serve the greatest number of clients and should use the best available

treatment models to reach the greatest possible number of persons with COD. Assertive Community Treatment (ACT) and Community reinforcement Approach (CRA) employ extensive outreach activities, active and continuing engagement with clients, and a high intensity of services. These approaches should be introduced in Europe.

- Intensive Case Management (ICM): The goals of ICM are to engage individuals in a trusting relationship, assist in meeting their basic needs (e.g. housing), and help them access and use brokered services in the community. The fundamental element of ICM is a low caseload per case manager, which translates into more intensive and consistent services for each client.
- Modifications in residential settings: The principles and methods of residential models (see special guideline to psychosocial interventions) have to be adapted to the circumstances of the client, making the following alterations: increased flexibility, more individualised treatment, and reduced intensity. A number of continuing care (aftercare) options should be made available for clients with COD who are leaving treatment.
- Aid for self help approach: These approaches apply a broad spectrum of personal responsibility and peer support principles, often employing 12-Step methods that provide a planned regimen of change.
- Promotion of coordination and continuity of care: Continuity of care refers to coordination of care as clients move across different service systems and is characterised by consistency among primary treatment activities and ancillary services, seamless transitions across levels of care, and coordination of present with past treatment episodes.
- Implementation of integrated interventions: Integrated interventions are specific treatment strategies or therapeutic techniques in which interventions for both disorders are combined in a single session or interaction, or in a series of interactions or multiple sessions. Integrated interventions can include a wide range of techniques.

2.9 Treatment for stimulant use disorders

A Definition and objectives

1 Problem definition

Stimulant users include users of powder cocaine, crack cocaine and amphetamines. At present there is not a complete treatment package that has been demonstrated to achieve abstinence and prevent relapse for stimulant users. Consequently treatment for stimulant users should include an initial phase of seeking the cessation of stimulant use, a second phase involving relapse prevention and a third phase that seeks to maintain abstinence through the learning of new skills to achieve this. However stimulant users, like other

problem drug users, may experience a range of medical problems or emergencies, psychiatric problems or crises or various social, legal or employment problems which may need the involvement of a range of services beyond drug treatment services.

Estimates of the extent of problem cocaine use in Europe are available for only three countries, Italy, Spain and the United Kingdom. Here the estimates from these countries are between three and six problem users of cocaine users per 1,000 adults aged 15-64.

Using its Treatment Demand Indicator data the EMCDDA has recorded cocaine as a secondary problem drug for around 15% of all outpatient clients. Most countries in Europe report a low proportion of cocaine users among all clients in drug treatment, although the Netherlands and Spain have reported high proportions of 35% and 42% respectively in 2004.

2 Aims and objectives

Treatment for stimulant users aims to achieve cessation of stimulant use, prevent relapse and maintain abstinence through the learning of new skills to achieve this. Programmes to treat stimulant misuse should include the following:

- An assessment of the psychological, psychiatric, social and physical status of patients using defined assessment schedules.
- An assessment of the degree of misuse and/or dependence on relevant classes of drugs, notably opioids, stimulants, alcohol and benzodiazepines.
- To define a programme of care and to develop a care plan to carry out a risk assessment.
- To prescribe medication safely and effectively to achieve withdrawal from psychoactive drugs.
- To identify risk behaviours and offer appropriate counselling to minimise harm.
- To assess the longer-term treatment needs of patients and provide an appropriate discharge care plan.
- To assess and refer patients to other treatments as appropriate.
- To monitor and evaluate the efficacy and effectiveness of prescribing interventions.
- To provide referral to other services as appropriate.

B Evidence base

1 The available data

Patients with a cocaine or other stimulant use problem generally do not require treatment in an inpatient setting as withdrawal syndromes are not severe or medically complex. The limited evidence available suggests that most patients can be effectively treated in intensive outpatient programmes. Studies have demonstrated that patients offered rapid entry to treatment are more likely to attend initial appointments.

2 Prescribing for stimulant dependence

Antidepressants (notably desipramine and fluoxetine), dopamine agonists (notably amantadine, bromocriptine and pergolide, and anticonvulsants (notably carbamazepine and phenytoin) and mood stabilisers (notably lithium) have been trialled for the treatment of cocaine dependence and there is no evidence to support their effectiveness. Other medications, including modafinil, are currently being trialled.

3 Maintenance therapy

There is no evidence to support the use of stimulant maintenance therapy for stimulant users. Studies have shown that providing methadone or buprenorphine maintenance therapies for those with opiate dependence problems but also use cocaine, can lead to reductions in cocaine use, an effect enhanced when used in combination with contingency management techniques or disulfiram.

4 Psychosocial Interventions

5 Contingency management

Research evidence has found that contingency management is acceptable to patients, contributes to patient retention and is effective in achieving initial abstinence.

6 Psychotherapeutic interventions including Cognitive-Behavioural Therapy

The results of studies of cognitive-behavioural therapies (CBT) with cocaine dependence are inconsistent. Whilst one study found better long-term outcomes for CBT than clinical management, other studies found no long- or short-term positive effects for CBT. A recent RCT on brief cognitive behavioural interventions for amphetamine users found that the number of treatment sessions had a significant effect on the level of depression, and also abstinence rates were better in those attending at least twice or more (Baker et al. 2005).

7 Relapse prevention and skills training

Several studies have failed to demonstrate greater efficacy of skills training or relapse prevention over control approaches. Those patients with CST in addition to their treatment programme experienced shorter and less severe relapses.

8 Motivational interviewing

Studies have shown that motivational interviewing may help patients with lower initial motivation or ambivalence about treatment.

C Recommendations

There is a limited evidence base to guide treatment practice.

1 Access to care

Treatment should be a readily available option for people who have a stimulant problem and have expressed an informed and appropriate choice to seek help. Information should be made available on criteria for access to the treatment programme. The material should describe who the service is intended for and what are the expected waiting times for entry. Services should respond quickly and positively to initial telephone enquiries and schedule appointments with minimal delay.

2 Programme Duration

The limited data available and clinical experience suggest that treatment programmes of 12-24 weeks in duration are commonly used for treating stimulant misusers. Studies have found that the benefits of treatment among those in residential therapeutic communities were concentrated among those who had stayed for at least three months.

3 Setting

The majority of stimulant users are likely to be seen in an out-patient setting, while crisis management services may be needed for some users with an acute crisis. Patients with multiple needs are more likely to benefit from intensive residential rehabilitation which can be provided on a day-care basis.

4 Assessment

Those presenting for problematic stimulant use should be assessed to establish the presence and severity of stimulant use, as well as misuse of and/or dependence on other substances including alcohol. Assessment should be brief and focussed to avoid becoming a barrier to treatment for stimulant users who want quick access to treatment. Assessment should include:

- Urinalysis to aid confirmation of the use of stimulants and other drug use.
- The taking of a history of drug and alcohol use and previous treatment episodes.
- A review of current and previous physical and mental health problems.
- Risk assessment for self-harm.
- An assessment of present social and personal circumstances.
- A consideration of the impact of drug misuse on family members and any dependents.
- Offer screening for hepatitis, HIV and sexually transmitted infections.
- Development of strategies to avoid risk of relapse.

6 Staffing Competencies

Staff involved in treating stimulant users should include nursing and medical staff, social workers and care managers, psychologists and counsellors. Staff should be trained in crisis management, specific counselling techniques and trained in mental health issues.

2.10 Pregnancy and parenting in drug treatment

A *Definition and objectives*

- Substance abuse in pregnancy leads to consequences for the pregnant women, the foetus and neonate in two ways: direct consequences due to substance use or abuse as well as indirect outcomes resulting from the influence of living environment.
- Abstinence of opioids during pregnancy is difficult to maintain, but it presents the ideal goal. Opioid maintenance therapy is the recommended treatment approach during pregnancy and there appear to be few developmental or other effects on these children in the long term.
- Poly-substance dependence and misuse of either licit or illicit substances lead to the manifestation of a neonatal abstinence syndrome (NAS). The incidence of NAS in neonates of opioid-dependent women is between 70% and 95%. NAS is characterised by a variety of symptoms of variable intensity: sneezing, yawning, hyperactive Moro reflex, sleeping after feeding, tremor, increased muscle tone, myoclonic jerks, high pitched crying, excoriation, mottling, generalised seizure, convulsions, fever, sweating, nasal stuffiness, tachypnea, retractions, nasal flaring, poor feeding, excessive sucking, vomiting, diarrhoea, failure to thrive, excessive irritability and, in very rare cases, convulsions.

B *Evidence base*

- Methadone in the context of comprehensive care is associated with more prenatal care, increased foetal growth and less neonatal morbidity and mortality than continued opioid abuse.
- Although methadone is clearly beneficial, it has been estimated that 60–87% of the infants born to methadone-maintained mothers need treatment for NAS.
- Buprenorphine, approved in Europe since 1999 for the treatment of non-pregnant opioid-dependent adults, may reduce the incidence and/or severity of NAS. Buprenorphine demonstrates safety for mother and child, and shows effectiveness in the treatment of opioid-dependence during pregnancy, although limited controlled data are published so far.
- NAS may start any time during the first postnatal 24 hours up to 10 days, depending on the medication administered during pregnancy or substance abused. The withdrawal syndrome of heroin in the neonate sets in during the first 24 hours. With methadone, the symptoms don not develop until after 48 hours. An even later onset of withdrawal symptoms can be observed if the neonate was exposed to buprenorphine, benzodiazepines or barbiturates *in utero*.
- It is not easy to determine which substances are the most beneficial in the treatment of NAS, as there are currently no double-blind controlled studies available. The

effectiveness and safety of opiate treatment in neonates has been dealt with in a recent Cochrane Review, which concludes that opiates represent the preferred initial therapy for NAS, particularly for infants of mothers taking opioids during pregnancy.

C Recommendations

1 Maintenance therapy during pregnancy

- Methadone maintenance therapy is the gold standard pharmacotherapy. There is a growing body of evidence regarding the use of buprenorphine while it was shown effective in recent studies.
- Methadone is the gold standard treatment during pregnancy because there is more evidence on the safety of methadone than buprenorphine in pregnancy. If women are being well treated with buprenorphine then the risks of transferring to an alternative treatment should be weighed against the certainty of methadone effects.
- Women who are in treatment should be encouraged to remain in treatment during pregnancy.

2 Management of NAS

- Clinicians should use opioids or barbiturates for the management of NAS. Untreated NAS can cause considerable distress to infants and in rare cases seizures. Cochrane reviews indicate that opioids and barbiturates are more effective than placebo or benzodiazepines. Of the two, opioids are probably more effective than barbiturates.

3 Access to treatment

- Every maternity unit should ensure that it provides a service that is accessible to and non-judgemental of pregnant problem drug users and able to offer high quality care aimed at minimising the impact of the mother's drug use on the pregnancy and the baby.
- Every maternity unit should have effective links with primary health care, social work children and family teams and addiction services that can enable it to contribute to safeguarding the longer-term interests of the baby.

4 Breastfeeding

- For women on methadone and buprenorphine, breast feeding is safe and should not be precluded. Breastfeeding is not recommended if the mother is infected with HIV or Hepatitis C virus. If an opioid-maintained mother wants to breastfeed her child, this should be encouraged: it can be helpful for mother-child bonding, and it might decrease NAS symptoms.

5 Blood borne viruses

- Pregnant female drug users should be routinely tested, with their informed consent, for HIV, hepatitis B and hepatitis C, and appropriate clinical management provided including hepatitis B immunisation for all babies of drug injectors. Transmission of these viruses from an infected mother to her baby can occur during pregnancy or birth or through breastfeeding.
- Elective Caesarean section appears substantially to reduce the rate of transmission.

2.11 Systemic aspects of drug treatment

A Definition and objectives

Across Europe enormous resources are committed for drug treatment. Their share in overall drug policy expenditures vary from about 50% in Ireland to around 90% in Portugal, Hungary and France. However, distribution of these funds among different treatment modalities does not seem to be related to any pragmatic evidence-based standards. E.g. in UK and Luxembourg about 90% of all treatment expenditures goes for out-patients interventions while in France residential services consume 60% and in Poland over 80% of all drug treatment funds. This huge variation cannot only be attributed to different epidemiological situation. It is more likely that contrasting financial priorities reflects vested interests, petrified power structures and treatment traditions of individual countries.

Therefore an urgent need exists to elaborate special recommendations for drug treatment to become a system of inter-related interventions that offer the optimal balance between individual treatment needs and individual outcomes. In addition to individual level perspective, a public health outcomes should be achieved including satisfactory access to treatment, high coverage rates, optimal cost/benefit rates of different treatment modalities, low relapse rates as well as diminished morbidity and mortality associated with drug use.

In addition, social indicators should be considered such as welfare expenditures and crime rates.

B Evidence

There are very few studies available on systemic aspects of treatment. Research focus is more on characterizing treatment populations, individual treatment approaches, problems associated with drug use at the individual level, and even to a lesser extent on individual assessment and case co-ordination. Nevertheless, there are some studies available focusing on systemic aspects of the one hand as well as guidelines provided by international organizations as well national guidelines that may serve as a background for a set recommendations.

C Recommendations

1 Evidence based treatment policy

Drug treatment policy should be formulated and adopted by relevant authorities at the national, regional and local levels. Treatment policy should be integrated within general drug policy on the one hand, and with general treatment policy, on the other. Instead of promoting dominant treatment approaches, drug treatment policy should encourage development of drug treatment system(s) at the national and local levels composed of coordinated network of open-access and structured services. Treatment policy should be based on evidence of effectiveness and cost-effectiveness rather than on existing traditions and convictions.

2 Comprehensive needs assessment

Needs assessment at the national and local level should precede decisions aiming at expanding or ameliorating existing treatment system. Needs assessment should be methodologically sound but politically – participatory including commitment from local authorities as well participation of current and potential clients. Comprehensive assessment includes not only epidemiological data but also expectations of potential users of a treatment system as well as available treatment resources with focus on human resources, their competence, attitudes and commitments.

3 Implementation of a differentiated treatment system

Treatment system should offer a range of services and be tailored to a range of specific needs of heterogeneous target groups. System must offer services which are accessible, of different intensity, requiring varying client's commitment. Clients' needs are very likely to go beyond health needs and to include social, legal and economic dimensions. Therefore, treatment system should spread across different sectors: health, social welfare, criminal justice, employment et cetera.

4 Care coordination

Coordination between different elements of the system including inter-sectoral coordination is crucial. It will take into account systemic coordination i.e. appropriate distribution of tasks and resources as well as individual case coordination. To this end, effective communication structures should be established to secure efficient referrals and continuity of care.

5 Evaluation and research

Research on drug treatment as a system should be among top priorities among EU research programmes as well as national and regional research funding schemes. Drug treatment system studies do not need to be expensive. Simple approaches work and bring useful information on treatment demand, needs assessment, adequacy of

treatment, feasibility, effectiveness and even cost-effectiveness. New approaches need to be invented to study continuity of treatment, level of system integration and population impact of treatment.

6 Tailoring to specific needs

Population impact of drug treatment system should be continuously studied. This includes proportion of population in-need that receives treatment (coverage rates), morbidity and mortality due to drug-specific causes such as HIV, hepatitis, overdose, social marginalisation (e.g. homelessness, unemployment), crime rates

3 Aims of the “Moretreat”-project

The main objective of the project “Models of good practice in drug treatment in Europe” (Moretreat) was to identify, collect and evaluate models of good practice in drug treatment in Europe. European drug treatment interventions were identified and collected from all EU-Member States. Based on a consensus process good practice guidelines have been formulated for key interventions in drug treatment as well as for the system level of drug treatment services.

For the consensus building the delphi-method was intended to be applied as a proven strategy to initiate and facilitate the process of consensus among experts.

The overall aim of the project was contribute to guidance for improving drug treatment and health care in the EU-Member States. For this reason recommendations have been developed that are to support the improvement of drug treatment on a European level and thus are of use for health authorities and commissioners as well as for providers and professionals.

General objectives of the European project – as stated in the proposal – were:

- To deliver good practice protocols for central drug treatment modalities
- To improve the quality of drug treatment services (especially to strengthen their integration and connection to other health care services)
- To assist drug policy decision makers in the implementation or support of drug treatment facilities und drug service systems according to models of good practice
- To increase the drug treatment know-how
- To support the exchange of good practices in drug treatment
- To enhance a broader access for substance users to effective treatment in Europe
- To improve drug treatment strategies to reach substance users on an earlier stage of their addiction career to facilitate social integration and health stabilisation
- To establish a system for continuous improvements of European drug treatment interventions through evidence based recommendations and procedures

Specific objectives of the “Moretreat”-project were:

- To realise a protocol based European inventory of „good practice“ of drug treatment interventions (guidelines, reviews, meta-analysis) and their effectiveness (treatment modalities, cost-effectiveness, service-system and relevant cross-cutting issues, e.g. gender/culture/age-specific) including all 25 European Member States and two EU candidate countries.
- To develop European evidence based „good practice guidance“ for drug treatment interventions/modalities.

- To disseminate pro-actively the results to commissioners, service providers and service users in Europe, and to present models of good practice in existing databases (e.g. via EMCDDA).
- To develop and disseminate a proposal for a system of regular exchange of protocols of good practice in drug treatment.

On basis of the different procedures applied in the project mainly the following results have been expected:

- To carry out reviews of good practice and evidence for different drug treatment intervention modalities.
- To evaluate the effectiveness of evidence-based interventions for all target populations.
- To compile good practice protocols for drug treatment interventions in Europe that are based upon a unified structure.
- To provide a final report on “good practice guidance” for different drug treatment interventions.
- To propose procedures for establishing a platform for guidance for treatment on a European level that serves for a continued improvement of drug treatment in the Member States (sustainability).

4 Methodology

The methodology of this project can be divided into five consecutive phases.

Phase I: Definition and collection of European drug treatment modalities

Phase II: Methods for the preparation of an inventory of good practice

- Description of drug treatment interventions
- Identification of evidence of effectiveness of drug treatment interventions
- Data abstraction form

Phase III: Formal aspects of consensus process

Phase IV: Consensus building about drug treatment/interventions

Phase V: Disseminating of the results

4.1 *Phase I: Definition and collection of treatment modalities in Europe*

Phase I formed the base for the general methodology by specifying the methodological approaches of the project. In a first step, given European drug treatment modalities from different regions/countries were collected and predefined in terms of a general classification of European drug treatment modalities (Table 1). Each identified European drug treatment intervention was assigned to the respective classification,

which were taken as the basis for the formulation of draft treatment improvement guidelines for drug treatment modalities in Europe.

Table 1:
Classification of European drug treatment modalities

| | |
|------|--|
| I | Advice and information |
| II | Harm reduction interventions |
| III | Community prescribing interventions |
| IV | Structured psychosocial interventions/Care planned counselling |
| V | Other structured treatment |
| VI | Inpatient drug treatment |
| VII | Residential rehabilitation |
| VIII | Aftercare |

4.2 *Phase II: Preparations for an inventory of good practice in drug treatment*

The second phase focused on the principle preparations for the inventory of European drug treatment interventions.

Description of drug treatment interventions

On the basis of a detailed **description of drug treatment interventions** the structure of the draft treatment improvement guidelines were defined, which included general (e.g. objective, aim, context) and specific conditions (e.g. eligibility criteria, access to care) of drug treatment interventions as well as aspects for their assessment (e.g. outcome monitoring, process management, standards).

Identification of evidence of effectiveness of drug treatment interventions

The identification of evidence of effectiveness of drug treatment interventions was carried out on two different ways. For the identification of international evidence a comprehensive search of international electronic literature databases was carried out. This strategy included also a search on internet based platforms of international organisations in the field of drug research in the European Union, but also from outside of Europe. A systematic search strategy (Annex #) based on combinations of index and free text search terms was developed and adapted to the respective electronic literature database. Due to the wide range of research literature on the efficacy and effectiveness of drug treatment interventions, the analysis was limited to the findings of the latest experiments in the form of “Randomized Controlled (Clinical) Trials” (RCTs), meta-analyses/systematic reviews including RCTs or at least clinical trials. From a methodological point of view, RCTs have the highest evidential value in terms of efficacy, because they are less susceptible to methodological biases. Therefore, a comprehensive literature review was carried out, including a systematic search strategy

to identify all relevant randomised controlled trials and clinical trials (see search strategy). In the absence of RCTs this the strategy also refers to less rigorously designed studies (such as observational studies), case series and unsystematic reviews. In addition to general limitations (heterogeneity of the assessment of outcomes, widely varying approaches with regard to duration, design and treatment objectives etc.), the inclusion of less rigorously designed studies may lead to limitations. The searched relevant international electronic databases were MEDLINE, EMBASE, DARE, Central register of the Cochrane library, Database of Health Technology Assessment (HTA) and PsychInfo (Table 2).

Table 2:
Medical and psychological electronic databases

| | |
|------------------|--|
| MEDLINE | “Medical Literature Analysis and Retrieval System Online” |
| EMBASE | Bibliographic database for biomedical and pharmacological information |
| DARE | “Database of Abstracts of Reviews of Effects” |
| Cochrane | Central register of controlled trials/systematic reviews |
| HTA | Health Technology Assessment (HTA) Database |
| PsychInfo | Electronic bibliographic database provides abstracts to the literature in the behavioural sciences and mental health |

The specification and sensitivity of the search strategy was refined through literature scoping. Several general limits and selection criteria were set to avoid analysis iterations (Table 3).

Table 3:
Inclusion criteria

| Inclusion criteria |
|--|
| <ul style="list-style-type: none"> • Focus on illicit drugs • Study type: (Controlled) clinical trials, randomised controlled trials, meta-analyses and systematic reviews • Language: published in English |

Additionally, available on-line and electronic journals in the field of addiction were also searched for further relevant publications. All publications identified through literature search in international databases were assessed in a first analysis of the abstracts and the full text was ordered of the literature considered relevant. The results of the search on

the efficacy and effectiveness of drug treatment interventions in international databases are placed in front of the results part.

Besides this general search of international electronic literature databases, an adapted search strategy was developed for each European region/country to identify “European national drug treatment interventions”, which are only available in national databases and national journals, mainly written in the respective national language. All associated partners carried out this specific search for their respective European region.

Besides the collection of data and literature about the evidence and effectiveness of these interventions through searching in national databases, contacts to national experts in the area of drug treatment were established to gather further information and literature. Regional reviews were screened for further literature by using the method of reference tracking. This method was also applied for the search for evidence in the national reports of the REITOX Network of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) and project reports of medical and non-medical research bodies working in field of drug treatment.

Data abstraction form

In order to establish a common platform for the exchange of information about national European drug treatment interventions, the database programme FileMaker was used to prepare a data abstraction form for detailed description and further analysis. On the basis of a specific manual, including explanations, definitions and help, relevant information from identified national publications were extracted and entered in the data form (Table 4). If necessary, parts or the whole publication were translated into English language.

Table 4:
Structure and issues of the data abstraction form

| General information | Study population | Study design & quality | Intervention | Findings |
|---|---|---|---|---|
| <ul style="list-style-type: none"> • Author • Title • Abstract • Publication type | <ul style="list-style-type: none"> • Number • Description • Inclusion/exclusion criteria | <ul style="list-style-type: none"> • Study type • Allocation • Observation • Analysis | <ul style="list-style-type: none"> • Area • Number • Description • Conditions • Setting • Place | <ul style="list-style-type: none"> • Primary outcomes • Predictors • Variables • Process management |

In order to provide all gathered information about the defined treatment areas for all project partners, each get free online access to the database. On the basis of this common platform, each project partner obtained the relevant information for the development of his/her respective draft treatment improvement guideline. Besides this,

each partner received a literature database including the results of the general systematic search strategy in international databases.

4.3 Phase III: Development of consensus process

For the development of consensus a nominal group technique (Delphi method) was applied. The Delphi method is a formal consensus process providing the possibility to discuss and resolve open questions. The Delphi method is an interactive and systematic method, which provides an exchange platform for independent experts. In one or more rounds the experts give their opinion to a specific question. The process stops normally after a pre-defined stop criterion (e.g. number of rounds, achievement of consensus, and stability of results). Adapted to this project several experts were selected to discuss the recommendations of the draft and final version of the treatment improvement guidelines.

4.4 Phase IV: Consensus building about drug treatment/interventions

This phase focussed on the achieved consensus of experts in the different areas of drug treatment/interventions under consideration of the different groups of professionals, commissioners and providers of drug treatment.

To realise the formal consensus process via adapted Delphi-method, a consensus conference in Hamburg (3 days) was organised. Before the consensus conference the draft treatment improvement guidelines were disseminated to the involved project partners including a short questionnaire with closed and open questions, which should highlight potential barriers to consensus building. On the basis of the reviewed draft treatment improvement guidelines open questions were discussed and resolved.

4.5 Phase V: Dissemination of the results

For the dissemination of the project results a strategy was developed, taking into account the different project deliverables as well as the relevant different target groups for dissemination.

Projects results for dissemination are:

- Fact sheets of good practice treatment improvement guidelines
- Full version of good practice treatment improvement guidelines
- Executive summary of the final report
- Final report

Target groups for dissemination are:

- Organisations and service provider
- National and European networks
- National authorities and policy decision maker

- European stakeholder

Table 5 shows relevant target groups with regard to the respective project deliverable. From each treatment improvement guideline fact sheets were developed for short communication, wide spread and awareness rising. For a deeper understanding and for more information regarding specific drug treatment modalities, full versions of the treatment improvement guidelines will be provided to European drug treatment provider. The executive summary of the final report provides the opportunity to disseminate a short communication form to European stakeholder in the field of drug treatment. The final report will be disseminated to relevant networks, services and organisations as well as to public health authorities and drug treatment commissioners in the European Member States.

Table 5:
Dissemination strategy

| Deliverable | Target group | | | |
|---------------------------------------|--------------------------|----------|-----------------------|----------------------|
| | Services & organisations | Networks | National policy maker | European stakeholder |
| Fact sheets | x | x | | |
| Full treatment improvement guidelines | x | x | | |
| Executive summary | | x | x | x |
| Final report | | x | | x |

5 European and non-European evidence of effectiveness of drug treatment

Results related to the effectiveness of drug treatment are based on research from all available countries (inside and outside of Europe). In order to separate the studies conducted in European States from those conducted outside of Europe, the country of origin of all included references was identified. The number of included references was counted for each chapter and allocated as evidence from a European State or from a State outside of Europe. Usually it is indicated if the research was conducted in European State, although the evidence of effectiveness is not influenced by the location of the study concerned. Generally there are some reviews and systematic reviews on the effectiveness of drug treatment conducted by researchers in European countries (e.g. Berglund et al 2003; Rigter et al. 2004; Amato et al. 2007), but these reviews cover

research from all over the world as well. The methodology for the identification of relevant literature is described in chapter 4.

5.1 Evidence from outside of Europe

Pharmacological treatment agents for opioid-related disorders

Crisis Intervention

Use of naloxone and naltrexone for crisis intervention

Heroin overdose is one of the leading causes of death among heroin addicts (Sporer 2003) and non-fatal overdoses are highly prevalent among opioid addicts (Warner-Smith et al. 2001). One study showed that 23-33% of injecting heroin users have taken a non-fatal overdose in the last year, and 43% have witnessed a heroin overdose in another user within the last year (Sporer 1999).

The short-acting opioid-antagonist naloxone is considered to be an effective substance in treating respiratory depression and coma in patients with an overdose (Kaplan et al. 1999). This has prompted a discussion on a new strategy to reduce the risks of overdose, by making naloxone available in addicts' homes for peer administration in order to prevent fatal overdose (Baca & Grant 2005; Lagu et al. 2006; Sporer 2003). A recent study supports this recommendation by showing, that especially drug users with an overdose history have a great willingness to administer naloxone in the case of a friend's overdose (Lagu et al. 2006).

There is no evidence to suggest that subcutaneous or intramuscular routes of administration are inferior to intravenous administration of naloxone (Clarke 2001), where as another route, the nasal application of naloxone, seems to be comparably effective to the intravenous application (Barton et al. 2005). Others studies investigated the preventive effect of sustained release naltrexone implants, where initial findings support the clinical efficacy in preventing opioid overdose (Hulse et al. 2005).

As a recent period of abstinence may lead to a reduction in tolerance and has been shown to be a time of particular risk, the best prevention of heroin overdoses is participation in opioid-assisted maintenance treatment. All opioid dependent persons who opt for abstinence based treatment need to be made aware of the particular risk of overdose after a period of abstinence. This is especially true when abstinence was temporarily obtained through maintenance treatment with the long-acting opioid antagonist naltrexone. Extended use of naltrexone can result in supersensitivity of the μ -opioid receptors and an increased risk of overdose (Lesscher et al. 2003). Digiusto et al. showed eight times higher rates of experienced overdoses in naltrexone treated participants after leaving treatment, compared to participants who left agonist treatment

(Digiusto et al. 2004). Recently, Gibson et al. found the overdose-related risk of death related to oral naltrexone appears to be higher than that related to methadone treatment (Gibson et al. 2007). This results lead to an open discussion about the overdose-related death risk of oral naltrexone.

In summary, the short-acting opioid-antagonist naloxone is effective in treating in patients with an overdose. However, an extended use of opiate antagonists can lead to a reduction of tolerance and therefore to an increased risk of overdose.

Pharmacotherapy of opioid withdrawal/detoxification

Withdrawal or detoxification treatment is a necessary step to enter a following drug-free treatment and during detoxification various pharmacological substances can be used to manage withdrawal symptoms, including (partial/full) opioid agonists (e.g. methadone, buprenorphine), opioid antagonists (e.g. naltrexone) and $\alpha 2$ -adrenergic agonists (e.g. clonidine). The major goal of pharmacotherapy during detoxification is to relieve the severity of opiate withdrawal symptoms in order to avoid unnecessary human suffering and medical complications (e.g. epileptic seizures) as well as to enhance motivation to continue treatment (Gonzalez et al. 2004).

Methadone as a detoxification agent (including methadone reduction treatment)

Detoxification treatment with tapered doses of methadone showed fewer severe withdrawal symptoms and fewer drop out rates compared to placebo (Kleber et al., 2007). Nevertheless, various patients relapse to heroin use and in comparison to methadone maintenance treatment, methadone withdrawal treatment leads to high drop-out rates, even though the effect on the proportion of positive urine samples in both treatment modalities remains high (Kleber et al. 2006). Because of the poor treatment outcomes especially in rapid detoxification approaches (e.g. 10% dose reduction per week) like taper interruptions, illicit drug use and withdrawal symptoms, a gradual methadone taper (like 3% per week) is recommended (Kleber et al. 2006).

Higher doses of methadone for non-rapid detoxification were found to be more effective than lower doses with regard to treatment retention and fixed methadone detoxification programmes may lead to higher retention rates than flexible methadone detoxification schedules (Kleber et al. 2006). Patients who are informed about the methadone withdrawal schedule have better outcomes than uninformed patients, although patients do not have better outcomes, when they control their methadone schedule on their own (Gowing et al. 2001; Kleber et al. 2006). One Australian effectiveness report found that detoxification with tapered doses of methadone is more likely to be completed if withdrawal is scheduled to occur over a short period of time (21 days or less) (Gowing et al. 2001).

Low doses of methadone were found to be equal to clonidine in the effectiveness to suppress withdrawal symptoms (Gowing et al. 2001; Kleber et al. 2006). However, in

comparison to methadone treated patients, patients treated with clonidine were more likely to leave the treatment early, possibly because opioid agonists suppress withdrawal symptoms early in treatment (Kleber et al. 2006). No differences were found between clonidine and low doses of methadone with respect to withdrawal symptoms, but patients treated with clonidine tend to dropout earlier compared to patients treated with methadone (Gowing et al. 2001; Kleber et al. 2006). Buspirone, an azipirone used primarily as an anxiolytic agent, administered in addition to methadone, could lead to a more rapid methadone taper with larger and more frequent methadone decrements, but more trials will be needed to confirm this hypothesis (Buydens-Branchey et al. 2005).

There is evidence to show that severity of withdrawal under methadone tapering can be reduced by different psychosocial measures, such as having patients well-informed (Green & Gossop 1988), contingency management (Hall et al. 1979) or counselling (Rawson et al. 1983). Kleber et al. (2006) suggests combining pharmacological treatment with behavioural and psychosocial approaches to increase efficacy (Kleber 2003). The recent Cochrane review found only one randomised controlled clinical trial comparing inpatient and outpatient settings for opioid detoxification, suggesting that opioid detoxification in inpatient settings is slightly more effective, but the underlying available research remains limited (Day et al. 2007).

In summary, there is evidence that detoxification treatment using tapered doses¹ of methadone is associated with adequate rates of completion of withdrawal, reduction of withdrawal symptoms to tolerable levels, and minimal adverse effects. Control by the clinician rather than the patient of the rate of reduction of the methadone dose is associated with greater reductions in methadone doses. Compared to the effects of methadone in maintenance treatment, the efficacy of methadone for detoxification treatment is limited. The attrition rate of methadone detoxification treatment remains high, particularly in an outpatient setting compared to an inpatient setting. Despite the findings related to methadone and α_2 -adrenergic agonists of one recent RCT, the current systematic Cochrane review shows that methadone had better outcomes than other opioid agonists in terms of completion rate, and patients have shown less severe withdrawal symptoms.

Buprenorphine as a detoxification agent

The partial μ -agonist and κ -antagonist buprenorphine is a commonly used agent for the detoxification treatment of opiate dependents, mainly in Europe and Australia. In the USA, buprenorphine is commonly combined with the short-acting opioid-antagonist naloxone. Like methadone, the detoxification treatment with buprenorphine is carried out in a linear reduction schedule with equal dose decreases.

¹ Gradually reducing methadone over time

The efficacy of buprenorphine in the detoxification of opioid dependents is comparable to methadone with regard to treatment retention, illicit drug use, and suppression of withdrawal symptoms, though detoxification with buprenorphine can be completed more quickly, within 3 to 8 days (compared to a normally duration of 14 days in methadone detoxification (Gowing et al. 2007; Kleber et al. 2006). Also, no significant differences were found between buprenorphine and methadone in terms of completion of withdrawal, despite quicker resolution of withdrawal symptoms with buprenorphine (Gowing et al. 2007). Furthermore, the current Cochrane review found that neither buprenorphine nor methadone is associated with significant adverse effects when used to manage opioid withdrawal (Gowing et al. 2007). The recent Cochrane review suggested that gradual tapering of buprenorphine after buprenorphine maintenance appears to be more effective than rapid tapering, but further research is needed to confirm this assumption (Gowing et al. 2007).

Kosten and O'Connor (Kosten & O'Connor 2003) prefer buprenorphine over methadone as their first choice opioid tapering and detoxification strategy, because withdrawal symptoms of methadone last longer than those of buprenorphine. Conventional inpatient detoxification (clonidine and other medications for a mean of 3.5 days) was found to be more effective in achieving initial abstinence than outpatient detoxification using buprenorphine (Digiusto et al. 2005). Only 12% of patients treated with buprenorphine in an outpatient setting achieved initial abstinence compared to 24% of patients in conventional inpatient treatment (Digiusto et al. 2005), although outpatient detoxification was found to be more effective with buprenorphine than when conventional symptomatic medications (e.g. clonidine) were used in an outpatient setting (4%) (Digiusto et al. 2005).

Assadi et al. (2004) suggest that opioid detoxification using high doses of buprenorphine (12 mg) in 24 hours is a reasonable approach to reduce the time required for opioid detoxification (Assadi et al. 2004). One group of twenty patients were treated with 12 mg buprenorphine in 24 h, the other patients received conventional doses of buprenorphine tapered down over 5 days. No significant group differences were found regarding treatment retention, severity of subject-rated opioid withdrawal, and side effects profile. Patients treated with a high dose of buprenorphine in 24 hours, developed early the maximal withdrawal symptoms, and patients in the conventional protocol group were more likely to use more adjuvant medications for symptom palliation. However, larger studies are needed to confirm these results.

Buprenorphine tapering was found to be more effective than clonidine or clonidine combined with naltrexone for the management of opioid withdrawal, especially in the suppression of withdrawal symptoms (Gowing et al. 2007; Kleber et al. 2006). Buprenorphine probably improves withdrawal symptoms better than clonidine (Gowing et al. 2001). Furthermore, buprenorphine has fewer cardiac side effects than clonidine and methadone (Gowing et al. 2001). Compared to clonidine, buprenorphine has also more positive effects on well-being and psychosocial variables (Ponizovsky et al. 2006).

Collins et al. (2005) found no significant differences, but greater rates of treatment retention and naltrexone induction in patients detoxified with buprenorphine than in anesthesia-assisted or clonidine-assisted heroin detoxification, but no differences in completion rates of inpatient detoxification and opioid free urine samples (Collins et al. 2005).

A recent proposal is to detoxify heroin addicts with a single high dose of buprenorphine (32 mg), because the combination of a high dose, the relative long plasma half-life and the slow dissociation kinetics of the drug from the opioid receptors seems to create a slow and effective tapering process (Kutz & Reznik 2002). Future research should focus on determinants of withdrawal following cessation of buprenorphine in tapered doses and the optimum approach to withdrawal following long-term buprenorphine substitution treatment. Also the effectiveness of buprenorphine for managing withdrawal from methadone as compared to withdrawal from heroin still remains unclear, even though some studies indicated that the use of buprenorphine for the management of withdrawal from methadone is feasible (Gowing et al. 2007). Also more information is needed about the transition from methadone to buprenorphine, which can lead to precipitated withdrawal (Johnson et al. 2003).

In summary, buprenorphine seems to have similar efficacy as tapering doses of methadone for the treatment of opioid detoxification with comparable effectiveness in improving withdrawal symptoms and in completing detoxification treatment. Compared to clonidine, buprenorphine provides at least more effectiveness in withdrawal management and has fewer adverse effects. Therefore, a replacement of heroin by buprenorphine in tapered doses followed by the prescription of $\alpha 2$ -adrenergic agonist (e.g. clonidine or lofexidine) to reduce withdrawal symptoms proved to be an effective strategy for detoxification of opioid addicts (Gowing et al. 2004; Gowing et al. 2004a). However, it should be noted that patients on high doses of heroin are sometimes difficult to stabilise with the partial agonist buprenorphine, resulting in precipitated withdrawal symptoms and early drop out.

$\alpha 2$ -adrenergic agonists as detoxification agents

The use of $\alpha 2$ adrenergic agonists (clonidine, lofexidine) to manage the acute phase of opioid withdrawal is common worldwide.

The $\alpha 2$ -adrenergic agonists clonidine and lofexidine have been approved for detoxification treatment. Clonidine reduces opioid related withdrawal symptoms, although does not completely relieve symptoms like anxiety, restlessness and insomnia (Kleber et al. 2006). In comparison to morphine, clonidine is more effective in suppressing objective withdrawal symptoms, but less effective than morphine in attenuating subjective withdrawal symptoms (Kleber et al. 2006). Low doses of methadone were found to be equally effective in suppressing withdrawal symptoms as clonidine, but patients treated with clonidine were more likely to drop out early (Gowing et al. 2001; Kleber et al. 2006). No differences were found between clonidine

and low doses of methadone in resolving withdrawal symptoms, but patients treated with clonidine tend to drop out earlier compared to patients treated with methadone (Gowing et al. 2001; Kleber et al. 2006). Maybe one reason for the high attrition rate in the early stage of treatment with clonidine is that patients treated with clonidine develop withdrawal symptoms early in treatment compared to methadone tapering (Gowing et al. 2001). Another reason for lower retention rates of withdrawal with clonidine could be higher rates of adverse effects. Despite more evidence supporting the efficacy of clonidine, it has now been shown that lofexidine is to be preferred over clonidine, because hypotension is less likely to occur with lofexidine (Gowing et al. 2004).

The comparison of α_2 -adrenergic agonists with methadone tapering shows some differences - the longer duration of methadone tapering, no difference in completion rates, similar or marginally greater withdrawal severity with α_2 -adrenergic agonists, earlier resolution of withdrawal under α_2 -adrenergic agonists, more adverse events for clonidine - but no overall difference in clinical efficacy (Gowing et al. 2004).

A systematic review, including ten clinical trials, indicates that the clinical effectiveness of buprenorphine is superior to clonidine regarding suppression of opioid withdrawal symptoms, treatment retention, side effects and completion of treatment (Gowing et al. 2004). Recent randomised trials confirmed these findings. Oreskovich et al. (2005) demonstrated in their randomised, prospective pilot study the superiority of high doses of buprenorphine to clonidine for acute detoxification from heroin in different measures, like suppression of withdrawal symptoms (Oreskovich et al., 2005). Ponizovsky et al. (2006) compared detoxification programs using buprenorphine and clonidine with regard to side effects and effects on well-being and psychosocial variables in a randomised controlled trial design (Ponizovsky et al. 2006). Patients, who received clonidine, developed significantly more side-effects. The authors suggested that buprenorphine is preferable for inpatient detoxification due to these findings. The application of buprenorphine in combination with behavioural interventions proved to be more effective than the combination of clonidine and behavioural interventions with regard to treatment retention in the detoxification of opioid-dependent adolescents (Marsch et al. 2005). Patients treated with buprenorphine were also more likely to provide negative urine samples. On the other hand, Digiusto et al. (2005) found higher retention rates in patients treated in an inpatient detoxification setting with clonidine plus other symptomatic medications than in patients in outpatient detoxification using buprenorphine or clonidine plus other symptomatic medications (Digiusto et al. 2005). Higher completion rates were found for patients in clonidine-naloxone precipitated withdrawal treatment under sedation (rapid opioid detoxification), than in clonidine-assisted detoxification (Arnold-Reed & Hulse 2005). However, the reasons for these findings remain unclear: No differences were found in secondary outcomes, like severity of withdrawal or craving, and also oral naltrexone compliance levels and abstinence from heroin four weeks following detoxification were similar (Arnold-Reed & Hulse 2005).

Sinha et al. (2007) found higher opioid abstinence rates and better relapse outcomes in patients treated with lofexidine-naltrexone compared to those treated with placebo-naltrexone (Sinha et al. 2007). Furthermore, patients treated with the combination of lofexidine and naltrexone showed lower opioid craving symptoms in laboratory as patients in the placebo-naltrexone group. The authors concluded that lofexidine has the potential to decrease stress-induced and cue-induced opioid craving and improves opioid abstinence in naltrexone-treated opioid-dependent individuals (Sinha et al. 2007). The combination of opioid antagonists like naltrexone and α 2-adrenergic leads to a more intense (higher peak) but less overall withdrawal severity than withdrawal managed with clonidine or lofexidine alone (Gowing et al. 2006). The additional provision of symptomatic medications enhanced the effectiveness of adrenergic agonists, and especially the combination with opioid antagonists such as naltrexone and naloxone leads to less severe withdrawal symptoms in detoxification compared to the treatment with lofexidine alone (Gowing et al. 2006).

In summary, adrenergic agonists (clonidine and lofexidine) could be considered as an effective detoxification option especially for patients, who prefer non-opioid treatment for detoxification. Compared to tapering doses of methadone, opioid withdrawal management with α 2-adrenergic agonists like clonidine and lofexidine leads to equal rates of completion of withdrawal and overall severity of withdrawal, but to more side effects and therefore to higher drop-out rates especially at an earlier stage of treatment. Buprenorphine seems to be superior to clonidine, with regard to the better safety profile, well-being and self-efficacy. Lofexidine showed fewer side effects with similar clinical effectiveness in comparison to clonidine. The most described adverse effect of the opioid withdrawal treatment with clonidine is hypotension, which leads to the recommendation to check patients' blood pressure regularly. Due to the hypotensive side effects of clonidine, lofexidine should be preferred in outpatient settings.

Buprenorphine-naloxone combination as a detoxification agent

The combination of buprenorphine and naloxone is available for the maintenance and detoxification treatment of opioid dependence is available several countries worldwide. The intention of adding naloxone to buprenorphine is to deter intravenous misuse and reduce the symptoms of opiate dependence.

Recent RCTs show that a direct and rapid detoxification with buprenorphine-naloxone is safe and well tolerated by patients with good results in terms of treatment retention, detoxification completion and abstinence rates in treatment (Amass et al. 2004; Ling et al. 2005). Amass et al. (2004) treated 234 mostly intravenous heroin-dependent participants in a thirteen-day buprenorphine-naloxone taper regimen for short-term opioid detoxification. Most patients received an initial dose of 8 mg buprenorphine-2 mg naloxone and reached a target dose of 16 mg buprenorphine-4 mg naloxone in three days. Treatment compliance and treatment retention were high: Four of five patients showed compliance with regard to the medication and two of three patients completed

the detoxification treatment. Only one serious adverse event² was possibly related to buprenorphine-naloxone (Amass et al., 2004). Ling et al. (2005) used a multi-centre randomised trial design to investigate the clinical effectiveness of buprenorphine-naloxone and clonidine for opioid detoxification in inpatient and outpatient settings. 113 inpatients and 231 outpatients were recruited, and short-term treatment seeking opioid-dependent individuals were randomly allocated in a 2:1 ratio to buprenorphine-naloxone or clonidine detoxification treatment over a period of 13 days. Appreciably more participants treated with buprenorphine-naloxone completed the detoxification treatment and provided also opioid-free urine samples on the last day of clinic attendance (Ling et al. 2005). With respect to dose related effects of buprenorphine/naloxone, a recent double-blind randomised controlled trial found that patients did not additionally benefit from buprenorphine/naloxone doses higher than 8 mg/2 mg with regard to opioid blockade and withdrawal symptom suppression (Correia et al. 2006). However, Hopper et al. (2005) showed that a single high dose of a 32 mg buprenorphine/naloxone combination tablet is a feasible method for rapid detoxification. In this pilot study, twenty patients were randomly allocated to one-day vs. three-day buprenorphine inpatient detoxification protocols for heroin dependence. No group differences were found with regard to completion rates, retention in treatment, intensity of withdrawal symptoms, and provision of opiate-free urine samples (Hopper et al. 2005). In summary, the combination of buprenorphine and naloxone is effective and safe for the detoxification of opioid dependents and well tolerated by patients.

Pharmacotherapy for opioid maintenance

Given the chronic, relapsing nature of the disease and the generally disappointing long-term results of detoxification in combination with relapse prevention, stabilisation of illicit drug use, improvement of well-being and reduction of drug related harm have become the most important treatment modality in many countries. Opioid-assisted maintenance programmes are among the most important strategies in this respect, as they are associated with reductions of heroin use and HIV risk behaviour (Kerr et al. 2005). Considering the high rate of relapse after detoxification of opioid dependence, maintenance therapy is currently considered to be the first-line treatment for such patients (O'Connor 2005). Opioid-assisted maintenance programs have been introduced in most countries of the world, yet the medication of choice differs from one country to the next. Methadone is the most extensively studied and most widely used opioid in maintenance treatment. Other μ -opiate agonists that are used include levo-acethylmethadol (LAAM), codeine, slow-release oral morphine and diacetylmorphine, as well as the partial μ -opioid agonist buprenorphine.

² SAE = untoward medical occurrence results in e.g. death, life-threatening, inpatient hospitalization etc.

Methadone as a maintenance agent

Methadone maintenance treatment constitutes an effective treatment modality in reducing illicit opiate use, although not all patients benefit from methadone substitution, indicated through further illicit heroin use (Gowing et al. 2001). Nevertheless, several pre- and post-treatment outcomes confirmed the effectiveness of methadone maintenance treatment in a wide range of age and ethnic groups of patients and showed that MMT leads to higher retention rates and longer treatment duration than placebo or no treatment.

Even lower doses (≤ 20 mg methadone) were found to be more effective in retaining individuals in treatment than placebo or no treatment (Connock et al. 2007). Methadone dosages ranging from 60 to 100 mg/day were found to be more effective than lower dosages in terms of treatment retention and reduction of heroin and cocaine use during treatment (Connock et al. 2007). Higher doses (60 mg - 110 mg) of methadone are in general associated with a lower number of opioid-positive urine samples than moderate and lower doses (< 40 mg) (Connock et al. 2007). Indeed, lower doses of methadone seem to be sufficient to stabilise the patient and might be helpful to keep the patient in treatment, but are inadequate to suppress opiate use (Kleber et al. 2006). In comparison, the treatment retention rates are higher with moderate doses of 40-60 mg/day of methadone, which are normally necessary to suppress the opioid withdrawal symptoms (Kleber et al. 2006). Higher methadone doses are needed during maintenance treatment to block craving for opiates and illicit drug use (Donny et al. 2005), and especially heroin addicts with axis 1 disorders benefit from high methadone doses (≥ 100 mg/day) (Kleber et al. 2006). Yet, one effectiveness report from outside of Europe found no significant difference in the retention rate between patients with moderate (≥ 40 -50 mg/day) and high methadone doses (≥ 80 -100 mg/day), maybe due to a plateau of dose related efficacy of methadone, but marked declines in self-reported illicit drug use in both groups (Kleber et al. 2006). As the illicit drug use significantly declines in patients with higher methadone doses, the explanation of a plateau of dose related efficacy of methadone is only valid for the retention rates (Kleber et al., 2006). However, adequate daily dosing has an important effect on retention in methadone maintenance treatment (Anderson & Warren 2004). In the US, low dosages of methadone have to a large extent been replaced by higher dosages: In 1988, almost 80% of the patients received dosages of less than 60 mg/day, in 2000, this was the case in 36% of the cases (D'Aunno & Pollack 2002). Suboptimum methadone doses lead to a lower retention rate, and when patients remain in treatment, MMT reduces heroin use, delinquency, and HIV-related risk behaviour and HIV transmission (Ward et al. 1999). Nonetheless, since very high dosages of methadone have also been associated with the occurrence of Torsade de Pointes (TdP), high dosages need to be monitored carefully (Krantz et al. 2002). However, sporadic cases of TdP have also been reported in patients receiving a recommended dose between 60 and 100 mg methadone per day (Pearson & Woosley

2005) and the risk of death caused by overdoses in heroin users seems to substantially reduce after stabilisation on methadone (Gowing et al. 2001).

MMT seems to be superior to methadone detoxification treatment or outpatient drug-free treatment in reducing heroin use, criminal behaviour and risky sexual behaviour and is associated with greater retention in treatment than therapeutic communities, outpatient drug-free treatment or naltrexone treatment (Gowing et al. 2001). Observational studies suggested that the treatment retention is better in a take-home approach with corresponding doses of methadone and reduced frequent treatment centre visits (Gowing et al. 2001).

Opioid dependence is commonly associated with psychiatric co-morbidities like depression and, therefore, associated with poor outcomes. Dean et al. (2004) used a double-blind, double dummy, randomised controlled trial design to examine whether heroin users maintained on buprenorphine demonstrate greater improvement in depressive symptoms than those on MMT (Dean et al. 2004). Contrary to former findings, which reported depression as a side effect of buprenorphine or described greater depressive symptom improvement with methadone, no differential benefits of buprenorphine compared to methadone were found on depressive symptoms in heroin users engaged in maintenance treatment (Dean et al., 2004). However, a conclusion based on these results could not be made and requires further investigations. Flexible doses of methadone were found to be more effective than flexible doses of buprenorphine for maintenance treatment, maybe because of the higher potential of methadone to suppress heroin use, especially if high-doses of methadone are used (Connock et al. 2007; Mattick et al. 2007). Compared to buprenorphine maintenance treatment, the administration of an average maximum dose of 80 mg methadone leads to higher treatment durations, longer periods of sustained abstinence and a greater proportion of cocaine- and opioid-free urine samples than liquid buprenorphine in an average maximum dose of 15 mg (Schottenfeld et al. 2005). Furthermore, MMT is associated with a reduction of self-reported adverse effects, a reduction of the relative mortality risk, an improvement of HIV-related behaviour and a reduction of delinquency (Gowing et al. 2001; Johnson et al. 2003).

In summary, methadone is the best-studied and most effective opioid agonist for maintenance treatment so far. Treatment outcome in methadone maintenance has been shown to improve substantially with increased dosages of methadone. Adequate dosing is an important issue and avoids on the one hand unpleasant withdrawal symptoms, especially in the latter half of each inter-dosing interval, and on the other hand significant adverse effects. The combination with psychosocial treatment such as counselling and behavioural interventions leads to a broader effectiveness and a greater range of treatment outcomes such as reduced craving, reduction of illicit drug use and drug-related delinquency, improvement of health and well-being and reduction of drug related harm. However, even methadone maintenance treatment without adequate psychosocial care as an interim solution until entry into a comprehensive methadone

maintenance treatment programme has shown to increase the likelihood of entry into comprehensive treatment and reduce heroin use and delinquency (Schwartz et al. 2006; Teesson et al. 2006).

Buprenorphine as a maintenance agent

Buprenorphine proved to be effective and clinically useful in the maintenance treatment of opioid dependence. Compared to placebo, buprenorphine was found to be an effective agent for the treatment of opioid dependence in a maintenance approach and several studies have shown efficacy of buprenorphine in maintenance treatment of opioid dependence (Ling & Wesson 1984; Mattick et al. 2007). Like methadone, the efficacy of buprenorphine is dose-related: Higher doses of buprenorphine showed better outcomes than lower doses, although these differences were not always robust in their values (Kleber et al. 2006). Low and moderate doses (2 - 8 mg) of buprenorphine are superior to placebo in the measures of treatment retention, provision of opioid-negative urine samples, mortality, and psychological and social functioning (Kleber et al. 2006). When using equipotent doses, the efficacy of buprenorphine in the maintenance treatment of opioid dependents is comparable to that of methadone (Kleber et al., 2006). Therefore no significant differences were found between low dose buprenorphine and low dose methadone with regard to treatment retention, opiate free urine samples and self-reported heroin use (Mattick et al., 2007), whereas moderate doses of buprenorphine are superior to low doses of methadone (Kleber et al. 2006). In general contrary to these dose-related results, Connock et al. found that methadone in comparable and especially in flexible doses is superior to buprenorphine with regard to treatment retention, with the exception of lower doses (Connock et al. 2007).

The maximum therapeutic effect of sublingual buprenorphine tablets occurs in the range of moderate (8 mg) to higher doses (16 mg), comparable to moderate methadone doses of 40-60 mg (Kleber et al. 2006). In flexible dosage, methadone is significantly more effective than buprenorphine in retaining patients in treatment, perhaps because of the higher potential of methadone to suppress heroin use, especially if high doses of methadone are used (Mattick et al. 2007).

Methadone seems to be superior to buprenorphine in the maintenance treatment of opioid dependents with co-occurring cocaine dependence (Schottenfeld et al. 2005). The administration of an average maximum dose of 80 mg methadone leads to higher treatment durations, longer periods of sustained abstinence and a greater proportion of cocaine- and opioid-free urine samples than liquid buprenorphine in an average maximum dose of 15 mg (Schottenfeld et al. 2005). However, Montoya et al. (2004) showed in their double-blind, controlled clinical trial with strict eligibility criteria that daily doses of 8 and 16 mg of buprenorphine solution in combination with drug abuse counselling are feasible and effective in maintenance treatment of outpatients with co-occurring opioid and cocaine dependence (Montoya et al. 2004).

The longer duration of therapeutic action of buprenorphine provides the advantage of a less than daily schedule, however, the comparison of daily vs. intermittent administration lead to different results. Some findings showed no increase of buprenorphine doses under intermittent administration, while others found a doubling of doses (Kleber et al. 2006). However, another trial found that intermittent doses for 48-hours provide adequate effects and are preferable to daily dosing (Kleber et al. 2006). From a clinical point of view, dosing of buprenorphine on every fourth day is possible and was found to lead to similar effects on the measures of adverse effects and efficacy than daily doses (Kleber et al. 2006). A recent controlled trial confirmed these results (Marsch et al. 2005). In this comparison no differences were found between one per day, three times a week and twice a week administration of buprenorphine regarding treatment retention and opiate use (Marsch et al. 2005). However, the less-than-daily schedule with adapted doses was found to be effective, is often preferred by the patient and provides the opportunity to serve a greater number of opioid-dependent patients.

The efficacy of buprenorphine maintenance treatment was found to be comparable to methadone maintenance with advantages in some treatment settings, in alternate day dosing, better safety profile, and milder withdrawal syndrome (Mattick et al. 2007). In two small-scale studies, buprenorphine prescription in primary care was associated with good retention (70-80%) and reasonable rates of opiate free urines (43-64% achieving three or more consecutive weeks of opiate free urines) (Fiellin et al. 2002; O'Connor et al. 1996). These positive effects were confirmed in a larger trial, showing a reduction of opiate use and craving under buprenorphine (Fudala et al. 2003). Similar results were obtained in France some years ago (Duburcq et al. 2000). Buprenorphine reduced the risk of overdose related death compared to methadone (Kleber et al. 2006; Simoens et al. 2000) and was found to reduce mortality in maintenance treatment (Auriacombe et al. 2001). However, recently, Lofwall et al. (2005) examined the safety and side effect profiles in 164 opioid dependents in buprenorphine and methadone outpatient treatment. After randomisation to buprenorphine (n = 84) or to methadone (n = 80) all patients were maintained for 16 weeks. Besides very few clinical gender differences, common profiles of safety and side effects were found for both groups (Lofwall et al. 2005). Connock et al. (2007) found in their recent health technology assessment no generalisable results in the comparison of methadone and buprenorphine with regard to mortality (Connock et al. 2007). In general, buprenorphine is associated with lower levels of withdrawal symptoms than heroin or methadone (Gowing et al. 2001).

In general, maintenance treatment with buprenorphine provides some advantages for the treatment of opioid dependence in comparison to methadone, e.g. a better safety profile at high doses, a lower abuse potential, the possibility of a less-than-daily administration and lower impairment in psychomotor and cognitive functioning. Similar to methadone, the efficacy of buprenorphine in maintenance treatment is dose related; higher doses of buprenorphine (12 mg/day or more) improve the treatment retention and reduce illicit heroin use. Provided in effective doses, buprenorphine appears to be at least as effective

as methadone with regard to reduction of illicit opioid use and treatment retention, whereas methadone maintenance in high doses is associated with higher rates of retention in treatment and better suppression of withdrawal symptoms than buprenorphine maintenance treatment (Mattick et al. 2007). The recent Cochrane review recommends that buprenorphine maintenance should be supported as a maintenance treatment, when higher doses of methadone cannot be administered (Mattick et al. 2007). However, Marsch et al. (2005) demonstrated that predictors of treatment success of LAAM, buprenorphine, and methadone appear to be largely comparable, and they did not detect any factors that would prefer one medication over the others (Marsch et al. 2005).

Buprenorphine-naloxone combination as a maintenance agent

The buprenorphine-naloxone combination contains the partial opiate agonist and antagonist buprenorphine as well as the opioid antagonist naloxone to deter illicit intravenous preparation of the tablet. This is intended to attenuate the effects of buprenorphine on opioid-naïve users should this formulation be injected.

Fudala et al. (2003) used a randomised blinded placebo-controlled trial design including 4-week follow-up to demonstrate that sublingual tablet formulation of buprenorphine and naloxone is effective for the treatment of opiate dependence compared to placebo (Fudala et al. 2003). Recently, Mintzer et al. (2007) showed the feasibility and efficacy of buprenorphine-naloxone treatment in primary care settings (Mintzer et al. 2007).

An Australian pilot study showed the tolerability and feasibility of unsupervised administration of buprenorphine-naloxone combination tablets in the maintenance treatment of opioid dependence (Bell et al. 2004). Another double-blind crossover study found only minor impairment with buprenorphine-naloxone administration in the highest dose of 32 mg/8 mg (Mintzer et al. 2004). However, both recent studies included only a small number of patients and further investigations are needed with larger sample sizes in a control group design to confirm these findings. Both for methadone or buprenorphine maintenance alone, new research focuses on the improvement of adherence through additional psychosocial treatment. Fiellin et al. (2006) conducted a 24-week randomised, controlled clinical trial with 166 patients to investigate the effect of adding two different kinds of counselling to buprenorphine-naloxone maintenance therapy for opioid dependence (Fiellin et al. 2006). The participants were randomly allocated to a brief, manual-guided, medically focused counselling and either once-weekly or thrice-weekly medication or enhanced medical management with extended sessions and thrice-weekly medication dispensing. The patients in all three treatment types showed significant reductions of illicit opioid use, although no differences were found regarding opioid-negative urine samples, the duration of abstinence from illicit opioids and the retention in treatment. The efficacy of buprenorphine in combination with naloxone seems to be comparable to buprenorphine alone in the maintenance treatment of opiate dependency. Patients treated with

buprenorphine and naloxone showed lower rates of opiate-positive urine samples, showed fewer craving symptoms for opiates, and greater improvement in overall health and well-being than patients who received placebo.

Slow-release oral morphine as maintenance agent

Slow release oral morphine (SROM) acts as an agonist on the μ -receptor and the long duration of action permits to administer a once-a-day preparation. SROM has been authorized for maintenance treatment of opioid dependence mainly in a few European countries. Only little evidence was found from outside of Europe. Jones et al. (2005) showed in their recent randomised trial the feasibility and safety of switching opioid-dependent pregnant women from short-acting morphine to buprenorphine or methadone during the second trimester³ of pregnancy (Jones et al. 2005). Further studies will have to confirm these results in order to be able to evaluate the added value of this substance for the treatment of heroin dependence. In summary, SROM might be a promising compound for maintenance treatment. Further details are provided in the respective European chapter.

Pharmacotherapy for relapse prevention

Naltrexone for relapse prevention

The opiate antagonist naltrexone is indicated for prescription for those who have achieved abstinence. In a human laboratory setting, naltrexone showed to be effective to block the effects of short acting opioids such as heroin (Kleber et al. 2006). Low doses of naltrexone had no discernible advantage, and participants preferred 50 mg per day. Despite the preference of patients for blocking doses of oral naltrexone (like 50 mg per day), the effectiveness of naltrexone appeared not to be dose related (Rea et al. 2004). Due to the prevention of the euphoria effect of opiates, outpatient double-blind placebo controlled trials with long-acting opiate antagonist are very uncommon. Placebo-controlled trials showed extremely high dropout rates, which implicates that the general acceptability of the participants is low (Kleber et al. 2006). On the other hand, the high drop out rates lead to highly selective patient samples in most of the naltrexone maintenance studies and it could not be precluded that these groups of patients have a high level of motivation (Kleber et al. 2006). Indeed, the retention in treatment was found to be the most important predictor for the effect of naltrexone in treating opioid dependence, and authors therefore propose to add counselling to naltrexone maintenance treatment (Ritter 2002). O'Brien et al. (2005) suggested in their meta-analytic review that medications for relapse prevention are most effective in the context of counselling, therapeutic and behavioural techniques (O'Brien 2005). However, Nunes

³ Month four through six of the pregnancy

et al. (2006) concluded in their recent randomised control trial that there may be a limit on the extent to which behavioural therapy can overcome poor adherence to oral naltrexone (Nunes et al. 2006): The authors investigated the effectiveness of Behavioural Naltrexone Therapy (BNT) including voucher incentives, motivational and cognitive behavioural therapies. Sixty-nine patients were randomly administered to the admission of BNT or to a standard treatment control including compliance enhancement. In both groups, treatment retention after six months was low (22% BNT vs. 9%), whereas most patients remaining in treatment after three months achieved abstinence from opioids (Nunes et al. 2006). Tucker et al. (2004) found no reasonable effects, although the provision of an additional 12-week manualised group-counselling programme including a cognitive-behavioural relapse prevention approach provides additional benefit to naltrexone treatment (Tucker et al. 2004).

An alternative strategy to improve the retention rates is the administration of sustained-release depot formulation of naltrexone instead of oral naltrexone in treating opioid dependence. A recent randomised controlled trial found promising results (Comer et al. 2006): Sixty heroin-dependent males and females were randomly allocated to placebo or 192 or 384 mg of depot naltrexone, including twice weekly relapse prevention therapy for all participants. The sustained-release depot formulation of naltrexone was well tolerated. After two months, 60-68% of patients in the 192 mg of naltrexone and 384 mg of naltrexone groups, respectively, remained in treatment compared to 39% of the placebo group. The mean dropout time was dose related, varying between 27 days for the placebo group and 48 days for the 384 mg of naltrexone group. However, the study sample was small and no direct comparison with oral naltrexone was provided, so that the potential advantages should be regarded as promising but not proven. The former assumption that the combination of naltrexone with a Selective Serotonin Re-uptake Inhibitor (SSRI)⁴ is more effective than naltrexone alone, could not be confirmed in recent randomised, placebo-controlled trials (Farren & O'Malley 2002). A recent primarily double-blind, placebo controlled RCT with a small number of patients suggests that the additional administration of lofexidine to oral naltrexone leads to higher opioid abstinence rates and improved relapse outcomes as compared to the combination of placebo and naltrexone (Sinha et al. 2007). However, these promising results have to be proven in larger sample sizes.

Naltrexone is considered to be a safe medication with few side effects; only high doses can lead to transaminase elevations in liver function tests (Kleber et al. 2006). Two other issues related to the prescription of naltrexone deserve special attention: the potential induction of depression by naltrexone, and the overdose risk following discontinuation of a naltrexone treatment. A systematic review of the available literature found no evidence for a relationship between naltrexone and depression or anhedonia, but found that reduced opiate tolerance following naltrexone treatment may indeed increase the risk of heroin overdose (Dean et al. 2006; Ritter 2002). Therefore, a clear

⁴ SSRI = a class of antidepressants used in the treatment of depression, anxiety disorders etc.

warning to patients treated with oral naltrexone regarding the risk of heroin overdose is warranted. One possibility to avoid this risk is the administration of long acting sustained release naltrexone implants. Hulse et al. (2005) showed a reduced number of opioid overdoses observed in the 6-12 months post-implant treatment (Hulse et al. 2005). However, a most recent case report indicates that patients can die from an opioid overdose with a naltrexone implant and blood naltrexone levels higher than reported blockade levels (Gibson et al. 2007).

In summary, the effectiveness of antagonist maintenance with oral naltrexone for opioid dependence has been limited by high dropout rates. This conclusion is corroborated by the findings of the National Evaluation of Pharmacotherapies for Opioid Dependence (NEPOD) in Australia, which showed that only 4% of the patients in naltrexone maintenance treatment were still in treatment after six months (NDARC 2001). Furthermore, patients preferred relapse prevention treatment with buprenorphine or methadone (Digiusto et al. 2005). Naltrexone maintenance seems not to be effective as a stand-alone treatment and should be, therefore, part of a broader treatment programme or should be reserved only for highly motivated patients living in a stable life situation. Nevertheless, a promising strategy to improve treatment retention in broader range could be the combination of long-acting implantable naltrexone formulations and behavioural methods.

5.2 Pharmacotherapy for the treatment of stimulant-related disorders

In summary, none of the proofed medication has been found yet that can be considered a standard for treating stimulant dependence effectively, although a number of different medications has been tried (Kleber et al. 2006). The treatment of cocaine dependence frequently still includes the use of antidepressants, especially SSRIs, despite the low evidence level for their efficacy. Some typical and atypical psychotic agents such as haloperidol, olanzapine and risperidone, were found to be effective in the treatment of patients with co-occurring schizophrenia and cocaine dependence. Also promising results are expected from topiramate and other antiepileptic drugs, and much hope is being placed in the development of the cocaine vaccine.

Detoxification treatment for stimulant-related disorders

Symptoms of intoxication are treated in different ways. Labetalol, an alpha-1 and beta adrenergic blocker used to treat high blood pressure, has been used for treating symptoms of cocaine intoxication, but the little clinical research shows that the use of adrenergic blockers and dopaminergic antagonists should be used carefully in acute cocaine intoxication (Kleber et al. 2006). Benzodiazepines (such as Oxazepam, Alprazolam) are given those cocaine users with acute intoxication who are very agitated (Kleber et al. 2006).

One way of treating withdrawal symptoms during detoxification, such as sleep difficulties, symptoms of depression, anxiety, anhedonia is to give dopamine agonists (e.g. amantadine), but research findings have been ambiguous, with two studies finding positive effects and two others with no significant effect (Kleber et al. 2006). The same is true for bromocriptine that acts as a dopamine agonist. Bromocriptine has potential use in treating cocaine addiction, since the addictive effects of cocaine are caused by it blocking dopamine reuptake. First studies seemed to be promising, until a double-blind RCT found a higher rate of negative urine-samples but higher dropout rate with bromocriptine than amantadine, an antiviral drug, releasing dopamine from the nerve endings of the brain cells (Kleber et al. 2006). Another double-blind RCT found no significant differences between bromocriptine and placebo concerning reduction of cocaine use (Kleber et al. 2006). One uncontrolled inpatient study found no reduction of craving with bromocriptine (Kleber et al. 2006). Therefore, the UNODC report (UNODC 2002) comes to the conclusion that there is no significant effect of both bromocriptine and amantadine. For patients with relatively severe withdrawal symptoms, propranolol has showed some effect (Kleber et al. 2006).

Antipsychotic medication has been prescribed and reported to be somewhat effective in treating cocaine-related delusions, but most patients recover from delusions without medication after a few hours (Kleber et al. 2006). No evidence has been found that anticonvulsants reduce cocaine-induced seizures (Kleber et al. 2006). Gillman et al. (2006) found reduced cocaine withdrawal symptoms in cocaine dependents treated with psychotropic analgesic nitrous oxide (PAN), a titrated mixture of oxygen and nitrous oxide (Gillman et al. 2006).

A recent placebo-controlled pilot study investigated the safety and efficacy of mirtazapine, an antidepressant used for the treatment of moderate to severe depression, in amphetamine detoxification (Kongsakon et al. 2005). Twenty amphetamine dependents were randomly allocated to either mirtazapine treatment (9 patients) or placebo (11 patients), of which seven patients in the mirtazapine and nine in the placebo group completed the study. Patients in the mirtazapine group showed significant improvements in the total Amphetamine Withdrawal Questionnaire (AWQ)⁵ score versus placebo at days 3 and day 14. Despite reported mild adverse events like headache etc. and the small sample size the authors suggested, that mirtazapine may be an option for amphetamine detoxification treatment (Kongsakon et al. 2005).

Substitution treatment for stimulant-related disorders

Different approaches have been considered for replacement therapy in the treatment of cocaine dependence. Replacement therapies with methylphenidate or sustained-released amphetamine showed better patient retention and greater reduction in cocaine use compared to placebo, but further studies are needed (Kleber et al. 2006). Buprenorphine

⁵ Standard questionnaire; provided patient's aggregate score on amphetamine withdrawal

has been tried with those patients with double dependence (opiate and cocaine) and showed some effect on cocaine use in open trials but not in double-blind studies (Kleber et al. 2006). Montoya et al. (2004) showed reducing concomitant opiate and cocaine use under the provision of 16 mg daily doses of sublingual buprenorphine solution (Montoya et al. 2004). Schottenfeld et al. (2005) found significantly longer treatment retention rates, longer periods of sustained abstinence and a greater proportion drug-free tests in co-occurring cocaine and opioid dependents maintained with methadone than patients assigned to receive buprenorphine (Schottenfeld et al. 2005).

Stoops et al. (2007) recently indicated that acute d-amphetamine pre-treatment does not increase stimulant self-administration (Stoops et al. 2007). Grabowski et al. (2004) conducted two studies to investigate efficacy of sustained release d-amphetamine as well as risperidone (an atypical antipsychotic medication for cocaine dependence), each in combination with methadone in 240 (120/study) cocaine and heroin co-dependents, which randomly allocated to one trial medication or placebo (Grabowski et al. 2004). All patients underwent a methadone induction, were stabilised at 1.1mg/kg and received one behavioural therapy session per week. The combination of the methadone and d-amphetamine was found to be significantly more effective than methadone and placebo, and also better than methadone and risperidone for treatment of concurrent cocaine and opioid dependents (Grabowski et al. 2004).

Methylphenidate (MPH), a prescription stimulant commonly used to treat attention-deficit hyperactivity disorder (ADHD), was recently found to be effective for reducing intravenous drug use in patients with severe amphetamine dependence respectively cocaine use in patients with cocaine dependence (Levin et al. 2007; Tiitonen et al. 2007). Furthermore, methylphenidate can be safely provided in an outpatient setting with active cocaine users (Winhusen et al. 2006).

Recently, Collins et al. (2006) found that the provision of up to 20mg memantine, a non-competitive N-methyl-d-aspartate (NMDA) antagonist, did not alter the subjective or reinforcing effects of cocaine in methadone-maintained cocaine smokers (Collins et al. 2006). Also, the maintenance treatment with gabapentin, a medication originally developed for the treatment of epilepsy, did not alter the choice to self-administer cocaine by treatment-seeking cocaine-dependent individuals and was found not to be clinically useful for the treatment of cocaine and methamphetamine dependence (Haney et al. 2005; Hart et al. 2007; Hart et al. 2007a; Hart et al. 2004; Heinzerling et al. 2006). Also, baclofen, a GABA-ergic compound, was found to be ineffective at suppressing self-administration, especially in more intensive cocaine users and seems to have only a small therapeutic effect for the treatment of methamphetamine dependence compared to placebo (Heinzerling et al. 2006).

Abstinence maintenance for stimulant-related disorders

No medication has shown clear efficacy in treating cocaine dependence (Kleber et al. 2006), and no antagonists have been found yet to be effective (UNODC 2002). However, patients with severe forms of dependence and severe withdrawal symptoms or those not responding to psychosocial treatment may find medication to be useful for them (Kleber et al. 2006).

Shoptaw et al. (2006) indicated that the antidepressant sertraline is contraindicated for the treatment methamphetamine dependence due to significant more adverse events compared to placebo conditions (Shoptaw et al. 2006). Newton et al. (2006) suggested that the antidepressant bupropion has some effectiveness in reducing methamphetamine-induced subjective effects and cue-induced craving (Newton et al. 2006). Newton et al. (2006) found reduced acute methamphetamine-induced subjective effects and reduced cue-induced craving under the administration of bupropion, an atypical antidepressant that acts as a norepinephrine and dopamine reuptake inhibitor, and nicotinic antagonist (Newton et al. 2006). Furthermore bupropion was found to be well-tolerated by patients and seems to alleviate the cardiovascular effects of experimentally administered methamphetamine (Newton et al. 2005).

The selective serotonin reuptake inhibitor fluoxetine and the dopamine reuptake inhibitor bupropion had some benefit in small studies but not in larger trials (Kleber et al. 2006). The tricyclic antidepressant desipramine has been studied with inconsistent findings, some studies showing positive effects others not. One study compared desipramine with placebo and found a short term effect of 6 weeks but not at 12 weeks or longer (Kleber et al. 2006). Several recent clinical trials confirmed, that the use of antidepressants such as paroxetine, reboxetine, nefazodone, sertraline, and venlafaxine do not support the treatment of cocaine dependence (Ciraulo et al. 2005; Ciraulo et al. 2005a; Passos et al. 2005; Winhusen et al. 2005). Desipramine, a tricyclic antidepressant (TCA) that inhibits the reuptake of norepinephrine, is associated with depression improvements and therefore with improvements in cocaine use in treatment of cocaine-dependents with depression in an outpatient setting (McDowell et al. 2005). However, the administration with desipramine lead to higher dropout rates due to side effects and medical adverse events (McDowell et al. 2005).

After some initial promising results, the anticonvulsant carbamazepine had no effects in later double-blind placebo-controlled studies (Kleber et al. 2006). In recent clinical trials the anticonvulsants valproate, lamotrigine, and gabapentin were found to be not more effective than placebo in treating cocaine dependence (Berger et al. 2005; Bisaga et al. 2006; Gonzalez et al. 2007; Reid et al. 2005). For the utility of divalproex (an anticonvulsant and mood-stabilising drug) in patients with bipolar disorder and primary cocaine dependence further high quality experimental, placebo-controlled studies are warranted to confirm the promising results of a first pilot study (Salloum et al. 2007). Tiagabine, an anti-convulsive medication, has been shown to lead to reduced positive

urine samples in patients treated for cocaine dependence compared to placebo and may merit further study, although the patients of a recent trial showed difficulties in tolerating low dose of tiagabine (Gonzalez et al. 2007; Winhusen et al. 2005). Topiramate, an anticonvulsant drug, showed recently some promising results in one double-blind study (Kleber et al. 2006) and Kampman et al. (2004) demonstrated that topiramate-treated patients were more likely to be abstinent from cocaine compared to placebo-treated (Kampman et al. 2004).

The GABA agonist baclofen has shown some minor effect (Heinzerling et al. 2006), and one double-blind clinical trial with tiagabine showed more effect than placebo in reducing cocaine use (Kleber et al. 2006). The narcoleptic medication modafinil has shown some effects, but needs further studies (Kleber et al. 2006). Modafinil blocked the euphoric effects of cocaine, significantly decreased systemic exposure to cocaine during the first 180 minutes following intravenous cocaine administration and improves clinical outcome when combined with psychosocial treatment for cocaine dependence (Dackis et al. 2005; Donovan et al. 2005; Ginsberg 2005). Malcolm et al. (2006) found in their recent clinical trial⁶ no significant hemodynamical interactions between modafinil and cocaine, but further outpatient trials appeared to be warranted (Malcolm et al. 2006). The systematic review by the APA describes mixed results on dopamine agonists: amantadine, an antiviral drug, has been best studied but with no overall benefit, only in some studies (Kleber et al. 2006). Kampman et al. (2006) used a double-blind, placebo-controlled design to evaluate the efficacy of amantadine, propranolol, a non-selective beta blocker mainly used in the treatment of hypertension, and their combination in one hundred and ninety-nine cocaine dependent patients with severe cocaine withdrawal symptoms (Kampman et al. 2006). Neither propranolol nor amantadine or their combination was found to be significantly more effective than placebo in promoting abstinence from cocaine in these extremely difficult-to-treat patients, whereas highly adherent patients to study medication showed better treatment retention and higher rates of cocaine abstinence under the provision of propranolol compared to placebo (Kampman et al. 2006).

Reid et al. (2005) found no effectiveness of the atypical antipsychotic agent olanzapine for the treatment of cocaine dependence with regard to cocaine use, as measured by urine Benzoyllecgonine (BE)⁷ levels and self-report (Reid et al. 2005) and risperidone, another atypical antipsychotic medication, were found to be insufficient in reducing cocaine craving in cocaine dependents (Smellson et al. 2004). The partial dopamine agonist aripiprazole have shown promising results in a small clinical trial regarding subject-related and cardiovascular effects, but further research is needed to confirm the effectiveness (Lile et al. 2005). However, typical and atypical psychotic agents such as haloperidol, olanzapine and risperidone, were found to be effective in the treatment of patients with co-occurring schizophrenia and cocaine dependence (Albanese & Suh

⁶ Phase I of clinical trials: First stage of testing a drug/agent/medication in human subjects

⁷ Benzoyllecgonine is the major metabolite of cocaine

2006; Rubio et al. 2006; Sayers et al. 2005; Smelson et al. 2006). Stoops (2006) indicated that the aripiprazole, an atypical antipsychotic medication approved for the treatment of schizophrenia and acute manic and mixed episodes associated with bipolar disorders, may have clinical utility in treating stimulant dependence, but large-scale clinical trials are needed to confirm the efficacy (Stoops 2006). Otherwise, mazindol, a catecholamine reuptake inhibitor and antipsychotic agent, was found to be ineffective in reducing cocaine consumption, cocaine craving, and psychiatric symptoms in patients diagnosed with comorbid schizophrenia and cocaine abuse or dependence (Perry et al. 2004).

Dopamine agonists like selegiline, l-dopa/carbidopa, pergolide had inconclusive or negative findings and altogether no superiority to placebo (Kleber et al. 2006) and also recent findings did not confirm the support for the efficacy of dopamine agonists for the treatment of cocaine dependence (Ciraulo et al. 2005; Focchi et al. 2005; Gorelick & Wilkins 2006). However, Shoptaw et al. (2005) found good results for cabergoline, a potent dopamine receptor agonist, regarding improvements in addiction severity and negative urine samples for cocaine metabolites and provided empirical support for conducting a larger study of the medication (Shoptaw et al. 2005).

The opiate antagonist naltrexone has not been found useful for treatment of cocaine dependence (Kleber et al. 2006; Schmitz et al. 2004). Schmitz et al. (2004) found, that 50 mg/day of naltrexone failed to reduce either cocaine or alcohol use in co-occurring cocaine and alcohol abusers, whereas psychotherapy significantly reduced cocaine use during the first 4 weeks of treatment (Schmitz et al. 2004). Baker et al. (2007) found that the administration of disulfiram reduced cocaine-associated subjective effects ('high' and 'rush') (Baker et al. 2007). Carroll et al. (2004) showed that the provision of disulfiram alone and in combination with cognitive behaviour therapy (CBT) is effective in reducing cocaine use in cocaine-dependent outpatients (Carroll et al. 2004). Several further medications were recently investigated with regard to their efficacy for treatment of cocaine dependence. Progesterone, a steroid hormone, attenuated some of the physiological and subjective effects of cocaine, but further studies are warranted to assess the efficacy (Sofuoglu et al. 2004). High doses of dehydroepiandrosterone, a natural steroid prohormone, seems to be contraindicated as a pharmacotherapy for cocaine dependence due to increasing cocaine use compared with placebo (Shoptaw et al. 2004). Tryptophan, an essential amino acid, did not significantly prevent relapse to cocaine use or attenuate cocaine use after relapse (Jones et al. 2004). Levodopa (L-dopa), an intermediate in dopamine biosynthesis, and amlodipine, a calcium channel blocker, were found to be not superior to placebo in reducing cocaine use (Malcom et al. 2005; Mooney et al. 2007). Also selegiline, a drug used for the treatment of Parkinson's disease, does not support the treatment of cocaine dependence (Elkashef et al. 2006), as well as celecoxib, a non-steroidal anti-inflammatory drug (Reid et al. 2005).

Immunisation and vaccination are two strategies with a long tradition and very little empirical proof of effectiveness (Kantak 2003). In (passive) immunisation, catalytic antibodies are injected that bind cocaine and subsequently hydrolyse cocaine into the inactive products ecognine methyl ester and benzoic acid. A cocaine vaccine has also been proposed; this would attempt to block the effects of cocaine using cocaine antibodies (Bagasra et al. 1992). This unique approach to the pharmacotherapy of cocaine addiction was initiated by immunisation experiments that demonstrated specific cocaine antibody production in animals (Carrera et al. 1995; Carrera et al. 2000; Fox 1997; Fox et al. 1996). Cocaine-specific antibodies can sequester cocaine molecules in the bloodstream, thereby allowing naturally occurring enzymes (cholinesterases) to convert cocaine into inactive metabolites, which are then excreted. As the antibodies cannot cross the blood-brain barrier, the vaccine is not expected to have any direct psychoactive effect. As the antibodies prevent cocaine from having an effect, the reinforcing effect of continued cocaine use would be dampened. Furthermore, the vaccine persists for months, so there is no need for daily administration of medication. A randomised, double-blind, placebo-controlled clinical trial involving 34 former cocaine users was carried out to assess the safety and immunogenicity of the therapeutic cocaine vaccine TA-CD (Kosten & Biegel 2002). The results of this trial showed that the vaccine induced cocaine antibodies in a time- and dose-dependent manner and that it was well tolerated with no serious adverse events during 12 months of follow-up. This trial was then followed up by an open-label, 14-week, dose escalation study evaluating the safety, immunogenicity and clinical efficacy of the cocaine vaccine (Martell et al. 2005). Ten cocaine-dependent subjects received a total dose of 400 µg of vaccine in four injections over the course of 8 weeks and eight cocaine-dependent subjects received a total dose of 2 000 µg of vaccine in five injections over the course of 12 weeks. The results showed a high completion rate, no serious adverse events, good tolerance and a significantly higher likelihood of cocaine-free urine in the high-dose group at 6 months. The results are most encouraging when compared with other pharmacological strategies, but will have to be replicated in further studies.

Pharmacotherapy for the treatment of cannabis related disorders

Neurobiological trials on cannabis withdrawal demonstrate the importance of the development of further pharmacological options for the treatment of cannabis dependence. Different published studies have employed laboratory animals to evaluate medication effects on cannabinoid withdrawal symptoms. Nevertheless clinical trials of human participants are rare and none of the included effectiveness reports found clinical trials supporting a medication for the pharmacotherapy of cannabis dependence (Kleber 2003; UNODC 2002). Some findings suggest that oral delta-9-tetrahydrocannabinol (THC) might be helpful in suppressing cannabis withdrawal (Budney et al. 2007). In a recent clinical trial eight daily cannabis-using adults were randomly allocated to placebo or lower dose of THC (30 mg) or higher doses of THC (90 mg) during three 5-days

periods of abstinence from cannabis. A lower daily dose of THC reduced withdrawal discomfort, where as higher daily doses showed a greater effect in suppressing withdrawal symptoms (Budney et al. 2007). These results replicated the findings of another clinical trial that demonstrated that THC administration beginning on the first day of marijuana abstinence lead to decreased symptoms of cannabis withdrawal, like anxiety, misery, chills or self-reported sleep disturbance, relative to placebo (Haney et al. 2004). Oral THC also decreased marijuana craving during abstinence compared to placebo. The same study investigate the effect of the mood stabiliser divalproex to attenuate a broader range of cannabis withdrawal symptoms, compared to antidepressants, such as nefazodone and bupropion (Haney et al. 2004). As like bupropion, maintenance with divalproex prior to and during marijuana abstinence also markedly worsened mood such as irritability, edginess, anxiety and sleepiness (Haney et al. 2004). Another double-blind placebo-controlled study focused on the effectiveness of the anticonvulsant drug gabapentin in suppressing cannabis use and cannabis withdrawal symptoms (Escher et al. 2005). In several studies gabapentin was found to be effective and safe in treatment of depression, anxiety, insomnia, aggression, and alcohol withdrawal. Twenty-one non treatment-seeking volunteers with concurrent DSM IV8 cannabis and alcohol abuse or dependence were randomly treated with gabapentin (1200 mg/d) or placebo. Gabapentin administration decreased a subset of marijuana withdrawal symptoms compared to placebo as measured by the Marijuana Withdrawal Checklist (MWC). Patients reported less sleep disturbance and enhanced sleep quality. Gabapentin was also associated with diminished urge to use cannabis and alcohol (Escher et al. 2005).

Quetiapine, an atypical antipsychotic medication, seems to decrease cravings for cannabis in patients with co-occurred psychotic and substance use disorders (Potvin et al. 2006). Nevertheless, these findings were only shown in an open label trial and a final conclusion could only made after verification in a randomised, placebo-controlled trial design. In summary, different agents, such as bupropion, divaleproex, naltrexone, and nefazodone were investigated for the treatment of cannabis dependence and for the prevention of cannabis reinstatement after abstinence, but each medication missing broader effectiveness (Kleber 2003; UNODC 2002). Oral delta-9-tetrahydrocannabinol (THC) might be helpful in suppressing cannabis withdrawal.

5.3 Psychosocial interventions for the treatment of drug dependency

A wide range of psychosocial interventions is available for the treatment of drug dependence. As many different study designs were used to explore psychosocial treatment, it is difficult to compare the individual direct outcomes. The optimal duration of treatment might be a key point but has hardly been studied. The review of Gowing et

⁸ DSM = Diagnostic and Statistical Manual of Mental Disorders; list of categories of mental disorder and the criteria for diagnosing them

al. found limited strength of evidence that best outcomes are associated with treatment duration of at least three months with at least weekly sessions (Gowing et al. 2001) The intensity of treatment has been investigated in a few studies. Comparing a once-weekly with a thrice-weekly counselling for buprenorphine-naloxone maintenance treatment, Fiellin et al. did not find significant differences between the groups (Fiellin et al. 2006). Highly structured relapse prevention seems to be more effective than less structured interventions, with regard to cocaine users with co-morbid depression (UNODC 2002, p.14). Treatment should match the patient and should be relevant to the individual (Gowing et al. 2001). Some form of treatment may be more useful for women than for men, others might be better for cocaine users than cannabis users (Haro et al. 2006), so it is important to carefully choose and provide the optimal treatment setting for the individual.

Often different approaches and methods are combined or compared. Combining different treatment approaches can lead to improved results. One small American study compared motivational enhancement plus CBT plus vouchers with motivational enhancement only or with CBT. The latter two groups showed on average 7 days of abstinence in the month prior to the last measurement, the three-way group had 13 days on average (Rigter et al. 2004).

In general, treatment outcomes may differ if treatment is coerced: one study on methamphetamine users compared those with legal and/or other agencies' treatment referrals to those who entered treatment voluntarily. Treatment outcomes did not differ; however, those with legal pressure had more relapses within 6 months (Brecht et al. 2005).

One study on adolescent cannabis users (12-18 years) with 600 participants compared five different interventions: Motivational enhancement followed by a short CBT for 6 weeks, 8-10 additional CBT sessions on top of the motivational enhancement and short CBT for 12 weeks, family support network additionally to the extensive CBT, Adolescent Community Reinforcement Approach (ACRA) and multidimensional family therapy. (Dennis et al. 2004). All of these interventions reduced the number of problems connected with cannabis use and the number of days of use was reduced. There was no difference between the more intensive and less intensive interventions. A critical point of this study mentioned by Rigter et al. (2004) is the fact, that not all the users were dependent and did not seek help themselves but were referred to, as cannabis use in the USA is considered more of a problem than in Europe (Rigter et al. 2004, 46). Psychosocial treatment usually improves substitution maintenance treatment outcomes for opiate dependent patients (Montoya et al. 2005).

Cognitive-Behavioural Therapy (CBT)

Cognitive-behavioural therapy as a structured psychosocial intervention aims at modifying cognition, behaviour, beliefs. Usually some kind of skills training and

practice to deal with craving is involved, as well as monitoring high-risk situations for relapse. There can also be the focus on relapse prevention, by training the drug users to develop skills on avoiding high-risk situations and to cope with such situations. Some kind of cognitive-behavioural interventions are used in many therapy settings in Europe. They might be modified and used in different approaches.

CBT is of the most common and best evaluated methods for treating cocaine dependence in the USA (UNODC 2002). CBT also seems to have long-term effects with respect to decrease of cocaine use after leaving treatment (Kleber et al. 2006). Compared with no treatment in the control group, CBT showed better outcomes (UNODC 2002). CBT appears to be especially effective in patients with more severe dependence or co-morbid mental illness (Kleber et al. 2006). CBT seems to be more effective on long-term abstinence than most others psychosocial interventions (Gowing et al. 2001). CBT shows some usefulness, especially for moderation of use, but research outcomes are inconclusive (Rigter et al. 2004). Homework compliance within the CBT programme for cocaine dependence was significantly linked with better retention and reduction of use, also in quantity and quality of coping skills (Carroll et al. 2005; Gonzalez et al. 2006). Four RCTs compared CBT with the twelve steps or similar programmes and considered CBT superior especially concerning moderation of use (Rigter et al. 2004). In one Australian study on CBT with amphetamine users, the authors reported improvements in somatic symptoms, anxiety, and depression and in amphetamine refusal self-efficacy (Feeney et al. 2006). Concerning the intensity of CBT one trial found that the number of treatment sessions had a significant effect on the level of depression, and also abstinence rates were better in those attending at least twice (Baker et al. 2005). CBT has greater benefits than less intensive approaches under controlled conditions (Kleber et al. 2006), and seems to be at least as effective as manual-guided disease-model approaches. Another RCT on cannabis compared 14 CBT sessions with two sessions of motivational enhancement and had a control group with no treatment. After four months the two treatment groups had better outcomes than the control group concerning moderation of use and symptoms of dependency. Also after 16 months the two treatment groups were equally effective with 25% being abstinent (Kleber et al. 2006; Rigter et al. 2004). In order to increase treatment adherence in heroin dependent patients in naltrexone treatment a behavioural naltrexone therapy was conducted in one RCT. It was more successful than a control group in standard treatment, but still had substantial drop-out and rather poor retention at 6 months (Nunes et al. 2006). Other variables like crime, health and social functioning did not differ between the treatment and control group, reduction in amphetamine use was found in both groups (Baker et al. 2005).

One RCT on substance use disorders with psychotic disorders compared standard treatment with MI/CBT intervention for psychotic patients with alcohol, cannabis and/or amphetamine problematic use (Baker et al., 2006). There were no differences in substance use at 12-month except for a small one in amphetamine use, but there was a

short-term improvement in depression and also in cannabis use and effects on general functioning for the MI/CBT group (Baker et al. 2006). According to one study among mostly homeless and mentally disordered crack smokers, CBT had better outcomes than a 12-step programme and CA participation, but overall there was a high dropout rate (UNODC 2002).

One special form of behavioural treatment especially for those with severe mental comorbidity was studied in a randomised trial on drug dependent (cocaine, heroin or cannabis) and mentally ill patients. The Behavioural Treatment for Substance Abuse in Severe and Persistent Mental Illness (BTSAS) was compared with Supportive Treatment for Addiction Recovery (STAR) as a control condition; both were conducted twice a week for six months. The BTSAS programme was significantly more effective in clean urine samples, attendance, treatment retention rate and attendance at sessions (Bellack et al. 2006).

One RCT investigated the so-called Matrix Model, a manualised behavioural approach, in the treatment of methamphetamine dependence, and found it to be efficacious although over time the effects did not differ anymore from the control group (Rawson et al. 2004).

Brief skills interventions led to shorter and less severe relapses than “attention placebo”, both conditions having been combined with 12-step-principles and social learning principles (UNODC 2002).

A comparison between CBT and interpersonal psychotherapy showed that CBT had more treatment completers and longer abstinence after treatment (UNODC 2002), these results being especially significant with severe cocaine users (UNODC 2002).

A manual-guided spiritual self scheme therapy, a form of behavioural treatment, was studied in a stage I study for drug dependence. This integrates a cognitive model of self with a Buddhist framework suitable for all faith backgrounds (Avants et al. 2005). There was evidence for a shift in self-scheme, and this shift (from ‘addict self’ to ‘spiritual self’) was correlated with change in drug use (Avants et al. 2005).

In summary, CBT has especially good outcomes in the long-term view and for different patient groups and especially for those with more severe dependence symptoms or comorbid mental illness. It has been conducted for cocaine dependence in a number of studies with good results, and also for other substances.

Motivational Interviewing (MI)

This intervention is based on cognitive-behavioural principles and was developed by Miller and Rollnick (1991). MI does focus on enhancing motivation to change problematic behaviour and uses methods like developing a feeling for discrepancies, expressing empathy, support self-efficacy. It is often used as a brief intervention.

In substance-unspecific treatment “motivational enhancement” has been examined in a number of research studies. In general good results were found with respect to reinforcing the willingness to undergo and continue interventions (Carroll et al. 2006).

Motivational enhancement has especially good outcomes for patients with lower initial motivation than for those with higher initial motivation (Rohsenow et al. 2004). Also for cannabis use positive results for MI have been found, i.e. greater reduction in use and use-related problems (UNODC 2002).

A controlled study from Australia on heroin users in methadone maintenance treatment showed Motivational Interviewing to lead to less drug use, later relapse, longer stay in treatment (UNODC 2002). A US “Marijuana Treatment Project” compared two groups: The first had two motivational enhancement sessions, the second had nine sessions consisting of motivational enhancement, CBT and case management. A control group consisted of a no treatment group: those on the waiting lists. Both treatment groups reduced the days of use, and nine sessions had better results than two sessions. Also the number of symptoms of cannabis dependence and the number of problems with cannabis were reduced, but the second group did not do better regarding coping-skills as it was expected (Litt et al. 2005).

A brief motivational intervention for cocaine and heroin users tested abstinence at 3- and 6-month follow-up, and found better results for the treatment group, for both cocaine and heroin use (Bernstein et al. 2005). A brief MI intervention for young methamphetamine dependent patients was more successful than the psychoeducation control group although MA use decreased in both groups only on the short-term scale (Srisurapanont et al. 2007). A multi-site study with 450 cannabis-dependent patients compared a delayed treatment control with a two-session motivational approach and with a nine-session combined motivational and coping skills approach. The two latter interventions had greater reductions in cannabis use than the delayed treatment, both at 4 month and 15 month follow-up (Kleber et al. 2006, 159). The combination of brief MI intervention with psycho-physiological personalised feedback was effective in one pilot RCT (Stotts et al. 2007). As a low-threshold intervention in a group setting it can be helpful to start and maintain participation in treatment, especially for patients with more severe dependence (Rosenblum et al. 2005). Also for special subgroups like co-morbid patients MI showed effectiveness. A two-session MI and the control group with standard psychiatric interview for co-morbid patients (psychosis and drug use disorders) did find improved treatment outcomes for both groups; differences were significant when looking at different kind of drugs used: for cocaine users the MI intervention had better treatment outcomes, but for the cannabis users the SI (standard psychiatric interview) group had better outcomes (Martino et al. 2006).

Community Reinforcement Approach (CRA)

The Community Reinforcement Approach (CRA) uses a range of methods and is based mainly on cognitive-behavioural principles. Its concept includes that environmental contingencies (like family, peers, work, leisure time involvement) can play a helpful

role in encouraging or discouraging drug use. CRA is often combined with Contingency Management or similar incentive programmes.

A meta-analysis on CRA found strong evidence that CRA with incentives is more effective than usual care or CRA without incentives for the treatment of cocaine dependence. The same found limited evidence that CRA with incentives is more effective in an opioid detoxification programme and more effective than a methadone maintenance programme (Centre for Reviews and Dissemination 2007b). One RCT compared the impact of different values of the vouchers during a CRA treatment; the high-value group (maximal value \$1995/12 weeks) had greater and longer abstinence than the low-value group (maximal \$499/12 weeks), but this relationship weakened over time (Higgins et al. 2007).

First reports on CRAFT (CRA Family Training) are promising for drug users in general, without substance-specific effects (Rigter et al. 2004). One study on Adolescent Community Reinforcement Approach (ACRA) compared the intervention as an aftercare programme with normal aftercare, and found reduced days of use and a higher rate of abstinence after one year in the ACRA group (Rigter et al. 2004).

One study compared CBT, rewards, and the combination of both, where all three seemed to be successful in reducing the use, but without significant differences (Rigter et al. 2004).

Some studies compared CRA with standard drug counselling with referral to AA, randomised and controlled, and found better outcomes regarding abstinence, duration of abstinence, personal functioning improvements and staying in treatment, finding that the different components of the CRA contribute to the overall outcomes (UNODC 2002).

Contingency management (CM)

Contingency management is another form of behavioural approach. The principle of this approach is that “rewards” are given to those who have negative urine samples to reinforce abstinent behaviour. Those incentives can be implemented in the form of vouchers or prizes, and also privileges in the treatment setting. CM is usually embedded in a treatment like CRA or structured drug counselling. As Contingency Management is hardly conducted in Europe, research on the effectiveness comes almost exclusively from the USA. CM was found to be effective in reducing drug use and treatment retention, but these results tend to be short-term only.

A meta-analysis found CM to be effective in reducing drug use in methadone treatment (Centre for Reviews and Dissemination 2007a), but not all research found positive outcomes of voucher-based interventions (Gowing et al. 2001). It has been found to be effective in a number of studies, in different samples and settings: cocaine users in methadone maintenance, pregnant women, homeless people, freebase using people (Kleber et al. 2006).

The motivation to change substance use was studied in one randomised trial, where patients were randomised to either standard treatment or standard treatment plus CM, and motivation was measured with the stages of change model URICA 3 months later. The CM group had longer duration of abstinence, but the groups did not differ concerning their motivation to change substance use (Ledgerwood et al. 2006).

Apart from longer duration of abstinence CM also seems to improve Quality of life, measured with the Quality of Life Inventory (QOLI) in cocaine users (Petry et al. 2007). For methamphetamine users CM also had good results (Roll, Petry et al. 2006). Contingency reinforcement therapy showed promising results in abstinent cocaine users; compared to interpersonal problem-solving a treatment package combined with voucher payments had better outcomes in the one study, when vouchers were delivered immediately after negative urine samples, than in a second study where vouchers were delivered weekly with a small value in the beginning (UNODC 2002). In the first study, half of the respondents completed treatment and achieved one-month abstinence in their cocaine use, whereas in the second study nobody achieved this goal (UNODC, 2002). Reinforcement treatment is more successful when the reinforcements have increasing magnitude for consecutive abstinence and reset after positive urinalysis (Roll et al. 2006). In order to link opioid dependent patients from hospital treatment to further drug treatment vouchers for free methadone were compared with case management. Both interventions had higher percentage of enrolled patients at three months and at six months, and are therefore more helpful than standard treatment in linking drug dependents to treatment system (Sorensen et al. 2005).

The effects of CM have been investigated for methadone maintenance patients in a number of studies. CM attendance resulted in longer periods of abstinence than a performance feedback control group, but this difference disappeared at the end of the 24-weeks intervention (Schottenfeld et al. 2005). CM condition in connection with standard outpatient treatment resulted in more and longer abstinence among cocaine and amphetamine users, and also retention was better than in the control group (Petry et al. 2005). Concerning the possible amount of prizes, for more severe dependent patients the outcomes on abstinence were magnitude-dependent, whereas with those patients who started treatment already with negative urine samples, the level of prizes did not effect abstinence during treatment and was here the same as in the control group (Petry et al. 2004). Combined with group therapy in methadone clinic, the prize-based CM patients had more cocaine-negative urine samples and attended more group sessions than the control group with standard treatment (Petry et al. 2005). Brief voucher-based reinforcement for cocaine users in a methadone maintenance patient sample was effective in the short-term (Sigmon et al. 2004). On the other hand, a long-term reinforcement for cocaine use in methadone patients was investigated as well in a 52-weeks intervention, and vouchers were highly effective in decreasing cocaine use (Silverman et al. 2004).

CM showed better treatment retention and drug-free urine in cannabis users and even more so in combination with Motivational Enhancement and CBT, while CBT in combination with Motivational Enhancement (MET) had continued reduction in use through a six-month follow-up (Carroll et al. 2006).

Directly compared with CBT, CM treatment resulted in better retention rates and lower stimulant use during treatment whereas CBT had longer-term outcomes, and no additive effect for the combination of both interventions was found (Rawson et al. 2006). This was shown as well for cocaine using methadone patients (Rowan-Szal et al. 2005). For homeless cocaine users in a shelter a CM intervention was effective on reducing cocaine use (Tracy et al. 2007). A clinical trial on adult cannabis dependent persons found vouchers to maintain abstinence during treatment, whereas CBT enhanced the post-treatment abstinence maintenance (Budney et al. 2006).

A comparison of contingent voucher treatment with a motivated stepped care (MSC) found similar outcome on negative urine samples for both groups, both significantly higher than Standard Care, and a still higher proportion for the combined therapy of vouchers and MSC. Regarding retention the voucher group was superior while the stepped-based care had better adherence to counselling sessions (Brooner et al. 2007).

Different approaches and deliveries of contingencies are compared in a number of studies. The effectiveness of prize-based incentives in stimulant dependent patients was studied, and different treatment histories and experiences were taken into account. The effectiveness of incentives did not differ between the experienced and inexperienced patients (Killeen et al. 2007). Alessi et al. conducted a two-phase crossover design study on prize-based contingency management, where standard treatment was compared with CM condition, which consisted of a 12-week standard treatment plus the possibility of winning prizes for negative urine samples and treatment attendance (Alessi et al. 2007). Outcome was measured in weeks retained in treatment and duration of abstinence (at 6 and 9 month follow-up). Weeks retained did not differ between groups but the longest duration of sustained abstinence (LDA) was significantly higher in the CM condition (Alessi et al. 2007). Another form of CM is to reinforce goal-related activities instead of reinforcing abstinence by negative urinalysis, but the latter group had better outcomes (Petry et al. 2006). On the other hand both vouchers and prizes as a contingent treatment have similar outcomes on treatment (Petry et al. 2005).

Also housing has been used as contingencies for homeless substance users: An intensive behavioural treatment for homeless cocaine-dependent people with three groups: treatment only, treatment plus housing for six months and treatment plus housing as a contingency for drug abstinence. The two housing groups had better outcomes concerning stable housing and employment (Kertesz et al. 2007). Another study on contingent housing and work also found more abstinent patients who also stayed abstinent for a longer time and had fewer relapses than the control group (Milby et al. 2004).

A comparison between voucher and buprenorphine contingency and standard treatment without contingencies for heroin-dependent patients with cocaine use showed no difference in the retention rate between the groups, but the buprenorphine group had more weeks of continued abstinence from heroin and cocaine (Gross et al. 2006). Another study found that combining CM with bupropion had better outcome on cocaine use in methadone patients than bupropion alone (Poling et al. 2006).

Guidelines for voucher purchases did not seem to be a critical aspect of voucher programmes, as no differences in the kind of purchases were found (Pantalon, et al. 2004).

Those patients who participate in family activities during their CM treatment remained longer in treatment, were abstinent for more weeks and reported greater reduction in family conflicts than those who did not participate in family activities (Lewis et al. 2005).

Concerning cocaine users with schizophrenia in a small-scale study CM reduced cocaine use in all three individuals (Roll et al. 2004).

Cue exposure therapy (CET)

Cue exposure is based on learning theory principles. It consists of repeated exposure to stimuli or cues associated with drug use (e.g. sight of a syringe for intravenous drug users) and aims at controlling or changing responses to these cues. Until now this intervention has been mainly done in laboratory conditions.

Aversion therapy works with cues, and one experimental controlled comparative study on crack cocaine craving compared three different aversion therapies: chemical, covert sensitization and faradic; results indicate the usefulness of aversion therapy in order to reduce craving (Bordnick et al. 2004).

Psychodynamic and interpersonal therapies

Psychodynamic interventions originate in the psychoanalytical approach and work on unconscious conflicts, relationships and problematic situation. The therapist-patient interaction and relationship is an important feature in this approach. Other Interpersonal therapies focus on interpersonal relationships and issues as well, and aim at resolving interpersonal problems.

No RCTs have been conducted for treatment using psychodynamic or interpersonal therapy, but a case series on individual psychodynamic psychotherapy and some reports on group psychodynamic therapy showed some efficacy. One clinical study on the comparison between interpersonal psychotherapy (IPT) and CBT found CBT to be superior (Kleber et al. 2006). Supportive-expressive therapy, a type of psychodynamic therapy, was one of four interventions studied in the NIDA collaborative cocaine treatment study, but seemed to be less effective than individual plus group drug counselling in decreasing cocaine use (Kleber et al. 2006).

A comparison of Relational Psychotherapy Mothers' Group (RPMG) with Recovery Training for substance dependent mothers in a methadone clinic found better outcomes for the first group concerning child maltreatment, cocaine use, and greater improvement for the children of those mothers. But at six months follow-up these differences between the two groups were not present any longer (Luthar et al. 2007).

A Dual Focus Schema Therapy (DFST) was conducted for personality disordered opioid dependent persons in methadone maintenance treatment. Compared to the 12-step control group the treatment group had more rapid decreases in the frequency of use, on the other hand the control group had better reductions of dysphoric affect. There were no group differences for retention, utilisation, reduction in psychiatric symptoms and other severity indicators (Ball 2007).

Ketamine-assisted psychotherapy was tested as a single-session intervention and as a three-session intervention for heroin dependence and showed a higher rate of abstinence for the second group while both groups had better outcomes than the control group with standard treatment (Krupitsky et al. 2007).

Counselling

Counselling can be defined as a client-centred intervention to help the individual to overcome problems (EMCDDA 2007). In the US standard treatment is often based on the 12-step principle, both for individual and group counselling. However, in Europe counselling is not necessarily based on the 12-step principle.

One study found less frequent cocaine use after regular abstinence-oriented counselling (UNODC 2002), another study compared intensive counselling in a structured day programme with four-weeks inpatient treatment of cocaine users, and found improvements for both groups (UNODC 2002). For the treatment of cannabis dependence counselling approaches seem to be beneficial according to a Cochrane systematic Review, as well as CBT and CM approaches, yet with low abstinence rates for all of them, so the overall conclusion of this review is inconclusive and highlights the fact that treatment of cannabis dependence seems difficult (Denis et al. 2007).

An Australian RCT studied the effect of a postnatal home visit programme for drug-using (heroin, amphetamine, cannabis, benzodiazepines) mothers. Concerning drug use there was no difference between the treatment group and the control group (no visits), both reduced the drug use during pregnancy but drug use increased again by six-month post-partum (Bartu et al. 2006).

A brief counselling approach – Medical Management – was conducted as a preliminary study in methadone maintenance treatment and showed effects on drug use, as well as drug counselling (Pantalon et al. 2004).

A further study showed that the frequency of attendance is positively related to lower risk of relapse in a six-month follow-up (UNODC 2002). Telephone-based continuing care following outpatient treatment for cocaine and/or alcohol users produced the same abstinence-related outcomes than the control groups with either face-to-face relapse

prevention or standard 12-step group counselling (McKay et al. 2004), but seemed to be somehow effective as an step-down treatment for most patients (McKay et al. 2005).

The effect of either 12-step facilitation or Acceptance and Commitment Therapy (a behavioural oriented, spiritual approach) was investigated for patients in methadone maintenance treatment and compared to no psychosocial treatment in addition to the methadone treatment. Both conditions had better outcome than the methadone only control group concerning drug use (Hayes et al. 2004).

Group counselling

One large study by the NIDA on cocaine dependence compared four treatment settings: group counselling alone, group counselling with individual counselling, group counselling with cognitive psychotherapy, group counselling with supportive expressive psychotherapy (UNODC 2002). Concerning reductions of use, the group and individual counselling together was the most successful while the other three groups were similar in outcome (UNODC 2002). One RCT on a manualised group intervention for comorbid (psychosis) drug users found substance reduction in the treatment condition (James et al. 2004).

Also professional treatment uses 12-step principles in group and individual drug counselling. Intensive sessions (36 individual and 24 group sessions over 24 weeks) have shown significant effects in reducing cocaine use, the greatest effects for 12-step based individual drug counselling plus group drug counselling, compared to supportive-expressive therapy, cognitive therapy and drug counselling alone (Kleber et al. 2006). 12-step-oriented standard group counselling seems to be similarly effective than relapse prevention aftercare (Kleber et al. 2006). One study of mild cannabis dependence among adolescents focused on a manual-guided, group-based treatment and found reduced use at 6 months and also sustained at 12 months (Kleber et al. 2006).

Twelve-step and other self-help

The 12-step approach is based on the principles of Alcohol Anonymous and has been adapted for other groups as well. 12-step interventions are one of the most common approaches in the USA and also rather common in Europe in different. Participation in 12-step oriented self-help groups seems to reduce cocaine use, the higher the frequency of participation, the greater the effect (Kleber et al. 2006). Also active participation in self-help groups predicted less cocaine use and seems more important than attendance alone (Weiss et al. 2005). TSF (twelve-step fellowship) showed significantly greater effects in alcohol and cocaine users than clinical management for reducing cocaine use, comparable to the effects of CBT (Kleber et al. 2006). A post-treatment participation in 12-step self-help had better outcome in a group of cocaine- or alcohol-dependent patients in a day hospital rehabilitation programme (UNODC 2002).

Therapeutic Communities (TC) and other inpatient treatment

Therapeutic communities (TC) have an inpatient treatment approach originated in the USA. They are based on democratic and de-institutionalised principles and aim at abstinence, often also at smoking cessation. A Cochrane systematic review on therapeutic communities included seven RCT's. There is only limited evidence that TC is significantly superior to other inpatient treatment; compared to community residence no differences were found concerning treatment completion, compared to day TC the residential group was significantly better in attrition and abstinence rates, and two of the RCTs investigated TCs in prison (see WP 4) (Smith et al. 2007).

Other group and family therapies

A rather special form of treatment has been tried in a small initial randomised pilot study: Mindfulness meditation plus standard treatment was compared with standard treatment only on substance-abusing patients (Alterman et al. 2004). There were no differences found in urine results or psychological health, but the ASI composite scores indicated greater improvement in medical problems for the meditation group (Alterman et al. 2004). One preliminary study on spiritually-focused group therapy plus acupuncture found longer abstinence from heroin and cocaine than in the acupuncture only group (Margolin et al. 2005).

The JEWEL project (Jewellery Education for Women Empowering their Lives) was an economic empowerment and HIV prevention intervention for illicit drug using women with prostitution involvement. Compared to pre-treatment there were reductions in daily drug use and number of sex partners (Sherman et al. 2006).

One study found better outcomes regarding cocaine use for an aftercare programme with a combination of group therapy and structured relapse prevention than for group therapy alone (after intensive outpatient treatment for both groups) (UNODC 2002).

5.4 Evidence from Europe

Pharmacological treatment agents for opioid-related disorders

Pharmacotherapy of opioid withdrawal/detoxification

Various Cochrane reviews on detoxification indicate that the most extensively tested effective strategy for the detoxification of heroin dependent patients is replacement of the illicit short-acting opioid by the long-acting opioid-agonist methadone, which is subsequently tapered and finally discontinued (Amato et al. 2005). The process and outcome of long-acting opioid-agonist tapering may be improved through additional prescription of a calcium channel blocker such as nimodipine (Jimenez-Lerma et al.

2002), whereas additional prescription of amantadine (antiviral drug also used as an antiparkinsonic) does not seem to improve the effectiveness of methadone tapering in heroin dependent patients with or without a co-morbid cocaine dependency (Perez de los Cobos et al. 2001).

Methadone as a detoxification agent (including methadone reduction treatment)

Methadone the most commonly used opiate agonist for detoxification treatment in Europe, mainly carried out in a linear reduction schedule with equal dose decreases. Reducing doses of methadone is currently accepted as a standard detoxification approach and despite the low retention rate, most patients in Europe are treated in an outpatient treatment setting (Gossop 2006). Methadone has been described as the most effective pharmacotherapeutic agent currently used in detoxification (Kreek 2000). Nevertheless, various patients relapse to heroin use and in comparison to methadone maintenance treatment, methadone withdrawal treatment leads to high drop-out rates, even though the effect on the proportion of positive urine samples in both treatment modalities remains high (Amato et al. 2007; Simoens et al. 2000). Methadone reduction treatment, as a special form of long-term methadone detoxification treatment, has similarities with gradual methadone treatment (Gossop 2006). Likewise the results are analogical to those of methadone maintenance programmes. As only two thirds of the patients in methadone reduction treatment received the planned reducing doses, methadone reduction treatment is frequently not delivered as intended (Gossop 2006). Even if methadone reduction treatment is delivered as intended, the outcomes remain poor especially in comparison to methadone maintenance treatment in terms of reduction of illicit opioid use and criminal behaviour (Gossop 2006). Higher doses of methadone (60 mg) for non-rapid detoxification were found to be more effective than lower doses (20 mg) with regard to treatment retention (Berglund et al. 2003). Also fixed methadone detoxification programmes may lead to higher retention rates than flexible methadone detoxification schedules, maybe because of reduced mean doses in the flexible regime group (Simoens et al. 2000). However, another European report found no differences between fixed and flexible reduced mean doses (Gossop 2006).

Patients who are informed about the methadone withdrawal schedule have better outcomes than uninformed patients, although patients do not have better outcomes, when they control their methadone schedule on their own (Rigter et al. 2004). Compared to other opioid agonists, methadone showed better outcomes in terms of completion rate and less severe withdrawal symptoms (Amato et al. 2004). Different European effectiveness reports demonstrated that the potential of methadone to alleviate withdrawal symptoms is equal to α 2-adrenergic agonists, like clonidine or lofexidine (Berglund et al. 2003; Rigter et al. 2004). Nevertheless, due to several important limitations, these recent findings should be interpreted with caution and the most recent Cochrane review found no statistically significant differences between methadone and adrenergic agonists (Amato et al. 2005). Furthermore, an analysis of single studies in

this systematic review showed that methadone detoxified patients experience fewer side effects and withdrawal symptoms than patients treated with adrenergic agonists. In particular, early withdrawal symptoms were more adequately controlled with methadone than with lofexidine (Amato et al. 2005). These results correlate with former suggestions that methadone treatment is more effective than α 2-adrenergic agonists in terms of treatment retention and relapse rate and provide a better safety profile (Amato et al. 2004). One European effectiveness report suggested that the combination of methadone and nimodipine, a dihydropyridine calcium channel blocker, could improve treatment outcomes, but no recent clinical trial could confirm these findings (Rigter et al. 2004).

In summary, European evidence showed that detoxification treatment using tapered doses⁹ of methadone is associated with adequate rates of completion of withdrawal, reduction of withdrawal symptoms to tolerable levels, and minimal adverse effects. Control by the clinician rather than the patient of the rate of reduction of the methadone dose is associated with greater reductions in methadone doses. Compared to the effects of methadone in maintenance treatment, the efficacy of methadone for detoxification treatment is limited. The attrition rate of methadone detoxification treatment remains high, particularly in an outpatient setting compared to an inpatient setting. Despite the findings related to methadone and α 2-adrenergic agonists of one recent RCT, the current systematic Cochrane review shows that methadone had better outcomes than other opioid agonists in terms of completion rate, and patients have shown less severe withdrawal symptoms. A Cochrane review found psychosocial treatment offered in addition to any pharmacological detoxification programme to be effective in terms of completion of treatment, results at follow-up and compliance (Amato et al. 2004).

Buprenorphine as a detoxification agent

The partial μ -agonist and κ -antagonist buprenorphine is a commonly used agent for the detoxification treatment of opiate dependents in Europe. Like methadone, the detoxification treatment with buprenorphine is carried out in a linear reduction schedule with equal dose decreases.

Under the provision of equal doses, the efficacy of buprenorphine in the detoxification of opioid dependents is comparable to methadone with regard to treatment retention, illicit drug use, and suppression of withdrawal symptoms (Rigter et al. 2004). Gossop et al. suggested that detoxification with buprenorphine has less severe withdrawal symptoms in comparison to methadone detoxification and may lead to a higher number of completed detoxification treatments (Gossop 2006). Nevertheless, Kornor et al. (Kornor et al. 2006) recommend that outpatient buprenorphine tapering should be closely monitored due to the substantial psychological distress and increased death risk. Like methadone the efficacy of buprenorphine for detoxification treatment depends on

⁹ Gradually reducing methadone over time

the treatment setting; the relative efficacy of outpatient and inpatient withdrawal remains somewhat unclear (Lingford-Hughes et al. 2004). The Trimbos effectiveness report found buprenorphine to be less effective in outpatient than in inpatient setting, but with better retention rates than methadone in outpatient setting (Rigter et al. 2004). The efficacy of buprenorphine for detoxification treatment depends on the dosage; low doses of buprenorphine were found to be effective in attenuating withdrawal symptoms with acceptable rates of treatment retention, despite additional medication for non-specific symptoms such as anxiety and insomnia (Fuscone et al. 2005). The additional application of carbamazepine, an anticonvulsant and mood stabilising drug in the treatment of epilepsy and bipolar disorders, seems to improve the clinical outcomes of buprenorphine assisted detoxification in opiate dependents with additional multiple drug abuse (Seifert et al. 2005). Patients treated with buprenorphine and carbamazepine showed better outcomes in psychological status and a more effective short-term relief of affective disturbances than patients treated with methadone and carbamazepine. However, only 26 patients were included in this clinical trial so further studies are needed to confirm these findings. Compared to the α 2-adrenergic agonist clonidine and methadone, buprenorphine has fewer cardiac side effects (Gossop 2006; Rigter et al. 2004). Additional behavioural treatment added to detoxification treatment with buprenorphine (and voucher incentive programme and community reinforcement approach) leads to better outcomes on the measure duration of abstinence than in standard methadone detoxification treatment (Simoens et al. 2000).

α 2-adrenergic agonists as detoxification agents

The use of α 2 adrenergic agonists (clonidine, lofexidine) to manage the acute phase of opioid withdrawal is common in Europe. However, most studies on the effectiveness of clonidine and lofexidine were done outside of Europe and shown, that clonidine and lofexidine could be considered as an effective detoxification option especially for patients, who prefer non-opioid treatment for detoxification. A recent European RCT found that patients randomised to lofexidine + naloxone had longer periods of abstinence before relapse than those who received methadone (McCambridge et al. 2007). Furthermore, patients treated with lofexidine were more likely to complete detoxification, and more likely to be abstinent from opiates after 5 months, than those who detoxified with methadone. These findings were found to be consistent with the results of former studies reporting a more rapid resolution of withdrawal symptoms after lofexidine compared to methadone detoxification (McCambridge et al. 2007). This makes lofexidine particularly suitable in a prison context when methadone prescription is not possible (Howells et al. 2002). Lofexidine provided like clonidine the benefit that detoxification and naltrexone induction can be achieved within 5 days and without risk of opiate diversion. Raistrick et al. (2005) used an open-label randomised controlled trial design to examine the equal clinical effectiveness of buprenorphine and lofexidine in a community opiate detoxification. Two hundred and ten patients were randomised

either to buprenorphine or lofexidine detoxification treatment in a specialist out-patient clinic according to a predefined protocol. 46% of the patients treated with lofexidine and 65% treated with buprenorphine completed the detoxification programme. A 7-day buprenorphine detoxification showed to have some benefit in comparison to 5-day lofexidine detoxification with regard to the severity of withdrawal (Raistrick et al. 2005). The additional provision of symptomatic medications enhanced the effectiveness of adrenergic agonists, and especially the combination with opioid antagonists such as naltrexone and naloxone leads to less severe withdrawal symptoms in detoxification compared to the treatment with lofexidine alone (Buntwal et al. 2000).

In summary and taking into account the evidence from outside of Europe, clonidine and lofexidine could be considered as an effective detoxification option especially for patients, who prefer non-opioid treatment for detoxification. Compared to tapering doses of methadone, opioid withdrawal management with α_2 -adrenergic agonists like clonidine and lofexidine leads to equal rates of completion of withdrawal and overall severity of withdrawal, but to more side effects and therefore to higher drop-out rates especially at an earlier stage of treatment. Lofexidine showed fewer side effects with similar clinical effectiveness in comparison to clonidine. The most described adverse effect of the opioid withdrawal treatment with clonidine is hypotension, which leads to the recommendation to check patients' blood pressure regularly. Due to the hypotensive side effects of clonidine, lofexidine should be preferred in outpatient settings.

Buprenorphine-naloxone combination as a detoxification agent

In Europe, the combination of buprenorphine and naloxone is available for the maintenance and detoxification treatment of opioid dependence. However, European studies on the effectiveness of this combination are only available from outside of Europe and shown in the respective chapter. The intention of adding naloxone to buprenorphine is to deter intravenous misuse and reduce the symptoms of opiate dependence and the evidence of effectiveness shows that the combination of buprenorphine and naloxone is effective and safe for the detoxification of opioid dependents and well tolerated by patients.

Codeine/dihydrocodeine as a detoxification agent

The analgesic agent dihydrocodeine is available as tablet, oral solution or injection. A recent open label randomised controlled trial compared buprenorphine with dihydrocodeine for detoxification from illicit opiates in primary care¹⁰ (Wright et al. 2007). Sixty illicit opiate using participants were randomly treated either with daily sublingual buprenorphine or daily oral dihydrocodeine, both under a standard regimen including reduction of not more than 15 days. Abstinence was indicated by a urine sample and the secondary outcomes were recorded during the detoxification period and

¹⁰ = Health care provider as a first point of consultation or treatment

three and six months after detoxification. The attrition rate was high: Only 23% of the participants stayed in the prescribed course of detoxification medication and provided a urine sample at the final prescription. Risk of non-completion of detoxification was higher in the administration of dihydrocodeine, and a lower proportion of people allocated to dihydrocodeine provided a clean urine sample compared with those who received buprenorphine (3% vs. 21%). Furthermore, the participants allocated to dihydrocodeine were more likely to call on professional carers during detoxification and more participants allocated to buprenorphine were abstinent at three months and six months post detoxification. In summary, the included European study provides only little evidence to support dihydrocodeine as a first line agent for opiate detoxification. Compared to buprenorphine, dihydrocodeine leads to higher drop-out rates and to a lower rate of opiate free urine samples.

Pharmacotherapy for opioid maintenance

Opioid-assisted maintenance programs are among the most important strategies in this respect, as they are associated with reductions of heroin use and HIV risk behaviour. Considering the high rate of relapse after detoxification of opioid dependence, maintenance therapy is currently considered to be the first-line treatment for such patients. Opioid-assisted maintenance programs have been introduced in most countries of the world, yet the medication of choice differs from one country to the next. Methadone is the most extensively studied and most widely used opioid in maintenance treatment. Other μ -opiate agonists that are used include levo-acethylmethadol (LAAM), codeine, slow-release oral morphine and diacetylmorphine, as well as the partial μ -opioid agonist buprenorphine. In Europe several agents are approved for maintenance treatment of opiate dependents (Table 6).

Table 6:

Approved European agents for maintenance treatment of opiate dependents

| Agent | Receptor-Type |
|------------------------------------|--|
| Methadone | Full μ -(mu)-agonist ¹ |
| Buprenorphine | Partial μ -agonist ² / κ -(kappa)-antagonist ³ |
| Buprenorphine + Naloxone | Partial μ -agonist ² / κ -(kappa)-antagonist ³ + opiate antagonsit |
| Slow-released oral morphine (SROM) | Full μ -(mu)-agonist ¹ |
| Codeine/Dihydrocodeine | Full μ -(mu)-agonist ¹ |

¹ **Full agonists** have affinity for and activate a receptor, displaying full efficacy at that receptor

² **Partial agonists** also bind and activate a given receptor, but have only partial efficacy at the receptor

³ A receptor **antagonist** is a drug that does not provoke a biological response itself upon binding to a receptor, but blocks or attenuates agonist-mediated responses. Antagonists have an affinity but no efficacy for their cognate receptors.

Methadone as a maintenance agent

The spectrum of efficacy is connected to the methadone dose and the treatment duration (Berglund et al. 2003). For example, methadone dosages ranging from 60 to 100 mg/day were found to be more effective than lower dosages in terms of treatment retention and reduction of heroin and cocaine use during treatment (Faggiano et al. 2003). A comparative meta-analysis indicated that high doses of methadone (≥ 50 mg/day) were more effective than low doses of methadone (< 50 mg/day) in reducing illicit opiate use, that high doses of methadone were more effective than low doses of buprenorphine (< 8 mg/day) and equally effective compared to high doses of buprenorphine (≥ 8 mg/day) in terms of treatment retention and reduction of illicit opiate use (Farre et al. 2002). Indeed, lower doses of methadone seem to be sufficient to stabilise the patient and might be helpful to keep the patient in treatment, but are inadequate to suppress opiate use (Simoens et al. 2000). Besides the better outcomes in retention rates and prevention of illicit drug use, higher methadone doses lead also to an improved physical and psychological situation for the patient and therefore to a better quality of life (Rigter et al. 2004). European reports confirmed the dose-related retention rate including better outcomes for patients with higher methadone doses (Simoens et al. 2000). In order to avoid overdose related deaths, it is recommended to initiate methadone maintenance treatment with lower doses varying between 10 to 40 mg/day. At the end of the treatment the dose should be in the range between 60 and 120 mg/day to be effective (Rigter et al. 2004). Low dosage of methadone has been described to be one of the main problems of methadone treatment also in other countries, such as Italy (Schifano et al. 2006) and The Netherlands (Termorshuizen et al. 2005).

In summary, methadone is the best-studied and most effective opioid agonist for maintenance treatment so far. Treatment outcome in methadone maintenance has been shown to improve substantially with increased dosages of methadone: Higher doses are associated with better treatment retention rates and lower rates of illicit opioid use. Daily methadone doses of 60mg/day or more were found to be most effective in methadone maintenance treatment (Berglund et al. 2003). Adequate dosing is an important issue and avoids on the one hand unpleasant withdrawal symptoms, especially in the latter half of each inter-dosing interval, and on the other hand significant adverse effects.

Buprenorphine as a maintenance agent

Besides methadone, buprenorphine is the most used agent for the maintenance treatment of opiate dependence in Europe. Due to its partial μ -opioid agonist properties, buprenorphine has lower abuse potential and a lower risk for overdose compared to full μ -agonists like methadone or LAAM (Berglund et al. 2003) and like methadone, the efficacy of buprenorphine is dose-related. Kakko et al. found a considerably higher level of treatment retention in patients treated with buprenorphine in a maintenance approach compared to detoxification (Kakko et al. 2003). The longer duration of therapeutic action of buprenorphine provides the advantage of a less than daily schedule.

Low and moderate doses (2 - 8 mg) of buprenorphine are superior to placebo in the measures of treatment retention, provision of opioid-negative urine samples, mortality, and psychological and social functioning (Rigter et al. 2004). Similar to methadone, higher fixed doses of buprenorphine are more effective than lower doses with superior levels of retention in treatment and opiate use (Berglund et al. 2003). However, moderate doses of methadone (50-65 mg/day) were found to be slightly more effective than moderate doses of buprenorphine (2-8 mg) (Simoens et al. 2000). High doses of buprenorphine lead to equal retention rates as high doses of methadone, although methadone seems to be more effective in reducing illicit opioid use (Rigter et al. 2004). The longer duration of therapeutic action of buprenorphine provides the advantage of a less than daily schedule. European effectiveness reports found similar effects in the measure of treatment retention in thrice weekly administration compared to daily administration (Rigter et al. 2004; Simoens et al. 2000).

The efficacy of buprenorphine maintenance treatment was found to be comparable to methadone maintenance showing a reduction of opiate use and craving under buprenorphine (Duburcq et al. 2000). Buprenorphine reduced the risk of overdose related death compared to methadone (Gossop 2006; Simoens et al. 2000) and was found to reduce mortality in maintenance treatment (Auriacombe et al. 2001). Buprenorphine has further advantages for special groups of opioid dependents, like pregnant women, indicated by a low level of withdrawal symptoms in newborns (Simoens et al. 2000). Giacomuzzi et al. (2006) suggested that buprenorphine treatment is as effective as methadone with respect to quality of life and physical symptoms (Giacomuzzi et al. 2006). Another possible advantage of buprenorphine is the antidepressant effect. The maximum effective dose of buprenorphine seems to be limited to five days (Simoens et al. 2000) and a switch from methadone to buprenorphine maintenance treatment seems to be possible, but more research on this topic is needed (Rigter et al. 2004).

In general, maintenance treatment with buprenorphine provides some advantages for the treatment of opioid dependence in comparison to methadone, e.g. a better safety profile at high doses, a lower abuse potential, the possibility of a less-than-daily administration and lower impairment in psychomotor and cognitive functioning. Similar to methadone, the efficacy of buprenorphine in maintenance treatment is dose related.

Buprenorphine-naloxone combination as a maintenance agent

The Buprenorphine-naloxone combination contains the partial opiate agonist and antagonist buprenorphine as well as the opioid antagonist naloxone to deter illicit intravenous preparation of the tablet. This is intended to attenuate the effects of buprenorphine on opioid-naïve users should this formulation be injected. Kakko et al. (2007) used a randomised controlled trial design to show that an adaptive, buprenorphine/naloxone based stepped care strategy is equally effective than an optimal methadone maintenance treatment (Kakko et al. 2007).

Heroin as a maintenance agent

Some clients do not benefit from maintenance treatment with methadone or buprenorphine, which lead to the question of the effectiveness of heroin prescription, especially for patients who dropped out of treatment or who continued illicit opioid use while in treatment. Heroin (diacetylmorphine, diamorphine) is a semi-synthetic opioid synthesized from morphine and acts on the endogenous μ -opioid receptors. So far, all studies on the effectiveness of heroin as maintenance agent were accomplished in Europe. A first British randomised clinical trial comparing heroin (diamorphine) and methadone found that the prescription of heroin is not clearly superior in comparison to methadone (Gossop 2006). However, later clinical trials demonstrated the feasibility and clinical effectiveness of heroin prescription, with better outcomes in patient recruitment, treatment retention and treatment compliance (Gossop 2006; Rigter et al. 2004). Also reduced delinquency and reduced illicit heroin and cocaine use were found, although the uses of other drugs were less marked and the use of benzodiazepine declined slowly (Gossop 2006). Some patients benefit from prescribed heroin right after initiation, while other patients improve after several months (Gossop 2006). Especially patients, who were unsuccessfully treated in conventional drug treatment programmes, benefit from prescribed heroin treatment (Rigter et al. 2004). Nevertheless, up to 60% of the clients did not profit from the prescription of heroin and continue to be difficult to treat (Rigter et al. 2004). Blanken et al. (2005) pooled the data of two open label randomised trials including four hundred and thirty heroin dependents to investigate predictors for the treatment response to medical heroin prescription compared to standard methadone maintenance treatment (Blanken et al. 2005). The participants were randomly allocated to methadone plus injectable heroin or methadone plus inhalable heroin administration or to methadone alone prescribed over 12 months. The outcome measures were recorded according to a response index, including indicators of physical health, mental status and social functioning. An intention-to-treat analysis resulted in a significant better treatment response for the participants in heroin-assisted treatment. Heroin dependent patients with a history of several abstinence oriented treatments benefit more from heroin prescription and show a higher treatment response compared to patients in methadone maintenance treatment. Patients without a history of abstinence-orientated

treatment do not benefit more from heroin-assisted treatment than from methadone maintenance treatment and show equal treatment response rates (Blanken et al. 2005). A limitation of previous heroin trials was that psychosocial treatments were not standardised and uncontrolled. A recent randomised controlled trial assessed the efficacy of prescribed intravenous diacetylmorphine (DAM) versus oral methadone including clinical, psychological, social and legal support (March et al. 2006). Sixty-two opioid-dependent individuals, who failed in standard treatments, were directly street-recruited and randomly assigned to the administration of intravenous diacetylmorphine or oral methadone with equivalent opioid dosage. Both groups improved with respect to physical and mental health as well as social integration, but the experimental DAM group showed greater improvement in terms of physical health and risk behaviour. Furthermore, in the experimental group, the use of street heroin decreased as well as the number of days with drug problems (March et al. 2006).

In the recent open-label randomised controlled trial Haasen et al. examined the effectiveness of medically prescribed and supervised heroin injection (Haasen et al. 2007). Overall, 1015 persons were included who represent one of two groups of people with heroin dependence: those who do not sufficiently respond to methadone maintenance treatment and those who are currently not in substance misuse treatment. To control for the impact of psychosocial treatment, participants in each group were randomised to one of two types of psychosocial care: psycho-education including individual counselling or case management and motivational interviewing. Each of these interventions has been described in manuals, and training of all therapists was conducted prior to the study to minimise site differences. Heroin-assisted treatment of severe opioid dependent and treatment resistant persons was found to improve health and reduce illicit drug use more effectively than methadone maintenance treatment. Retention was higher in the heroin (67.2%) than in the methadone group (40.0%) and the heroin group showed a significantly greater response on both primary outcome measures (health and illicit drug use). However, more serious adverse events were found in the heroin group, and were mainly associated with intravenous use. The main effect of heroin-assisted treatment on each primary outcome measure was seen within the first few months of treatment, and became more pronounced over the following months, thus indicating the necessity of long-term treatment to increase health benefits. The use of two structured psychosocial interventions in each treatment condition suggests that the observed differences between the methadone and heroin groups were not the result of differences in psychosocial treatment. The response rates in the methadone group also remain high, indicating that a well-structured treatment with trained therapists using standardised and clinically relevant psychosocial interventions can lead to positive outcomes even in a group that has previously responded poorly to methadone treatment. Ferri et al. (2007) conducted in 2005 the most recent Cochrane review to assess the efficacy and acceptability of heroin maintenance versus methadone or other substitution treatments for opioid dependence (Ferri et al. 2007). A total of four

studies including 577 patients were found, but nevertheless a general conclusion about the effectiveness of heroin treatment could not be drawn, due to the non-comparability of the included studies (Ferri et al. 2007). With regard to the primary outcome measures retention in treatment and relapse to illicit heroin use, opposite findings were found. In summary, there is some evidence that heroin-addicted patients with a history of abstinence-orientated treatment notably benefit from the prescription of heroin. Due to a higher risk of serious adverse events, heroin prescription should be applied under medical supervision.

Codeine/dihydrocodeine as maintenance agent

The analgesic agent codeine/dihydrocodeine is approved for maintenance treatment in some European countries. Robertson et al. (2006) indicated that dihydrocodeine (DHC) seems to be superior to placebo in the maintenance treatment of opioid dependent patients (Robertson et al. 2006). Their recent pragmatic open-label randomised controlled study investigated the efficacy of dihydrocodeine as an alternative to methadone in the maintenance treatment of opiate dependence over a period of up to 42 months after recruitment (Robertson et al. 2006). Two hundred and thirty-five participants suitable for opiate maintenance treatment were randomised to treatment either with methadone (1 mg/ml) or with a lower (30 mg), respectively higher dose (60 mg) of dihydrocodeine tablets. The primary outcome measure (retention in treatment) and eight secondary outcomes (including illicit opiate use measured by self-reports) were compared over a period of 42 months. Although participants treated with dihydrocodeine were more likely to switch treatments, no group differences in treatment retention were found at follow-up and over the observation time. The authors concluded that dihydrocodeine is a viable alternative to methadone for the maintenance treatment of opiate dependence. In summary, more research on the efficacy of codeine for the maintenance treatment of opioid dependents is needed, especially with regard to the safety profile and cost-effectiveness of codeine maintenance due to the probably more intensive treatment supervision. Provided that the good treatment retention in the study by Robertson et al. (2006) will be replicated in other treatment settings including the analysis of urine samples to confirm the reduction of illicit opioid use, codeine could be an additional option for the maintenance treatment of opioid dependents. Provided that the good treatment retention in the study by Robertson et al. (2006) will be replicated in other treatment settings including the analysis of urine samples to confirm the reduction of illicit opioid use, codeine could be an additional option for the maintenance treatment of opioid dependents.

Slow-release oral morphine as maintenance agent

Slow release oral morphine (SROM) acts as an agonist on the μ -receptor and the long duration of action permits to administer a once-a-day preparation. SROM has been

authorized for maintenance treatment of opioid dependence in a few European countries, namely Austria, Slovenia and Bulgaria. Two recent RCTs compare the effectiveness, safety and accessibility of slow release oral morphine to methadone or buprenorphine, another one investigated the safety and withdrawal discomfort of the transitioning of opioid dependent pregnant women from short-acting morphine to buprenorphine or methadone (Eder et al. 2005; Giacomuzzi et al. 2006; Jones et al. 2005). Eder et al. found slow-release morphine to be as effective as methadone in the treatment of opioid dependency. Sixty-four opioid dependent participants were administered daily under supervised conditions oral slow-release morphine or methadone during two study periods, each consisting of a 1-week titration¹¹ and a 6-week fixed-dose treatment phase. The retention in treatment was high and no significant group differences in treatment retention or use of illicit drug use were found, irrespective of treatment group or medication. Patients treated with oral slow-release morphine showed fewer psychiatric scores in depression and anxiety, so these findings suggest a comparable safety and tolerability of oral slow-release morphine versus methadone in equal doses. Giacomuzzi et al. used a randomised study design to compare SROM to methadone and buprenorphine treatment with respect to quality of life (QOL) and physical symptoms in patients entering treatment compared to patients treated in an outpatient setting over a period of 6 months. Patients treated with SROM showed lower quality of life values, despite equal effectiveness in the reduction of illicit drug use compared to methadone and buprenorphine treatment (Giacomuzzi et al. 2006). However, other smaller and mostly open-label studies have shown positive results of SROM with respect to retention, reduction of heroin use and/or quality of life (Eder et al. 2005; Kraigher et al. 2005; Mitchell et al. 2004; Vasilev et al. 2006). Furthermore, as with buprenorphine, there is criticism concerning the potential diversion of prescribed SROM towards illicit drug use. Of special concern is the fact that SROM has been found in most fatal intoxications in Austria in 2004, despite the fact that most of these cases were not in maintenance treatment (ÖBIG 2006). Further studies will have to confirm these results in order to be able to evaluate the added value of this substance for the treatment of heroin dependence. In summary, SROM might be a promising compound for maintenance treatment. Patients treated with SROM showed improvements including decreased heroin consumption, improved functioning and a decrease in delinquency. Slow-release morphine might represent a future treatment option that will improve long-term outcomes for opioid dependents.

Pharmacotherapy for relapse prevention

In most European countries relapse prevention programs are offered, though the duration and setting differ from country to country. While some countries limited relapse prevention to long-term inpatient treatments intended to last at least nine months

¹¹ = Process of gradually adjusting the dose of a medication until the desired effect is achieved

and often using the therapeutic community format, others provided shorter inpatient treatments generally lasting less than six weeks. The positive effects of both long-term and short-term programs are, however, rather limited. In a three-month follow-up of 242 opioid dependent patients in residential treatment in the National Treatment Outcome Research Study (NTORS), 34% of the patients relapsed to heroin use within three days, 45% within seven days, 50% within 14 days, and 60% within 90 days. According to the authors, the results of this study highlight the need to provide aftercare services to help patients maintain the benefits achieved during treatment and to avoid the high risk of relapse at this time (Gossop et al. 2002). However, relapse prevention is also important to reduce the spread of infectious diseases like HIV or HCV and should therefore be widely available. Naltrexone, a long acting opioid antagonist, is used as a maintenance pharmacotherapy for persons who detoxified completely from heroin and seems to be helpful to speed up the withdrawal treatment and to prevent relapses (Gossop 2006). However, due to the prevention of the euphoria effect of opiates, outpatient double-blind placebo controlled trials with long-acting opiate antagonist are very uncommon. Placebo-controlled trials showed extremely high dropout rates, which implicates that the general acceptability of the participants is low (Gossop 2006). One strategy to improve treatment adherence includes the combination of naltrexone with voucher-based contingency management (CM), which implies also increased treatment retention rates and less illicit opiate use (Gossop 2006; Johansson et al. 2006). The additional effect of CM was independent of other support measures and not related to the magnitude of the vouchers. A most recent multi-centre study suggested high abstinence rates in patients maintained with oral naltrexone in combination with a community reinforcement approach (De Jong et al. 2007).

Naltrexone is considered to be a safe medication with few side effects; only high doses can lead to transaminase elevations in liver function tests (Gossop 2006). However, Stella et al. (2005) found high incidences of insomnia, panic attack, anxiety and hyperexcitability¹² in patients treated with oral naltrexone (Stella et al. 2005). In the same study the additional administration of the benzodiazepine prazepam to oral naltrexone maintenance was found to be effective in the reduction of this side effects and to lead, in comparison to oral naltrexone alone, to higher abstinence rates from illicit opioid use (Stella et al. 2005).

In summary, the effectiveness of antagonist maintenance with oral naltrexone for opioid dependence has been limited by high dropout rates. Based on a systematic review of the available evidence, according to the Cochrane reviewers no benefit was shown in terms of retention in treatment, side effects or relapse results even compared to placebo (Minozzi et al. 2006). Krupitsky et al. (2004) found oral naltrexone for heroin dependence treatment to be significant superior to placebo with regard to treatment retention and relapse over a period of 6 months (Krupitsky et al. 2004). However, these

¹² = generalised term: cover a spectrum of disorders that exhibit the symptoms of continuous muscle fiber activity

results were found in a RCT with a small sample size. Naltrexone maintenance seems not to be effective as a stand-alone treatment and should be, therefore, part of a broader treatment programme or should be reserved only for highly motivated patients living in a stable life situation. Nevertheless, a promising strategy to improve treatment retention in broader range could be the combination of long-acting implantable naltrexone formulations and behavioural methods.

Pharmacotherapy for the treatment of stimulant-related disorders

In summary, none of the proofed medication has been found yet that can be considered a standard for treating stimulant dependence effectively, although a number of different medications has been tried (EMCDDA 2007). The treatment of cocaine dependence frequently still includes the use of antidepressants, especially SSRIs, despite the low evidence level for their efficacy. Some typical and atypical psychotic agents such as haloperidol, olanzepine and risperidone, were found to be effective in the treatment of patients with co-occurring schizophrenia and cocaine dependence. Also promising results are expected from topiramate and other antiepileptic drugs, and much hope is being placed in the development of the cocaine vaccine.

Detoxification treatment for stimulant-related disorders

Propanolol (a non-selective beta blocker mainly used in the treatment of hypertension) can moderate withdrawal symptoms but evidence is weak (Rigter et al. 2004). For treating withdrawal symptoms in amphetamine dependence, amineptine (atypical tricyclic antidepressant that selectively inhibits the reuptake of dopamine) has been tested in two RCTs: it did not have an effect on withdrawal symptoms or craving, but improved the general well-being of those who stop (Rigter et al. 2004).

Substitution treatment for stimulant-related disorders

There was one European RCT for dextroamphetamine (a psychostimulant which produces increased wakefulness, energy and self-confidence in association with decreased fatigue and appetite) and methylphenidate (a prescription stimulant commonly used to treat Attention-deficit disorder (ADD) and Attention-deficit hyperactivity disorder, or ADHD) each, the first showing that patients with 15-30 mg stayed longer in treatment than placebo groups and those with higher doses, while methylphenidate did not show effects (Rigter et al. 2004). Diethylpropion, act by blocking and reversing norepinephrine transporter (NET) activity, also did not show any effect on cocaine craving¹³ (Rigter et al. 2004). Sometimes amphetamines are given on prescription, usually dexamphetamine, with good results in reducing street amphetamine and other injecting drugs (Rigter et al. 2004). Prescribing amphetamines

¹³ = strong desire for the substance causing the dependence

is done in the UK for maintenance (Gossop 2006). Compared to a control group, amphetamine prescription increased treatment contact and retention (Gossop 2006). Another study found good results for dexamphetamine regarding retention and compliance - patients attended more often counselling (Gossop 2006). Methylphenidate (MPH), a prescription stimulant commonly used to treat attention-deficit hyperactivity disorder (ADHD), was recently found to be effective for reducing intravenous drug use in patients with severe amphetamine dependence respectively cocaine use in patients with cocaine dependence (Tiihonen et al. 2007).

Abstinence maintenance for stimulant-related disorders

For abstinence maintenance for stimulant-related disorders, no medication has been found yet to help on amphetamine or methamphetamine dependence (Rigter et al. 2004). Four different antidepressants have been tested in four RCTs with no influence on the amphetamine use (Rigter et al. 2004). On antidepressant medication 21 RCTs were found, with no effects also on cocaine dependence (Rigter et al. 2004). Szerman et al. (2005) suggested that reboxetine might be an effective and safe therapeutic option for cocaine dependence disorder including marked decreases in psychometric measures during treatment (Szerman et al. 2005). One European effectiveness report also found no effect for anticonvulsives (e.g. carbamazepine) according to six RCTs (Rigter et al. 2004). Rigter et al. found 12 RCTs on dopamine agonists and other substances, which imitate dopamine, but no effects were found concerning a reduction of quantity or frequency of cocaine use (Rigter et al. 2004). Also Berglund et al. found no effect differences between dopamine agonists and placebo (Berglund et al. 2003). Typical and atypical antipsychotics were not superior to placebo in treatment of cocaine dependents except for patients with co-occurring psychotic disorders. Compared to placebo, patients treated with the atypical antipsychotic medication aripiprazole were found to have significantly more amphetamine-positive urine samples (Tiihonen et al. 2007). However, typical and atypical psychotic agents such as haloperidol, olanzepine and risperidone, were found to be effective in the treatment of patients with co-occurring schizophrenia and cocaine dependence (Rubio et al. 2006).

The opiate antagonist naltrexone has not been found useful for treatment of cocaine dependence (Rigter et al. 2004). Otherwise, Jayaram-Lindstrom et al. (2005) demonstrated reduced consumption of amphetamine during treatment compared to pre-treatment in amphetamine-dependent patients receiving 12 weeks of treatment comprised of naltrexone (50 mg) combined with relapse prevention therapy (Jayaram-Lindstrom et al. 2005). The provision of disulfiram, an aversive drug producing an acute sensitivity to alcohol, appeared to be more effective than naltrexone in the provision of negative urine samples for cocaine and cocaethylene, but also suggested that disulfiram does not add to the capability of CBT to retain cocaine dependents in treatment (Grassi et al. 2007). Immunisation and vaccination are two strategies with a long tradition and very little empirical proof of effectiveness. In (passive) immunisation,

catalytic antibodies are injected that bind cocaine and subsequently hydrolyse cocaine into the inactive products ecognine methyl ester and benzoic acid. A cocaine vaccine has also been proposed; this would attempt to block the effects of cocaine using cocaine antibodies (Garcia Sevilla 1997; Navarro & Rodriguez De Fonseca 2000).

Pharmacotherapy for the treatment of cannabis related disorders

Neurobiological trials on cannabis withdrawal demonstrate the importance of the development of further pharmacological options for the treatment of cannabis dependence. Different published studies have employed laboratory animals to evaluate medication effects on cannabinoid withdrawal symptoms. Nevertheless clinical trials of human participants are rare and no European clinical trials were found supporting a medication for the pharmacotherapy of cannabis dependence (Rigter et al. 2004). Compared to placebo, nefazone (an antidepressant drug) decreased a subset of withdrawal symptoms like anxiety and muscle pain, while bupropion worsened mood during cannabis withdrawal. Rimonabant acts as an antagonist on the cb-receptor and is supposed to reduce the pleasures of users of cannabis. Nevertheless, a non-randomised clinical trial supports this assumption (Rigter et al., 2004). A conceivable approach could be the blockade of alpha7 nicotinic receptors, which reverses abuse-related behavioural in rats (Solinas et al., 2007).

Psychosocial interventions for the treatment of drug dependency

A wide range of psychosocial interventions is available for the treatment of drug dependence. As many different study designs were used to explore psychosocial treatment, it is difficult to compare the individual direct outcomes. Different approaches are compared and different names used for similar forms of intervention. Different kinds of treatment have showed different levels of effectiveness, but in general it is clear that any psychosocial treatment is better than none (e.g. Amato et al. 2007), and the quality of treatment also depends on the training and ability of staff (EMCDDA 2007).

As there is no effective pharmacological therapy for cocaine and amphetamine dependence, a variety of psychosocial interventions has been conducted in this field, whereas in the field of opiate dependence psychosocial interventions are most often combined with pharmacological treatment, namely substitution maintenance treatment. This combination leads to significant improvements (Berglund et al. 2003). Treatment should match the patient and should be relevant to the individual (EMCDDA 2007). Some form of treatment may be more useful for women than for men, others might be better for cocaine users than cannabis users (Haro et al. 2006), so it is important to carefully choose and provide the optimal treatment setting for the individual.

Psychosocial treatment usually improves substitution maintenance treatment outcomes for opiate dependent patients. For opiate dependence psychosocial interventions have been investigated in addition to pharmacological treatment (detoxification with methadone or buprenorphine) in a Cochrane overview, with four different psychosocial approaches (behavioural, counselling, family therapy, CM). Any of those treatments were effective in terms of treatment completion, compliance and follow-up results (Amato et al. 2007).

Cognitive-Behavioural Therapy (CBT)

Cognitive-Behavioural Therapy as a structured psychosocial intervention aims at modifying cognition, behaviour, beliefs. Usually some kind of skills training and practice to deal with craving is involved, as well as monitoring high-risk situations for relapse. There can also be the focus on relapse prevention, by training the drug users to develop skills on avoiding high-risk situations and to cope with such situations. Some kind of cognitive-behavioural interventions are used in many therapy settings in Europe. They might be modified and used in different approaches. Except for the review by Rigter et al. (2004) there are no studies from the EU on evidence of the effectiveness of CBT included in this report, so all research in this chapter comes from the USA and Australia. Concerning the intensity of CBT, one trial found no difference: outcomes of CBT were similar with the intervention given once or twice a week or every fortnight (Rigter et al. 2004). One RCT on cannabis dependent users, who were not in treatment before, compared one session of CBT with six sessions of CBT and a control group with no treatment. The group with six sessions had higher abstinence rates than those with one session (15% compared to 5%), both had less severe symptoms of dependence than the control group after 7-8 months (on average) and those with 6 sessions had the greatest reduction on the daily dose consumed compared with the other two groups (Rigter et al. 2004). According to one study among mostly homeless and mentally disordered crack smokers, CBT had better outcomes than a 12-step programme and CA participation, but overall there was a high dropout rate (Rigter et al. 2004). Four studies on CBT did not find success in relapse prevention for cocaine use (Rigter et al. 2004).

Motivational Interviewing (MI)

This intervention is based on cognitive-behavioural principles and was developed by Miller and Rollnick (1991). MI does focus on enhancing motivation to change problematic behaviour and uses methods like developing a feeling for discrepancies, expressing empathy, support self-efficacy. It is often used as a brief intervention.

In substance-unspecific treatment, “motivational enhancement“ has been examined in a number of research studies. In general good results were found with respect to the willingness for abstinence or moderate use (Rigter et al. 2004). Motivational enhancement has especially good outcomes at early stages of treatment (Gossop 2006).

Also for cannabis use positive results for MI have been found, i.e. greater reduction in use and use-related problems (Gossop 2006). MI seems to be effective for improving retention in heroin users in a drug-free treatment programme (Secades-Villa et al. 2004). A comparison between standard assessment and enhanced assessment plus MI for drug users found the latter group to be more likely to attend further treatment (Gossop 2006). Even a one-session MI intervention has some beneficial effects on drug use among young people, mainly on moderation of use and not cessation after three months (McCambridge et al. 2004), but effects wore off at 12-month follow-up (McCambridge & Strang 2005). A pilot trial on a single MI session for reducing crack cocaine use in MMT patients found some impact on the crack use and significant reduction of heroin use in the sample (Mitcheson et al. 2007). Brief Motivational Psycho-educational Therapy (BMPT) improved motivation to undergo treatment, especially for women (Haro et al. 2006). A randomised study found greater reduction in use and greater likelihood of abstinence for amphetamine dependence than for the control group with a self-help booklet (Gossop 2006). Drug users, who were court-ordered to undergo treatment, were more likely to attend and complete treatment with MI than without (Gossop 2006). A study on depressive cocaine users found fewer post-treatment psychiatric problems and more patients remaining in treatment for MI intervention compared to “treatment as usual” (Gossop 2006). But not all research was in favour of MI interventions. One study did not find any effects of a brief MI intervention, which was applied in addition to standard treatment (Gossop 2006). And another randomised trial also did not find differences in abstinence of a brief motivational intervention for young stimulant and alcohol users compared to a control group who received written health risk information (Marsden et al. 2006).

Community Reinforcement approach (CRA)

The Community Reinforcement Approach (CRA) uses a range of methods and is based mainly on cognitive-behavioural principles. Its concept includes that environmental contingencies (like family, peers, work, leisure time involvement) can play a helpful role in encouraging or discouraging drug use. CRA is often combined with Contingency Management or similar incentive programmes.

For cocaine treatment the TRIMBOS report found reasonable indications of evidence for “a change of lifestyle with CRA” (Rigter et al. 2004). Two RCTs showed better outcomes for CRA than for customary care (Rigter et al. 2004). Two other RCTs found better outcome for CRA with compared to without rewards (vouchers) (Rigter et al. 2004).

Contingency management (CM)

Contingency management is another form of behavioural approach. The principle of this approach is that “rewards” are given to those who have negative urine samples to

reinforce abstinent behaviour. Those incentives can be implemented in the form of vouchers or prizes, and also privileges in the treatment setting. CM is usually embedded in a treatment like CRA or structured drug counselling. As Contingency Management is hardly conducted in Europe, research on the effectiveness comes almost exclusively from the USA. CM was found to be effective in reducing drug use and treatment retention, but these results tend to be short-term only. Generally CM results in good treatment outcomes like retention and abstinence, but results tend to be short-lived compared to CBT interventions (Rigter et al. 2004).

Cue exposure therapy (CET)

Cue exposure is based on learning theory principles. It consists of repeated exposure to stimuli or cues associated with drug use (e.g. sight of a syringe for intravenous drug users) and aims at controlling or changing responses to these cues. Until now this intervention has been mainly done in laboratory conditions. The little research is not considered to be promising (EMCDDA 2007; Rigter et al. 2004). One RCT from the Netherlands on cue exposure therapy in an inpatient setting for opiate dependence even found significantly higher dropout and relapse rates for the treatment group (Marissen et al. 2007), so it does not seem to be an intervention that can be advisable presently.

Psychodynamic and interpersonal therapies

Psychodynamic interventions originate in the psychoanalytical approach and work on unconscious conflicts, relationships and problematic situation. The therapist-patient interaction and relationship is an important feature in this approach. Other Interpersonal therapies focus on interpersonal relationships and issues as well, and aim at resolving interpersonal problems.

No RCTs have been conducted for treatment using psychodynamic or interpersonal therapy, but a case series on individual psychodynamic psychotherapy and some reports on group psychodynamic therapy showed some efficacy. The Trimbos report stated that the little existing research on psychoanalytical treatment showed no evidence for an effect in treating cocaine dependence (Rigter et al. 2004).

Counselling/Group Counselling

Counselling can be defined as a client-centred intervention to help the individual to overcome problems (EMCDDA 2007). In the US standard treatment is often based on the 12-step principle, both for individual and group counselling. However, in Europe counselling is not necessarily based on the 12-step principle. Counselling seems to be useful for the moderation of use, as one RCT stated (Rigter et al. 2004). Also counselling and psycho-education with respect to reducing the risk of HIV and other infections has shown effectiveness (Rigter et al. 2004). While an effectiveness report from outside of Europe suggested, that concerning reductions of use, the group and

individual counselling together was the most successful, the other three groups were similar in outcome (UNODC, 2002), none of these treatments reduced the craving for cocaine, and the Trimbos research group sees it as problematic that there was a high dropout rate and also that not all the care providers were very experienced (Rigter et al. 2004).

Other group and family therapies

For opiate dependent patients in methadone maintenance treatment a group psychotherapy showed less drug use than the MMT group only, therefore additional psychotherapy is recommended for methadone maintenance treatment to improve treatment outcomes (Scherbaum et al. 2005). Five RCTs on multidimensional family therapy (MDFT) with young cannabis users who often had other problems as well found favourable results on frequency of use and family functioning, compared to CBT and other control interventions (Rigter et al. 2004).

5.5 Conclusion

Most studies included in pharmacological part of this review were conducted outside of Europe. Overall two of three studies were conducted outside of Europe, whereas some differences in several chapters attract attention. In the research on treatment of psychostimulant- and cannabis-related disorders the included evidence from outside of Europe is strongly predominant. Of the seventy-four studies, mainly randomised clinical trials and other clinical studies included in the chapter of pharmacotherapy of psychostimulant related disorders, sixty-four were conducted outside of Europe. Similarly, the chapter on pharmacotherapy of cannabis-related disorders leaves a nearby similar picture even though the number of included references is lower: Six of seven studies were conducted outside of Europe. Furthermore all included studies on crisis intervention and most on relapse prevention (thirteen out of twenty) of opiate-related disorders were conducted from outside of Europe. A more balanced picture is found for the pharmacotherapeutic detoxification and maintenance treatment of opiate-related disorders. In the implementation of new maintenance agents for the treatment of opiate related disorders (like SROM, diamorphine) the main research is conducted in Member States of the European Union.

Most studies on psychosocial interventions come from outside Europe, mainly USA but also Australia. Especially for cognitive behavioural interventions and for contingency management there is hardly any evidence from European Member States, whereas for other interventions it is more balanced.

Table7:

Number and provenance of included studies: Pharmacotherapy for opiate-related disorders

| Chapter/Aim | Number of included studies | | |
|---|----------------------------|--------|-------------------|
| | Total | Europe | Outside of Europe |
| Crisis intervention with opiate antagonists | 12 | - | 12 |
| Detoxification with methadone | 19 | 13 | 6 |
| Detoxification with buprenorphine | 19 | 6 | 13 |
| Detoxification with alpha 2 adrenergic agonists | 11 | 3 | 8 |
| Detoxification with buprenorphine - naloxone | 4 | - | 4 |
| Detoxification with codeine/dihydrocodeine | 1 | 1 | - |
| Maintenance with methadone | 22 | 6 | 16 |
| Maintenance with buprenorphine | 19 | 8 | 11 |
| Maintenance with buprenorphine + naloxone | 6 | 1 | 5 |
| Maintenance with codeine/dihydrocodeine | 2 | 1 | 1 |
| Maintenance with slow-released morphine | 6 | 5 | 1 |
| Maintenance with diacetylmorphine (heroin) | 7 | 6 | 1 |
| Relapse prevention with opiate antagonists | 20 | 6 | 13 |

Table 8:

Number and provenance of included studies: Pharmacotherapy of psychostimulant- and cannabis-related disorders

| Chapter/Aim | Number of included studies | | |
|--|----------------------------|--------|-------------------|
| | Total | Europe | Outside of Europe |
| Stimulant related disorders - Detoxification | 4 | 1 | 3 |
| Stimulant related disorders - Substitution | 15 | 3 | 12 |
| Stimulant related disorders - Abstinence | 55 | 6 | 49 |
| Cannabis related disorders | 7 | 1 | 6 |

Table 9:

Number and provenance of included studies: Psychosocial interventions for the treatment of drug dependency

| Chapter | Number of included studies | | |
|---|----------------------------|--------|-------------------|
| | Total | Europe | Outside of Europe |
| Cognitive-Behavioural Therapy (CBT) | 15 | 1 | 14 |
| Motivational Interviewing (MI) | 18 | 8 | 10 |
| Community Reinforcement approach (CRA) | 4 | 3 | 1 |
| Contingency management (CM) | 31 | 3 | 28 |
| Cue exposure therapy (CET) | 5 | 3 | 2 |
| Psychodynamic and interpersonal therapies | 5 | 1 | 4 |
| Counselling | 9 | 3 | 6 |
| Group counselling | 4 | 2 | 2 |
| Twelve-step and other self-help | 3 | 1 | 2 |
| Therapeutic Communities (TC) | 2 | 1 | 1 |
| Other group and family therapies | 6 | 3 | 3 |

Taking into account the European and non-European evidence of effectiveness of drug treatment the following conclusion can be made:

- Especially in the pharmacotherapy of psychostimulant- and cannabis-related disorders and crisis intervention and relapse prevention for opiate related disorders, as well in several psychosocial interventions like cognitive behavioural treatment, Motivational Interviewing and Contingency management, research from outside of Europe is predominant.
- In other areas the contribution of research activities from European Union Member States is stronger, such as research on new agents for maintenance treatment for opiate related disorders.
- Despite the heterogeneity of research data and varying evidence, several interventions for the treatment of opiate-, psychostimulants- and cannabis-dependence were found to be effective. For withdrawal and maintenance treatment of opiate dependence different pharmacological agents are available including full μ -agonists (e.g. methadone), combined partial μ -agonists / κ - antagonists (e.g. buprenorphine) and opioid antagonists (e.g. naloxone).
- Methadone is an effective pharmacotherapeutic agent for opiate detoxification, but compared to the effectiveness of methadone in maintenance treatment, the efficacy of methadone using tapered doses for detoxification treatment is limited and especially the attrition rate in methadone detoxification treatment remains high, particularly in an outpatient setting.

- There are some indications, that buprenorphine as well as the combination of buprenorphine and naloxone have similar efficacy as tapering doses of methadone for the treatment of opioid detoxification with comparable effectiveness in improving withdrawal symptoms and in completing detoxification treatment and provides at least more effectiveness in withdrawal management compared to clonidine including fewer adverse effects.
- The replacement of heroin by buprenorphine in tapered doses followed by the prescription of α 2-adrenergic agonist (e.g. clonidine or lofexidine) to reduce withdrawal symptoms proved to be an effective strategy for detoxification of opioid addicts. Adrenergic agonists (clonidine and lofexidine) could be considered as an effective detoxification option especially for patients, who prefer non-opioid treatment for detoxification, but leads to more side effects and therefore to higher drop-out rates especially at an earlier stage of treatment. Lofexidine showed fewer side effects with similar clinical effectiveness in comparison to clonidine.
- A recent RCT provides only little evidence to support dihydrocodeine (DHC) as a first line agent for opiate detoxification, and larger, well designed RCTs are needed to assess the efficacy of DHC for detoxification.
- Methadone is the best-studied and most effective opioid agonist for maintenance treatment so far. Treatment outcome in methadone maintenance has been shown to improve substantially with increased dosages of methadone, whereas higher doses are associated with better treatment retention rates and lower rates of illicit opioid use. Daily methadone doses of 60mg/day or more were found to be most effective in methadone maintenance treatment. Adequate dosing is an important issue and avoids on the one hand unpleasant withdrawal symptoms, especially in the latter half of each inter-dosing interval, and on the other hand significant adverse effects. The combination with psychosocial treatment leads to a broader effectiveness, but even methadone maintenance treatment without adequate psychosocial care has shown to reduce heroin use and delinquency.
- Maintenance treatment with buprenorphine alone or in combination with naloxone provides some advantages for the treatment of opioid dependence in comparison to methadone, e.g. a better safety profile at high doses, a lower abuse potential, the possibility of a less-than-daily administration and lower impairment in psychomotor and cognitive functioning. Similar to methadone, the efficacy of buprenorphine in maintenance treatment is dose related and higher doses of buprenorphine improve the treatment outcomes. Provided equal effective doses, buprenorphine appears to be at least as effective as methadone with regard to reduction of illicit opioid use and treatment retention, whereas methadone maintenance in high doses is associated with higher rates of retention in treatment and better suppression of withdrawal symptoms than buprenorphine maintenance treatment.
- Current findings shown, that heroin-assisted treatment is a valuable addition to the treatment repertoire, especially effective for people with opioid dependence who

continue intravenous heroin use while on maintenance or who are not enrolled in treatment.

- Codeine and slow-release morphines could also be additional options for the maintenance treatment of opioid dependents, provided that the first results will be confirmed in larger well designed RCTs.
- There is some evidence, that naltrexone maintenance for relapse prevention is not be effective as a stand-alone treatment. Nevertheless, a promising strategy to improve treatment retention in broader range could be the combination of long-acting implantable naltrexone formulations and behavioural methods.
- The pharmacological treatment of cocaine dependence frequently still includes the use of antidepressants, especially SSRIs, despite the low evidence level for their efficacy. More promising results are expected from topiramate and other antiepileptic drugs, and much hope is being placed in the development of the cocaine vaccine.
- Similarly, different agents such as antidepressants, anticonvulsants, and antipsychotics were investigated for the treatment of cannabis dependence and for the prevention of cannabis reinstatement after abstinence, but each medication missing broader effectiveness. Recent findings suggest that the administration oral delta-9-tetrahydrocannabinol (THC) might be helpful in suppressing cannabis withdrawal, but further research is necessary.

Psychosocial interventions play an important role in the treatment of the different types of drug dependency. There is a wide range of different forms of interventions and not all of them have shown sufficient evidence of their effectiveness. New approaches are tried out and implemented, and others are used in modified versions. This makes it rather difficult to directly compare different interventions. The high drop-out rate can be problematic in some studies.

- In the field of maintenance treatment, the addition of psychosocial interventions, especially behavioural approaches, are effective in terms of retention in treatment and reduction of illicit drug use.
- For stimulant-dependency psychosocial treatment is especially important, as no effective pharmacological treatment approaches exist. Therefore a great number of psychosocial intervention studies are available especially on cocaine dependence. But most research in this field comes from the US and is not always transferable one to one to other countries, as the social context and also health system might be different. Psychosocial interventions for cannabis dependence have only rarely been investigated and concentrate mainly on young and adolescent users, often involving a family therapy type of intervention. Generally speaking, most psychosocial interventions are helpful in reduction of use, retention in treatment and social health development.
- Voucher-based interventions are especially helpful on short-term outcomes, whereas behavioural approaches like CBT tend to be more long-lasting.

- Methods of Motivational Interviewing (MI) have shown effectiveness particularly for those with initial low motivation and less severe dependency.
- And cue exposure therapy seems to have contrary effects according to one RCT, where drop-out and relapse was higher for the cue exposure group.
- There is some evidence for different types of counselling and 12-step approaches, especially when they are integrated in a structured programme. Altogether there is rather little research on special subgroups, particularly poly-drug users, as well as women, adolescents or those with co-morbid psychiatric disorders.

In summary, most research on the effectiveness of pharmacological and psychosocial interventions is conducted in the United States of America (USA). In the pharmacological part two of three; in the psychosocial part four of five included studies are from outside of Europe, mainly from the USA. In several pharmacotherapeutic issues (like opiate antagonists for crisis intervention and relapse prevention, pharmacotherapy of psychostimulant- and cannabis-related disorders) and most psychosocial issues (especially cognitive behavioural interventions and contingency management), evidence from outside of Europe, mainly USA but also Australia, is predominant. On the other hand, pharmacological drug related research from Member States of the European Union is leading in research on the implementation of new agents for maintenance treatment of opiate related disorders (such as slow-release oral morphine (SROM) and diacetylmorphine (heroin)).

6 The Guidelines for drug treatment interventions

In the following 11 chapters are the full versions of „treatment improvement guidelines“ presented. The short versions or „fact sheets“ of these guidelines have appeared in chapter 2. They are also available in German and French language.

Every guideline follows the same general structure as are:

- Definition (of the intervention or a special group of problematic users); aims and objectives,
- Presentation of known evidence,
- Recommendations as to different aspects of interventions (as are assessment, pathways of care or treatment processes).

The guidelines are developed in the responsibility of the project partners stepwise (partners are named at the first page of the chapters) – based on the collection of evidence from international, and European level.

The consensus process that should follow the first drafts of the guidelines has not been completed fully as this should be standard for the development of guidelines. So with the following products the discussion as to guideline development for drug treatment interventions is opened.

The single guidelines will be presented in different platforms, networks and also to the public health authorities in the member states as a reference point for improvement of drug treatment in Europe.

7 Brief interventions and therapies for illicit drug abuse

Brief interventions and therapies for illicit drug abuse

Guidelines for treatment improvement

Moretreat-project

TUD, Dresden
Germany

October 2008



EUROPEAN COMMISSION
HEALTH & CONSUMER PROTECTION
DIRECTORATE-GENERAL
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1 Introduction

1.1 Problem definition

Illicit drug abuse became a significant social and medical problem in the last decades. In spite of numerous attempts to cut the consumption of drugs in Europe – multiple legislative incentives, acts prohibiting the production, import and distribution of various substances, including the number of medications, - the number of drug abusers remains high as well as the number of urgent, chronic and disabling medical conditions, related to drugs use.

According to the 2007 Annual Report of European Monitoring Center for Drugs and Drug Addiction the most prevalent is cannabis abuse with the lifetime prevalence of 70 million or one in five European adults. 23 million European adults used marijuana during the last year and over 13 – during the last month, that is close to real prevalence. Cannabis was the primary reason for entering treatment in about 20% (approximately 70 million treatment demands) of all treatment demand cases that made cannabis the second most commonly reported drug after heroin.

Heavier drugs are less prevalent but at the same time quite widespread. Cocaine is used by 12 million in their lifetime, 4.5 million during the last year and around 2 million – during the last month. In 2005, approximately 48000 demands for treatment for cocaine as a primary drug were reported in EU, accounting for 13% of all treatment demands across EU.

Club drugs, such as ecstasy and amphetamines are have similar numbers with the lifetime prevalence of 9.5 and 11 million correspondingly and last year use of 3 and 2 million and last month use of around 1 million European adults. The number of demands for treatment relating to the use of ecstasy and amphetamines is relatively small.

Problem opioids use is counted between 1 to 8 cases per 1000 adult population, with 70% of opioids found among 7500 acute drug deaths in 2004 and 585000 substitution treatment cases in 2005. Treatment demand for opioids is the highest with approximately 61% of illicit drug use demands across EU (EMCDDA 2007).

High prevalence of illicit drug use and drug use disorders translates into high treatment demands (326000 in EU in 2005) which cannot be completely satisfied neither by specialized addictions services nor by primary care institutions that requires implementation of brief and cost-effective techniques in various settings, both inside and outside health care system.

1.2 *Brief interventions*

Brief interventions are clinical practices aimed to investigate the problem and motivate an individual to change something about his substance abuse either directly during the intervention itself or indirectly – by seeking additional substance abuse treatment.

Taking into consideration short-term character of brief-interventions their **principal goal** is rather harm reduction than complete abstinence. Specific goal for each individual client is determined by various factors including type of the drug and its consumption, medical and social consequences of drug use and settings in which the brief intervention is delivered.

According to the goal of brief interventions their obvious components are FRAMES:

- To give a **F**eedback to the individual about personal risk or impairment.
- To place **R**esponsibility for change on the participant.
- To give an **A**dvice to change.
- To offer a **M**enu of alternative self-help or treatment options to the participant.
- **E**mpathic style is to be used by the counsellor.
- To engender **S**elf-efficacy or optimistic empowerment is engendered in the participant.

1.3 *Brief therapies*

Brief therapies are systematic, focused processes that rely on assessment, client engagement, and rapid implementation of change strategies. Brief therapies usually feature more (as well as longer) sessions than brief interventions. Brief therapies are to provide clients with tools to change basic attitudes and handle a variety of underlying problems.

As brief therapies are much longer and comprehensive than brief interventions, their principal **goal** in the most of the cases is to achieve complete abstinence.

Major components of brief therapies are similar to those of brief interventions and are the following:

- Clear definition of the goals related to a specific change or behaviour.
- Setting measurable and understandable outcomes.
- Putting responsibility for change on the client.
- Helping the client to enhance his self-efficacy and understand that change is possible.
- Rapid establishment of a strong working relationship between client and therapist.
- Achievement and maintenance of immediate results.
- Active and empathic counselling style of the therapist. Directive style is appropriate in some cases.

1.4 Requirements

Delivery of effective brief interventions and therapies requires the provider to possess certain knowledge, skills and personal abilities. The most important ones are the following:

- Comprehensive knowledge of addictions: their clinical features and dynamics, potential complications and emergencies.
- Ability to make proper primary assessment and to determine certain competency in each individual case and to redirect the patient to specialized addiction service if necessary.
- Counselling skills such as active listening and helping clients explore and resolve ambivalence.
- Ability to set the understandable goals and objectives of individual treatment and to redefine them according to the client's progress.
- Working knowledge of psychology of the patient and the stages of change through which a client moves during the treatment.
- An overall empathic and non-judgemental attitude, understanding and acceptance.

1.5 Settings

Settings in which brief interventions and therapies are delivered form the attitude of the patient to the treatment and determine the psychotherapeutic techniques which may be used in different circumstances. While specialized addiction services institutions are the most preferable site for delivery of any kind of specialized treatment, including short-term treatments, high level of treatment demand stipulates delivery of brief therapeutic techniques in various settings including other primary care institutions and various social services which may be involved in treatment.

It must be noted also, that specificity of drug addictions make a number of drug addicts to attend medical institutions with the reasons other than addiction itself, such as drug-related medical conditions, emergencies and chronic diseases. Some addicts will contact the health care system through certain psychological, social and legal reasons. Moreover, taking into consideration the fact that heavier drug addictions are not the larger part of all treatment demand, not all users demand need full set of long-term treatment in specialized institutions.

While treatment of substance use disorders can occur in almost any type of setting, the most commonly used are:

- Inpatient settings, in psychiatric or general hospitals.
- Outpatient settings, in clinics or private practice.
- Intensive day treatment settings.
- Half-way houses.
- Therapeutic communities.
- Penal institutions (Galanter and Kleber 2004).

Beside the settings listed above brief interventions and therapies may be delivered in a variety of other settings, where the patient contacts the health care system for the first time i.e. by social workers, college or army psychological services settings etc. and each of them, though fitting minimal requirements, has specific features that obviously set certain limitations of care provision in comparison with specialized addictions service institutions.

1.6 Limitations

While requirements for delivery of brief interventions and therapies are minimal and allow it in the large variety of settings, there are number of limitations that may compromise the treatment process or make it undeliverable in certain conditions.

Primarily, these limitations are determined by the capacities and major purpose of service providing the brief interventions and therapies.

While specialized in-patient departments have full spectrum of means for maintaining the patients, 24 hour monitoring their medical condition and handling all types of medical complications, they are expensive and cannot cover large number of patients. Non-addiction-specialized in-patient departments are able to handle most of the complications and cover larger number of patients and provide them with proper clinical management, at the same time the competence of specialists is lower, they are still expensive and their major field of expertise is rather treatment of somatic complications than brief interventions and therapies.

General practitioners as the major providers of out-patient care are able to cover the largest network of patients, but their capacities in emergencies handling is substantially lower than for in-patient clinics. However, they are the most probable point of the first contact of the patient with the health care system and specificity of their practice favours delivery of brief interventions and therapies.

Social and psychological services settings are the least competent in emergencies handling and dealing with medical complications. At the same time these services are specialized in psychological support and psychotherapeutic interventions and cover the larger number of clients that in total stipulates them to be the major providers of brief interventions and therapies in non-complicated cases of mild and moderate addictions.

Taking into consideration the capacities of different providers of brief interventions and therapies, basic understanding of the patient and medical requirements related to his state is necessary for successful treatment. In the most of the cases drug addicts have more medical problems than addiction itself; therefore the primary assessment may be complex and competence decision must be based on the following aspects:

- Emergency states: emergency states are quite common for drug abusers and may be the main reason for applying for medical help. In case of emergency state the patient should be redirected to emergency room to cope with it.

- *Acute intoxication:* In a large number of cases drug addicts might be intoxicated to certain extent, which would make impossible further therapeutic interventions other than detoxification.
- *Acute complications:* Besides the first two conditions there may be a number of acute medical complications such as for example increased blood pressure, that would require certain pharmacological correction.
- *Potential acute complications:* Drug addictions may produce certain complications such as delirium, changes of mood and behaviour, onset of seizures etc. This must be taken into consideration when starting any treatment.
- *Chronic medical complications:* most of the drug addicts have chronic medical complications such as cardiovascular and liver diseases, cognitive dysfunctions etc. They may require specific treatment in respect for them.
- *Psychotic symptoms:* Some of the patients may either produce psychotic symptoms or have a great potential of their onset.
- *Severity of anxiety and depression:* Anxiety and depression are common complications of drug addictions and may cause suicidal behaviour and impede the treatment process.
- *Severity of dependence:* severity of dependence must be estimated as the patients with severe dependence may require specific treatment and therefore should not be treated in primary care institutions.

1.7 Techniques

While there is a large variety of psychotherapeutic techniques suitable for treatment of illicit drug addictions, according to the goals and objectives of brief interventions and therapies, their short-term nature and description of settings for their delivery given above, techniques suitable for them must meet the following criteria:

- Simplicity and understandability for the patient.
- Ability to be used both by medical and non-medical specialists.
- Minimal special training is required.
- Minimal time is required for their delivery.
- Cost-effectiveness.
- Compatibility to the settings and to each other.

According to these criteria we propose the following set of psychotherapeutic techniques which clinical effectiveness has been proved, which are simple in their nature, complementary to each other and are appropriate for implementation as part of brief interventions and therapies in all variety settings:

- Motivational Enhancement Therapy
- Cognitive-Behavioural Therapy
- Family Therapy
- Social Therapy

Though, pharmacological correction is not an obvious part of brief interventions and therapies, its use becomes appropriate in some cases in medical settings and will be briefly discussed in these guidelines.

2 Evidence Base

2.1 Efficacy of Brief Interventions and Therapies

Multiple studies have shown efficacy of different types of brief interventions used separately or in various combinations.

Recent meta-analytical study of Dutra and coauthors covering 34 controlled treatment projects in several countries and 2340 patients has proven efficacy of brief interventions in various settings in respect for decreasing dropout rate, reducing quantity and frequency of drug consumption (Dutra 2008).

In the study of Martin and coauthors, they have assessed the feasibility and effectiveness of the brief interventions for young cannabis users in Australia in clinical settings. Participants were cannabis users aged between 14 and 19 years ($n = 73$) and concerned parents ($n = 69$). The intervention comprised an individual assessment session followed 1 week later by a session of personalized feedback delivered in a motivational interviewing style. An optional third session that focused on skills and strategies for making behavioural change was offered. Of the entire sample of cannabis users, 78% reported voluntarily reducing or stopping their cannabis use during the 90 days to follow-up and 16.7% reported total abstinence during this time. In addition, significant reductions were found on measures of both quantity and frequency of use and dependence. These reductions were maintained at 6-month follow-up. The approach was acceptable to young people and associated with reductions in cannabis use. Thus the study has shown the effectiveness of short motivational enhancement treatment for cannabis users as well as its combination with cognitive-behavioural therapy (Martin et al 2005).

Srisurapanont and co-authors did a research on comparison of short-term (eight-week) brief intervention with psychoeducation for students using methamphetamine. The study was carried out in Thailand at Chiang Mai University Hospital. According to their results students assigned BI demonstrated higher decrease in the consumption of methamphetamine as well as in the number of days of use (Srisurapanont et al. 2007).

Another clinical trial of single brief interventions performed in Brazil on 99 young adults in out-patient settings has shown effectiveness of even single brief intervention in comparison with control group. In the 6-month follow-up, the BI group showed a significant reduction in the number of users during the last month with respect to most substances, as well as in relation to substance-related problems (De Micheli et al. 2004).

2.2 *Brief Interventions and Therapies vs. Extended Therapy*

Stephens and coauthors performed corresponding clinical trial with statistically authentic number of cases in United States in out-patient settings. Adult marijuana users (N = 291) seeking treatment were randomly assigned to an extended 14-session cognitive-behavioural group treatment (relapse prevention support group; RPSG), a brief 2-session individual treatment using motivational interviewing (individualized assessment and intervention; IAI), or a 4-month delayed treatment control (DTC) condition. Results indicated that marijuana use, dependence symptoms, and negative consequences were reduced significantly in relation to pre-treatment levels at 1-, 4-, 7-, 13-, and 16-month follow-ups. Participants in the RPSG and IAI treatments showed significantly and substantially greater improvement than DTC participants at the 4-month follow-up. There were no significant differences between RPSG and IAI outcomes at any follow-up. This study has shown effectiveness of both types of psychotherapeutic interventions, emphasizing the cost-effectiveness of brief interventions as well. Also there are strong evidences of high cost-effectiveness of brief interventions and relatively close treatment outcomes to extended ones (Stephens et al. 2000).

2.3 *Motivational Enhancement Therapy and Motivational Interviewing*

Effectiveness of Motivational Enhancement therapy has been shown in research of McCambridge and Strang, who compared 105 patients receiving MET with 95 controls in a cluster randomized trial. Research was carried out in United Kingdom in college settings. They've shown better follow-up rate and higher drug use reduction in MET group (McCambridge and Strang 2004).

At the same time, consecutive study by the same research team showed poor results of single session motivational interviewing delivered by youth workers in respect for cannabis abuse. They have performed a naturalistic quasi-experimental study of 162 young people (mean age 17 years) who were daily cigarette smokers, weekly drinkers or weekly cannabis smokers, comparing 59 receiving MI with 103 non-intervention assessment-only controls. MI was delivered in a single session by youth workers or by the first author. Assessment was made of changes in self-reported cigarette, alcohol, cannabis use and related indicators of risk and problems between recruitment and after 3 months by self-completion questionnaire. 87% of subjects (141 of 162) were followed up. The most substantial evidence of benefit was achieved in relation to alcohol consumption, with those receiving MI drinking on average two days per month less than controls after 3 months. Weaker evidences of impact on cigarette smoking, and no evidence of impact on cannabis use, were obtained (Gray et al. 2005).

Another trial performed by Marsden and coauthors in United Kingdom has also shown poor efficacy of MET. Brief motivational interventions were carried out on peripatetic basis by National Addiction Centre. In a randomized trial of Motivational Interviewing

vs. Controls, receiving written health risk information materials only included 342 adolescents and young adult stimulant (ecstasy, cocaine powder and crack cocaine) users aged 16-22 years. This study has shown no difference between motivational intervention and provision of information alone (Marsden et al. 2006).

Similar results were observed by Walker and coauthors, who studied 97 adolescent cannabis users, randomly assigned to either a 2-session MET or to a 3 month delay condition. Study was school-based and was carried out in United States. Marijuana use and associated negative consequences were assessed at baseline and at a 3-month follow-up. Analyses revealed that both groups have reduced marijuana use, however no between-group differences were observed (Walker et al. 2006).

Saunders and coauthors studied brief motivational interventions in opiate users attending a methadone programme in Australia in methadone clinic settings. They have enrolled 122 participants dividing them into two groups: assigned motivational intervention (n=122) and controls (n=65), who have received only educational procedure. Over the 6-month follow-up period the motivational subjects demonstrated a greater, immediate commitment to abstention, reported more positive expected outcomes for abstention, fewer opiate-related problems, complied with methadone programme longer and relapsed less quickly than the control group (Saunders et al. 1995).

Peterson and others have performed a randomized trial testing a brief feedback and motivational intervention for substance use among homeless adolescents in Washington in social service network settings. Homeless adolescents ages 14-19 (N = 285) recruited from drop-in centers at agencies and from street intercept were randomly assigned to either a brief motivational enhancement (ME) group or 1 of 2 control groups. The 1-session motivational intervention presented personal feedback about patterns of risks related to alcohol or substance use in a style consistent with motivational interviewing. Follow-up interviews were conducted at 1 and 3 months postintervention. Youths who received the motivational intervention reported reduced illicit drug use other than marijuana at 1-month follow-up compared with youths in the control groups. Treatment effects were not found with respect to alcohol or marijuana. Post hoc analyses within the ME group suggested that those who were rated as more engaged and more likely to benefit showed greater drug use reduction than did those rated as less engaged (Peterson et al. 2006).

Baer and coauthors have modified this protocol and performed a brief motivational intervention with 117 homeless adolescents in a randomized design with 3-month follow-up in the same settings. Participants also reported overall reductions in substance use (Baer et al. 2007).

Another randomized study of effectiveness of MET was performed by Babor and coauthors at several sites across United States both in in- and out-patient settings. A multisite randomized controlled trial compared cannabis use outcomes included 450 participants across 3 study conditions:

- a) 2 sessions of MET.
- b) 9 sessions of multicomponent therapy including MET, CBT and case management.
- c) delayed treatment control (DTC).

Assessments were conducted at baseline and at 4, 9 and 15 months postrandomization.

The 9-session treatment reduced marijuana smoking and associated consequences significantly more than the 2-session treatment, which also reduced marijuana use relative to the controls (Babor et al. 2004). This study shows effectiveness of MET, superior effectiveness of combined and prolonged treatment.

A large-scale randomized controlled trial for Brief Motivational Interventions effectiveness in primary care setting was performed by Bernstein and coauthors in United States in clinical settings. Having randomized 1175 heroin and cocaine abusers into two groups: a) Intervention Group (n=590) and b) Control Group (n=585), authors have shown that brief motivational intervention can reduce cocaine and heroin use as it was demonstrated by higher abstinence rates and reduction of drug levels in hair (Bernstein et al. 2005).

2.4 *Cognitive-behavioural therapy*

Several research projects directed on estimation of efficacy of cognitive-behavioural therapy were performed. In Australia, Copeland and coauthors undertook a randomized controlled trial of brief cognitive-behavioural interventions (CBT) for cannabis dependence in out-patient treatment settings. A total of 229 participants were assessed and randomly assigned to either a six-session CBT programme (6CBT), a single-session CBT intervention (1CBT), or a delayed-treatment control (DTC) group. Participants were assisted in acquiring skills to promote cannabis cessation and maintenance of abstinence. Participants were followed-up a median of 237 days after last attendance. Participants in the treatment groups reported better treatment outcomes than the DTC group. They were more likely to report abstinence, were significantly less concerned about their control over cannabis use, and reported significantly fewer cannabis-related problems than those in the DTC group. Those in the 6CBT group also reported more significantly reduced levels of cannabis consumption than the DTC group. While the therapist variable had no effect on any outcome, a secondary analysis of the 6CBT and 1CBT groups showed that treatment compliance was significantly associated with decreased dependence and cannabis-related problems. This study supports the attractiveness and effectiveness of individual CBT interventions for cannabis use disorders as well as the higher effectiveness of multiple-session cognitive behavioural therapy in comparison to single sessions (Copeland et al. 2001).

A randomized controlled trial on effectiveness of brief CBT interventions was performed by Baker and coauthors in Australia in out-patient treatment settings on 214 amphetamine users randomized into 2-session CBT (n=74), 4-session CBT (n=66) and control (n=74) groups. This study showed both efficacy of CBT for amphetamine abuse

and dose-response relationship represented by higher efficacy of 4-session CBT in comparison to 2-session CBT (Baker et al. 2005).

Azrin and coauthors in United States performed a comparative evaluation of behavioural vs. supportive treatment for illegal drug use in counselling center settings. Having studied 82 subjects with follow-ups at 2, 6 and 12 months, they showed superior efficacy of behavioural treatment with 65% drug-free subjects after 12 months against 20% for the alternative treatment. The behavioural treatment was more effective across sex, age, educational level, marital status and type of drug (Azrin et al. 1994).

This study has also shown dose-response relation for behavioural therapy in substance abuse treatment with 37% drug-free subjects after 2 months of therapy, 54% and 65% after 6 and 12 month correspondingly.

Another comparative study, performed by Maude-Griffin in United States and coauthors compared cognitive-behavioural therapy with 12-step facilitation in treating cocaine abuse in Veteran Affairs Medical Center settings. Having studied 128 participants with assessment at baseline and weeks 4, 8, 12 and 26 with treatment duration of 12 weeks, researchers have shown that CBT patients were significantly more likely to achieve abstinence than participants in 12SF (Maude-Griffin et al. 1998).

Dose-response study for frequency of CBT in cocaine abusers was done by Covi and coauthors in United States in out-patient clinical settings, who studied 68 cocaine-dependent outpatients during the 12-week treatment programme with randomly assigned twice weekly, weekly and bi-weekly CBT sessions. Though final results were better in patients who were assigned bi-weekly therapy, the difference between groups was not statistically significant (Covi et al. 2002).

Rohsenow and coauthors studied 108 cocaine abusers who undergone cognitive-behavioural interventions (Coping Skills Training) at Rhode Island, US. Brief treatment was added to a standard inpatient or partial-hospital treatment programme. Their study showed reduction of cocaine use in 3-month follow-up and fewer cocaine use days than controls, who received meditation-relaxation treatment (Rohsenow et al. 2000).

In another study on CBT for cocaine abusers undergoing methadone treatment done by Rowan-Szal and colleagues, using contingency management and relapse prevention techniques both interventions were associated with positive treatment response but the effects were reflected in different behavioural outcomes (Rowan-Szal et al. 2005).

Appropriateness of CBT implementation into the heroin-dependent persons was shown by Hollonds and coauthors in Australia in ambulatory treatment settings. They have randomized twenty-three volunteers into four groups:

- Receiving only methadone withdrawal programme.
- Receiving only Behavioural Therapy.
- Combination of two treatments.
- Control group receiving no treatment.

According to their results, behavioural therapy showed efficacy both in combination with methadone treatment and separately. Relapse was prevented in persons, receiving

behavioural therapy, decreased in group with combined treatment, but was prevented neither in persons receiving methadone only nor in ones in control group (Hollonds et al. 1980).

Another study on CBT for heroin and methamphetamine users was done by Yen and coauthors in Taiwan in an abstinence center settings. A total of 70 (40 heroin and 30 methamphetamine users) subjects in intervention group and 75 (38 heroin and 37 methamphetamine users) subjects in control group were completed pre- and post-test assessments. The study revealed that among both heroin and methamphetamine users, the intervention group had greater improvement in confidence to manage interpersonal situations related to drug use, methamphetamine users also showed better results in respect for management of intrapersonal situations in comparison to controls (Yen et al. 2004).

Dziedzicki and London in United Kingdom have described two cases demonstrating CBT in combination with elements of motivational interviewing and relapse prevention techniques as effective complementary treatment for methadone maintenance in opiate addiction treatment (Dziedzicki and London, 1999).

Budney et coauthors reported that CBT enhances posttreatment maintenance for cannabis dependence treatment. Study was carried out in United States in out-patient treatment settings (Budney et al. 2006). Another study of CBT implementation as an additive treatment performed by Epstein and coauthors in methadone maintenance treatment clinic settings in United States showed appropriateness of its use for cocaine abusers (Epstein et al. 2003).

2.5 *Combination of MET and CBT*

Comprehensive research of effectiveness of both motivational enhancement therapy and cognitive-behavioural therapy for cannabis abuse was performed by Dennis and coauthors in United States in medical and community-based settings. By its design it was two inter-related randomized trials conducted at four sites to evaluate the effectiveness and cost-effectiveness of five short-term outpatient interventions for adolescents with cannabis use disorders. Trial 1 compared five sessions of Motivational Enhancement Therapy plus Cognitive Behavioural Therapy (MET/CBT) with a 12-session regimen of MET and CBT (MET/CBT12) and another that included family education and therapy components (Family Support Network [FSN]). Trial II compared the five-session MET/CBT with the Adolescent Community Reinforcement Approach (ACRA) and Multidimensional Family Therapy (MDFT). The 600 cannabis users were predominately white males, aged 15-16. All five interventions demonstrated significant pre-post treatment during the 12 months after random assignment to a treatment intervention in the two main outcomes: days of abstinence and the percent of adolescents in recovery (no use or abuse/dependence problems and living in the community). Overall, the clinical outcomes were very similar across sites and conditions; however, after controlling for initial severity, the most cost-effective

interventions were MET/CBT5 and MET/CBT12 in Trial 1 and ACRA and MET/CBT5 in Trial 2. It is possible that the similar results occurred because outcomes were driven more by general factors beyond the treatment approaches tested in this study; or because of shared, general helping factors across therapies that help these teens attend to and decrease their connection to cannabis and alcohol (Dennis et al. 2004).

There are also evidences of positive effects of combination of motivational enhancement therapy and cognitive-behavioural therapy provided by McKee and coauthors, who randomized 74 participants into two groups for comparison:

- a) participants who were assigned 3-session CBT and
- b) participants who received 3-session combined CBT and MET. Though their conclusions are mixed, their results showed that participants, receiving combined therapy attended more drug treatment sessions and reported significantly great desire for abstinence and expectation of success. Research was carried out in United States in outpatient substance abuse clinic settings (McKee et al. 2007).

This is also supported by the survey of trials focussing on cannabis treatment done by Zumdick and coauthors, showing that the optimal treatment of cannabis-dependent adults would be a short intervention which consists of a combination of motivational-enhancement and cognitive-behavioural elements as well as individual case-counselling (Zumdick et al. 2006).

Jungerman and others have performed a randomized controlled trial that have shown higher efficacy of motivational interviewing in comparison with delayed treatment control as well as the dose-response effect of motivational interviewing – longer course showed better results. Research was done in Brazil in out-patient settings. A randomized controlled trial compared 3 conditions: 4 weekly individual sessions of motivational interviewing and relapse prevention over 1 month (1MIRP); the same 4 sessions over 3 months (3MIRP), and delayed treatment control (DTC). The short term impact of each intervention was followed up 4 months after randomization. Participants were 160 highly educated adults with a long history of frequent cannabis use. Both treatments showed better results than the DTC, and for primary outcomes (i.e., cannabis consumption) there was no difference between treatments, while the 3MIRP scheme showed greater efficacy in reducing dependence symptoms and other drug use according to the ASI drug subscale. There was a tendency for the longer treatment to have better outcomes, regardless of intensity, although the waiting list did have some positive effect. The cohort needs to be followed up for a longer period in order to ascertain whether changes are maintained over time (Jungerman et al. 2007).

2.6 *Family and social therapy*

Implementation of brief family-based interventions has a great potential in drug abuse treatment both used separately or in combination with other techniques, especially in adolescents. Systematic review of Family Therapy done by Szapocznik and Williams included seven major completed randomized trials in various settings. By their

conclusions, brief strategic family therapy is effective in improving family functioning, decreasing resistance in treatment and reducing drug abuse problems in adolescents (Szapocznik and Williams, 2000).

Liddle and colleagues in United States compared effectiveness of multidimensional family therapy and individual CBT techniques in respect for drug abuse treatment in community-based drug abuse clinic settings. They randomized 224 adolescents with drug use disorders (mostly cannabis-related) into two equal-sized groups:

- Multidimensional Family Therapy Group.
- Cognitive Behaviour Therapy Group.

Findings of their research showed that both interventions produced significant reduction of cannabis consumption. There was no significant differences in treatment outcomes between these two intervention. MDFT was found to reduce substance use (Liddle et al. 2008).

Another embodiment of family-based interventions is behavioural couples therapy. As follows from the review made by Fals-Stewart and colleagues, in multiple studies with diverse populations, patients who engage in BCT have reported greater reductions in substance use than patients, who receive only individual counseling. Couples received BCT also have reported higher level of relationship satisfaction and more improvements in other areas of relationship and family functioning (Fals-Stewart et al. 2004).

Waldron and coauthors in United States studied effectiveness of family therapy alone and in combination with CBT in social network settings. They have randomized 120 adolescents into four groups:

- Functional Family Therapy (n=30).
- Individual CBT (31).
- Combined Functional Family Therapy and CBT (n=29).
- Group intervention (n=30).

According to the research outcome, family therapy showed better treatment results at seven months after treatment. Treatment outcome was better when family therapy was combined with CBT (Waldron et al. 2002).

Socialisation of patients with drug use disorders plays important role in their effective treatment and rehabilitation. Okruhlica and colleagues in their three-year follow-up study of heroin users in specialized treatment facility in Bratislava have emphasized that a significantly better outcome after 3 years was observed among those subjects who were well socialized i.e. were working or studying at the time of admission (Okruhlica et al. 2002).

3 Recommendations

3.1 *Evidence strength rankings*

According to the quality of evidence presented in different research reports, all evidences are classified as follows:

**** Strong evidence: High quality meta-analyses, systematic reviews including one or more RCT with a very low risk of bias, more than one RCT a very low risk of bias.

*** Moderate evidence: Limited systematic reviews, one RCT with a low risk of bias or more RCT with a high risk of bias.

** Some evidence: one RCT limited by research factors or more case-control or cohort studies with a high risk of confounding.

* Expert opinion.

? Insufficient evidence/unclear/unable to assess.

3.2 *Motivational Enhancement Therapy*

Motivational Enhancement Therapy is aimed at motivating the patient to quit using the substance, or harm reduction, if the patient is not ready or able to quit for any reason. The evidence of effectiveness of motivational enhancement therapy is multiple and diversified, mostly presented for cannabis and stimulants abuse and less – for opiates. While certain studies report poor efficacy of MET, most of them show its high effectiveness (****Bernstein et al. 2005; ***McCambridge and Strang 2004; ***Baer et al. 2007; Babor et al. 2004).

Motivational enhancement should include informational component and be based on the following key points:

Harm reduction is one of the major points of brief interventions. Specialist is to discuss the potential and existing medical complications as well as the probabilities of their onset. Medical complications are quite similar for major substances starting with the cognitive deterioration, higher probability of exacerbation of genetically predisposed disorders like schizophrenia, schizoaffective and schizophrenia-like disorders, onset of transient psychoses at the peak of intoxication and at withdrawal states, high risk of development of mood and anxiety disorders, deterioration of general medical condition, investable changes of personality and higher suicidal risk.

Even assuming that each of the disorders mentioned above has a very small probability of onset, in total and in long-term prospective they represent a serious risk for the health of drug user.

Second point of motivational enhancement should be emphasis on the social and economic aspects of drug use. Thus hundreds or thousands (for severe dependence) of dollars are spent imperceptibly every year and hundreds of hours are wasted for

nothing. Performer of intervention may discuss with the patient what could be bought for this money, how else could he or she spend this money and time – for family, other less harmful or even healthy amusements, professional growth, doing sports, travelling etc.

Social aspects of drug use are not limited to using it in a “friendly environment”. Drug abuse may provoke a number of social problems in the family and at the job. This should be considered when performing a brief intervention. In most of the cases, the patient will come to his physician due to social reasons even if not legally coerced to do so. Another reason for quitting might be the children of the patient and the vicious example that he or she shows to them by using the drug.

One of the most prominent features of addictions is denial. Patient may deny the fact that his use of drug is abusive and/or that he is dependent. Specialist should discuss the real reasons for the visit, previous attempts to quit this addiction and in this way show the patient the very necessity to quit.

Legal status of drug is another good reason for motivating the patient. In most of the countries the use of drugs itself is not punished, but there are no legal ways to obtain it – in order to get them patient has to contact a drug dealer. This fact, as well as potential emergency situations, may destroy his or her reputation.

3.3 *Cognitive-behavioural Therapy*

Cognitive-behavioural Therapy is aimed at teaching a patient how to handle various situations and psychological conditions that may lead to substance use. It is grounded in the cognitive theory and relatively easy to implement. There are multiple evidences of high efficacy of cognitive-behavioural therapy for substance abuse treatment (**Copeland et al. 2001; ***Baker et al. 2005; ***Azrin et al. 1994; **Maude-Griffin et al. 1998; **Rohsenow et al. 2000; ***Yen et al. 2004).

This therapy has been shown to be efficient, cost-effective and compatible with Motivational Enhancement Therapy (***Dennis et al. 2004; ***McKee et al. 2007; ***Zumdick et al. 2006; Jungerman et al. 2007).

Most of the patients with substance abuse have certain patterns of using the drugs. These may be certain situations, friends or companies or certain life events. Consequently, there are some associative psychological “triggers” that will obviously lead the patient into temptation to continue using the substance.

These conditions/situations may be various but the task of physician is to teach the patient either how to avoid them or how to cope with them. Actually, the main idea of behavioural psychotherapy in the case of addiction is to replace a bad habit with a neutral one.

A very important task is to find a psychological substitute for the substance – something that would distract the patient from craving it. The substitute must be emotionally significant for the patient. One of the best choices would be some kind of sportive activity, especially one involving team sports.

3.4 *Social and family therapy*

Studies of implementation of family- and/or social-based techniques have shown their efficacy in coping of social deprivation and facilitating the treatment process. Thus, it's desirable that his or her family and friends were involved into the treatment process (***Szapocznik and Williams, 2000; ***Liddle et al. 2008; ***Fals-Stewart et al. 2004; **Okruhlica et al. 2002).

The main goals and potential achievements of engaging the family and friends in the treatment are:

- creating the psychologically comfortable circumstances for treatment.
- encouraging and inspiring the patient.
- preventing “occasional” relapses and
- increasing socialisation of the patient.

3.5 *Pharmacological interventions*

While pharmacological treatment is not a part of brief interventions there are certain medical complications to be predicted to arise during withdrawal such as anxiety and mood disorders, psychotic symptoms etc.

There is no specific treatment neither for most of the drugs nor for related disorders. However, related disorders are supposed to be predicted on the basis of severity of drug abuse and dependence and treated accordingly with respect to the patient's status and appropriate pharmacological therapy has to be chosen (e.g. benzodiazepines, antidepressants, anticonvulsants etc.)

There are evidences of positive effects of combination of psychosocial interventions and maintenance treatment for opiate dependence (***Saunders et al. 1995; *** Rowan-Szal et al. 2005; ***Hollonds et al. 1980; *Dzialdowski and London, 1999).

Pharmacological therapy may and must be used to improve general medical condition of the patient as well.

3.6 *Techniques to be chosen*

All techniques described are suitable for brief interventions and may be performed by any brief intervention/therapy provider. They are also compatible and complementary to each other to the extent they may and should be used in complex. Evidence given above shows higher effectiveness of complex treatment in comparison to using single technique (***Greg et al. 2005; ***Dennis et al. 2004; ***McKee et al. 2007; ***Zumnick et al. 2006; ***Jungerman et al. 2007).

3.7 *Settings*

Gathered evidences show that different forms of substance abuse are more likely to be treated in specific settings. Opioids abuse is characterized by the number of

complications, severe withdrawal and in the most of the studies brief psychotherapeutic techniques are used as the complementary to the maintenance programme in specialized clinical settings, in- or out-patient, depending on severity of dependence (***Saunders et al. 1995; ***Hollonds et al. 1980; **Dzialdowski and London, 1999).

Cocaine abuse, while having a number of complications most probably may require medical attention and thus might be treated equipotentially in in-patient and out-patient clinical settings (***Bernstein et al. 2005; **Covi et al. 2002; *** Rohsenow et al. 2000). Evidences of brief interventions and therapies in non-medical settings are scarce and related mostly to mild forms of abuse (***Maude-Griffin et al. 1998).

Club drugs and cannabis are the most prevalent forms of illicit drug abuse and at the same time requirements for specialized medical attention are much weaker. Current evidence shows high effectiveness of brief interventions and therapies for these forms of abuse in all settings with the most preferable out-patient or social network settings (***Liddle et al. 2008; ***Jungerman et al. 2007; ***Martin et al. 2005; ***Srisurapanont et al. 2007; ***Stephens et al. 2000; ***Babor et al. 2004; ***Copeland et al. 2001; ***Baker et al. 2005; ***Dennis et al. 2004).

3.8 *Number of sessions and duration of treatment*

In spite of the fact, that current evidence base shows that single session brief interventions are effective method of treatment and harm reduction of drug abuse, this evidence is scarce and poorly supported. Stronger evidences are gathered in respect for multiple sessions brief interventions, showing them being more effective than single session ones (***Covi et al. 2002; ***Baker et al. 2005; ***Azrin et al. 1994; ***Jungerman et al. 2007).

The number of sessions and duration of treatment depend on severity of dependence and the goals of treatment. Successful treatment comprises 6-20 sessions and lasts until achievement of its goals.

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8 Enhancing motivation for change in drug treatment

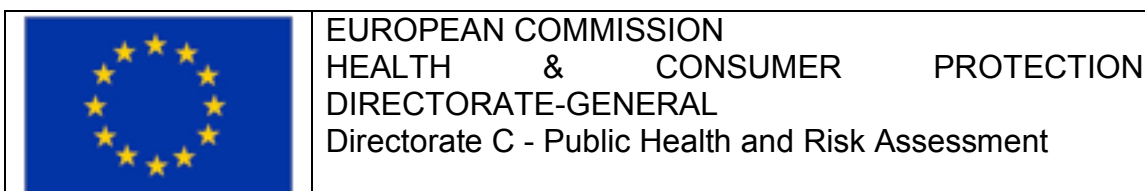
Enhancing motivation for change in drug treatment

Guidelines for treatment improvement

Moretreat-project

ITACA Rome
Italy

October 2008



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1 Introduction

1.1. *Definition and context*

Motivational interviewing is a client-centred, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence presented by substance/drugs users/abusers.

The concept of motivational interviewing evolved from experience in the treatment of problem drinkers, and was first described by Miller (1983) in an article published in Behavioural Psychotherapy. These fundamental concepts and approaches were later elaborated by Miller and Rollnick (1991) in a more detailed description of clinical procedures.

1.2 *General principles*

There are four general principles behind Motivational Interviewing:

- Express Empathy

Expression of empathy is critical to the MI approach. When clients feel that they are understood, they are more able to open up to their own experiences and share those experiences with others. The counsellor's accurate understanding of the client's experience facilitates change.

- Support Self-Efficacy

A client's belief that change is possible is an important motivator to succeeding in making a change. As clients are held responsible for choosing and carrying out actions to change in the MI approach, counsellors focus their efforts on helping the clients stay motivated, and supporting clients' sense of self-efficacy is a great way to do that. The client can be helped to develop a belief that he or she can make a change.

- Roll with Resistance

In MI, the counsellor does not fight client resistance, but "rolls with it." MI encourages clients to develop their own solutions to the problems that they themselves have defined. In exploring client concerns, counsellors may invite clients to examine new perspectives, but counsellors do not impose new ways of thinking on clients.

- Develop Discrepancy

MI counsellors work to develop this situation through helping clients examine the discrepancies between their current behaviour and future goals. When clients perceive that their current behaviours are not leading toward some important future goal, they become more motivated to make important life changes.

1.3 *Important elements*

There are several important elements of the philosophy behind motivational interviewing:

- Client resistance typically is a behaviour evoked by environmental conditions.

MI views denial and resistance as behaviours evoked by environmental conditions, not as traits characteristic of substance abusers. Resistance is primarily viewed as a reaction to the in-session behaviour of the counsellor.

Additionally, the client's behaviour over the course of treatment is affected in part by the counsellor's reactions to the early, negative communications of the client. It is important for the counsellor using the MI approach to remember that agreeing with the counsellor's views does not indicate motivation on the client's part, and, more importantly, disagreeing with the counsellor's views does not indicate a lack of motivation on the client's part.

- The client/counsellor relationship should be collaborative and friendly.

The MI framework fits best with a view that client change is best enhanced through positive reinforcement. Through positive reinforcement, a client's environment rewards him or her for trying new things, such as opening up to another person about his or her difficulties, or trying new behaviours that fit with the client's long term goals rather than continuing behaviours that provide short-term gain at the cost of long-term loss, etc.

- Motivational Interviewing gives priority to resolving ambivalence.

As mentioned above, in the MI approach, clients are generally viewed as feeling highly ambivalent about changing. The concern about this is that clients often have mixed feelings about making changes, and counsellor who presses a client to make changes immediately risks (a) evoking client resistance, (b) promoting premature termination from counselling, and (c) encouraging clients to overlook the internal and external factors that may promote relapse even following initial success in change attempts.

- The counsellor does not prescribe specific methods or techniques.

MI counsellors educate clients about the variety of therapeutic options available to them and, at times, the research support for particular options. These include treatment options, as well as other means of support. Clients are free to choose the elements that they believe will be most helpful to them in their efforts.

- Clients are responsible for their progress.

MI counsellors emphasize the freedom clients have to choose their behaviours, MI/MET counsellors also emphasize the responsibility that lies with clients to make those changes.

- MI focuses on clients' sense of self-efficacy.

The MI approach increases the clients' hope that they can make substantial changes related to their substance abuse. Clients who perceive that they have substance problems in need of change may still "resist" change if they believe they cannot successfully complete the change process.

1.4 *Client group served*

Substance user/abuser, including adolescent; alcoholics, nicotine dependents, eating disorders, users in correctional Opiate, cocaine, cannabis problematic use.

2 **Evidence Base**

2.1 *Relevance of motivation and change*

The motivational approaches are based on the following studied assumptions about the nature of motivation¹⁴:

Motivation is a key to change

The study of motivation is inexorably linked to an understanding of personal change a concept that has also been scrutinized by modern psychologists and theorists and is the focus of substance abuse treatment. The nature of change and its causes, like motivation, is a complex construct with evolving definitions. Few of MI's clinicians, for example, take a completely deterministic view of change as an inevitable result of biological forces, yet most of them accept the reality that physical growth and maturation do produce change--the baby begins to walk and the adolescent seems to be driven by hormonal changes. They recognize, too, that social norms and roles can change responses, influencing behaviours as diverse as selecting clothes or joining a gang, although few of us want to think of ourselves as simply conforming to what others expect. Certainly, they believe that reasoning and problem-solving as well as emotional commitment can promote change.

The framework for linking individual change to a new view of motivation stems from what has been termed a phenomenological theory of psychology, most familiarly expressed in the writings of Carl Rogers. In this humanistic view, an individual's experience of the core inner self is the most important element for personal change and growth--a process of self-actualization that prompts goal-directed behaviour for enhancing this self ([Davidson 1994](#)). In this context, motivation is redefined as purposeful, intentional, and positive--directed toward the best interests of the self. More specifically, motivation is the probability that a person will enter into, continue, and adhere to a specific change strategy ([Miller and Rollnick 1991](#)).

Motivation is multidimensional

Motivation, in this new meaning, has many complex components. It encompasses the internal urges and desires felt by the client, external pressures and goals that influence

¹⁴ A comprehensive summary of corresponding results see SAMHSA (2006)

the client, perceptions about risks and benefits of behaviours to the self and cognitive appraisals of the situation.

Motivation is dynamic and fluctuating

Research and experience suggest that motivation is a dynamic state that can fluctuate over time and in relation to different situations, rather than a static personal attribute. Motivation can vacillate between conflicting objectives. Motivation also varies in intensity, faltering in response to doubts and increasing as these are resolved and goals are more clearly envisioned. In this sense, motivation can be an ambivalent, equivocating state or a resolute readiness to act--or not to act.

Motivation is influenced by social interactions

Motivation belongs to one person, yet it can be understood to result from the interactions between the individual and other people or environmental factors ([Miller 1995b](#)). Although internal factors are the basis for change, external factors are the conditions of change. An individual's motivation to change can be strongly influenced by family, friends, emotions, and community support. Lack of community support, such as barriers to health care, employment, and public perception of substance abuse, can also affect an individual's motivation.

Motivation can be modified

Motivation pervades all activities, operating in multiple contexts and at all times. Consequently, motivation is accessible and can be modified or enhanced at many points in the change process. Clients may not have to "hit bottom" or experience terrible, irreparable consequences of their behaviours to become aware of the need for change. Clinicians and others can access and enhance a person's motivation to change well before extensive damage is done to health, relationships, reputation, or self-image (Miller 1985; Miller et al. 1993).

Although there are substantial differences in what factors influence people's motivation, several types of experiences may have dramatic effects, either increasing or decreasing motivation. Experiences such as the following often prompt people to begin thinking about making changes and to consider what steps are needed:

- Distress levels may have a role in increasing the motivation to change or search for a change strategy ([Leventhal 1971](#); [Rogers et al. 1978](#)). For example, many individuals are prompted to change and seek help during or following episodes of severe anxiety or depression.
- Critical life events often stimulate the motivation to change. Milestones that prompt change range from spiritual inspiration or religious conversion through traumatic accidents or severe illnesses to deaths of loved ones, being fired, becoming pregnant, or getting married ([Sobell et al. 1993b](#); [Tucker et al. 1994](#)).

- Cognitive evaluation or appraisal, in which an individual evaluates the impact of substances in his life, can lead to change. This weighing of the pros and cons of substance use accounts for 30 to 60 percent of the changes reported in natural recovery studies ([Sobell et al. 1993b](#)).
- Recognizing negative consequences and the harm or hurt one has inflicted on others or oneself helps motivate some people to change ([Varney et al. 1995](#)). Helping clients see the connection between substance use and adverse consequences to themselves or others is an important motivational strategy.
- Positive and negative external incentives also can influence motivation. Supportive and empathic friends, rewards, or coercion of various types may stimulate motivation for change.

Motivation is influenced by the clinician's style

The way the clinician interacts with clients has a crucial impact on how they respond and whether treatment is successful. Researchers have found dramatic differences in rates of client dropout or completion among counsellors in the same programme who are ostensibly using the same techniques ([Luborsky et al. 1985](#)). Counsellor style may be one of the most important, and most often ignored, variables for predicting client response to an intervention, accounting for more of the variance than client characteristics ([Miller and Baca 1983](#); [Miller et al. 1993](#)). In a review of the literature on counsellor characteristics associated with treatment effectiveness for substance users, researchers found that establishing a helping alliance and good interpersonal skills were more important than professional training or experience ([Najavits and Weiss 1994](#)). The most desirable attributes for the counsellor mirror those recommended in the general psychological literature and include non-possessive warmth, friendliness, genuineness, respect, affirmation, and empathy.

A direct comparison of counsellor styles suggested that a confrontational and directive approach may precipitate more immediate client resistance and, ultimately, poorer outcomes than a client-centred, supportive, and empathic style that uses reflective listening and gentle persuasion ([Miller et al. 1993](#)). In this study, the more a client was confronted, the more alcohol the client drank. Confrontational counselling in this study included challenging the client, disputing, refuting, and using sarcasm.

The clinician's task is to elicit and enhance motivation

Although change is the responsibility of the client and many people change their excessive substance-using behaviour on their own without therapeutic intervention ([Sobell et al. 1993b](#)), clinician can enhance client's motivation for beneficial change at each stage of the change process. The clinician's task is not, however, one of simply teaching, instructing, or dispensing advice. Rather, the clinician assists and encourages clients to recognize a problem behaviour (e.g., by encouraging cognitive dissonance), to regard positive change to be in their best interest, to feel competent to change, to

develop a plan for change, to begin taking action, and to continue using strategies that discourage a return to the problem behaviour ([Miller and Rollnick 1991](#)). Clinicians have to be sensitive to influences such as client's cultural background; knowledge or lack thereof can influence your client's motivation.

2.1 Incorporation of motivational approaches

Motivational Interviewing is a well-known, scientifically tested method of counselling clients developed by Miller and Rollnick and viewed as a useful intervention strategy in the treatment of lifestyle problems and disease.

Although the demand for treatment of substance abuse continues to far exceed its availability, changes in health care economics are placing greater pressure on providers and their clients. Payors increasingly demand evidence that the services being provided are not only effective, but cost-effective. Clinicians and programmes are increasingly challenged if they do not use research-supported, current methods. Public funding is scarce, and third-party payors exert great pressure to provide treatment that is shorter, less costly, and more effective.

In sum, clinicians are asked to do more with less.

The incorporation of motivational approaches and interventions into treatment programmes may be a practical and efficacious response to many of these challenges. Recent research (Brown and Miller 1993; Kolden et al. 1997; McCaul and Svikis 1991) supports the integration of motivational interviewing modules into programmes to reduce attrition, to enhance client participation in treatment, and to increase the achievement and maintenance of positive behavioural outcomes. Other studies have shown brief interventions using motivational strategies and motivational interviewing to be more effective than no treatment or being placed on a waiting list, and not inferior to some types of more extensive care (Bien et al. 1993a, 1993b; Noonan and Moyers 1997). A review of the cost-effectiveness of treatments for alcohol use disorders concluded that brief motivational counselling ranked among the most effective treatment modalities, based on weighted evidence from rigorous clinical trials (Holder et al. 1991). Brief motivational counselling was also the least costly--making it the most cost-effective treatment modality of the 33 evaluated. Although cautioning that it was an approximation that requires refinement, the same study found a negative correlation between effectiveness and costs for the most traditional forms of treatment for alcohol use disorders and highlighted a growing trend to favour effective outpatient care over less effective or less studied--but far more expensive--inpatient, hospital-based, or residential care (Holder et al. 1991).

As already noted, MI increases the effect of another treatment, but has not itself been subjected to randomized study. Brief, motivation-enhancing treatment appears to have the same effect as more extensive treatment. The studies, with the exception of Project MATCH, have mainly recruited patients with a lower level of alcohol dependence.

3 Recommendations

3.1 *Access*

Access to the service

Flexible.

Referral pathways and relevant pathways of care

Flexible.

Integrate care pathways

High level of integrated pathways.

3.2 *Assessment*

Another strategy involves providing feedback to the client about their behaviour. Normative feedback can include information about levels of use, consequences of use or comparison to others. Standardized instruments like the ASI, SASSI, AUDIT or DrInC or InDUC provide ready resources for this type of feedback.

3.3 *Treatment phases*

The process of negotiation is described as a "meeting between experts" comprising five key steps:

- establish rapport.
- ask for permission to discuss the pros and cons of continued substance use.
- be open to allowing clients to self-identify potential evidence of problematic substance use.
- invite clients to assess their readiness for change.
- negotiate a potential strategy for change, taking into account clients' perception of their readiness to change (D'Onofrio et al. 1998b).

Values Exploration

A focus on values may stimulate motivation for change. Focusing on discrepancies between ideal life conditions and actual conditions may induce a desire to "recalibrate" daily behaviours to be more congruent with deeply held beliefs.

Ambivalence about various possibilities can be viewed in part as the experiential result of multiple conflicting values.

In addition to a general discussion of the client's values, counsellors can use a set of values cards and have the client sort through the cards and order them in accordance

with his or her priorities. Counsellors sometimes report that this technique increased the ease of practice as well as client engagement.

Looking Forward

It has the client envision two futures. The first is if they continue on the same path without any changes where they might be five or ten years from now. The second future is if they decided to make a change in their behaviour, what that future might look like. The therapist's job is not argue one position or another, but rather just elicit the information and then ask the client to comment on these imaginings.

Exploring Importance and Confidence

This strategy essentially explores the client's impressions of how important is to make a change and how confident he or she is that he or she can succeed in changing.

Decisional Balance

Counsellors ask clients to identify the anticipated "pros" and "cons" of changing a behaviour, then compare this with the pros and cons of not changing the behaviour.

Change Planning

A change plan is a technique that can be quite helpful with clients that are ready to do this type of work.

Monitoring the effectiveness of your use of MI Strategies

Observe client behaviour during MI sessions for adapting strategy.

Interaction Techniques

The basic approach to interactions in motivational interviewing is captured by the acronym OARS: (1) Open-ended questions, (2) Affirmations, (3) Reflective listening and (4) Summaries.

Open-ended questions are those therapist utterances that client's cannot answer with a "yes", "no" or "three times in the last week".

An open-ended question allows the client to create the impetus for forward movement. Affirmations are statements of recognition about client strengths.

Affirmations. If the client thinks the counsellor is insincere, then rapport can be damaged rather than built.

Reflective listening. The goal in MI is to create forward momentum and to then harness that momentum to create change. Reflective listening keeps that momentum moving forward.

Summaries. The structure of the summary is straightforward. Miller and Rollnick organize this talk into four categories: problem recognition, concern about the problem, commitment to change and belief that change is possible.

Aftercare and support

Standard MI is used for improve compliance and effectiveness of different following treatments.

3.4 Motivational Counselling Strategies

Reviewing a Typical Day

Here, the counsellor builds rapport while gathering information. The counsellor avoids a focus on "problem behaviours," focusing instead on how substance use fits in to the person's life. Proceed to help the client tell a story of the day, focusing on feelings and behaviours. If the client is receptive, summarize, the move to the next strategy.

Looking Back

This strategy simply involves engaging in a conversation with the client about what life was like "before." Before substance use problems, before legal, work or relationship difficulties, etc. The goal is for the client to obtain some perspective from the immediacy of his or her circumstance and to observe either how things have changed over time.

Good Things and Less Good Things

This strategy is simply to review what is "good" about substance use alongside a review of what is "not-so-good" about the use of substances. The technique provides the therapist an opportunity to explore what "positives" may be sustaining a behaviour.

Discussing the Stages of Change

There is some pretty good evidence that people shouldn't skip stages. Someone who jumps right into the action stage may not spend enough time preparing for change. The result is they have trouble in keeping the changes they've made. For this reason, it is important to know which stage client is in and what things he/she needs to do to move to the next stage.

3.5 Core management standards¹⁵

In a transtheoretical perspective, individuals move through a series of stages of change as they progress in modifying problem behaviours. This concept of stages is important in understanding change. Each stage requires certain tasks to be accomplished and certain processes to be used in order to achieve change. Six separate stages have been identified in this model (Prochaska and DiClemente, 1984, 1986):

| |
|------------------|
| PRECONTEMPLATION |
| CONTEMPLATION |
| DETERMINATION |
| ACTION |
| MANTEINANCE |
| RELAPSE |

3.5.1 From precontemplation to Contemplation: Building Readiness

This chapter discusses a variety of proven techniques and gentle tactics that the clinician in a treatment facility can use to raise the topic with people not thinking of change, to create client doubt about the commonly held belief that substance abuse is "harmless" and to lead to client conviction that substance-abuse is having, or will in the future have, significant negative results. An assessment and feedback process is an important part of the motivational strategy, informing clients about how their personal substance use patterns compare with norms, what specific risks are entailed, and what damage already exists or is likely to occur if changes are not made.

Raising the Topic

The new client could be at any point in the severity continuum (from mild problem use to more severe dependence), could have few or many associated health or social problems, and could be at any stage of readiness to change. The strategies used for beginning a therapeutic dialog should be guided by assessment of the client's motivation and readiness.

In opening sessions it is important to

- Establish rapport and trust
- Explore events that precipitated treatment entry

Establish Rapport and Trust

¹⁵ The following transitions between stages are summarised based on SAMHSA 2006.

The challenge is to create a safe and supportive environment in which the client can feel comfortable about engaging in authentic dialog. One way to foster rapport is first to ask the client for permission to address the topic of change; this shows respect for the client's autonomy. Next, it's necessary to tell the client something about how MI's programme operates and how therapist and client could work together. Do specify what assessments or other formal arrangements will be needed, if appropriate.

Explore the Events That Precipitated Treatment Entry

The emotional state in which the client comes to treatment is an important part of the *gestalt* or context in which counselling begins. Clients referred to treatment will exhibit a range of emotions associated with the experiences that brought them to counselling--an arrest, a confrontation with a spouse or employer, or a health crisis. The situation that led an individual to treatment can increase *or* decrease defensiveness about change. However, clients sometimes blame the referring source or someone else for coercing them into counselling. The implication is often that this individual or agency does not view the situation accurately. To find ways to motivate change, it's important to ascertain what the client sees and believes is true.

Gentle Strategies to Use with the Precontemplator

There are some strategies that are useful for increasing the client's readiness to change and encouraging contemplation:

a) Agree on Direction

In helping the client who is not yet thinking seriously of change, it is important to plan your strategies carefully and negotiate a pathway that is acceptable to the client.

b) Assess Readiness to Change

There are several ways to assess a client's readiness to change:

- Readiness Ruler

The simplest way to assess the client's willingness to change is to use a Readiness Ruler or a 1 to 10 scale, on which the lower numbers represent no thoughts about change and the higher numbers represent specific plans or attempts to change.

- Description of a typical day

Another, less direct, way to assess readiness for change, as well as to build rapport and encourage clients to talk about substance use patterns in a non-pathological framework, is to ask them to describe a typical day. This approach also helps to understand the context of the client's substance use.

- *Provide Information About the Effects and Risks of Substance Use*

It's important to provide basic information about substance use early in the treatment process if clients have not been exposed to drug and alcohol education before and seem interested.

- *Use Motivational Language in Written Materials*

It's needed to remember that the effective strategies for increasing motivation in face-to-face contacts also apply to written language. Brochures, flyers, educational materials, and advertisements can influence a client to think about change.

c) Create Doubt and Evoke Concern

As clients move beyond a pre-contemplation stage and become aware of or acknowledge some problems in relation to their substance use, change becomes an increased possibility. Such clients become more aware of conflict and feel greater ambivalence. The major strategy for moving clients from a pre-contemplation to a contemplation stage is to raise doubts in them about the harmlessness of their substance use patterns and to evoke concerns that all is not well after all.

One way to foster concern in the client is to explore the good and less good aspects of substance use.

d) Assessment and Feedback Process

Findings from an assessment can most readily become part of the therapeutic process if the client understands the practical value of objective information and believes the results will be helpful. A variety of instruments and procedures may be used to evaluate clients. Eight major domains considered comprehensive in scope for assessing clients with primarily alcohol-related problems have been suggested:

- Substance use patterns
- Dependence syndrome
- Life functioning problems
- Functional analysis
- Biomedical effects
- Neuropsychological effects
- Family history
- Other psychological effects

e) Intervene Through Significant Others

Considerable research shows that involvement of significant others (SOs) can help move substance users to contemplation of change, entry into treatment, retention and involvement in the therapeutic process, and successful recovery. An SO can play a vital role in enhancing an individual's commitment to change by addressing a client's substance use in the following ways:

- Providing constructive feedback to the client about the costs and benefits associated with his substance use behaviour
- Encouraging the resolve of the client to change the negative behaviour pattern
- Identifying the concrete and emotional obstacles to change
- Alerting the client to social and individual coping resources that lead to a substance-free lifestyle

- Reinforcing the client for using these social and coping resources to change the substance use behaviour

Several recognized methods of involving SOs in motivational interventions are: involving them in counselling, in a face-to-face intervention, in family therapy, or as part of a community reinforcement approach.

3.5.2 From Contemplation to Preparation: Increasing Commitment

Changing Extrinsic to Intrinsic Motivation

To help the clients prepare for change, it's important to seek to understand the range of both extrinsic and intrinsic motivators that have brought them to this point. Helping clients change extrinsic to intrinsic motivation is an important part of helping them move from contemplating change to deciding to act. It's necessary to start with the client's current situation and find a natural link between existing external motivators and intrinsic ones the client may not be aware of or find easy to articulate. Through sensitive and respectful exploration, untapped intrinsic motivation may be discovered even in clients who seem unlikely to become self-motivating.

Tipping the Decisional Balance

In moving toward any decision, most people weigh the costs and benefits of the action being contemplated. In behavioural change, these considerations are known as decisional balancing, a process of cognitively appraising or evaluating the "good" aspects of substance use--the reasons not to change, and the less good aspects--the reasons to change.

Summarize Concerns

A first step in helping the client to weigh the pros and cons is to organize the list of concerns and present them to the client in a careful summary that expresses empathy, develops discrepancy, and weights the balance toward change. Because it is important to reach agreement on these issues, the summary should end by asking whether your client agrees that these are her concerns.

Explore Specific Pros and Cons

Weighing benefits and costs of substance use and of change is at the heart of decisional balance work. Some clinicians find it helpful to ask the client to write out a two-column list. This can be done as homework and discussed during the session, or the list can be generated during a session.

Normalize Ambivalence

Clients engaged in decisional balance exercises often feel themselves moving closer to a decision--closer to changing long-standing behaviours than they may ever have ventured and, therefore, closer to inner conflict and doubt about whether they can or

want to change. An important strategy at this point is to reassure client that conflicting feelings, uncertainties, and reservations are common.

Reintroduce Feedback

Objective medical, social, and neuropsychological feedback from the assessment prompts many clients to contemplate change. Reviewing the assessment information can keep clients focused on the need for change.

Examine the Client's Understanding of Change and Expectations of Treatment

Exploration of treatment expectations provides an opportunity to introduce information about treatment and to begin a preliminary discussion with clients about available options. When clients' expectations about treatment correspond to what actually happens in treatment, they have better outcomes.

Emphasizing Personal Choice and Responsibility

In a motivational approach to counselling the client chooses. Therapist's task is to help clients make choices that are in their best interests. A consistent message throughout the motivational approach is the client's responsibility and freedom of choice. At this stage of the change process, the client should be accustomed to hearing from you such statements as the following:

- "It's up to you what to do about this."
- "No one can decide this for you."
- "No one can change your drug use for you. Only you can."
- "You can decide to go on drinking or to change."

3.5.3 From Preparation to Action: Getting Started

At the end of the preparation stage, clients make a plan for change to guide them into the action stage. Changing any long-standing, habitual behaviour requires preparation and planning. As clients move from contemplating to actually implementing change in their lives, they are in an intermediate stage in which they increase their commitment to change by exploring, clarifying, and resolving their ambivalence and making a decision to act. In the transtheoretical model, this stage is known as preparation. Clients must see change as in their best interest before they can move into action. The negative consequences of ignoring the preparation stage can be a brief course of action followed by rapid return to substance use.

Recognizing Readiness to Move Into Action

As clients proceed through the preparation stage, it's important to pay attention to signs of their readiness to take action. Clients' recognition of important discrepancies in their lives is an uncomfortable state in which to remain for long. The following are several confirming signs of readiness to act:

- Decreased resistance. The client stops arguing, interrupting, denying, or objecting.

- Fewer questions about the problem. The client seems to have enough information about his problem and stops asking questions.
- Resolve. The client appears to have reached a resolution and may be more peaceful, calm, relaxed, unburdened, or settled. Sometimes this happens after the client has passed through a period of anguish or tearfulness.
- Self-motivational statements. The client makes direct self-motivational statements reflecting openness to change ("I have to do something") and optimism ("I'm going to beat this").
- More questions about change. The client asks what she could do about the problem, how people change once they decide to, and so forth.
- Envisioning. The client begins to talk about how life might be after a change, to anticipate difficulties if a change were made, or to discuss the advantages of change.
- Experimenting. If the client has had time between sessions, he may have begun experimenting with possible change approaches (e.g., going to an Alcoholics Anonymous [AA] meeting, reading a self-help book, stopping substance use for a few days)

Negotiating a Plan for Change

Creating a plan for change is a final step in readying the client to act. sound change plan can be negotiated with your client by the following means:

- Offering a menu of change options
- Developing a behaviour contract
- Lowering barriers to action
- Enlisting social support
- Educating your client about treatment

Although the change plan is the client's, creating it is an interactive process between the therapist and the client. One of your most important tasks is to ensure that the plan is feasible. When the client proposes a plan that seems unrealistic, too ambitious, or not ambitious enough, a process of negotiation should follow. The following areas are ordinarily part of interactive discussions and negotiations:

- Intensity and amount of help needed--for example, the use of only self-help groups, enrolling in intensive outpatient treatment, or entering a 2-year therapeutic community
- Timeframe--a short- rather than a long-term plan and a start date for the plan
- Available social support--including who will be involved in treatment (e.g., family, Women for Sobriety, community group), where it will take place (at home, in the community), and when it will occur (after work, weekends, two evenings a week)
- Sequence of subgoals and strategies or steps in the plan--for example, first to stop dealing marijuana, then stop smoking it; to call friends or family to tell them about the plan, then visit them; to learn relaxation techniques, then to use them when feeling stressed at work

- How to address multiple problems--for example, how to deal with legal, financial, and health problems.

3.5.4 From Action to Maintenance: Stabilizing Change

This chapter addresses ways in which motivational strategies can be used effectively at different points in the formal treatment process.

Develop rapport

Clinician style is an important element for establishing rapport and building a trusting relationship with clients. The principles of motivational interviewing exemplify proven methods to get in touch with and understand clients' unique perspectives and personal values, as opposed to the therapist or to his programme. Accurate empathy and reflective listening (client-centred skills for eliciting clients' concerns through an interactive process that facilitates rapport) have been well described and tested in clinical research.

Induct clients into their role

The clients must become acquainted with the therapist and the agency. It's necessary to tell clients explicitly what treatment involves, what is expected, and what rules there are. If the client has not been prepared by a referring source, therapist has to review exactly what will happen in treatment so that any confusion is eliminated, has to use language the client understands. Also therapist has to be sure to encourage questions and provide clarification of anything that seems perplexing or not justified.

Explore client expectancies and determine discrepancies

One of the first things to discuss with new clients is their expectations about the treatment process, including past experiences, and whether there are serious discrepancies with the reality of the upcoming treatment.

- The clinician will be confrontational and impose treatment goals.
- Treatment will take too long and require the client to give up too much.
- The rules are too strict, and the client will be discharged for the slightest infringement.
- Medication will not be prescribed for painful withdrawal symptoms.
- The programme does not understand women, members of different ethnic groups, or persons who take a particular substance or combination of substances.
- A spouse or other family member will be required to participate.

"Immunize" the client against common difficulties

During treatment, clients may have negative reactions or embarrassing moments when they reveal more than they planned, react too emotionally, realize discrepancies in the information they have supplied, or pull back from painful insights about how they have

hurt others or jeopardized their own futures. One way to forestall impulsive early termination in response to these situations is to "immunize" or "inoculate" client anticipating and discussing such problems before they occur, indicating they are a normal part of the recovery process, and developing a plan to handle them.

Planning for Stabilization

Conducting a Functional Analysis

Although a functional analysis can be used at various points in treatment, it can be particularly informative in preparing for maintenance. A functional analysis is an assessment of the common antecedents and consequences of substance use. Through functional analysis, the therapist help clients understand what has "triggered" them to drink or use drugs in the past and the effects they experienced from using alcohol or drugs.

Developing a Coping Plan

Developing a coping plan is a way of anticipating problems before they arise and of recognizing the need for a repertoire of alternative strategies. A list of coping strategies that others have found successful can be particularly useful in developing a plan and in brainstorming ways to deal with anticipated barriers to change.

Ensuring Family and Social Support

Clients are embedded in a social network that can be either constructive or destructive. One task for the therapist and the client is to determine which social relationships are supportive and which are risky.

Developing and Using Reinforcers

Competing reinforcers are effective in reducing substance use. A competing reinforcer is any source of satisfaction for the client that can become an alternative to drugs or alcohol. The therapist can help the client fill this void by suggesting potential activities, such as the following:

- Do volunteer work. This alternative is a link to the community. The client can fill time, reconnect with pro-social people, and improve self-efficacy. Volunteering is a direct contribution that can help resolve guilt the client may feel about previous criminal or antisocial behaviour.
- Become involved in 12-Step activities. Similar to volunteering, this fills a need to be involved with a group and contribute to a worthwhile organization.
- Set goals to improve work, education, health, and nutrition.
- Spend more time with family, significant others, and friends.
- Participate in spiritual or cultural activities.
- Learn new skills or improve in such areas as sports, art, music, and hobbies.

External Contingent Reinforcers

The principles of contingent reinforcement can be applied to sustain abstinence while clients work on building a substance-free lifestyle. The specific awards chosen can be

tailored to the values of the clients and resources of the programme. Besides natural reinforcers, some programmes have used temporary contingencies to change substance use. Voucher incentive programmes have several benefits that recommend their use.

3.6 Performance and outcome monitoring

Instruments and tools:

- Behaviour Change Counselling Index (BECCI)
- R.T.C.Q.
- MAC –E (intake and discharge form)

3.7 Location

Not defined, flexible.

3.8 Programme duration

Flexible.

3.9 Staffing/competencies

Personnel must be trained in MI. Clinical supervision is suggested.

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Essentials:

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9 Interventions in blood-borne diseases“ – needle exchange, prevention, testing advice, injection rooms


Interventions in blood-borne diseases“ – needle exchange, prevention, testing advice, injection rooms

Guidelines for treatment improvement

Moretreat-project

CIAR Hamburg
Germany

October 2008

| | |
|---|---|
|  | EUROPEAN COMMISSION HEALTH & CONSUMER PROTECTION DIRECTORATE-GENERAL Directorate C - Public Health and Risk Assessment |
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1. Interventions in blood-borne diseases

Drug users and in particular injecting drug users (IDUs) are at risk of infections with blood-borne diseases (BBD). These include especially Human Immunodeficiency Virus (HIV) and hepatitis C (HCV), furthermore other hepatitis infections (HBV and HAV) and tuberculosis, but other infections (both bacterial and fungal infections, such as STIs) are rather common as well. HCV is a virus with potentially devastating hepatic complications, which will become chronic in about 80% of the infected persons, while 20% will clear the virus (Wright and Tompkins 2006).

In 2005 there were around 3,500 new diagnoses of HIV in the European Union which were traced back to injecting drug use, and estimations are that 200,000 persons are infected with HIV in the countries of the European Union (EMCDDA 2007a). The prevalence of HIV among IDUs differs between the countries and may range from almost zero up to 40% (EMCDDA 2007a). The prevalence of Hepatitis C (HCV) among IDUs ranges between 30% and 98% in the European Union (EU), while in the general population the prevalence rate is at around 3% (Wright and Tompkins 2006). Young IDUs become infected with HCV while still in the early stages of their drug using career (EMCDDA 2007a). In a large cohort with around 5.000 patients who took part in a “EuroSIDA” study, infections with HBV were present in 9 % and infections with HCV in 34 % of the patients living with HIV. The highest prevalence of 48% patients with HCV co-infection was found in Eastern Europe (Matic et al. 2008). The huge difference between HIV and HCV infection-rates is due to differences in the ways of infections. The Hepatitis C Virus is much more resistant than the HI-Virus and can survive even in dried blood for several days and weeks while the HI-Virus only survives few minutes in the air (Leicht and Stöver 2004). The exact ways of transmission for HCV are unknown in the single cases as not only needle sharing, but also sharing of other injecting equipment like spoons, filter, lighter, table surface are possible ways of infecting. Also the shared use of household items like scissors or toothbrush may cause an infection (Leicht and Stöver 2004). As injecting drug users often practice a rather unhygienic way of life, there are plenty of possibilities for infections.

The importance of the issue of harm reduction is also seen by the Council of Europe, which stresses in their recommendations the need for “information and counselling to drug users to promote risk reduction...” (Council of Europe 2003).

The table below gives an overview of prevalence rates for HIV infection and HCV antibody among injecting drug users (IDUs) in European countries:

Table 1

Infections of injecting drug users with HIV and HCV in European countries

| Country | HIV: % infected | Year/ sample | HCV: % infected | Year/Sample |
|----------------|--------------------------------|----------------------|--------------------------------|--------------------|
| Austria | 7.1 | 2006, national | 31.9 | 2006, national |
| Belgium | 2.9-5.7 | 2005-06, subnational | 36.2-78.7 | 2006, subnational |
| Bulgaria | 0.8-2.6 | 2005-06, subnational | 17.9 | 1005-06, national |
| Croatia | 0 | 2006, national | | |
| Cyprus | 0 | 2006, national | 29.6 | 2006, national |
| Czech Republic | 0.0-0.1 | 2006, national | 16 | 2006, national |
| Denmark | 2.1 | 2006, national | 60.7 | 2006, national |
| Germany | 5.3 | 2005, national | 75 | 2004, national |
| Estonia | 54.3-89.9 | 2005, subnational | 89.2-90.5 | 2002, subnational |
| Finland | 0.2 | 2005-06, national | 20.7 | 2005-06, national |
| France | 1.0-32.0 | 2004, subnational | 44-66 | 2004, subnational |
| Greece | 0.3-0.7 | 2006, national | 42.6-66.0 | 2006, national |
| Hungary | 0 | 2006, national | 6.4-28.9 | 2006, national |
| Ireland | 12.5 | 2003, subnational | 72.3 | 2003, subnational |
| Italy | 12.1 | 2006, national | 62 | 2006, national |
| Latvia | 6.6-9.7 | 2003, national | 83 | 2001, subnational |
| Lithuania | 0.6-3.6 | 2006, subnational | 70.3-89.7 | 2006, subnational |
| Luxembourg | 2.5-2.8 (| 005-06, national | 71.8-90.7 | 2005, national |
| Malta | 0 | 2006, national | 33.1 | 2006, national |
| Netherlands | 9.5 | 2002, national | 40.7-70.4 | 2006, subnational |
| Norway | 3.2 | 2006, national | 78.4 | 2006, national |
| Poland | 8.9 | 2005-06, national | 43.7-64.0 | 2005, subnational |
| Portugal | 10.9-20.2 | 2005-06, national | 41.7-84.8 | 2006, national |
| Romania | 1.4 | 2006, subnational | 46.2 | 2006, subnational |
| Slovakia | 0 | 2003-04, subnational | 45.8 | 2004, subnational |
| Slovenia | 0 | 2005-06, subnational | 22.5 | 2004, national |
| Spain | 36.1-39.7 | 2005-06, national | 59.1-73.3 | 2003, subnational |
| Sweden | 5.4-6.4 | 2006-07, subnational | 83.8-88.2 | 2006-07 subnationa |
| Turkey | 0 | 2004, subnational | 47.4 | 2004, subnational |
| United Kingdom | 0.6-4.0 | 2006, subnational | 29-56 | 2006, subnational |

Due to different sources and study designs the infection rates must be interpreted with caution and can not be compared. Some numbers refer to national surveys, others to regional studies, and some are based on small samples only (EMCDDA 2007b; EMCDDA 2007c).

Injecting drug use is one of the main risk factors and prevalence of BBD is high among IDUs (National Treatment Agency 2002). There are a number of risk factors which correlate with the likeliness of infections: age, years of intravenous use, individual risk-concept/willingness, depression, experience with violence and sexual abuse, and especially number of imprisonments, insecure living conditions and low education level (Leicht and Stöver 2004). Independent risk factors for HCV seroconversion seem to be a history of imprisonment, history of needle/paraphernalia sharing and polydrug use (Wright and Tompkins 2006). But not only injecting poses the risk of blood-borne transmission, crack cocaine smoking can have the possibility of transmission as well and therefore needs to be taken into account (Shannon et al. 2006). Living conditions and cultural traditions in the drug scene do influence drug using and risk behaviour and need to be addressed in a successful harm reduction approach (Leicht and Stöver 2004).

Increased investment in harm reduction measures may result in decreased HCV transmission (Hope et al. 2001).

With respect to the prevention blood-borne diseases treatment improvement guidance have been developed for the following four intervention types:

- Needle exchange services
- Consumption rooms
- Testing and vaccination
- Information and education

1 Needle exchange services

1.1 *Introduction*

Needle exchange services are an important measure to reduce blood-borne diseases.

1.1.1 Definition

Needle and syringe exchange services have been developed as an integral part of harm reduction policy in order to respond to various harms related to drug use (Ritter and Cameron 2006). Within this context needle and syringe exchange services aim in general at harm minimisation and risk reduction. In particular they play an important role for preventing blood-borne diseases, especially as regards averting infections with HIV and hepatitis (Des Jarlais et al. 2002; McVeigh et al. 2003; De la Fuente et al. 2006). The distribution/exchange of sterile injection equipment by specialised drug services or pharmacies is an essential public health measure to reduce blood-borne diseases and prevent drug-related death (National Treatment Agency 2002).

1.1.2 Context

In Europe, clean syringes and needles are provided by all Member States except Cyprus. According to the EMCDDA (2007) several countries (Bulgaria, the Czech Republic, Estonia, Hungary, Austria, Slovakia, and Finland) reported an increase in the number of syringes distributed through specialised needle exchange services. In 2005 more than 23 million syringes have been exchanged, distributed or sold in the European Union (Statistical Bulletin, table HRS-1: <http://www.emcdda.europa.eu/html.cfm/index39423EN.html>). In some of the European countries pharmacies take a pro-active position in distributing syringes to drug users. For instance in Scotland a network of 116 pharmacies distributed 1.7 million syringes in 2004. The majority of needle exchange services offer a safe disposal for the return of used injecting equipment. Since introducing needle exchange services it has become increasingly a general approach to provide additional sterile equipment such as swabs, filters, citric acid, water ampoules etc.

1.1.3 Philosophy and approach

In the last two decades, key elements for an effective response to infectious diseases among injecting drug users have been developed in European Member States. In particular the HIV/AIDS epidemic among homosexual and drug user communities in Western Europe in the early 1980s resulted in major changes in health and drug policy, and thus initiated the introduction of various harm reduction measures (McVeigh et al. 2003; Hamers and Downs 2004). From a global perspective Switzerland, the Netherlands, the United Kingdom, Australia, New Zealand and Canada were those

countries that early adopted harm reduction measures (Kempa and Aitken 2004; Ritter and Cameron 2006). In recent years harm reduction programmes have become increasingly available in community in central and Eastern Europe, Asia and Latin America (Ritter and Cameron 2006).

Needle and syringe exchange programmes as one component of harm reduction started first in 1984 in The Netherlands. In the following five years sterile injecting equipment was supplied in further five European countries (Spain, UK, Sweden, Germany, Denmark and Czech Republic). During the 1990s the majority of European countries have established needle exchange services, and since 2000 nearly all European Union Member States run needle and syringe programmes either at drug agencies or by involvement of pharmacies or by mobile units.

In the beginning the main objective of needle exchange services was to prevent infections with HIV by making sterile injection equipment accessible to all drug injectors. The accessibility of needles and syringes aims at the reduction of risk behaviour such as sharing of injection equipment, and thus at the minimisation of the risk of blood-borne diseases.

Needle and syringe exchange services were developed within a comprehensive harm reduction approach covering as well substitution treatment, information and education, counselling and testing of infectious diseases, vaccination and treatment of infectious diseases. Access to this variety of harm reduction measures not only aims at the reduction of blood-borne diseases but is also targeting at the reduction of drug-related deaths and the prevention of overdoses.

However, even though the level of provision of sterile injecting equipment varies in the European Union, syringe exchange services are well established in almost all Member States.

1.1.4 Location

In Europe, the majority of needles and syringes are exchanged at drug agencies rather than at pharmacies. However, a few countries (such as ES, UK, NL, DK) show a wide geographical coverage of needle and syringe exchange through pharmacies. For those drug users not being in contact with other services pharmacies are a good location to dispense needles and syringes. In order to reach marginalised groups of drug injectors many countries have also established mobile needle exchange services (EMCDDA 2007a).

Up to now prison-based needle exchange programmes are rare and only provided in few countries such as Spain, Switzerland, Germany, Luxembourg and in a few countries of the former Soviet Union (Moldova, Belarus, Kyrgyzstan) (Stöver and Nelles 2003; Lines et al. 2006; EMCDDA 2007).

1.1.5 Aims of the intervention

Main aim of needle exchange services is to distribute or sell sterile syringes, needles to intravenous drug users. Along with the distribution a safe disposal of used needles and syringes has to be offered.

Needle and syringe exchange services are one cornerstone of harm reduction efforts aim at the prevention of risk behaviour (Ritter and Cameron 2006; Trimbos Institute 2006). The major objectives of these services are

- to reduce the sharing of equipment used in drug preparation and injection (Morissette et al. 2007),
- to reduce the transmission of HIV, hepatitis B and C, and other blood-borne infections,
- to increase access to harm reduction,
- to offer advice and counselling on HIV and hepatitis and other drug-related health problems,
- to provide information and advice on overdose prevention and safe injecting practices,
- to encourage a reduction or cessation in unsafe sexual behaviour,
- to offer advice and counselling on social and welfare problems, and
- to ease access to treatment and provide referral to other specialist treatment services,

In general needle and syringe exchange services are designed to meet the needs of drug users who are unwilling or unable to stop injecting practices (Mullen et al. 2001). For this reason needle exchange service base upon a user-friendly, client-centred and confidential approach which aims at assisting service users to remain healthy.

1.1.6 Client group served

Needle exchange services provide easy access to all drug injectors. In particular they address those injectors not being in contact with other treatment services. There is evidence that a considerable number of users of needle exchange services do not make use of other local services (National Treatment Agency 2002). Needle exchange programmes have been shown to attract more severely drug dependent injectors who inject frequently, and engage in high risk activities such as for e.g. poly-drug use (Henderson et al. 2003).

Needle and syringe exchange services do not reach all groups of injectors equally. According to research needle exchange services have huge difficulties to reach young drug injectors (Bailey et al. 2003), female injectors and intravenous drug users from ethnic minorities. In addition, needle exchange services seem to attract non-opiate injectors less than opiate injectors (National Treatment Agency 2002).

A study from Scotland indicates that many of the young and relatively inexperienced intravenous drug users aged 16-19 years old shared injecting equipment, particularly spoons, water and filters. At the same time only a minority of the young injectors had

made use of local needle exchange facilities (Stevenson et al. 2001). Similar results are reported from a Dublin study among 15-19 years old drug users who attended local needle exchange services for the first time (Mullen et al. 2001). In young drug injectors the prevalence of needle sharing increased after the first year of intravenous drug use. For this reason the authors recommended that needle exchange services are targeted to the needs of young injecting drug users and in particular to young female drug users. Accessibility to needle exchange services may reduce risk behaviour of young drug users. On the other hand there may be a certain group which will nevertheless practice risky injecting behaviour. Within this context a study among young injection drug users in San Francisco shows that despite access to and use of needle exchange facilities in a group of users sharing of needles still persisted (Hahn et al. 2001).

1.1.7 Exclusion

Usually needle exchange services address adult substance users while adolescents and young drug users less than 18 years of age must meet specific criteria in order to make use of needle exchange facilities. In the case of young injectors or minors the country-specific regulations for child protection have to be taken into consideration when offering needle exchange to them. Secondly attention has to be drawn to the minor's ability to give consent for treatment.

Due to research findings it is quite clear that on the one hand young injectors should be provided with sterile needles and syringes. On the other hand needle exchange should only be offered to those young people being at risk for significant harm. This means that the risk of providing needles and syringes to young injectors have to be lower than the risks which are related to not provide such a service (National Treatment Agency 2002).

1.2 *Research evidence base – key findings*

Evidence for needle exchange services has mainly been investigated by analysing the association between service utilisation and the reduction of blood-borne infections and risk behaviour including sharing of injecting equipment (Trimbos Institute 2006). The evaluation of needle and syringe programmes (NSP) is based upon a number of different methodologies such as pre-and post-NSP comparisons, comparisons of NSP-attendees versus non-attendees, cohort studies, case studies, population prevalence studies, and country comparisons. In addition, there are systematic reviews on international evidence found for harm reduction measures (Ritter and Cameron 2006), for hepatitis C prevention interventions (Wright and Tompkins 2006) and for needle exchange in prison (Lines et al. 2006).

When NSP became increasingly available worldwide, a number of researches were undertaken in the late 1990s until the early years of 2000 which addressed the question of potential negative effects of needle and syringe provision. In this respect it was evaluated whether NSPs may in fact increase drug use and drug injection, and may attract drug users to initiate injecting. Research evidence shows that needle and syringe

exchange does not result in these unwanted effects (Bluthenthal et al. 2000; Fisher et al. 2003; Ritter and Cameron 2006). There is also no evidence that crime rates increase in areas where needle and syringe programmes exist (Ritter and Cameron 2006).

Evaluations of prison needle exchange programmes are consistent in their evidence that these programmes do not endanger staff or prisoner safety, do not increase drug use or injection and that return rates of used injecting equipment are quite high (in two German prisons about 98 %) (Jacob and Stöver 2000; Stöver and Nelles 2003; Lines et al. 2006). On the contrary, prison-based NSPs have a positive outcome for the health of prisoners (Lines et al. 2006).

1.2.1 Effectiveness of NSP on the reduction of blood-borne diseases

With regard to blood-borne diseases evaluation of needle and syringe provision focuses primarily on effects of this intervention on reducing HIV and hepatitis infections. Furthermore there are some studies evaluating the reduction of risk behaviour (e.g. needle sharing), and in recent years the question of NSP coverage attracts growing attention. As by nature evaluation of the NSP effectiveness lack of controlled trials with cohorts of drug users, evidence found in research remains insufficient and has to be interpreted cautiously (Heimer 2008).

In consideration of methodological limitations most studies show that the increased availability of needle and syringe provision has contributed considerably to the control of HIV among drug injectors (Henderson et al. 2003; MacDonald 2003; Emmanuelli et al. 2005; Bravo et al. 2007). By examining changes in HIV infection rates research indicates evidence for needle and syringe programmes in contributing to a reduction of HIV incidence.

In the UK, a survey based upon 50 drug services (including structured drug treatment and NSP) and data from an Anonymous HIV Prevalence Monitoring Programme found relatively low HIV prevalence among injectors in England and Wales. The low HIV prevalence rate of 3.6 % in London and 0.21 % for England and Wales is attributed to the introduction of needle and syringe programmes (McVeigh et al. 2003). A recent study from France (Emmanuelli et al. 2005) documented that between 1996 and 2003 the HIV prevalence among drug injectors decreased from 40% to 20% and in the same period a decrease in syringe sharing could be observed. These positive effects in health outcome are traced back to the greatly improved access to sterile syringes and substitution treatments.

Studies from Canada (Guenter et al. 2000; Morissette et al. 2007) and California (Gibson et al. 2002) show as well that HIV prevalence remains low among attendees of needle exchange services. The Californian study compared the HIV risk behaviour of NSP clients with that of non-clients on basis of a prospective cohort of 259 untreated injecting drug users. 10.7 months after baseline the follow-up of the drug users was carried out. Analyses reveal that the use of NSP is associated with twofold benefits of decreased HIV risk behaviour (Gibson et al. 2002).

While research supports evidence for reduced HIV prevalence through needle and syringe exchange programmes, research on effectiveness of NSP for the reduction of HIV incidence shows controversial results (Amundsen 2006; WHO 2007b; Wood et al. 2007; Heimer 2008).

A recent prospective cohort study among drug injectors in Vancouver, Canada, suggests limited evidence for preventing HIV infections. No lower HIV incidence rate were found for those IDUs reporting daily needle exchange use compared with those not using exchange services daily (Wood et al. 2007). However, this result was attributed to the higher risk profile of daily NSP users caused by cocaine injecting.

An ecological study found by regression analysis, that in cities where needle and syringe programmes were introduced, HIV prevalence decreased by 18.6% per annum, while in cities without those programmes, the HIV prevalence increased by 8.1% per annum (MacDonald 2003).

Needle exchange programmes seem to be less effective in preventing hepatitis C infection. Despite frequent use of needle and syringe programmes infections with HCV remain still high in many countries. In France, HCV prevalence among drug injectors using needle exchange services was 60-70% (Emmanuelli et al. 2005). Similarly the systematic review of American and Australian studies conducted by Wright and Tompkins (2006) did not support evidence for the reduction of HCV incidence. On basis of comprehensive observation studies from Scotland the review found statistically significant reduction of HCV prevalence shortly after introduction of needle exchange programmes in the 1990s, but in the following years the declining trend in prevalence did not continue. Only among drug users aged over 25 there was a reduction in HCV infections. The authors concluded that needle and syringe programmes reduce the prevalence of HCV even though prevalence remains still high (Wright and Tompkins 2006; Wright and Tompkins 2007). These results have been confirmed by an Australian study which found a 63 % reduction in HCV incidence in 1995 but only a 50 % reduction in 1997 (MacDonald et al. 2000).

From research literature three major reasons can be identified for the slow decrease of HCV prevalence which are: the continued risk behaviour, the infrequent use of services providing sterile injecting equipment and the high risk profile of NSP clients. HCV infections among intravenous drug user remain high due to persistent sharing and re-using of syringes and needles (Morissette et al. 2007) and due to frequent sharing and reusing of paraphernalia such as filters, spoons and water (Griesbach et al. 2006). Results from a Canadian study show that consistent users of sterile syringes are older than 30 years of age, inject alone, and have less difficulties to obtain sterile syringes (Morissette et al. 2007). Results from an American study suggests that young IDUs aged 18-30 are likely to be infrequent users of needle and syringe programmes or do not use the services at all (Bailey et al. 2003). However, research also suggests that even among regular users of needle exchange programmes, HCV prevalence remains high

because of their high risk consumption behaviour such as frequent i.v. drug use, polydrug use etc. (Wright and Tompkins 2007).

In view of preventing blood-borne diseases changes in risk behaviour can be regarded as an important outcome. A number of international research provided evidence for minimising risks related to intravenous drug use.

A study on HIV risk behaviour among clients of syringe exchanges in five Central/Eastern European cities (Des Jarlais et al. 2002) shows: 1 to 29 % of the respondents reported injecting with needles and syringes used by others in the past 30 days. This number represents statistically significant reductions compared to reported 7 to 47 % syringe sharing in the 30 days prior to first use of the syringe exchange. Further research designs using pre- and post-comparisons of attendees support evidence that the use of needle and syringe exchange is associated with reduction in risk behaviour, in particular as regards borrowing and lending of used injection equipment (Bluthenthal et al. 2000; Gibson et al. 2002; Hutchinson et al. 2002; Bailey et al. 2003; Henderson et al. 2003; Ritter and Cameron 2006; Bryant and Hopwood 2008). For example Bluthenthal, Kral et al. (2000) found in their prospective study in 60 % of high-risk drug users a protective effect of NSP use against needle sharing. However, increased access to sterile needles and syringes plays an important role for risk reduction (Hutchinson et al. 2002; Bravo et al. 2007).

A recent study from Spain shows that increased access to sterile syringes resulted in an overall transition from injecting heroin or cocaine to smoking these substances (Bravo et al. 2007). A 12-month follow-up study from the United States indicates evidence for the change in drug use frequency and enrolment and retention in methadone drug treatment (Hagan et al. 2000). Intravenous drug users who make use of NSP were more likely than non-attendees to report a substantial reduction in injection, to stop injecting, and to remain in drug treatment. New users of the needle exchange services were five times more likely to enter drug treatment than never-exchangers (Henderson et al. 2003).

In general, effectiveness of needle and syringe programmes is affected by the setting (community, prison), location (urban, rural), client group served and by availability and accessibility of the programme. As regards availability a survey among drug services in Eastern Europe and Central Asia resulted in a sub-optimal provision of NSPs (Aceijas et al. 2007).

Two recent studies address the question of the required coverage of needle and syringe programmes in order to substantially reduce HIV transmission (Vickerman et al. 2006; Heimer 2008). Both studies raise the problem of the definition of coverage. Coverage could be the number of syringes distributed per injector or the proportion of IDU population reached by the services. Vickerman et al. (2006) used a mathematical model to determine the coverage which is based upon comparison of the IDU populations in United Kingdom and Belarus, while Heimer (2008) used data on NSP clients, syringes distributed and AIDS cases from New Haven and Chicago. The paper of Vickerman et

al. (2006) assumes that increasing syringe distribution coverage from a low level will have little effect on HIV prevalence until a minimum coverage of 20 % is reached. Even with a 40 % annual rate of cessation of injecting drug use, HIV prevalence would decrease only very slowly unless NSP coverage increased to the minimum level. The study of Heimer (2008) reveals that coverage of individual drug injectors rarely exceeded 10 % but even modest coverage rates have found to be effective in reducing HIV infections.

1.2.2 Effectiveness by treatment setting

Needle exchange services can be an important bridge to drug treatment. Research shows that the use of needle exchange services contributes to the entry into treatment such as detoxification and/or methadone maintenance (Henderson et al. 2003; Samet et al. 2007). For this reason treatment settings are recommended which offer a range of services to drug injectors.

In rural areas the availability of outreach services is considered to be an important way of improving accessibility of sterile needles and syringes (Griesbach et al. 2006). Outreach services are seen as to be more successful in reaching women injectors and specific risk groups such as sex workers, homeless drug users and migrants.

The most common settings of needle exchange base upon face-to-face distribution like in drug agencies, pharmacies, mobile services and outreach work. However, there is not much research on the effects of the different settings. A study from Sydney compared characteristics clients of NSP and pharmacies located in the same geographical area (Thein et al. 2003). Both client groups were similar in being mainly male, on average 30 years old and starting first injection at age of 18. Almost half of the respondents made use of both NSPs and pharmacies. Differences in the characteristics were found as NSP clients were more likely to report imprisonment, daily injection and sharing of injection equipment. Pharmacy clients were on the other hand more likely to report amphetamine use, and to share spoons and filters.

In a number of European countries and elsewhere needle exchange services are complemented by syringe dispensing machines. In Europe, research regarding the usefulness of these machines is lacking. However, there is a current Sydney study that has evaluated provision of syringe dispensing machines (Islam et al. 2008). Apart from technical problems with the machines (broken, not in right place etc.) a considerable number of intravenous drug users made use of dispensing machines when other agencies for accessing sterile injecting equipment are closed. In particular in order to avoid stigma drug users less than 30 years of age seem to prefer syringe dispensing machines.

1.3 Recommendations

1.3.1 Location

In order to provide easy access to needle and syringe exchange services there should be a comprehensive range of these services on local level, including rural areas. Ideally needle and syringe exchange services have to be made available in:

- specialised drugs agencies or other specialised health services,
- community pharmacies,
- mobile needle exchanges,
- prisons, and
- through outreach workers
- slot machines/automats – 24h access.

Also in or near treatment agencies (like detoxification centre) it can be advisable to offer needle and syringe exchange services.

1.3.2 Staffing and competencies

Professional competencies in needle and syringe exchange include knowledge about injecting patterns and the provision of harm reduction advice in terms of safer use. (National Treatment Agency 2002).

In specialised drug agencies or needle exchanges medical staff such as nurses should be employed in order not to only provide injecting equipment but also to treat minor infections or offer basis health checks. To enable staff of specialised needle exchanges in dealing with health issues they have to be provided with training. Even though additional health services may be limited in some settings, and in particular in pharmacies, it is recommended to provide harm reduction advice together with clean injecting equipment if possible. The effect of needle exchange on reducing blood-borne infections can be improved by reinforcing messages on safer injecting.

In France, where pharmacies play a major role in provision of sterile needles and syringes staff of pharmacies had been trained for participating in a decentralised exchange programme (Bonnet 2006). Pharmacists distributed an injection kit for free to IDUs, and also informed them of the risk of HCV infection and encouraged screening. The improvement of the relationship between IDUs and pharmacists has been shown to increase access to the healthcare system.

If additional health services cannot be provided to drug users it is recommended to refer drug users to agencies where these services are available.

1.3.3 Treatment environment and holistic treatment and care

Good practice is to provide services and interventions beyond the simple distribution of sterile needles and syringes (Griesbach et al. 2006; EMCDDA 2007; Samet et al. 2007). In most European countries it is common to integrate needle and syringe exchange within other services provided by drugs agencies. Thus the distribution of sterile

injecting equipment is combined with advice, risk counselling and also with referral of drug users to brief interventions and structured treatment. In terms of holistic treatment needle and syringe exchange services should assess and raise awareness for risk behaviour among clients, motivate them for testing of blood-borne infections and vaccination. Furthermore it is best practice to provide primary healthcare for minor infections, offer training in overdose prevention, and to provide housing, social welfare or legal advice.

1.3.4 Access

Needle exchange services are to be made as accessible as possible with no or low thresholds for eligibility. This includes drop-in service, no waiting list, minimal identification requirements and informal relationships with staff. Needle exchange services are open-access services to which drug injectors can self refer. Trained professionals such as nurses or social workers play a key role in encouraging clients to make use of other local health and treatment services (Mullen et al. 2001; National Treatment Agency 2002).

Needle exchange services have also to be accessible to young injectors by minimising barriers to contact with services. With respect to young injectors, in particular those under age of 16 it is recommended that a designated staff member with training and knowledge in issues of young people carries out an assessment. Research has underlined that frequent attendees of needle and syringe programmes show best outcome in terms of risk reduction. For this reason services providing sterile injecting equipment should improve efforts to reach injecting drug users who do not use the services.

1.3.5 Assessment

A comprehensive assessment of needle exchange users is not recommended as it may constitute a barrier to service utilisation. However, it is good practice to carry out a basic assessment of the clients on their first visit of the service. This initial assessment is brief and includes information on:

- drug use profile and injecting history
- health status,
- risk behaviour, and
- history of referrals to treatment or other services.

Clients are to be offered health checks and health information should be provided regularly. Harm reduction messages on risk reduction should be ongoing and include:

- risks of blood-borne infections (HIV, HBV, HCV), abscesses and other health damages caused by unsafe injecting practices,
- strategies to reduce the risk of overdose covering also poly-drug use and alcohol misuse,
- advice on safer injecting practice, alternatives to injecting and safer sex,
- testing for HIV, HCV and HBV, and vaccination for HBV,

- information about the range of services provided by needle exchange facilities, and
- information about drug treatment services and other health and social care services.

1.3.6 Management

Needle and syringe exchange services have to be designed in a way that is appropriate to meet the needs of the client. According to the evidence for needle exchange services it is important to implement a comprehensive approach by providing not only sterile injecting equipment but also by offering condoms, harm reduction advice, first aid and options for referrals to structured treatment (National Treatment Agency 2002). Provision of dedicated needle exchange services should be able to recognise people with physical or severe mental health problems, and to refer them to the most appropriate treatment. All service users are to be informed of drug and alcohol treatment programmes available in the region.

With regard to community pharmacies, it is recommended that they should provide written information about harm reduction and harm reduction services. Wherever possible, direct information from the pharmacist or other pharmacy staff is recommended (Griesbach et al. 2006).

1.3.7 Pathways of care

As needle exchange services have been found to form a gateway to further treatment, clients have to be offered referral to a variety of structured treatment programmes such as brief motivational interventions, counselling, detoxification, substitution treatment with psychological care, and rehabilitation. However, formal collaboration between needle exchange services and drug treatment programmes could increase the proportion of drug injectors in treatment (Hagan et al. 2000; Henderson et al. 2003).

With regard to health issues it is recommended to refer clients of needle exchange programmes to specialists providing HIV and hepatitis C pre- and post-test counselling. Referrals to specialists will only be required if the needle exchange service does not provide testing and counselling for blood-borne infections itself. Integrated care pathways also include offering training in overdose prevention to reduce drug-related deaths, and to provide information and advice for housing, social welfare and legal issues.

Best practice of non-pharmacy needle and syringe exchange services is to offer clients the opportunity to meet with a harm reduction worker or nurse on a drop-in basis in order to receive treatment for injecting injuries and care for minor infections. In addition needle exchange services should provide advice about safer injecting techniques and give information and counselling to service users on how to reduce behavioural risks and to avoid blood-borne infections. To increase access to sterile injecting equipment service users have to be provided with a list of other needle exchange facilities in the area.

A comprehensive public health approach has proved to be vital in reducing the risks of infectious diseases among drug injectors. Accordingly clients of specialised needle exchange facilities may require care co-ordination arrangements. This does not necessarily mean that an allocated care co-ordinator is available, but clients with complex needs have to be referred to appropriate services. Care coordination in terms of referrals requires networking and well established-cooperation between agencies.

1.3.8 Standards

Standards include assuring quality and efficiency of the needle exchange service. One approach to this task is to transform evaluation results into practice. In Europe a number of Member States already implemented harm reduction programmes by considering evaluation results (Trimbos Institute 2006).

For harm reduction services it is recommended to develop specific working standards and methods – if not already existing – in order to ensure minimum quality standards (Trimbos Institute 2006). In addition, data should be collected in a standardised way by adopting the five key-indicators of the EMCDDA to monitor harm reduction. Outreach work is important to contact individuals or groups of drug users, who are not effectively reached by existing services or through traditional approaches. Guidelines for outreach work should be developed and appropriate training in outreach work should be offered.

1.3.9 Performance and outcome monitoring

Performance and outcome monitoring covers collecting routine information, monitoring and evaluating needle exchange services. Monitoring of performance includes to developing and implementing adequate evaluation protocols for the harm reduction services provided (Trimbos Institute 2006). An evaluation of the service may also include investigating of the clients' satisfaction of the services provided (National Treatment Agency 2002).

Outcome monitoring can be ensured by utilising either the data collection tools of the EMCDDA or by adopting the national minimum data system of recording client care. On a national level requirements for outcome monitoring might be stated in the service specification.

2 Drug consumption rooms

2.1 Introduction

Drug consumption rooms are an important measure to reduce the transmission of blood-borne diseases (BBD).

2.1.1 Definition

Drug consumption rooms (or Safer Injection Facilities or medically supervised injecting centres, as they are called as well), can be defined as places, where drug users can consume their pre-obtained drugs in a hygienic and non-judgemental environment under professional supervision (Trimbos Institute 2006). Drug consumption rooms offer a clean environment and sterile injecting paraphernalia, such as needles, spoons, and filters. The staff gives information on Safer Use, the transmission of BBD and how to avoid infections, and trains safer injecting practices. Furthermore, staff can give first aid measures when necessary and therefore reduce drug-related mortality (Hedrich 2004).

2.1.2 Context

Drug consumption rooms exist in the EU Member States Germany (25), Luxembourg (1), the Netherlands (ca. 40) and Spain (6) (EMCDDA 2007a). In Non-EU Member States they are available in Switzerland (13) (Springer 2003), and one each in Norway, Canada and Australia (Trimbos Institute 2006). After some trials and tolerated injecting rooms in the Netherlands and Switzerland, the first legal drug consumption room was opened in 1986 in Berne, Switzerland (Zurhold et al. 2001). Drug consumption rooms have been widely discussed in politics and often operated in difficult juridical circumstances. Still there are not many countries where drug consumption rooms are provided, despite the success of those existing. Policy makers are often reluctant to establish drug consumption rooms (Wood et al. 2003).

2.1.3 Philosophy and approach

Since the 1980s new approaches and interventions – low-threshold facilities – for drug users were developed in different countries, in particular with a focus on preventing the spread of HIV and also hepatitis. Drug consumption rooms offer the opportunity to inject drugs without the risk of transmitting BBDs. They are an important harm reduction measure and take into account, that drug users do take drugs and need better opportunities to manage their use and prevent harm. Drug consumption rooms are an important harm reduction measure and are based upon user-centred and confidential approach.

2.1.4 Aims and objectives

Drug consumption rooms have a number of aims: 1) As an important harm reduction measure they aim at reduction of blood-borne virus transmission. 2) Reducing drug-related mortality and opioid-related overdoses is another important objective. Other objectives are 3) to establish contact with difficult-to-reach drug users, and not least the 4) reduction of public nuisance including public injecting, dealing, discarded injection equipment (Dolan et al. 2000). By providing a hygienic and less stressful environment, the users are more likely to be reached with educational messages on harm reduction.

2.1.5 Client groups served and eligibility

Drug consumption rooms are mainly designed for high-risk and marginalised drug users, who otherwise do consume mainly in public places. As this group is especially vulnerable concerning the transmission of BBD, since their consumption environment is often unhygienic, it is important to reach this group of drug users. Low-threshold facilities like consumption rooms can serve as a step into further treatment options. Some drug consumption rooms provide facilities for injecting drug use only, other offer both injecting and smoking possibilities. Female drug users might have special needs, which should be recognised. This might be a separate institution, special opening hours for women, night opening hours, individual approaches etc. (Schu and Tossmann 2005).

2.1.6 Exclusion

Usually consumption rooms do have some exclusion criteria, which differ from country to country and often depend partly on political rules rather than professional reasons. A common measure is to exclude sporadic users and those under-age. Some facilities only offer room for injecting and not for smoking. Other rules might be to exclude those users who are in abstinent or substitution therapy, due to substitution regulations or political requirement. Some facilities exclude those who don't live in the city or close by, to prevent a magnet effect of the facility and also eliminate overcrowding. Others need the users ID and/or a signed contract to allow access, which might hinder some users to use the services in order not give up their anonymity. These measures can be counterproductive if those users are forced to consume their drugs in public places under non-hygienic conditions. For different reasons, generally users are denied temporary access if they do not follow the house rules.

2.2. *Research evidence base – key findings*

The evidence for harm reduction measures in general is - compared to especially controlled medical research on treatment – rather scarce, but the intervention may still be effective (Trimbos Institute 2006). Nonetheless, there are a number of studies on the effectiveness of drug consumption rooms. Hedrich identified 15 studies since 2000 (Hedrich 2004). The benefit of drug consumption rooms can be divided into the

following areas: health, social policy, regulatory policies, and economic, in each of them a benefit can be drawn (Springer 2003).

2.2.1 Health effects

Concerning health issues there is evidence that consumption rooms do increase the consumers health and stabilise it (Altice et al. 2003). An evaluation of the consumption rooms in Hamburg, Germany, showed that they reached the goal of positive changes in health-related behaviours in the drug users (Zurhold et al. 2003). A nurse-delivered safer injection education in the drug consumption room achieved risk-reduction behaviours in injecting drug users (IDUs) (Wood et al. 2008). The (re-) integration into drug help services does take place (Schu and Tossman 2005) and general health and social functioning does improve (Dolan et al. 2000). A German study found evidence that drug consumption rooms do reduce the number of drug-related deaths (Poschadel et al. 2002), although the direct impact is difficult to measure, because at the same time drug policy changed as well as an increase in the availability of substitution treatment (Dolan et al. 2000). No overdose-related deaths occurred in drug consumption rooms, as immediate help and first aid is available, although overdose incidents occurs rather often (Dolan et al. 2000). In order to investigate the willingness and acceptance of potential users of a safer injection facility in Vancouver, Canada, a study was conducted before there was such a facility. The following indicators were associated with greater willingness to attend: difficulties in obtaining clean needles, frequent cocaine injection, frequent heroin injection, using a syringe more than once (Wood et al. 2003). Considering the high rates of HIV and hepatitis infection in the studied population, a safer injection facility would be an important measure.

Although there exists rather little evidence concerning risk minimisation measures for crack cocaine smokers, there is a need for this target group to offer smoking rooms (Spreyermann and Willen 2003). Concerning consumption rooms with smoking facilities a similar study was conducted on the issue of a safer smoking facility in Vancouver. As sharing and borrowing the pipe can be harmful too, there is a need for such a facility and the willingness to attend is there, especially among those borrowing a pipe, or smoking in rush in public places (Shannon et al. 2006). An evaluation of two Swiss safer smoking facilities showed that there was a great need and often long waiting lists for the inhalant places. No adverse effects like increased violence due to crack cocaine use occurred. On the contrary the users of the smoking room influenced the atmosphere of the whole facility (injecting facility as well) in a positive way (Spreyermann and Willen 2003).

Direct influence on the transmission of blood-borne viruses is difficult to obtain and there is no clear evidence that drug consumption rooms do so. But as reduced needle sharing and increased condom use is reported as an effect of consumptions rooms, therefore the risk concerning the transmission of blood-borne viruses are reduced (Dolan et al. 2000).

2.2.2 Reducing public nuisance

One often discussed topic is the acceptance in the neighbourhood and public nuisance or disturbance by drug users using the consumption room facility. A Berlin evaluation found a rather high acceptance of the newly established facility in the neighbourhood (70-80% of randomly assigned residents), being higher among those with higher education and political interest, and lower among those with lower education level and with small children (Schu and Tossmann 2005). Concerns from the neighbourhood of smoking facility did not come true, as there are less people staying and smoking in public places (Spreyermann and Willen 2003). The finding was that the consumption rooms play an important role in reducing public disturbances in the vicinity of open drug scenes (Zurhold et al. 2003). Other research confirms that no public disturbance arises because of the consumption rooms (Freeman et al. 2005; Schu and Tossmann 2005). Australian researchers found no increase of drug use or drug supply offences in the vicinity of the supervised Injection Centre, and loitering in front of the centre declined after opening to baseline level. Similarly no evidence was found for an increase of robbery or theft (Freeman et al. 2005). Several studies found a shift from public drug use to using in consumption rooms, as well as good acceptance among the visitors of the consumption rooms (Dolan et al. 2000).

Often the visitors of consumption rooms are poly-drug users (Zurhold et al. 2003; Schu and Tossmann 2005). There is evidence, that these target groups are reached well through the drug consumption facilities (Zurhold et al. 2001; Schu and Tossmann 2005).

2.3 *Recommendations*

Based on the evidence recommendations for the operating of drug consumption rooms are given.

2.3.1 Location

Drug consumption rooms need to be located near places where the target group is usually staying, so they don't have to travel a long way to get there (1999). As a low-threshold institution within a comprehensive harm reduction approach, the access needs to be easily available. Drug consumption rooms are particularly necessary in communities with an open drug scene.

As lately there is also a growing concern that smoking crack cocaine is a risk of blood-borne transmission (Shannon et al. 2006), facilities should operate for those users who are smoking crack cocaine or heroin as well as injecting.

2.3.2 Programme duration

The visits of drug consumption rooms should not be limited but at all times available to those who need it, as long as they do need it. Therefore no time limitation is needed.

2.3.3 Staffing/Competencies

The staff of drug consumption rooms should consist of an interdisciplinary team of social workers and medical staff. All staff need to be trained on all issues of drug injecting, including first aid, safer use methods, the effects of different drugs and mix of drugs, the risks associated with injecting (and smoking) drug use. Medical knowledge is essential, as well as social competences are necessary to provide a safe and professional environment. Staff need to be trained in first aid and reanimation, as well as safer use practices, on issues like on effects of mixing different drugs, and prevention of BBD (Schu and Tossmann 2005). They need to have broad knowledge of the help system and cooperate with other institutions, as referring to other services is important.

2.3.4 Treatment environment and holistic treatment and care

Drug consumption rooms should usually be integrated into a drug help system with café, advice and information, medical services and counselling in order to enable the drug users to access different offers of the help system in an integrated setting (Schu and Tossmann 2005). If these services are not available on site, they need to be offered close by. Medical services, e.g. for treating wounds and abscesses, are important to be offered on site. Concerning a holistic treatment drug consumption rooms should raise awareness of safer use practices and offer ongoing advice and information on safer use and harm reduction, as well as referral to other treatment services. Cooperation with other treatment services such as e.g. detoxification and counselling should be part of the service.

Female drug users might have special needs, which should be recognised. This might be a separate institution, special opening hours for women, night opening hours, individual approaches etc. (Schu and Tossmann 2005).

Evidence shows that also some patients in substitution treatment do use consumption rooms (Schu and Tossmann 2005), therefore it should be considered to keep exclusion criteria low and make it possible for those to use the facility, if they have the strong intent to use, instead of using in the public.

2.3.5 Effectiveness by treatment setting

Treatment settings can differ e.g. referred to the target group – only injecting drug users or smokers as well – or the level of identification needed – ID and signed contract or anonymous admission.

2.3.6 Access

As a low-threshold harm reduction service, drug consumption rooms should provide wide access for those in need, as reaching the main target groups is an important measure in preventing the transmission of BBDs. Mostly consumption rooms have some access limits, e.g. only for people of age, for those, not in substitution, for those living in the city (or area). The Trimbos report points out, that too many limits and

exclusions might result in too many users not using the facility but continuing their use in high-risk environments (Trimbos Institute 2006). Concerning the opening hours, it has been shown in one study, that long evening opening hours of drug consumption rooms are widely accessed by the drug users, and also reduce the number of drug users in the neighbourhood (Prinzleve and Martens 2003). To ensure the acceptance of the users and therefore offer effective harm reduction measures, waiting lists should be kept short if possible and only minimal identification requirement should take place.

Referral pathways are important services as drug consumption rooms are often the first or only service the users attend, especially with crack cocaine users (Schu and Tossmann 2005). Therefore referrals to other services like detoxification, counselling, motivational interviewing, and substitution treatment can increase the number of drug users in treatment and play an important role in the ongoing treatment system. Nonetheless it seems to be effective to offer as many services as possible in the facility in the sense of integrated care pathways. These services can include food and beverages, the possibility to take showers and do laundry, get second-hand clothes, counselling with different emphases, medical treatment.

2.3.7 Assessment

As part of harm reduction services, comprehensive assessment is not recommended for drug consumption rooms as it may serve as a barrier not to use the service. Nonetheless some basic and brief assessment of the clients situation can be carried out during the first visit, but can also be anonymous.

2.3.8 Management

Drug consumption rooms need to provide not only the possibility to consume drugs, but also advice on harm reduction and safer use messages. The facilities should be client-oriented and have a low-threshold access. The provider of drug consumption rooms has to ensure that the staff is well and up-to-date trained. Referral to other drug help services should be a core element. Apart from the management of the service itself, it is important to involve the neighbourhood, police and other stakeholders in planning a drug consumption room as well as later on (1999). This can be realised in periodic meetings and additional cooperation.

2.3.9 Standards

Working standards for drug consumption rooms should be developed and implemented. These comprise rules for the daily running of the facility, emergency plans and others. Opening hours should adapt the ,users' needs and might be necessary into the night as well as long hours. The service should be offered continuously without a lot of change (1999).

Drug consumption services do have house rules, which usually contain the following items:

- no drug selling in (and sometimes around) the facility
- no drug use outside the drug consumption room
- no violence
- no threatening

Medical and hygienic standards are important to ensure the operating of the consumption rooms. There should be a separate room for medical services like attending to abscesses, and also emergencies due to overdoses. For the inhalant use a separate room with good ventilation is essential. Drug users who smoke crack cocaine are usually younger than intravenous drug user and less integrated into any help system. Therefore drug consumption rooms with smoking possibility are an important way to get in touch with this client group (Schu and Tossmann 2005). Waiting rooms should be available inside the facility, and the privacy of the users should be protected (1999).

Harm reduction messages should be given permanently, including information on

- risks of blood-borne infections
- risks of abscesses and other damages caused by injecting, and how to avoid them
- information on the dangers of poly-drug use and overdoses
- advice on safer injecting and inhaling practices
- information on other drug treatment services.

2.3.10 Performance and outcome monitoring

The work of drug consumption rooms should be evaluated regularly and adapted if necessary. Outcome Monitoring and data evaluation should follow defined protocols, which must be adequate for the purpose. The documentation should be standardised, but basic enough not to disturb the daily tasks (1999).

3 Testing and vaccination

3.1 Introduction

Most harm reduction interventions specifically aim at the prevention of blood-borne diseases, most particularly HIV and hepatitis infections. Along with needle exchange services and drug consumption rooms testing and vaccination for blood-borne diseases is one of the major harm reduction approaches to reduce the spread of blood-borne infections among the drug use population.

3.1.1 Definition

Testing and vaccination are active interventions which are provided to prevent or manage blood-borne virus infections, mainly viral hepatitis infections (A, B and C) and HIV. Drug users deciding for voluntary testing are usually also offered pre-and post-test counselling. Because of the high transmissibility of hepatitis C virus health policy increasingly pays attention to tackle infections with HCV, an infection that is still most prevalent among injecting drug users.

3.1.2 Context

Injecting drug use and other behavioural risks such as unprotected sex are strongly associated with the high risk of blood-borne virus infections, especially of hepatitis C, hepatitis B and HIV (Drugs in focus 2003; Edlin et al. 2005; Grogan et al. 2005; Castelnovo et al. 2006; Matic et al. 2008).

Due to the spread of HCV infection among drug users hepatitis is a major public health concern (Delile et al. 2006; Wright and Tompkins 2006; Wright and Tompkins 2007). The population of injecting drug users is at particular high-risk as up to 98% of them can be infected with hepatitis C despite a low prevalence of HIV (Shepard et al. 2005; Sy and Jamal 2006; Wright and Tompkins 2006; Reimer et al. 2007). Hepatitis C is transmitted primarily via blood sharing of injecting equipment and is the most common route for infection. In contrast, sexual transmission may occur but is not very usual. If being infected with HCV, alcohol consumption of more than 50g per day is associated with a 60 % increase in the risk of cirrhosis (Castelnovo et al. 2006).

Recent surveys of the prevalence of HIV and AIDS in Europe and Central Asia show that transmission of HIV among IDUs in most Western EU countries is relatively low even though drug injecting continues to contribute to HIV epidemics in many of these countries (EuroHIV 2007; Matic et al. 2008). However, from mid-2004 to the end of 2006 reported HIV cases in the European region rose from 774.000 to 1.025.000, and reported AIDS cases from 285.000 to 328.000 (Matic et al. 2008). Caused mainly by injecting drug use, Eastern Europe and Central Asia have developed to the area with the

fastest growing HIV epidemic in the world; HIV incidence there has soared 20-fold in less than a decade (EuroHIV 2007; Matic et al. 2008).

In Europe, liver disease is replacing AIDS as one of the most common cause of death among people living with HIV (Matic et al. 2008). In a large cohort of around 5.000 patients who took part in a “EuroSIDA” study, infections with HBV were present in 9 % and infections with HCV in 34 % of the patients living with HIV. The highest prevalence of 48% patients with HCV co-infection was found in Eastern Europe (Matic et al. 2008).

In view of transmission rates being still high for HIV and HCV among drug injectors in many European countries, health policy in Europe is focussed on providing effective prevention of hepatitis and HIV/AIDS (EMCDDA 2007). In this respect voluntary testing, related counselling and hepatitis immunisation belong to the health responses to prevent infectious diseases among drug users.

3.1.3 Philosophy and approach

National policies agree that a comprehensive public health approach is vital to reduce the spread of blood-borne diseases among drug users, and thus multi-component prevention services are well established, including voluntary testing for infectious diseases, counselling, vaccination and treatment of infectious diseases.

A survey of harm reduction policy and practice in Europe (Trimbos Institute 2006) figured out that in 22 Member States screening on infectious diseases is available to drug users. 20 member States provide prevention, education and treatment of infectious diseases targeting specifically at drug users. Vaccination programmes exist in all European Member States but not all address drug users (Trimbos Institute 2006).

With regard to the prevention of hepatitis, some European countries provide vaccination for hepatitis B at the population level, while other countries target at those populations at particular risk. However, the Member States increased efforts to offer easy access to testing, screening, treatment and vaccination of drug-related infectious diseases, and many European countries implemented vaccination campaigns against hepatitis B addressing specifically drug users. In addition, a number of countries have implemented specific programmes aimed at hepatitis C prevention.

All European countries offer HIV testing but the availability, accessibility and quality varies considerably in the region (Matic et al. 2008). Highly active antiretroviral treatment (HAART), available in Western Europe since 1996, is reported to be widely available in European countries; the WHO estimates the coverage of HAART in Europe at least to be 75% (EMCDDA 2007).

To improve availability, accessibility and quality of testing, counselling and treatment Matic, Lazarus et al. (2008) recommend to transform national responses “from an episodic, one-time approach to a strategic long-term national commitment based on evidence and human rights approaches, national needs and opportunities”.

3.1.4 Location

There are many generic and specific services that are suitable locations for providing testing for blood-borne diseases such as hepatitis B and C, and HIV, pre-and post-test counselling and vaccination. Counselling, testing and vaccination for drug users can be successfully integrated in health care setting such as

- primary care, maternity services, and emergency departments,
- opioid substitution treatment (OST) and other drug treatment programmes,
- infections disease clinics, health departments and anonymous HIV screening centres, and in
- criminal justice systems.

3.1.5 Aims of the intervention

Main aim of testing and vaccination is to prevent blood-borne diseases resulting from risk behaviours, and in case of infected clients to provide comprehensive healthcare and treatment (National Treatment Agency 2002). Drug treatment and healthcare services have to provide access to testing for hepatitis B and C and HIV, and for hepatitis immunisation. In this respect vaccination programmes targeting at drug users have to be offered, either by their own service or by transferral to an appropriate service. In addition services should provide pre-and post-test counselling to all drug using clients with the aim to enable them to avoid BBV infections and develop a healthier lifestyle. Testing and vaccination also include risk assessments and information to drug users on the transmission of hepatitis B and C and HIV. Drug users should be given advices on how to prevent harmful behaviour. Clients requiring treatment for blood-borne infections or other health problems must be referred to treatment where it is appropriate.

3.1.6 Client group served

Testing for blood-borne diseases and vaccination is targeting at all problem drug users that may practice sharing of injecting equipment or unsafe sex. In view of the high proportion of injecting drug users being infected with hepatitis C, HIV and also with hepatitis B (Hahn et al. 2001; Stevenson et al. 2001; Drugs in focus 2003; Gerlich et al. 2006; Wright and Tompkins 2007) it is essential to offer pro-active testing and screening for drug-related infectious diseases to high risk groups (Trimbos Institute 2006). In general, vaccination for hepatitis B should be made available for all problem drug users.

Apart from drug user at risk a further specific target groups for testing, vaccination and related counselling. Specific target groups are

- Drug users infected with HCV
- New and young injectors
- Prisoners
- Hidden populations at risk such as drug addicted sex workers, migrants etc.

The hepatitis C virus is highly infectious and spreads rapidly among drug users with direct contact with infected blood such as in case of sharing injection equipment. As drug users with hepatitis C have been found to be at further risk of infection with hepatitis B (National Treatment Agency 2002), testing and vaccination for HBV should be offered to drug users already infected with hepatitis C and not been protected by hepatitis B vaccine.

In research there is evidence that new and young injecting drug users (below age 25) are at high risk of becoming infected with hepatitis C and HIV (Barrio et al. 2007; EMCDDA 2007). A Scottish study investigated the outbreak of acute hepatitis B infection among injecting drug users between 1997 and 1999. The results show that 12% of the hepatitis B cases were found in the young and inexperienced group of drug injectors aged 16-19 years old (Stevenson et al. 2001). In young injectors infections are likely to be recently acquired, and thus screening for blood-borne diseases needs to cover those groups who are known to be at particular high risk of HCV and HIV infection.

A further priority group are prisoners, and in particular women prisoners (DiCenso et al. 2003; Macalino et al. 2005) and young offenders (Drugs in focus 2003). Research indicates that imprisonment is an independent risk factor for the transmission of hepatitis and HIV. Rates of HIV and hepatitis C infection among prison inmates are in most European countries much higher than those in the general population (e.g. Champion et al. 2004; Macalino et al. 2004).

As problem drug users, sex workers and migrants are often difficult to reach by general health care services, testing and hepatitis B vaccination programmes specifically for hard to reach risks groups and for hidden populations at risk are recommended. Young injectors most often do not access traditional drug counselling services or drop in centres, therefore new strategies to approach this group most at risk have to be developed.

3.1.7 Exclusion

In general, all drug users at risk for blood-borne diseases should be provided with testing and immunisation. The topic of exclusion is discussed controversial with respect to the treatment of hepatitis C infection. Even though treatment for hepatitis C infection has improved considerably, illicit drug users were considered ineligible for HCV treatment until recently (Drugs in focus 2003; Haydon et al. 2005). Despite the fact that users of illicit drugs are the primary risk group for HCV transmission, treatment guidelines have explicitly excluded active illicit drug users from consideration for HCV treatment until a few years ago. The main reasons for excluding drug users from HCV treatment were that drug users were regarded as to be too unstable to comply with the requirements of the HCV treatment regimen because of their potential disposition for psychiatric side-effects, and the risk of HCV re-infection (Haydon et al. 2005; Fischer et al. 2006).

If not treated, infection with hepatitis C virus becomes chronic in the majority of individuals (Haydon et al. 2005). In research, HCV treatment for users of illicit drugs has shown to be feasible and effective if delivered appropriately, which is for instance after successful detoxification or during maintenance treatment with methadone. Evidence suggests that risks of HCV treatment can be managed effectively by interdisciplinary teams involving hepatologists, drug counsellors, and mental health professionals (Haydon et al. 2005).

Not all drug users may want or need antiviral therapy, but none should be excluded from HCV treatment solely on basis of their drug addiction (Edlin et al. 2005; Trimbos Institute 2006). To reduce the rate of hepatitis C infections is a major health concern which requires more effective prevention (e.g. needle exchange services) but also the provision of appropriate HCV treatment to former or current drug users.

3.2 *Research evidence base – key findings*

Evidence on effectiveness of testing and vaccination is presented separately for the different interventions. As drug users who are infected with hepatitis C and/or HIV might be in need for medical treatment evidence for treatment is also summarised.

3.2.1 Testing and related counselling

Research does not present a clear picture as regards evidence for testing and pre- and post-test counselling. Study results suggest that testing for blood-borne diseases might be effective in reducing HIV infections in terms of a reduced risk behaviour as a consequence of testing and counselling. In addition testing and counselling may increase drug users enrolment in medical or drug treatment (Trimbos Institute 2006; Samet et al. 2007). A retrospective cross-sectional survey of clients attending 21 specialist addiction treatment clinics in greater Dublin came to the conclusion that the proportion of clients screened for HCV, HBV and HIV infection has increased since the introduction of a screening protocol in 1998 (Grogan et al. 2005). At the same time targeted vaccination for opiate users against hepatitis B became more successful in Ireland. However, despite increasing availability of harm reduction intervention, prevalence and incidence remained high among opiate users in treatment. In the Dublin sample prevalence for hepatitis C was 66 % and for HIV 11 %.

A review on HIV epidemic in Western Europe indicates that in the 1990s large-scale voluntary HIV testing of pregnant women followed by antiretroviral treatment of those found to be seropositive has substantially dropped the number of HIV-infected newborn babies (Hamers and Downs 2004). A more recent survey on HIV/AIDS prevention and treatment found that HIV testing remained steady in Western Europe in the period from 2001 to 2005, while the number of HIV tests performed in some Central and Eastern European countries rose significantly during the same period (Matic et al. 2008).

Based on research there is no clear evidence for the effectiveness of testing for blood-borne diseases and counselling as single interventions. Amundsen (2006) recently noted

that HIV testing and counselling for injecting drug users is often combined with other prevention measures such as needle exchange programmes, treatment etc. For this reason it is difficult to identify which prevention measures contributed most to the reduction in HIV seroprevalence. In a former study conducted among intravenous drug users in the three Scandinavian countries effectiveness of needle exchange programmes had been compared with effectiveness of HIV counselling and testing (Amundsen et al. 2003). Due to the lack of control groups or analysis of confounders the author concluded that it is simply unknown which factors are more important for reducing HIV-transmission, HIV testing and counselling or for instance needle exchange programmes (Amundsen 2006).

Apart from the question of effectiveness research highlights the problem of consequences of unknown infection status. Current and former injecting drug users not being in contact with services will be unaware that they may have hepatitis C and/or HIV. Infection with both HCV and HIV reduces the chance to recover from acute hepatitis C virus and accelerates the progression of HCV infection to cirrhosis (Matic et al. 2008). The authors underlined that in Europe the prevalence of HCV infection in HIV-infected patients is particularly high and still rising, with about 80–90 % of cases occurring among injecting drug users.

A recent study from England and Wales evaluated the cost-effectiveness of testing for hepatitis C virus among former injecting drug users (Castelnuovo et al. 2006). According to the results case finding for hepatitis C in injecting drug users is cost effective in general, and most cost-effective if targeted at populations whose HCV disease is probably more advanced.

3.2.2 Vaccination against hepatitis

Hepatitis B vaccines have been licensed since 1982, and hepatitis A vaccines since 1992. In 1996, a combined hepatitis A and B vaccine became available. No vaccine is currently available to protect against hepatitis C infection.

Vaccination programmes play an important role in the prevention of hepatitis A and B. As in Europe the proportion of IDUs being infected with hepatitis B appears to have been declined, the reduction seems to reflect increasing impact of vaccination (EMCDDA 2007a). Even though national hepatitis B vaccination programmes seem to be an effective intervention in reducing HBV infection, many European countries do not have national vaccination programmes at population level.

Research shows that vaccination against viral hepatitis B is effective in preventing hepatitis B infection after completing the primary course of 3 vaccinations. The vaccine is recommended for people at high risk for infection as immunisation protects against chronic carriage of viral hepatitis B. Recent evidence which is based on a large number of follow-up studies indicates that immune memory exhibits long-term persistence, despite of antibody decline or loss (Van Damme and Van Herck 2007). All adequately vaccinated individuals have shown evidence of immunity that protects against

infections for up to 15 years. However, follow-up studies with up to 12 years observation, as well as studies employing mathematical models suggest that after primary vaccination antibodies will persist for at least 25 years (Van Damme and Van Herck 2007).

Vaccination against hepatitis B seems to have also a positive influence on the hepatitis C serostatus. A comparative cohort study in 16 public centres for drug users in north-eastern Italy found that being HBV seropositive was strongly associated with being HCV seropositive (Quaglio et al. 2003). Heroin users who had been vaccinated for hepatitis B were not significantly more likely to be HCV seropositive than heroin users who were HBV seronegative. A study from the US (Edlin et al. 2005) supported the conclusion that vaccination for hepatitis B is important component of hepatitis C care because vaccination may improve a reduction in HCV risk behaviour.

However, a comparative cohort study from Switzerland among patients entering heroin-assisted treatment in three different periods (2000-2002, 1998 and in 1994-1996) stated that the significant reduction of HBV and HAV infections found in patients entering treatment between 2000 and 2002 was not related to vaccination (Gerlich et al. 2006). The decrease in hepatitis A and B infections was attributed to less sharing of injection equipment and more hygienic environments of injecting drug users in the last 10 years. Two prospective studies from the United States highlight that only a certain proportion of drug users found to be eligible for HBV vaccination completed all three doses of vaccination. In the street-recruited sample of drug users from New York City 41 % completed all three doses (Ompad et al. 2004), and in the study among IDUs from New Haven 66 % completed three vaccinations (Altice et al. 2005). Both studies found that correlates for vaccine acceptance include older age. In addition the New Haven study reveals that daily injecting, being homeless and links to a syringe exchange programme is associated with completing the all three vaccinations for hepatitis B.

3.2.3 HIV treatment

The introduction of Highly Active Antiretroviral therapy (HAART) in 1996 in Western Europe turned a mortal disease into a manageable chronic infection. Nowadays HAART bases on a combination of three or four substances. Antiretroviral therapy is an effective treatment for HIV infections that has resulted in considerable declines in HIV-related morbidity and mortality (Hamers and Downs 2004; Matic et al. 2008). The decrease in mortality is found across all risk groups, but to a lower proportion among injecting drug users (Altice et al. 2003).

Reductions in mortality depend much from accessibility and affordability of HAART. In the European regions HAART coverage increased from 282.000 people in 2004 to 435.000 in 2007, and coverage was estimated as higher than 75 % in 38 European countries (Matic et al. 2008). However, the authors emphasised that there are still shortcomings. In Central and Eastern Europe, where the need for HAART is very high coverage is still too low. In addition, IDUs continue to have no equal access and

adherence to antiretroviral therapy for HIV (Samet et al. 2007; Matic et al. 2008; Wood and Montaner 2008).

In Canada where antiretroviral therapy is offered free of charge through general health care services it has been shown that one-third of HIV-related deaths occurred among individuals who had never accessed antiretroviral therapy (Wood and Montaner 2008). Furthermore research pointed out that drug injectors have lower levels of adherence to HIV treatment due to compulsive drug use, psychiatric illness and poor living conditions such as homelessness. On the other hand studies indicate that many IDUs can manage high adherence to antiretroviral therapy and HIV-therapy (Gözl 1999; Wood and Montaner 2008), and that patients support may improve adherence.

Research findings show that due to side effects about 25% of patients stop therapy within the first year of HIV treatment and the same number of patients does not take the recommended dosages of their medication (Hoffmann et al. 2007). To optimise HIV treatment for drug addicts it is recommended to offer HIV testing with referral to substance use treatment that is linked to or integrated into HIV treatment (Altice et al. 2003).

3.2.4 Treatment of hepatitis B and C

Treatment of hepatitis B and C with antiviral therapy has developed quickly during the past decade (Trimbos Institute 2006). Major aim of hepatitis treatment is to interrupt the progression of acute hepatitis B and C. If an infection with hepatitis B or C becomes chronic, health of the infected person is seriously endangered due to the morbidity and long-term consequences of this disease. In particular hepatitis C infection may result in cirrhosis, hepatocellular carcinoma, liver failure, and depression. According to research results 30% and respectively 27% of global cases of cirrhosis are attributable to HBV and HCV infections (Perz et al. 2006). Between 75% and 85% individuals with acute HCV infection develop chronic HCV infection (Chen and Morgan 2006).

Currently most effective treatment of hepatitis C is based on an antiviral combination therapy with pegylated interferon and ribavirin. Depending on the genotype, six to twelve months of this combination treatment can achieve a stabilisation of viral responses in 42% to 82% of the treated persons (Manns et al. 2001; Des Jarlais et al. 2002; Fried et al. 2002; NICE 2006).

Several studies demonstrated the efficacy and feasibility of antiviral combination therapy in opiate addicts after successful detoxification or during maintenance treatment with methadone (Backmund et al. 2001; Edlin et al. 2001; Sylvestre 2002; Schaefer et al. 2004; Robaey et al. 2006; Jeffrey et al. 2007). With respect to permanent virus suppression and side effects, the results are comparable to the results of studies with non-opiate dependent patients. Small follow-up studies indicate that treatment for hepatitis C infection is also effective for relapsed patients (Dalgard et al. 2002; Backmund et al. 2004). Despite relapses to drug use, rates of re-infection have found to be low.

3.3 *Recommendations*

3.3.1 Location and treatment setting

Outpatient drug services, drug treatment, health care centres, prisons, general practitioners and further services are suitable locations for testing, counselling and vaccination related to blood-borne diseases. In general, scaling up availability of and accessibility to acceptable, affordable, safe, reliable testing and pre- and post test counselling for all drug users in need is essential to provide universal access to prevention and treatment for blood-borne-diseases (Matic et al. 2008).

With respect to testing a recent report of the WHO stated that since availability of rapid tests which reduce the time between testing and result, and where testing and counselling is provided in settings convenient to clients voluntary testing has increased markedly (WHO 2007a). All drug services should have procedures for providing testing, pre-and post-test counselling and vaccination for hepatitis B. In order to increase uptake of testing for blood-borne diseases and vaccination verbal and written information should be provided to drug using clients about benefits of testing and immunisation.

Targeted vaccination for injecting drug users seem to be most effective when done in methadone maintenance programmes, at syringe exchange services or in other community based settings that provide prevention of infectious diseases (Edlin et al. 2005). In prison vaccination for hepatitis B and C, testing and counselling should have a linkage to medical and drug treatment services. A study from the US found that even one dose of HBV vaccine during first imprisonment has protected up to 50% of the female prisoners of the study sample from infections with hepatitis B (Macalino et al. 2005).

As a positive result of testing may put drug users in need for treatment, post-test counselling should include information about treatment options. In research it has repeatedly reported that difficulties in access and treatment adherence are major concerns in dealing with drug users. To facilitate access to interventions for blood-borne diseases and to increase treatment adherence most studies recommend to either integrate testing and treatment in drug treatment or to establish close links to treatment services either provided by the drug care system or by primary health care.

A US study recommended to enhance access to antiretroviral therapy among out-of-treatment HIV-infected injecting drug users by offering health services as part of needle exchange facilities (Altice et al. 2003). A prospective study evaluated the relationship between drug treatment modality and adherence to antiretroviral therapies (Kapadia et al. 2008). The results indicate that involvement in either a medication-based or in a psychosocial treatment programme both improved adherence to HIV treatment among drug users. Obviously not the treatment modality but the enrolment in any treatment plays an important role in improved adherence to antiretroviral therapies.

3.3.2 Staffing and competencies

Health care professionals have to be offered necessary training in order to achieve an understanding of the dynamics of drug use and drug addiction (Edlin et al. 2005). Competencies of staff should include awareness of the need to encourage drug users at risk for testing, and to provide appropriate counselling. Best practice is to ensure that suitable trained staff is available who have the necessary skills and knowledge to advice clients about blood-borne viruses, testing and vaccination.

In addition, staff must be in funds of knowledge about existing local services in order to provide consistent messages about access to and management of hepatitis B, C and HIV. Due to the interrelated problems of substance use and blood-borne diseases, physicians and other health care providers must treat the use of illicit drugs and alcohol as mainstream medical problems in order to provide optimal care for patients infected with HIV and/or viral hepatitis (Samet et al. 2007).

3.3.3 Treatment environment and holistic treatment and care

All services should provide information and advice about access to routine screening for hepatitis B, C and HIV. Drug users who do not know they are infected cannot take advantage of treatment, care and support, which can considerably improve their health and quality of life. Moreover, drug users who are aware of their status are more likely to avoid risk behaviour which may infect others. Appropriate support given by health care professionals or GPs should aim at an improved knowledge about the risks of infections by sexual and drug use behaviour in order to enhance a change in the clients behaviour linked to blood-born diseases (National Treatment Agency 2002; Matic et al. 2008).

Testing for infectious diseases, vaccination programmes and treatment for virus infections have to be tailored to risk groups such as young injectors and prisoners. However, drug using clients have to be asked for their verbal consent in being tested for blood-borne diseases and their consent should be noted in the client's record.

Professionals have to assure that clients are carefully prepared for testing by providing information and advice on implications of testing for hepatitis and HIV. Counselling is an essential part of testing, and consequently it is good practice to provide counselling prior to any testing and to ensure that clients receive additional written information on the testing and consequences. It is also good practice to provide post-test counselling to discuss further steps to be taken after receiving the test result.

Testing and counselling should be voluntary and confidentiality should be clearly ensured which included the patient's right to refuse to be tested (Matic et al. 2008). Test results should be given face-to-face, independently from a positive or negative result. Face-to-face consultation is best in order to avoid misunderstanding by the clients and to explain the test results.

Pre-test counselling

The aim of pre-test counselling is to enable the client to understand the implications of testing for blood-borne diseases and to make an informed choice on testing. The blood test procedures as well as the advantages and disadvantages of HIV, HCV and HBV antibody testing should be explained. Clients have to be described the meaning of test results including the uncertain nature of a negative result and the uncertain prognosis of a positive result (National Institute on Drug Abuse 2000). According to individual need pre-test counselling may require more than one counselling session.

Pre test counselling should include (National Institute on Drug Abuse 2000; National Treatment Agency 2002; Wright and Tompkins 2007):

- Assessment of risk behaviour and information about the risks of infection through sexual behaviour and drug injecting.
- Discussion about fears, concerns, advantages and disadvantages of testing.
- Explanation that it can take up to six months from the last risk episode for the test to turn positive for hepatitis and HIV.
- Information on the nature and procedure of testing, the limits of the test (such as no identification of time of transmission) and the timescale for receiving the test results.
- Assuring that HIV, HBV, and HCV antibody testing is confidential and acceptance to testing is voluntary.
- Education on transmission of HCV and HIV including sharing of razors, toothbrushes, and information on preventive measures against infection.
- Explanation that testing is related to the benefits of an early treatment for HIV, HBV, and HCV infection and the ability to plan a health strategy that is best for the participant and his or her family.
- Discussion of the implications of positive or negative test result and also on the impact on partner, family, pregnancy, employment, and mental health.
- Time for clients to think about testing

Post-test counselling

Main objective of post-test counselling is to address the immediate concerns of the individual receiving the test result, and to provide necessary information and support. Depending on the individual need post-test counselling may require more than one counselling session. Discussions about the test result should not take place at the end of the day or on the last day of working week as the opportunity to provide support is particularly important in case of a positive test result (National Treatment Agency 2002).

In general, post-test counselling should include

- to address the clients concerns and anxieties,
- to provide required support,
- to discuss the meaning of the test result

- to advice on future tests if necessary,
- to consider testing of the clients partner or other close relationships being at risk,
- to distribute literature and other materials to support risk reduction, and
- in case of recommended immunisation to inform clients about the requirement of at least three doses of vaccine in order to achieve full immunisation against HBV.

Different contents have to be provided for individuals who have been tested seronegative versus those who have been tested seropositive for HIV, HBV, or HCV (National Institute on Drug Abuse 2000). In case of a negative test result post-test counselling should advice the client in safer sex and safer injection practices (Wright and Tompkins 2007). The clients risk awareness not to share any item of the drug using equipment either for injecting or for smoking should be reinforced.

In case of a positive test result the clients may need time to handle the shock or to express own feelings. This has to be accepted. Further contents of post-test counselling for infected drug users are

- to discuss further actions planned fort he next few days,
- to discuss the implications the virus infection will have on relationships (their potential risk of infection) and to offer support for informing the partner or family,
- to describe healthy behaviours that should be practiced to reduce harms caused by being infected with HIV, HCV or HBV,
- to encourage early medical treatment by providing information on the effectiveness and benefits of antiviral treatment,
- to advice the clients to consider treatment even if they are not experiencing any symptoms (Wright and Tompkins 2007), and
- to explain to clients being HCV positive that alcohol can increase the risk of serious liver pathology and to provide motivational work regarding either controlling or abstaining from alcohol (Wright and Tompkins 2007).

Drug users may utilise different drug treatment and health care services and for this reason they do not necessarily stay in regular contact with services providing interventions to prevent or treat blood-borne diseases. For this reason it is necessary that service providers establish a comprehensive approach by cooperating with other local health or drug treatment services (National Treatment Agency 2002).

Not all drug and treatment services provide interventions for screening, testing and vaccination in their facility. If these interventions are not provided on-site local availability of HBV, HCV and HIV testing should be mentioned and those clients who want to be tested should be referred to other services such as GPs, health services or specialist AIDS services etc.

3.3.4 Access

Drug users are often not diagnosed for infectious diseases until a long time after it has become chronic (Drugs in focus 2003). Many current and former drug injectors are

therefore unaware that they are infected with HCV, HBV or HIV. In order to improve uptake of testing and vaccination services should ensure high and easy access, and be designed as low-threshold, free of charge, and confidential services (Trimbos Institute 2006). These open access service have to be sensitive for different groups such as young drug users, women, migrants etc. In general, all clients have to be ensured equal access to testing for hepatitis and HIV, pre-and post-test counselling, hepatitis B vaccination or other medical treatment for infectious diseases (National Treatment Agency 2002).

In Member States that provide universal vaccination programmes, including hepatitis B vaccination, to the general population, vaccination targeted at drug users in particular may not be necessary, as drug users may have been vaccinated already (Trimbos Institute 2006). In countries without universal programmes for testing and vaccination the success of prevention and treatment of infectious diseases among drug users can be strengthened through a network of services that provide easy access and offer optimal health care and support. This also includes efforts to improve adherence to medical treatment for drug users (Trimbos Institute 2006). In research it has been found that patients with a history of injection drug use have lower rates of access to HAART (Wood and Montaner 2008). For instance in Eastern Europe IDUs represented about 80 % of all reported HIV cases, but only 39 % of them received HAART at the end of 2006 (Matic et al. 2008). Countries should increase access to HAART for drug injectors, and ensure the same access and treatment standards regardless of gender, age, sexual orientation, substance use, imprisonment or migratory status (Matic et al. 2008).

3.3.5 Eligibility

Problem drug users of all ages are eligible for testing of infectious diseases. Testing for hepatitis B and C and HIV should be offered to all individuals with either a current or past history of injecting drug use and for whom the results can be communicated.

As certain groups such as female and male sex workers are also exposed to the risks of blood-borne diseases and sexually transmitted diseases (STDs) through their involvement in sex work, it is recommended to offer local prevention activities also to current or former sex workers.

The transmission of both hepatitis A and B continues even though there are effective vaccines. In European Member States it is estimated that 1 million drug injectors are infected with hepatitis C virus¹⁶. The high prevalence rate of HCV illustrates the need to provide drug injectors with a more consequent vaccination against hepatitis B and A (Gerlich et al. 2006). Health policy should ensure that drug users are eligible for hepatitis B vaccination

- who potentially inject drugs,

¹⁶ More than 60 % of IDU samples tested in 2004-05 are reported to be infected with Hepatitis C. Basis for the prevalence data are 60 studies from 17 European countries (EMCDDA (2007a). The State of the drugs Problem in Europe. Annual report 2007 Luxembourg, EMCDDA (European Monitoring Centre for Drugs and Drug Addiction): 100.)

- who had or have a sexual partner who is a drug user, and
- who are or have been involved in sex work (National Treatment Agency 2002).

Other clients requesting for vaccination despite belonging to a risk group might be offered immunisation on basis of an individual assessment.

Hepatitis B vaccination is crucial for drug users with chronic hepatitis C infection as the infection with two viruses worsen the prognosis (National Treatment Agency 2002). In any case the immune status should be checked before starting the vaccination course.

Access to treatment of infectious diseases such as HAART or hepatitis C treatment should be granted on basis of common medical eligibility criteria for treatment of virus infections, and not on any non-medical criteria such as uncontrolled drug use or unstable living conditions (Engelhardt and Stöver 2005; Trimbos Institute 2006). Drug dependence may reduce adherence to medical treatment, and medical complications or co-morbid infections may decrease the treatment response. However, access and participation in treatment may be a gateway to other prevention and treatment options (Trimbos Institute 2006).

3.3.6 Assessment

Assessment is an important part of prevention related to testing for blood-borne diseases as it will result in information which is essential for the care planning process. With drug using clients an assessment has to be undertaken which covers the current risk behaviour related to substance use and the health needs. Risk assessment includes that all clients are assessed on their

- age at first injecting,
- history of sharing injecting equipment,
- history of sexual risk behaviour,
- history of imprisonment,
- alcohol use,
- previous testing for hepatitis and HIV,
- previous contact to health care professionals for screening of blood-borne diseases, and
- the clients' understanding about contracting or transmitting blood-borne viruses (National Treatment Agency 2002).

Specific risks related to substance use may need to be prioritised in the care planning process; these could include risks related to overdose, polydrug use or unsafe injecting practices (National Treatment Agency for Substance Misuse 2006). Assessment for drug users at risk of HCV infection must also address the risks of alcohol use. As heavy alcohol intake accelerates the progression of HCV-related liver disease clients with HCV infection should be advised to restrain from alcohol consumption. Furthermore the assessment should include an assessment of the mental health conditions, which are associated with both hepatitis C and substance use (Edlin et al. 2005).

Best practice is that the assessment process results in a written document that can be referred to and used as a basis for discussing care planning, goals and objectives with the client.

3.3.7 Management

For the prevention of blood-borne diseases it is recommended to provide proactive identification of drug-related infectious diseases through testing. In order to increase voluntary uptake of testing, a proactive approach to hepatitis and HIV testing and related counselling is of particular importance at facilities targeting at risk populations such as injecting drug users. Drug users should be offered voluntary, confidential testing combined with client-centred pre- and post-test counselling. Counselling has to include an individualised behavioural risk assessment.

Competences related to management include (Edlin et al. 2005):

- Establish a climate of mutual respect.
- Maintain a professional approach that reflects the aim of enhancing patients' well-being.
- Minimise barriers to participation in testing, vaccination and treatment by allowing flexibility in adherence to appointment schedules and offering drop-in visits.
- Inform the clients about testing, propose appropriate treatments if needed, and advise the clients on adverse effects of treatment.
- Support clients in decision making.
- Emphasise measures to reduce risks for clients who continue to use drugs.
- If possible, establish a multidisciplinary team consisting of primary care physicians, HIV specialists, psychiatrists, social workers, and nurses.
- Be familiar with local resources for the treatment of drug users.

Comprehensive health care for injecting drug users or other drug users at risk needs to have strong linkages with hepatitis and HIV prevention services that provide testing and vaccination or other medical treatment for infectious diseases. Cooperation and coordination among local services is particularly important if the client drops out of contact with the drug service or healthcare service. In case of vaccination the follow-up of the clients should be ensured in order to complete the vaccine programme.

3.3.8 Pathways of care

Integrated care pathways include that self-referrals and referrals from a variety of services are accepted. Elements of care for drug users comprise a range of preventive interventions covering assessment of risk behaviour, pre- and post-test counselling, offers or referrals for testing for hepatitis and HIV and vaccination against hepatitis A and B viruses. Injecting drug users who have not been vaccinated for hepatitis B are at high risk to acquire and transmit hepatitis B. Clients with hepatitis C are at further risk

of becoming infected with hepatitis B. For this reason it is important to ensure that clients with hepatitis C who are not infected with hepatitis B are offered HBV vaccination (National Treatment Agency 2002).

Care coordination requires that specialised services for drug users cooperate closely with non-specialist services. Strong linkages with mental health services and the provision psychiatric care are recommended as many IDUs suffer from comorbid psychiatric disorders. If testing for blood-borne diseases and vaccination is not available within the facility drug services should refer clients to services providing these interventions. Cooperation with specialist services providing treatment for those infected with hepatitis B and/or hepatitis C is very important in order to ensure further management and treatment of infection. Referrals have to be documented.

Current treatments for HIV/ AIDS, hepatitis B and C and preventive vaccination for hepatitis B have turned out to be effective in reducing drug-related infectious diseases. Three doses of hepatitis B vaccine administered over a six month period result in absence of infection for 10-15 years. Two month after the completion of the vaccination a serology should be undertaken to measure the immune response. If there is a low immune response a booster dose of HBV vaccine should be offered (National Treatment Agency 2002). The majority of those infected with HIV are able to tolerate HAART well, even over years. Due to potential adverse effects the monitoring of treatment by an HIV clinician is recommended in at least three-monthly intervals (Hoffmann et al. 2007). As regards the treatment of hepatitis C infection the currently most effective treatment is based on an antiviral combination therapy with pegylated interferon and ribavirin (Backmund et al. 2001; Dalgard et al. 2002; NICE 2006).

As hepatitis C and HIV treatment usually take a long time and may have unpleasant side effects, adherence to treatment by drug users should be actively stimulated (Trimbos Institute 2006).

3.3.9 Standards

Standards imply to assure quality and efficiency of testing and vaccination for infectious diseases through considering known evidence and the development of respective working standards and methods.

For testing and management of infectious diseases a number of guidelines exist at national and international level. A Canadian guideline on testing for viral hepatitis has been developed which is based on scientific evidence for testing (Guidelines and Protocols Advisory Committee 2005). In Scotland a national clinical guideline has been compiled which addresses the issue of testing for and management of hepatitis C infection (Scottish Intercollegiate Guidelines Network 2006). The Scottish guideline stated that HCV treatment for drug users attending drug treatment is effective. The American Association for the Study of Liver Diseases and the Infectious Diseases Society of America recommended that drug use itself represents not an absolute

contraindication to antiviral therapy for HCV infection, but decisions about treatment of hepatitis C in IDUs should be made on a case-by-case basis (Edlin et al. 2005).

To address the problem of undiagnosed HIV infection, WHO and UNAIDS issued a new guidance on informed, voluntary HIV testing and counselling in the health facilities (WHO/UNAIDS, 2007). The guidance provides operational advice in this area, and developed recommendations follow a review of available evidence and expert knowledge.

3.3.10 Performance and outcome monitoring

With respect to performance it is good practice to regard interventions to assess for, prevent and manage blood-borne diseases as an integral part of treatment (National Treatment Agency 2002). Access to health screening, testing for blood-borne disease and related treatment should be available for all drug users in contact with drug services, health services or any other support service.

As regards outcome monitoring there is an increasing demand to monitor performance and outcomes of interventions to prevent blood-borne diseases. The EMCDDA stated it as necessary to develop indicators for a more reliable and comparable monitoring of hepatitis B/C and HIV in injecting drug users in order to monitor the impact of preventive interventions and to identify priorities for further health care needs (see for documents on drug-related infectious diseases: <http://www.emcdda.europa.eu/?nnodeid=1375>).

Monitoring defined as the ongoing checking of performance and outcome requires carrying out a systematic collection and review of information on the services used by the clients. In the context of prevention of blood-borne diseases outcome monitoring should include behaviour changes such as change in sharing behaviour, sexual behaviour and injecting behaviour (National Treatment Agency 2002).

Outcome monitoring should include details on the number of clients in contact with services who:

- receive an assessment of health needs relating to blood-borne diseases,
- receive pre-test counselling
- are referred for testing for HBV, HCV and HIV,
- undertake testing for hepatitis B, hepatitis C and HIV,
- receive post-test counselling and results,
- are referred to treatment for blood-born diseases.

Monitoring for hepatitis B vaccinations should include the number of patients who:

- are referred for testing,
- require vaccination,
- complete one injection, complete two injections, complete the course of three injections,
- attend the follow-up to confirm immunity or receive a booster.

It is good practice for services to compile client outcome data to enable reflective practice and to improve the services (National Treatment Agency for Substance Misuse 2006).

4. Information and education

4.1 Introduction

Information , education, and communication on blood-borne infections are an important measure to reduce blood-borne diseases.

4.1.1 Definition

Information and education services offer information on blood-borne diseases, consequences of the different diseases, ways of transmission and how to avoid transmission. Information and education can be distributed by different ways, e.g. by leaflets, booklets, posters, audio-visual media, personal advocacy, or by telephone (National Treatment Agency 2002). Often information is part of another intervention like counselling or low-threshold facilities. Communication can be viewed as the systematic stipulation of processes to facilitate an exchange of information and opinions on particularly drug/risk-related issues.

4.1.2 Context

Information and education is often part of a larger intervention or treatment (Trimbos Institute 2006). As one part of a multiple prevention approach information and education is established in most European countries to different degrees (EMCDDA 2007). It is agreed in the European countries that a coordinated and comprehensive public health approach is vital to reduce the spread of infectious diseases among drug users (EMCDDA 2007).

4.1.3 Aims and objectives

The aim of information, education, and communication services is the provision of information in order to reduce the transmission of blood-borne diseases, especially such as HIV and HCV, as well as HBV and other transmittable diseases. Information is given on how those diseases are transmitted and how transmission can be avoided, complications that can occur, specialized help services for those affected and the possibilities of medication and psychosocial help. Also included can be information on how to access related services. Raising awareness of the risks associated with blood-borne diseases is another important aim (National Treatment Agency 2002). Communication comprises the involvement of NGOs, self help/patient groups, Civil Society in order to initiate discussions on the subject.

4.1.4 Client groups served

Drug users, their partners, families and friends, as well as professional working in the field and also the wider community are target groups of information and education

services, as health education is useful at all opportunities (National Treatment Agency 2002).

4.2. Research evidence base (key findings)

The evidence by high-ranking studies for harm reduction measures in general, and on Information, education and communication especially, is - compared to controlled medical research on treatment in particular – rather scarce, but the intervention may still be effective (Trimbos Institute 2006, 76). Advice and Information may help to reduce drug-related risks (National Treatment Agency 2002), but as they are usually part of a larger intervention, there is not much evaluation and research on the topic. The Trimbos report assumes that the interventions are more effective in combination with other prevention strategies (according to Miller and Rollnick 1991, Walitzer et al. 1999 cited in Trimbos Institute 2006). Also the importance of adapting the messages to the needs of specific target groups is pointed out (Trimbos Institute 2006). Information, education and communication (IEC) may be most effective on the short-term, in raising awareness, in more specific variants also in changing knowledge and understanding, less in changing behaviour (Trimbos Institute 2006).

Several studies exist on the effectiveness of different types of information and education interventions. Wright and Tompkins identified three observational studies on the effects of advice, counselling, and outreach workers, all in combination with other interventions. A reduction in HCV was noted in two of the studies, the third found a reduction of HIV after introduction of safer injecting advice and condom distribution (Wright and Tompkins 2006). Mass media campaigns on preventive messages seem to be rather ineffective (Derzon and Lipsey 2002, Westat 2003, both cited in Trimbos Institute 2006), but tend to be more effective when they are not paternalistic (Burgoon et al. 2002, cited in Trimbos Institute 2006). Safer injection education delivered by nurses in a Canadian drug consumption room has been evaluated. Drug users receiving the education were high-risk injecting drug users and likely to possess characteristics associated with adverse health outcomes including HIV infection. Many participants continued to engage in unsafe injection behaviours, therefore the need for ongoing education is expressed (Wood et al. 2008). An Australian study video recorded injecting drug users while injecting and talked to them the following day showing the video and giving Safer Use advice on HCV. Data show that to involve experienced users a broadening of safer use discussions is helpful to include other aspects of injecting, and e.g. to embed prevention messages in discussion about vein care and acknowledge the skills and knowledge of the experienced users (Treloar et al. 2008).

A peer-mentoring behavioural intervention to reduce risky distributive injection practices was evaluated in a randomized intervention trial with injecting drug users with HCV infection. Participants of the intervention group were less likely to report risk

behaviours than the control group, at 3 and at 6 months, a 26% relative risk reduction. Peer-mentoring and self-efficacy were significantly increased (Latka et al. 2008).

A comparison of enhanced counselling therapy with a simple educational intervention regarding the acceptability of the interventions and the effects on therapeutic alliance was conducted in the UK. The enhanced counselling therapy was perceived more acceptable significantly, and patients of this group had significantly higher levels of therapeutic alliance (Davis and Abou-Saleh 2008).

The knowledge of drug users on blood-borne diseases and on the ways of transmission is often inadequate, especially on HCV issues like transmission and long-term nature of the infection (Smyth et al. 1999). In the English study of Smyth et al. (1999) long-term (median 1.4 years) methadone maintenance patients did not show better knowledge than those attending 21-days detoxification. To improve the current education approaches and therefore the knowledge of the drug users, the authors plead for an experimental teaching style instead of a didactic teaching style, which is less effective (Smyth et al. 1999). Another study from Australian also found inadequate knowledge on Hepatitis C among injecting drug users; many users were confused about their actual hepatitis C serostatus as well as on transmission risks of the hepatitis C virus (Southgate et al. 2005). Another study among Vietnamese-speaking drug users in Australia highlighted the need for culturally relevant information and education, as the group of the Vietnamese was rather isolated, engaging in unsafe injecting and unsafe sex, and not knowing where to seek information and how to inject safely (Louie et al. 1998).

Especially hepatitis C prevention education hasn't been very successful; this emphasizes the need for innovative methods (Treloar et al. 2008). Therefore the need for further research on education and information services is stressed by a number of authors (e.g. Wright and Tompkins 2006; Treloar et al. 2008).

4.3 Recommendations

Information on BBV should be available in all kind of drug treatment facilities and institutions working with drug users. Information needs to be easily accessible and should be available in a range of settings. Information on BBV should be made available not only for drug users but also for their partners, family, friends, professionals and the wider community. As the knowledge of transmission risks, especially on HCV, among drug users is often inadequate, information and education services need to be improved, and even more support seems needed (Southgate et al. 2005).

4.3.1 Location

Information and education on blood-borne diseases for drug users should be available in all kinds of treatment and living settings and easily accessible (National Treatment

Agency 2002). Information and advice should also be available through generic services, in order to reach partners, families and friends as well (National Treatment Agency 2002). All services including unspecified should provide information on the risks of transmitting blood-borne infections (National Treatment Agency 2002). The British National Treatment Agency emphasizes the importance of telephone advice for those who initially prefer not to seek treatment (National Treatment Agency 2002).

4.3.2 Programme duration

Information, education, and communication should be available and initiated at all times in different settings (e.g. drop in centres, housing projects, prisons and arrest institutions of all kinds, probation services, therapeutic institutions, hospital treatment order etc.). It is intertwined with other help and support services. Education programmes need to be ongoing (Wood et al. 2008)

4.3.3 Staffing/Competencies

As information needs to be accurate, up-to-date and consistent, regular training and supervision of staff is required (National Treatment Agency 2002). Training should provide a wide range of issues and be reviewed on regular terms (National Treatment Agency 2002). All staff within the health, social and criminal justice agencies who come in contact with drug users should be able to provide information, also to other colleagues (National Treatment Agency 2002).

Furthermore safety of staff is an important issue as well, as they are posed to a greater risk of blood-borne infections. Safety at the workplace is necessary in order to avoid infections of staff. Vaccination for Hepatitis A and B as well risk-reduced workplace environment like gloves, safety boxes for needles etc. (especially in a setting where needles are handled).

4.3.4 Treatment environment and holistic treatment and care

Subgroups like minorities or immigrants require information in accessible format (National Treatment Agency 2002). Acknowledging the skills and experience of the users helps to improve outcomes as well as an experiential teaching style seems to be more successful than didactic styles. The participation and competence of the drug users need to be an active element in information and education services.

4.3.5 Access

Information and education services should be open access services and be widely available in different settings for drug users, their partners, families, and friends, professionals, and the wider community (National Treatment Agency 2002). All clients should have equal access to the provision of advice and information (National Treatment Agency 2002). In order to reach different target groups, information should be available for a range of diverse needs, including those with literacy problems, be

culturally sensitive, and available in different languages (National Treatment Agency 2002). Referrals are usually accepted from a wide variety of sources, including self-referral (National Treatment Agency 2002).

4.3.6 Assessment

Assessment may not be necessary, but in some areas triage assessment might be appropriate (National Treatment Agency 2002).

4.3.7 Management

Information on blood-borne infections should be available within all services, and the services be aware of how help and advice can be accessed (National Treatment Agency 2002). Drug services should work closely together with non-specialist services to ensure accurate information is provided (National Treatment Agency 2002).

4.3.8 Standards

In order to clarify misconceptions on medical terms like antibody, education programmes and services need to be clear. Clear messages should also include topics like injecting behaviour and blood awareness (Southgate et al. 2005). Services need to be expanded to include education on the HC virus itself (Southgate et al. 2005). Programmes should be monitored and evaluated on regular terms in order to improve measures when necessary.

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10 Maintenance treatment

Maintenance Treatment

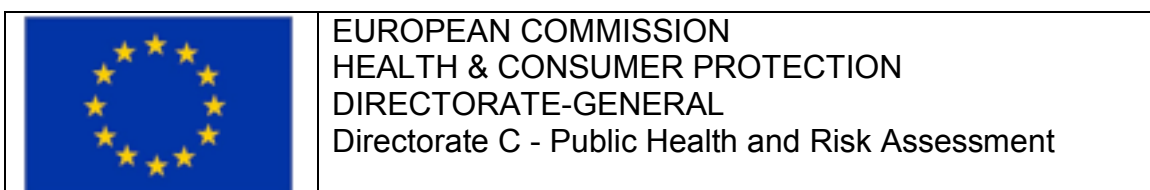
Guidelines for treatment improvement

Moretreat-project

MUW Vienna
Austria

October 2008

(This protocol includes parts of the manuscript for WHO guidelines and therefore may not be published before the publication of these WHO guidelines; the reference always has to be stated)



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1 Introduction

1.1 Definitions

What is maintenance treatment?

Treatment of drug dependence by prescription of a substitute drug (agonists and antagonists) for which cross-dependence and cross-tolerance exists, with the goal to reduce or eliminate the use of a particular substance, especially if it is illegal, or to reduce harm from a particular method of administration, the attendant dangers for health (e.g. from needle sharing), and the social consequences (Demand Reduction – A Glossary of terms, UNDCP).

Aspects of opioid dependence

Opioid dependence develops after a period of regular use of the drug and it is characterized by a triad of cognitive, behavioral and physiological symptoms which ultimately result in an individual continuing to use the drug despite the significant harm associated with the drug. In conjunction with this, the individual no longer is choosing to use the drug for its apparent benefits, but the use has become habitual and cravings to reuse mean the user feels the habit is no longer under control.

Opioid dependence is a health problem worldwide with enormous economic, personal and public health consequences. At present, there are approximately 15.6 million opioid users in the world of which 11 million are heroin users with an estimated 2-4 million or more in Western Europe and North America alone (UNODC 2007). Based on information from UNODC 2006, the trends for the usage of opioid class of drugs shows increased consumption over the past 14 years, from 13.5 million people in 1990 to 16.1 million at 2006.

Opioid dependence affects approximately 10 million people worldwide each year in excess of 200 000 people die as a consequence of their opioid dependence, predominantly through overdose or HIV infection (UNODC 2007). Many million people will attempt to cease their opioid use, although only a minority will be successful in the long term (Hser et al. 2001). The social costs by opioid dependence accrue from the combination of health care costs, crime and lost productivity (Mark et al. 2001). The global epidemic of HIV/AIDS, which is in many cases fuelled and maintained by unsafe injection practices necessitates the widespread implementation of effective interventions against opioid dependence (Monteiro 2001). Opioid dependence has similarities with other medical conditions in which biological changes occur as a result of the behaviour of the individual and the progress to conditions only partly under individual's control (such as diet and diabetes, smoking and respiratory disease, diet and heart disease).

Also, like many other chronic conditions, opioid dependence tends to follow a relapsing and remitting course.

Is opioid dependence a medical condition?

Historically opioid dependence was often seen as a dysfunction in the individual will power, reflecting also the character of an individual. However with recent advances in the understanding of the biological mechanism behind dependence and its implications, it has now been widely accepted that opioid dependence is as much a prominent disorder of the brain like many other disorders of the brain. Therefore opioid dependence can be considered as a medical condition characterized by a series of symptoms, and a predictable natural history, for which treatment options now exist.

1.2 Aims and objectives

Aims of treatment

Treatment of opioid dependence consists of pharmacological and psychosocial interventions with the intention of reduction or cessation of opioid use and reduction of harms associated with opioid use.

Agonist maintenance treatment consists of usually daily consumption of an opioid agonist, such as methadone or buprenorphine. The resulting stable levels of opioids are experienced by the dependent user neither as intoxication nor withdrawal, more as “normal”. The aims of agonist maintenance treatment include: reduction or cessation in illicit opioids; reduction or cessation of injecting and other blood borne virus risks, reduction of overdose risk, reducing criminal activity and improving psychological and physical health. In practice most patients will cease heroin or use it infrequently, with 20-30% reporting ongoing heroin use (Hser et al. 1998; Teesson et al. 2006).

Treatment of drug dependence serves multiple purposes. It assists the drug users to see his or her problems from a different perspective, enhances self-reliance and empowers the individual to make choices and work for changes, confers self esteem and gives hope. At the same time it must ensure access to physical and psychiatric care and social assistance, and be oriented towards the family as well as the individual.

Client groups served

Agonist maintenance treatment is indicated for all patients who are opioid dependent and are able to give informed consent and for whom specific contra-indications do not exist.

The choice of treatment

In recent years it has become clear that a handful of medicines are powerful in assisting people suffering from dependence on opioids. Providing treatment for those dependent on opioids reduces the burden of addiction by reducing health and social costs.

Opioid agonist maintenance treatment (especially with oral methadone and sublingual buprenorphine) is increasingly recognized to be the most effective management strategy

(Kleber et al. 2006). Oral methadone and sublingual buprenorphine are the most effective opioid agonist maintenance pharmacotherapies. Opioid agonist maintenance therapy is defined as a long-term treatment by use of opioid agonists, without limiting the duration of treatment. In the context of high quality, supervised and well organized treatment services, these medications substitute for the effects of heroin and other illicit opioids, interrupting the cycle of intoxication and withdrawal and greatly reducing heroin use, crime and the risk of death through overdose.

In recent years, the value of psychosocial treatment has also been demonstrated, particularly when used in combination with pharmacotherapy, be it in the context of opioid agonist maintenance therapy, opioid withdrawal or relapse prevention.

2 Evidence base

2.1 Non-comparative design

Methadone

Methadone maintenance treatment is known to reduce drug-craving as well as morbidity associated with opioid dependence. Furthermore treatment outcome in methadone maintenance seems to be improved with increased dosages and the provision of adequate psychosocial support.

Naturalistic studies assessing the polish methadone maintenance program found an increase of the general health state of the study group as well as positive effects on the most common physical illnesses including disorders of the superficial venous system, skin infections, internal organs mycoses, lowered body mass index and lack of menstruation (Habrát et al. 2001; Habrát et al. 2002). Further work showed that methadone treatment significantly improved quality of life in seven of eight subscales of SF-36 after six months of treatment, while a moderate decrease was observed after another six months of treatment (Habrát et al. 2002). Interdisciplinary methods of rehabilitation and regular pharmacological treatment with methadone resulted in a lower rate of depression (Karakiewicz et al. 2006).

An evaluation of the lithuanian outpatient methadone treatment program showed a significant reduction of morbidity and an improvement of the quality of life of patients (Žilvinas et al. 2007). In a further naturalistic study methadone significantly reduced opioid, benzodiazepine and multiple-drug use and was effective in reducing criminal behavior (Subata et al. 2007).

Large-scale quality-of-life examinations in Spain showed a strong relation between methadone treatment and reduced mortality from natural causes as well as overdoses (Brugal et al. 2005). Brugal et al. included 5049 patients in Barcelona which provided 23,048 person-years for follow-up. The main factor for overdose mortality was not being in maintenance treatment at the time of death. Other factors were being a current

injector at baseline and being HIV positive. For AIDS mortality, the main factor was the calendar year, the next major factor was more than 10 years of heroin consumption, followed by not being in MT, being unemployed, then having a prison record.

Buprenorphine

A german naturalistic trial assessing buprenorphine treatment found a highly significant decrease of the prevalence of heroin, black market methadone and cocaine use (Verthein et al. 2004). Changes in alcohol abuse were non-significant. 74 adverse events and one severe adverse event (admission to psychiatric treatment) were noted.

Two small scale (Fiellin et al. 2002; O'Connor et al. 1996) and a larger (Fudala et al. 2003) study associated buprenorphine prescription in primary care with good retention (70-80%) and reasonable rates of opiate free urines (43-64% achieving three or more consecutive weeks of opiate free urines). Similar results were obtained in France some years ago (Duburcq et al. 2000).

An italian group found significant improvements with respect to withdrawal symptoms, psychic conditions (obsessive traits, hostility and depression), and social roles (particularly job performance, substance abuse and legal problems) in a cross-sectional study evaluating buprenorphine treatment (De Rosa et al. 2002). A control group undergoing methadone maintenance treatment (on average daily doses of 20.19 mg) showed similar rates for retention in therapy to those of the buprenorphine-treated sample, but a much higher frequency of heroin abuse.

An observational cohort study from France described an overall 24-week buprenorphine treatment retention rate of 37% (Lapeyre-Mestre et al. 2003). Misuse of buprenorphine and benzodiazepines was significantly more frequent in patients with three or more prescribers or pharmacists.

Another naturalistic report from Czech Republic (Hampl et al. 2003) recalls positive experiences with buprenorphine treatment while daily doses of 2-8 mg proved sufficient for long-term treatment of patients addicted to heroin.

Buprenorphine/Naloxone

The buprenorphine/naloxone combination compound with the tradename Suboxone® contains buprenorphine, a partial agonist at the μ -opioid receptor, as well as naloxone, an antagonist at the μ -opioid receptor (Matzenauer et al. 2008). Administered sublingually, naloxone is not resorbed and is later on eliminated due to a pronounced first-pass effect in the liver. Sublingual naloxone does not influence the effect of buprenorphine (Chiang et al. 2003; Harris et al. 2004; Elkader et al. 2005). On the contrary, after nasal or parenteral application naloxone unfolds it's full effect as a μ -opioid receptor antagonist and leads to unpleasant withdrawal symptoms.

68.3% of the participants of a Finish study reported intravenous application of buprenorphine/naloxone, but only 8.3% reported a regular consumption. 80.4% of the

participants, who have administered buprenorphine/naloxone intravenously, recalled it as a “bad” experience (Alho et al. 2007).

Buprenorphine/naloxone showed to be effective in a 13 day detoxification study of 243 opioid dependent patients - partly consuming street-heroin and partly being in a maintenance treatment program. 90% of the patients finish the induction phase and 68% completed the program (Amass et al. 2004).

Another study compared the use of buprenorphine/naloxone and buprenorphine alone for the maintenance treatment of opioid dependent patients. The number of opioid-negative urine tests was in both the buprenorphine/naloxone and the buprenorphine group significantly higher than in the placebo group. No difference in the efficacy of buprenorphine/naloxone and buprenorphine alone was found (Fudala et al. 2003).

An analysis of a maintenance program with buprenorphine/naloxone found that 54% (51% at a general practitioner, 58% at an addiction clinic) of the patients were relapse-free after 6 months of treatment (Mintzer et al. 2007).

Slow-release morphine

Slow-release morphine might prove as an alternative to methadone and buprenorphine substitution treatment.

An austrian group assessed the use of slow-release morphine for the treatment of opioid dependence in a non-comparative study (Kraigher et al. 2005). A mean daily dose of 665 mg was administered, which led to a significant decrease of craving for heroin and cocaine and a significant reduction of somatic complaints. Withdrawal symptoms were decreased from a mean Wang scale 12.1 on day 1 to 1.7 on day 7. The consumption of benzodiazepines remained almost unchanged.

A bulgarian naturalistic report evaluating the use of slow-release morphine found a significant drop of signs and symptoms of opioid withdrawal as well as craving for heroin in the first eight weeks and then a stabilization at low levels (Vasilev et al. 2006).

Heroin

A rather new development is the prescription of heroin to chronic, treatment-resistance, heroin-dependent patients in some countries of Europe. Heroin-assisted substitution treatment might be an effective option for chronically addicted patients for whom other treatments have failed. However, it requires considerable resources as patients usually inject three times per day under supervised conditions at treatment centers, which need to have long operating hours as well as high demands on personnel and security.

Two non-comparative studies report on the Swiss experiences with a heroin-assisted treatment program. Heroin-assisted treatment has been available in Switzerland since January 1994 in 21 community outpatient treatment centers. Rehm et al. 2001 assessed 1969 opioid-dependent drug users who began heroin-assisted substitution treatment between January 1994 and December 2000. The mean daily dose of intravenous heroin administered was 474.0 mg (SD 206.1) with administration of an average 2.6 (SD 1.0)

applications a day. More than 70% (1378) of patients remained in treatment for more than a year. The treatment showed positive effects with respect to health and social outcomes. A longer stay in treatment was related to a higher chance of starting abstinence-oriented therapy than a short stay.

A more recent six-year follow-up report from 8 treatment centers substituting heroin in Switzerland was conducted by Güttinger et al. in 2003. Compared to the situation of the opioid-dependent patients at entry, the results of the follow-up showed a significant decrease in the use of illegal substances, illegal income and most other variables concerning social conditions, but they also showed an increase in unemployment and reliance on social benefits. The Swiss results suggest that heroin-assisted treatment is efficient in the long-term course of treatment and also after termination of treatment with respect to living conditions and use of illicit substances.

2.2 *Comparative design*

Buprenorphine vs. Methadone

Kleber et al. (2006) found the efficacy of buprenorphine in the maintenance treatment of opioid dependents to be comparable to that of methadone, when using equipotent doses. The maximum therapeutic effect of sublingual buprenorphine tablets occurred in the range of moderate (8 mg) to higher doses (16 mg), comparable to moderate methadone doses of 40-60mg, whereas moderate doses of buprenorphine are superior to low doses of methadone. From a clinical point of view, dosing of buprenorphine on every fourth day seemed possible and was found to lead to similar effects on the measures of adverse effects and efficacy than daily doses.

Mattick et al. (2007) have found no significant differences between low dose buprenorphine and low dose methadone with regard to treatment retention, opiate free urine samples and self-reported heroin use. In flexible dosage, methadone is significantly more effective than buprenorphine in retaining patients in treatment, perhaps because of the higher potential of methadone to suppress heroin use, especially if high doses of methadone are used.

Schottenfeld et al. (2005) compared the efficacy of buprenorphine and methadone in treatment opioid dependents with co-occurring cocaine dependence. The administration of an average maximum dose of 80 mg methadone leads to higher treatment durations, longer periods of sustained abstinence and a greater proportion of cocaine- and opioid-free urine samples than liquid buprenorphine in an average maximum dose of 15 mg. However, Montoya et al. (2004) showed in their double-blind, controlled clinical trial with strict eligibility criteria that daily doses of 8 and 16 mg of buprenorphine solution in combination with drug abuse counselling are feasible and effective in maintenance treatment of outpatients with co-occurring opioid and cocaine dependence.

Lofwall et al. (2005) examined the safety and side effect profiles in 164 opioid dependents in buprenorphine and methadone outpatient treatment. After randomisation

to buprenorphine (n = 84) or to methadone (n = 80) all patients were maintained for 16 weeks. Besides very few clinical gender differences, common profiles of safety and side effects were found for both groups. Connock et al. (2007) found in their recent health technology assessment no generalisable results in the comparison of methadone and buprenorphine with regard to mortality.

An Italian non-randomized comparative trial assessed the use of buprenorphine and methadone for the treatment of opioid dependence (Gerra et al. 2004). A mean dose of buprenorphine 9.2 ± 3.4 mg and methadone 81.5 ± 36.4 mg was administered. Methadone-treated patients had a higher retention rate after week 4, but buprenorphine and methadone were equally effective in sustaining retention in treatment and compliance with medication at week 12. Retention rate was influenced by dose, psychosocial functioning and not by psychiatric comorbidity in methadone patients. No relationship between retention and dose, or retention and psychosocial functioning was evidenced for buprenorphine patients. The risk of positive urine testing was similar between methadone and buprenorphine, as expression of illicit drug use in general. At week 12 however, the patients treated with methadone showed more risk of illicit opioid use than those treated with buprenorphine. Negative urines were associated with higher doses in both methadone and buprenorphine patients. High doses appear to predict a better outcome, in terms of negative urines, for both methadone and buprenorphine, but not in terms of retention for buprenorphine patients. Buprenorphine seems to be equivalently efficient compared to methadone during a clinical procedure, however buprenorphine seems to be more effective than methadone in patients affected by depressive traits and dysphoria.

Another Italian non-randomized comparative study discussed the role of buprenorphine and methadone maintenance and found that both therapies resulted in better treatment retention in higher dosage subgroups than in lower dosage subgroups (Guglielmino et al. 2005).

An Austrian report assessed the quality of life with a three year follow-up period of buprenorphine and methadone maintained patients (Giacomuzzi et al. 2005). At the end of study period mean methadone dose was 55,4 mg and mean buprenorphine dose was 8,4 mg. Buprenorphine had significantly better outcomes in quality of life concerning partnership, overall satisfaction, leisure time, housing as well as law and security. Buprenorphine had also significantly less physical symptoms including stomach cramps, fatigue, aggressions, poor appetite, feelings of coldness and yawning. Less additional consumption of illicit substances was observed in the buprenorphine group.

Mattick et al. (2007) found the efficacy of buprenorphine maintenance treatment to be comparable to methadone maintenance with advantages in some treatment settings, in alternate day dosing, better safety profile, and milder withdrawal syndrome.

Slow-release morphine vs methadone

An austrian group evaluated the use of slow-release morphine compared to methadone in a randomized double-blind double-dummy cross-over trial (Eder et al. 2005). The retention rate of the entire study group was 86% with a mean methadone dose of 85 mg and a mean slow-release morphine dose of 680 mg. No significant differences in retention or use of illicit substances (opioids, benzodiazepines, cocaine) were observed, irrespective of treatment group or medication. However, patients receiving slow-release morphine had significantly lower depression and anxiety scores and fewer physical complaints. Craving was reduced with both methadone and slow-release morphine, but more during slow-release morphine treatment. Furthermore withdrawal scores were only slightly lower for slow-release morphine.

Comparison of methadone, buprenorphine and slow-release morphine

A randomized analysis of the quality of life at admission versus therapy with methadone, buprenorphine and slow-release morphine was conducted by an austrian research group (Giacomuzzi et al. 2006). The comparison of illicit drug use showed more favorable results for all three substances compared to patients at admission, while the buprenorphine and the methadone groups showed less physical symptoms (less stomach cramps, fatigue or tiredness, yawning and insomnia) than the slow-release morphine group. Methadone caused less problems with insomnia and buprenorphine less depressions than slow-release morphine. Buprenorphine and methadone had nearly the same outcomes in quality of life while slow-release morphine showed generally less favorable outcomes.

Codeine vs methadone

Codeine (Dihydrocodeine = DHC) is an analgesic agent, which is available for maintenance treatment in a few european countries. Due to a shorter bioavailability compared to other opioid agonists, codeine treatment might require closer monitoring as it has to be administered more than daily (Hall & Mattick 2007).

Robertson et al. (2006) enrolled 235 patients in an open-label randomized controlled study comparing the efficacy of methadone (1mg/ml) and dihydrocodeine (lower dose = 30mg and higher dose = 60mg). Over a period of 42 months participants treated with dihydrocodeine were more likely to switch treatments; however no group differences were found at follow-up and over the observation time.

A recent open label randomised controlled trial compared buprenorphine with dihydrocodeine for detoxification from illicit opiates in primary care (Wright et al. 2007). Sixty illicit opiate using participants were randomly treated either with daily sublingual buprenorphine or daily oral dihydrocodeine, both under a standard regimen including reduction of not more than 15 days. Abstinence was indicated by a urine sample and the secondary outcomes were recorded during the detoxification period and three and six months after detoxification. The attrition rate was high: Only 23% of the

participants stayed in the prescribed course of detoxification medication and provided a urine sample at the final prescription. Risk of non-completion of detoxification was higher in the administration of dihydrocodeine, and a lower proportion of people allocated to dihydrocodeine provided a clean urine sample compared with those who received buprenorphine (3% vs. 21%). Furthermore, the participants allocated to dihydrocodeine were more likely to call on professional carers during detoxification and more participants allocated to buprenorphine were abstinent at three months and six months post detoxification.

Comparative trials of heroin-assisted treatment

In some countries of Europe heroin-assisted treatment is available as an option for treatment-resistant opioid-dependent patients. A growing body of controlled trials assesses the benefits of different heroin-assisted treatment combinations and application methods in comparison to standard opioid-substitution treatment. Although heroin seems to be effective for maintenance of chronic treatment-resistant patients, the administration requires considerable resources in treatment centers.

A report of two multicenter open-label randomized controlled trials from the Netherlands (van den Brink et al. BMJ 2003) compared inhalable or injectable heroin (maximum 1000 mg per day) combined with methadone (maximum 150 mg per day) to methadone (maximum 150 mg per day) alone over twelve months of treatment. The target population consisted of 549 heroin addicts, who did not sufficiently benefit from methadone maintenance treatment, while regularly attending maintenance programs during the previous six months and suffered from poor physical or mental health or poor social functioning. With intention to treat analysis, 12 month combination treatment with heroin plus methadone was significantly more effective than treatment with methadone alone in both trials. The incidence of severe adverse events was similar across treatment conditions.

In a subsequent trial, pooled data from two randomized trials was assessed to investigate which baseline patient characteristics of treatment-resistant heroin addicts differentially predicted treatment response to medical heroin prescription compared to standard methadone maintenance treatment. Multivariate logistic regression analyses showed that only one of all baseline characteristics was predictive of a differential treatment effect: patients who had previously participated in abstinence-orientated treatment responded significantly better to heroin-assisted treatment than to methadone treatment (61% versus 24%), while patients without experience in abstinence-orientated treatment did equally well in heroin-assisted or methadone maintenance treatment (39% and 38%, respectively).

One RCT from the Netherlands on cue exposure therapy in an inpatient setting for opiate dependence even found significantly higher dropout and relapse rates for the treatment group (Marissen et al. 2007), so it does not seem to be an intervention that can be advisable presently.

Blanken et al. (2005) pooled the data of two open label randomised trials including four hundred and thirty heroin dependents to investigate predictors for the treatment response to medical heroin prescription compared to standard methadone maintenance treatment (Blanken et al. 2005). The participants were randomly allocated to methadone plus injectable heroin or methadone plus inhalable heroin administration or to methadone alone prescribed over 12 months. The outcome measures were recorded according to a response index, including indicators of physical health, mental status and social functioning. An intention-to-treat analysis resulted in a significant better treatment response for the participants in heroin-assisted treatment. Heroin dependent patients with a history of several abstinence oriented treatments benefit more from heroin prescription and show a higher treatment response compared to patients in methadone maintenance treatment. Patients without a history of abstinence-orientated treatment do not benefit more from heroin-assisted treatment than from methadone maintenance treatment and show equal treatment response rates (Blanken et al. 2005).

In another open-label multicenter randomized controlled trial from Germany (Haasen et al., 2007) 1015 heroin-dependent patients received a variable dose of injectable heroin (n=515) or oral methadone (n=500) for 12 months. Inclusion criteria represented methadone-treatment failure or a termination of treatment as well as poor physical or mental health. Retention was higher in the heroin (67.2%) than in the methadone group (40.0%). The heroin group showed a significantly greater response in improvement of physical or mental health as well as in decrease of illicit drug use.

As administration of injectable heroin might be problematic a group from Switzerland compared heroin tablets only with heroin tablets combined with injected heroin and/or other opioids in an open-label prospective cohort study with two non-randomly assigned treatment arms and historical controls (Frick et al. Addiction 2006). In the intention to treat analysis, 1-year retention rates after 1 year in the heroin tablets-only group as well as in the subgroup combining oral application of heroin with intravenous application or other opioids were higher compared to historical controls (Swiss cohort of patients who had been substituted intravenously with heroin). Rates of serious adverse events under study medication were comparable to the historical rate of the Swiss heroin-assisted treatment.

One german randomized controlled trial assessed the effects of racemic D,L-methadone and L-methadone in substitute patients (Verthein et al. 2005). No differences were found in observed outcome variables (craving, anxiety, depression). Both substances were interchangeable in a ratio of 2:1 (D,L-methadone : L-methadone) while withdrawal symptoms were of transient nature only.

3 Recommendations¹⁷

Strength of evidence:

**** ***Strong evidence:*** High quality meta-analyses, systematic reviews including one or more RCT with a very low risk of bias, more than one RCT a very low risk of bias

*** ***Moderate evidence:*** Limited systematic reviews, one RCT with a low risk of bias or more RCTs with a high risk of bias

** ***Some evidence:*** one RCT limited by research factors or more case-control or cohort studies with a high risk of confounding

* ***Expert opinion***

? ***insufficient evidence/unclear/unable to assess***

3.1 Treatment

Treatment environment

Can programs of pharmacotherapy for opioid dependence operate in isolation from other treatment modalities?

Rec: Pharmacological treatment programs and interventions should be integrated or linked with other medical and social services and interventions to ensure possibility of transition of patients to another treatment modalities as their treatment needs change.

No single treatment option can match the needs of all patients. Multiple medical, social and legal problems as well as changing needs influence the choice of treatment with time.

What considerations should be taken into account in decision making process regarding planning and development of pharmacological treatment for opioid dependence?

Rec: The scope of present and potential public health problems associated with opioid dependence and current treatment coverage should form the basis of planning and development of pharmacological treatment for people with opioid dependence.

Inclusion of opioid dependence in epidemiological surveys, rapid assessment of a scope of the problems and formal assessment of current treatment systems can provide important information on treatment needs and treatment coverage. Also monitoring essential patient information and trends in target population that comes in specialized treatment services can be useful for treatment planning.

Should men and women be treated in same facility?

Rec: Men and women can be treated in the same facility, providing that culturally appropriate and gender specific needs

Support for recommendation

¹⁷ Reference of WHO guidelines to be added!

Women have been found to differ in their drug use patterns than men, using less quantity but advancing more quickly to dependence and using more prescription sedatives than men. They are more likely to have less education, fewer financial resources and have higher rates of sexual and physical abuse (Nelson-Zlupko et al., 1996). Often the needs of women in substance abuse treatment settings are also different. They are more likely to have child care responsibilities which may limit access to treatment, and may be reluctant to participate in activities with men. They also report surprisingly high rates of sexual harassment by male treatment staff (Nelson-Zlupko et al., 1996). There has been little research on the relative efficacy of gender specific services for women. One non randomized study found that lesbian women and women with a history of sexual abuse in childhood and those with dependent children were less likely to drop out from women only treatment services compared to standard care (Copeland et al., 1992). For services to retain women, it seems important for them to provide either individual or female only group counselling, be able to provide care to people with small children, and have measures to guard against sexual harassment of female patients by male staff.

Support of recommendation: expert opinion*

Effectiveness and choice of treatment, methadone or buprenorphine?

In patients to be treated with agonist medications, should preference be given to methadone or buprenorphine?

Summary of evidence

Methadone results in lower rates of drop out than buprenorphine (RR=0.82; 95% CI: 0.69-0.96). Data on heroin use is equivocal, including the possibility of less heroin use with buprenorphine (SMD= -0.12; 95% CI: -0.26- 0.02). A systematic review and meta-analysis was conducted on this topic by the Cochrane collaboration in 2003 (Mattick, 2003). Ten studies compared methadone and buprenorphine either using flexible dosing or at doses greater than 6mg buprenorphine or 50mg methadone.

Discussion

It seems clear that methadone retains patients in opioid agonist maintenance treatment longer than in substitution treatment with buprenorphine. This is a consistent finding of the clinical trials and fits with the pharmacology of methadone and buprenorphine, in that methadone patients are more likely to experience severe withdrawal symptoms if they miss doses. It seems that there is also less heroin use with methadone than buprenorphine at the doses compared. Higher doses of buprenorphine may result in greater reduction in heroin use as the capacity to block the effects of heroin appears to be dose dependent. Methadone is, however, significantly cheaper than buprenorphine when both are administered under supervision.

Some patients will prefer the effects of buprenorphine and making both treatments available will probably increase the number in treatment although the degree to which this occurs is difficult to determine.

Conclusion

In studies to date, methadone was shown to be more effective in retaining people in treatment and reducing illicit opioid use, however uses of higher doses of buprenorphine may produce different results. On this basis methadone should be considered the optimal treatment with buprenorphine reserved for patients in whom methadone is not wanted, inappropriate or ineffective, or for whom it is anticipated that buprenorphine will improve the quality of life in other ways. Buprenorphine might be a safer option but the evidence is not yet sufficient to advocate its value over methadone on this basis. This conclusion places a high value on treatment outcomes over possible safety differences, because of the high mortality due to untreated opioid dependence.

Rec: In patients to be treated with opioid agonists, clinicians should use methadone maintenance treatment in preference to buprenorphine.

*Support of recommendation: Strong evidence*****

It should be encouraged that methadone maintenance treatment to be provided in conjunction with psychosocial interventions such as regular counseling. Despite this general recommendation, individual reasons may lead to a preference for one medication.

Reasons for use of buprenorphine include: previous response to buprenorphine or lack of response to methadone; short duration of action of methadone in the past; interaction between methadone and other medications taken; specific adverse effects of methadone; treatment availability; and patient preference. A stepped treatment of heroin dependence (Kakko et al 2007) appears equally efficient compared to optimally delivered methadone maintenance therapy. Together with prior data on the advantageous safety of buprenorphine, this suggests that broad implementation of strategies using buprenorphine as alternative treatment should be considered.

Rec: Buprenorphine is effective for the treatment of opioid dependence and where available should be offered as alternative to methadone for opioid dependent patients.

*Support of recommendation: Strong evidence*****

Remarks: Buprenorphine maintenance should be supported as a maintenance treatment, only where higher doses of methadone cannot be administered. The reasons for not applying the best available treatment should be investigated rather than promoting less effective treatment approaches. Given buprenorphine's different pharmacological properties, it may have advantages in some settings and under some policies where its relative safety and alternate-day administration are useful clinically compared to methadone.

What doses of methadone should be used?

Summary of findings:

High dose versus low dose. There is good evidence that high doses of methadone (above 60mg) result in better retention in treatment and less heroin use than lower doses (Faggiano et al. 2003). Methadone doses above 60mg have higher rates of retention in treatment (RR 1.36; 95%CI 1.13 to 1.63) and higher rates of opioid abstinence in treatment (RR 1.59; 95%CI 1.16 to 2.18) and higher rates of cocaine abstinence (RR 1.81; 95%CI 1.15 to 2.85) than lower doses (1-39mg) of methadone. Doctors should prescribe effective doses of methadone and be prepared to increase the dose if patients are still using illicit opioids. In studies in which patients were given fixed doses of methadone, higher doses (above 60mg) were more effective than low doses (1-39mg) in treatment retention and had higher rates of opioid abstinence (RR 1.59; 95%CI 1.16 to 2.18) and higher rates of cocaine abstinence. Higher doses also had better retention in treatment in the long term (RR 1.23; 95%CI 1.05 to 1.45), compared to middle doses (40-59mg).

Conclusions

These findings are consistent with observational studies in which patients on higher doses of methadone have less heroin use than patients on middle or low doses.

Clinical recommendation

Rec: In patients being treated with agonist maintenance pharmacotherapy, clinicians should be encouraged to use adequate methadone doses, 60-120mg.

*Support of recommendation: Strong evidence*****

Remarks: Clinicians should be encouraged to use high methadone doses and not to reduce their dose, particularly when they are still using illicit opioids. Strong recommendation, high quality evidence.

What maintenance doses of buprenorphine should be used?

Summary of findings

Higher doses result in less heroin use than lower doses. In clinical trials, 12mg per day is more effective than 4mg per day, and two studies comparing 16mg/day to 8mg/day are equivocal including less heroin use in the 16mg group and no difference in the 95% confidence interval. Brain imaging and blockade studies, suggest that high rates of receptor occupancy and capacity to block heroin are obtained with 32mg than 16 mg and 24 mg, particularly when considering the effect over the 24 hours dosing interval, but there are no RCTs comparing these doses in clinical practice.

Rec: In patients being treated with agonist pharmacotherapy, clinicians should be encouraged to use buprenorphine doses in the range of 8-24 mg.

*Support of recommendation: Strong evidence*****

Remarks: The effectiveness of higher doses (16–32 mg) buprenorphine maintenance treatment has not been examined in clinical trials. In practice, the dose should be titrated to effect with the assumption that higher doses are likely to be more effective.

Strength of recommendation: *Strong, high quality evidence.****

Should fixed or flexible dosing of agonist be used?

Summary of findings

There are no studies identified comparing fixed and flexible doses for methadone or buprenorphine maintenance treatment. Opinion is that flexible dosing schedules are preferable as the dose of methadone and buprenorphine should be increased until illicit opioid use ceases. Thereafter there should be frequent review of the dose without encouraging patients from becoming obsessed with minor changes in their dose. The methadone dose should be reviewed more frequently during induction and dose increases, after missed doses and on reduction. In general the patient should be reviewed at least monthly.

Rec.: To maximize recruitment into, and retention in agonist maintenance treatment programs, policies and regulations should allow flexible dosing structures, without restriction on dose levels and the duration of treatment.

*Support of recommendation: expert opinion**

Remarks: This recommendation takes place a high value on ethical and legal principles aim to prescribe controlled substances.

Supervision of therapy, take away doses

Treatment should be initiated with supervised dosing, assessing response to treatment, and subsequently allowing unsupervised doses to patients who demonstrate stability. The key elements of “stability” appear to include housing, employment, not being dependent on multiple drugs, and ceasing injecting after entering treatment.

Rec.: Take away dosing can be recommended when stabilization of dose and social situation are achieved, and when there is a low risk of diversion.

Prescriptions

Legal requirements for prescriptions vary by jurisdiction, however in general a prescription for opioid agonist maintenance therapy should specify:

- The name, address and telephone number of the doctor.
- The name of the pharmacy.
- The name and address of the patient.
- The date of the prescription.
- The preparation to be dispensed (i.e. methadone or buprenorphine).
- The dose to be dispensed in milligrams (words and numbers).
- The frequency of dispensing (daily, twice daily, alternate daily, three times a week).
- The start and end dates of the prescription.
- Whether all doses are to be supervised or taken home.

Because of the potential seriousness of dosing errors, some jurisdictions ensure that the medical practitioner endorses a photograph of the patient which is given to the pharmacy or dispensing point. Also to reduce dosing errors, it is a requirement in some

jurisdictions for doses of opioids to be written in both words and figures. To reduce prescription fraud, it is useful to send a copy of the prescription to the pharmacy by facsimile or secure email.

Dispensing

Dispensing of methadone and buprenorphine may take place in a variety of settings. In specialist clinic settings, it is most useful to have a pharmacy or dispensary on site. This enables patients can be observed at each time of dosing. In this way, clinic staff is able to more thoroughly assess the patient, whom they would otherwise observe less frequently. In community settings, dispensing can occur at community pharmacies, although regulations in some countries allow buprenorphine to be dispensed in the physician's office. Dispensing staff can have a valuable contribution to multidisciplinary care planning. In the clinic setting this is more easily accommodated. In the community setting, medical staff should be encouraged to regularly discuss patients with the dispensing pharmacist to determine the number of missed doses and the level of intoxication on presentation for dosing. Methadone and buprenorphine should be kept in a secure safe, according to the national requirements, and the amounts checked and witnessed by a second party daily to ensure the amount used is reconciled with amount dispensed. Dispensing staff are generally pharmacists, although in most jurisdictions, medical and nursing staff can also dispense medication. Training for pharmacists in the issues involved in dispensing methadone and buprenorphine should be available, if not mandatory. Prior to dosing of methadone and buprenorphine, the pharmacists should:

- establish the identity of the patient and confirm with the name on the prescription.
- confirm that the patient is not intoxicated.
- check that the prescription is valid and that the current day is a dosing day (i.e. for alternate or three times a week patients).
- confirm the dose of the prescription.

To further reduce dosing errors and assist with record keeping, computerized systems are available which confirm the identity of the patient with retinal or iris scanning and automatically dispense the dose on the prescription (after it has been entered by the pharmacist). It is vital not to dispense methadone or buprenorphine to people who are sedated or intoxicated as it may lead to oversedation. Dispensing staff must be skilled in the assessment of the degree of sedation and confident in refusing doses to intoxicated patients. It can be helpful to test breath alcohol levels if patients have been drinking. Patients who present intoxicated or sedated should be asked to return when the intoxication or sedation has worn off. The dose dispensed should be recorded in accordance with jurisdictional requirements.

Administration of buprenorphine

Buprenorphine tablets should be dispensed in a dry dosing cup. The number and dosage of tablets should be verified. Prior to administration, patient should be advised to place

the tablets under the tongue and not to swallow (tablets or saliva) until the tablets have dissolved (5 minutes on average) and the pharmacist should check the patients mouth cavity for absence of food or receptacles to divert buprenorphine. After administration, the pharmacist should check the patient's mouth cavity again to determine that the buprenorphine has dissolved and the patient should be offered a drink to rinse the mouth cavity. To avoid disputes over dose, patients should witness that they have received a dose in some way. If the patient attempts to spit their dose out, or to leave the dispensary before the dose has dissolved, the doctor should be informed. Crushing buprenorphine tablets into coarse granules has been tried in some places to limit diversion of buprenorphine although the efficacy of this approach has not been evaluated.

Contra-indications and precautions to the use of opioid agonist maintenance therapy
Methadone and buprenorphine are not suitable for people with decompensate liver disease (for example cirrhosis with jaundice and ascites) as they may precipitate hepatic encephalopathy. They may also worsen acute asthma and other causes of respiratory insufficiency. Other contra-indications listed by the manufacturers are: severe respiratory depression, acute alcoholism, head injury, raised intracranial pressure, ulcerative colitis, biliary colic, renal colic. Precautions for both include: high risk polydrug use, mental illness, low levels of neuroadaptation to opioids (i.e. recent incarceration), and significant concomitant medical problems.

3.2 *Access*

Rec: A national treatment strategy document should be developed, aiming for adequate coverage, quality and safety of treatment.

When a treatment system is developed in any country, it should be planned as part of that communities overall resources to deal with health and social problems (WHO expert committee 30th report). Responses to substance use problems should be disseminated throughout the whole community and be population based, with an orientation towards "Health for All".

Estimating the need is important for planning treatment services, and for reviewing the accessibility of services to different population groups. Estimating the number of opioid dependent people is difficult due to their under representation in large scale epidemiological surveys. Alternative techniques are capture recapture, back projection and multiplier from overdose rates, needle and syringe distribution numbers, numbers in opioid agonist maintenance treatment presentations to treatment centres (Hall, Ross, Lynskey, Law, & Degenhardt, 2000). Other methods of estimating treatment need are based on systems of treatment monitoring, especially measuring the demand for first time treatment. It is important to distinguish between demand and treatment need, keeping in mind that populations that have difficulty gaining access to treatment are women, the young, street children, refugees, the poor and minority ethnic and religious

groups. It is also important to have data on the number of patients treated with each modality. Data on numbers in opioid agonist maintenance treatment can be gathered from treatment centers and/or pharmacies dispensing methadone and buprenorphine in real time or intermittent basis. Data on numbers of people treated for detoxification is more difficult and requires a co-ordination of data from residential facilities, outpatient specialist services and primary care. Needs assessment is a formal systematic attempt to determine important gaps between what services are provided and what should be provided. It involves documenting important gaps between current and desired outcomes and then placing the gaps in order of priority for closure.

In planning treatment systems, resources should be distributed in a way that delivers effective treatment to the most number of people. Available evidence suggests that opioid agonist maintenance treatment is the most cost effective treatment and should form the backbone of the treatment system for opioid dependence. Countries with established opioid agonist maintenance programs usually attract 40-40% of dependent opioid users into opioid agonist maintenance treatment, with higher rates in some urban environments. Given the difference in cost between inpatient and outpatient withdrawal, inpatient facilities should be reserved for those with specific needs, the majority being encouraged to attempt opioid withdrawal as outpatients. Psychosocial services should be made available, particularly for people in opioid maintenance treatment, and those attempting to remain abstinent from opioids, although they need not be mandatory.

In considering the balance of treatments types, funding should be evidence based. In general, opioid agonist maintenance is likely to be the most cost effective treatment, and treatment systems should aim to have no waiting list for opioid agonist maintenance treatment. Moderate levels of psychosocial support are generally more cost effective than intensive psychosocial support and priority should be on broad access to standard psychosocial support rather than intensive access for a reduced number. Health regions will need to examine their own needs and costs of services to determine the optimal balance of funding for treatment types. The different components of opioid dependence treatment programs have differing requirements for training and infrastructure. Outpatient psychosocially assisted pharmacotherapy (including opioid agonist maintenance therapy, outpatient opioid withdrawal, outpatient relapse prevention) requires as a minimum medical staff, dispensing staff and psychosocial support staff.

3.3 Diagnosis and assessment

Patient history and self report of drug use can be relied upon in most circumstances for making a diagnosis of dependence but they should be correlated with other methods of assessment, including the clinical examination and history from family and friends. Urinalysis should not be used to diagnose presence or absence of dependence. Clinicians should differentiate between dependence and harmful use as it has implications for the appropriate treatment strategy. Previous history of opioid

dependence and treatment should not exclude patients from further entry to treatment programs.

Diagnosis of opioid dependence

One important role of the assessment process is to confirm the diagnosis of opioid dependence. In particular the degree of neuroadaptation must be determined before the administration of methadone or buprenorphine. The international classification of diseases (10th edition) defines opioid dependence a cluster of physiological, behavioural, and cognitive phenomena in which the use of opioid takes on a much higher priority for a given individual than other behaviours that once had greater value. A central descriptive characteristic of the dependence syndrome is the desire (often strong, sometimes overpowering) to take opioid (which may or may not have been medically prescribed). There may be evidence that return to substance use after a period of abstinence leads to a more rapid reappearance of other features of the syndrome than occurs with nondependent individuals.

How should the diagnosis of opioid dependence be made?

Rec: The diagnosis of opioid dependence and other medical conditions should be made by trained health care personnel. If the diagnosis justifies an agonist maintenance treatment it should be accomplished by a trained physician. Social conditions should be determined by social workers or staff trained in social conditions.

Support of recommendation: expert opinion*

Rec: Patient history and self reported drug use are generally reliable, but for making a diagnosis of drug dependence other methods of assessment including and history from family and friends, the clinical examination and relevant investigations should take into account.

The ICD-10 diagnostic criteria for opioid dependence:

A definite diagnosis of dependence should usually be made only if three or more of the following have been experienced or exhibited at some time during the previous year:

- a strong desire or sense of compulsion to take opioid.
- difficulties in controlling opioid-taking behaviour in terms of its onset, termination, or levels of use.
- a physiological withdrawal state when opioid use has ceased or been reduced, as evidenced by: the characteristic withdrawal syndrome for opioid; or use of the same (or a closely related) substance with the intention of relieving or avoiding withdrawal symptoms.
- evidence of tolerance, such that increased doses of opioid are required in order to achieve effects originally produced by lower doses (clear examples of this are found in opiate-dependent individuals who may take daily doses sufficient to incapacitate or kill non-tolerant users).

- progressive neglect of alternative pleasures or interests because of opioid use, increased amount of time necessary to obtain or take the substance or to recover from its effects
- persisting with opioid use despite clear evidence of overtly harmful consequences, such as depressive mood states consequent to periods of heavy substance use, or drug-related impairment of cognitive functioning; efforts should be made to determine that the user was actually, or could be expected to be, aware of the nature and extent of the harm.
- Narrowing of the personal repertoire of patterns of opioid use has also been described as a characteristic feature.

It is an essential characteristic of the dependence syndrome that either opioid taking or a desire to take opioid should be present; the subjective awareness of compulsion to use drugs is most commonly seen during attempts to stop or control substance use. This diagnostic requirement would exclude, for instance, surgical patients given opioid drugs for the relief of pain, who may show signs of an opioid withdrawal state when drugs are not given but who have no desire to continue taking drugs.

Rec: Clinicians should differentiate between dependence and harmful use of all substances used as it has implications for the appropriate treatment strategy.

Strength of evidence: *expert opinion**

Assessment

Other important functions of the assessment are to determine physical, psychological and social health care needs. Included in the assessment should be past treatment experiences, living conditions, legal issues, occupational situation, social and cultural factors, that may influence drug use.

Recommendations

Rec: A detailed individual assessment of treatment needs includes: past treatment experiences; medical and psychiatric history; living conditions; legal issues; occupational situation; and social and cultural factors, that may influence drug use.

Rec: Patients should have proof of identity before commencing treatment with controlled medicines. The patient must be able to give informed consent before treatment.

Rec: Voluntary testing should be offered as part of an individual assessment, accompanied by pre- and post- test counselling.

In places in which the prevalence of HIV is high in injecting drug users, HIV testing should be offered on an "opt out", rather than an "opt in" basis, because of risk to others. Serology testing for Hep B and Hep C testing should be considered, given the availability of treatment for both viruses and a vaccine for hepatitis B.

Rec: All patients who have not been exposed to hepatitis B should be vaccinated against it, with consideration given to accelerated vaccination schedule to improve completion rates.

Rec: Voluntary pregnancy testing should be offered as part of an individual assessment. Pregnancy testing should be offered to all women as it may influence the choice of treatment.

Urinalysis alone should not be used to diagnose presence or absence of dependence but can offer additional information which should be interpreted in the light of other aspects of the assessment. A negative urine drug screen, in the absence of withdrawal features on examination would indicate a low level of neuroadaptation and should prompt caution in the use of sedative medication. Urine testing is also useful to identify other unknown substances that have been ingested. On the other hand, waiting on results of urinalysis to confirm dependence can delay entry or be a barrier to appropriate treatment programs and can be expensive. Where they are affordable, it is suggested that urine drug screens be routinely collected as part of the assessment although treatment should not be delayed unless the remainder of the assessment raises doubts about the diagnosis. Naloxone challenge testing should not be routinely used to confirm the current neuroadaptation as it can induce significant withdrawal effects and the same information can be gathered from urine drug screening. Sometimes it is not possible to make a complete assessment on one day. The patient may be intoxicated, or in withdrawal or in crisis and have limited time. It may be necessary to make an initial plan based on the initial assessment which will then evolve over time with more comprehensive assessment and the response to initial treatment.

3.4 *Management*

Provision of care

Pharmacotherapy of opioid dependence should be developed as a part of an overall treatment system that includes other treatment modalities to ensure that available treatment options match diverse, multiple and changing needs of people with opioid dependence. Pharmacological treatment of opioid dependence can be provided in primary health care, expanding treatment coverage. To achieve better coverage and treatment outcomes, pharmacological treatment of opioid dependence should be provided free of charge, or covered by health insurance. The choice of treatment for an individual should be based on a detailed assessment of the treatment needs, evidence-based appropriateness of treatment to meet those needs, patient acceptability, and treatment availability. Voluntary testing of blood born diseases should be offered as part of an individual assessment, accompanied by pre- and post- test counselling. Health care providers involved in the treatment of an individual, and patients themselves, should have access to patient data according to national regulations. Central registration of patients receiving agonist treatment is acceptable and is recommended, if feasible,

and if access to the register is restricted to health authorities. Involuntary discharge from treatment is justified only if there is repeated violence, or there is evidence of diversion or dealing on the treatment premises. Noncompliance with program rules should not be a reason for involuntary discharge.

Programme duration

In some cases, a simple and short-term intervention such as assistance with opioid withdrawal will result in an immediate and lasting improvement. However, in many others, treatment will have to be regarded as a long-term, or even a life-time process, with the occasional relapse. The aim of treatment services in such instances is not only to reduce or cease opioid use, but also to improve their health or social functioning gradually, to encourage them to try again, or to avoid some of the more serious consequences of drug use. This does not imply that practitioners should assume that treatment is unsuccessful in such patients. On the contrary, treatment should be viewed as supporting the natural and long-term process of change and recovery. In this context, the start of the treatment process is a time for the clinician and the patient to consider the current circumstances and, in the light of previous experiences, make plans towards mutual treatment goals.

Staffing/ Competencies

- Medical staff

Medical staff are required for prescription of pharmacotherapy. They should also play a leading role in the assessment and discussions around treatment matching. In specialist clinics, medical staff should be supervised by a medical or psychiatric specialist in the treatment of substance dependence. In generalist settings, general practitioners and other medical staff should have a minimal level of training in the diagnosis and treatment of opioid dependence. This will vary depending on the undergraduate training in the field of substance abuse in that setting, the specific requirements for training can be determined in consultation with the specialist group caring for opioid dependent patients in that health area. Because of the potential for methadone and buprenorphine to do harm if prescribed inappropriately, many countries have a system of licensing medical staff to prescribe opioid agonist maintenance treatment. Ideally, all medical staff working in the field of substance abuse should have some avenue for clinical supervision, be it from peers, senior colleagues or professional supervision. This helps to avoid inappropriate prescribing and maintain professionalism between medical staff and patients. To increase efficiency, medical staff may delegate some of their responsibilities to nursing and other health care staff, in accordance with local regulations. Because of the cost and availability of medical staff, in many occasions nursing and other health care staff may have more experience than medical staff and this should be reflected in a multidisciplinary approach to decision making.

- Psychosocial support staff

Traditionally psychosocial support staff have come from a variety of professional and non professional backgrounds. Many staff have been substance dependent themselves. To ensure professionalism and consistency of service delivery, a certain minimal training in professionalism and substance dependence is advisable. Further training requirements depend on the nature of the psychosocial intervention being offered.

Rec: National health authorities should ensure that treatment providers have sufficient skills and qualifications to use controlled substances appropriately. These requirements may include compulsory post graduate training and certification, continuing education and licensing.

3.5 *Ethical principles of care*

Ethical principles should be considered with clinical trial evidence when making clinical decision for the treatment of dependent opioid users, respecting the human rights of opioid dependent individuals at all times. Treatment decisions should be based on standard principles of medical care ethics, with equitable access provided to treatment and psychosocial support that best meet the needs of the individual patient. Treatment should respect and validate the autonomy of the individual, with patients being fully informed about the risks and benefits of treatment choices. The use of legal coercion into treatment for opioid dependence should respect basic ethical and legal principles. Furthermore, programs should create supportive environments and treatment relationships to facilitate treatment, providing co-ordinated treatment of co-morbid mental and physical disorders and addressing relevant psychosocial factors. Substance dependence should be treated as a health and not a legal problem. Also taking into account multiple medical problems associated with opioid dependence and nature of pharmacological treatment, health care sector should be given a priority for provision of pharmacological treatment for opioid dependence.

Involuntary discharge and other forms of limit setting

Outcomes after involuntary discharge from treatment are poor, with relapse to heroin use occurring in 75% of patients (Kornor & Waal, 2005).

Are there reasons for involuntary discharge from treatment?

Rec: Involuntary discharge from treatment is justified only if there is repeated violence, or there is evidence of diversion or dealing on the treatment premises. Noncompliant with program rules should not be a reason for involuntary discharge.

One of the primary responsibilities of a treatment service is to protect its staff and patients from harm. If a situation arises in which the past behaviour of a patient would indicate that there is a significant risk of harm to other patients or staff then the treatment service must act to reduce that risk, discharging the patient if necessary. Such situations are potentially avoidable if the patient's behaviour is identified and managed at an earlier stage. Sometimes called "limit setting", the effective treatment service will have clear boundaries on what is and what is not acceptable behaviour and will apply

the limits consistently and transparently to all patients. To avoid replicating the rejection that patients experience from other parts of society, limit setting must have a graded response including positive feedback for "good behaviour", minimal responses such as being refused a dose while intoxicated, and final responses such as treatment discharge and calling the police. Application of excessive responses for minor breaches of rules will result in many people being discharged when they could have gone on to do well from treatment. Application of no responses to significant breaches of rules risks harm to other patients and staff, and also does not assist the patient in question. Each service will have to decide on its own rules and where it sets its limits depending on cultural norms, the goals of treatment in that setting and the political environment which allows the treatment to continue. Treatment rules are often very different for a withdrawal facility or therapeutic community aimed at abstinence to a opioid agonist maintenance program aimed at reducing mortality and morbidity associated with opioid dependence and improving quality of life. Whatever limits are set, it is vital that they are consistently applied by all treatment staff. In this way patients will learn quickly what the limits are. Some patients will push the boundaries when there is a perceived difference in application of limit setting by staff. Sometimes called "splitting", this risks setting treatment staff against each other with resulting poorer outcomes for the patients. Even if an incident is serious enough to warrant abrupt discharge, agencies should use this as an occasion to review whether they have done all they can not to provoke or permit such behaviour. Treatment services should have a mechanism of reporting incidents when they occur, including "near misses" and unexpected adverse outcomes, which should be reviewed regularly by a team including someone responsible for the clinical governance of the service. Initiatives to reduce such incidents might include measures to train staff in non judgemental and non-confrontational communication strategies, reducing waiting time for appointments and medication, frequent review of patient treatment, family and employment friendly practices, and the presence of security.

Are there special measures to be taken before involuntary discharge?

Rec: Before involuntary discharge, reasonable measures to improve the situation should be taken including re-evaluation of the treatment approach taken.

If the situation does not warrant immediate discharge for the safety of staff and other patients than attempts should be made to resolve the situation without discharge, particularly if discharge is to no treatment. Patients should understand what is expected of them, and there should be clear communication when behaviour crosses those boundaries. When alternative options are not appropriate or have been exhausted, attempts should be made to transfer the patient to another treatment service.

Patient records

Rec: Medical records should include treatment history, present health and social status, diagnosis, treatment plans and their revisions, referrals, consent, prescribed drugs, other medical and social interventions and laboratory findings.

Every contact between the health service and the patient should be recorded in the medical record. The record should be contemporary and clearly legible. Each entry should be signed and dated.

Rec: Health care providers involved in the treatment of an individual, and patients themselves, should have access to patient data according to national regulations.

Rec: Generally health care providers or other personnel involved in patient treatment cannot share information about patients with police and other law enforcement authorities, except if a patient approves, or if required by law.

In some circumstances, professional standards may be to breach confidentiality, for example if the life of the patient is at risk or if the life of a child is at risk. In these situations, professional staff should balance the rights of the patient to privacy against the duty to protect and seek advice from their professional body if unsure. Such breaches of confidentiality are generally allowed under law, or may in some cases be required by law. As a general rule, patients should have access to their own medical records. This may be limited in some situations if it is not in the patient's best interest to view his or her own records.

Registration of patients

Rec: Central registration of patients receiving agonist treatment is acceptable and is recommended, if feasible, and if access to the register is restricted to health authorities.

The benefit of central registration of patients is that it prevents patients from receiving methadone or buprenorphine from more than one source. It can also be used to limit access to other controlled medicines requiring central approval, such as other opioids. The adverse effects of central registration are that it has the potential for breach of privacy and this may deter some patients from entering treatment, it can delay the commencement of treatment, and it uses resources which could otherwise be used for treatment.

Should patients have proof of identity before entering treatments?

Rec: Patients should have proof of identity before commencing treatment with controlled medicines

In most countries, writing a prescription requires identifying the patient, however in some countries anonymous prescription for methadone is allowed. Central registration is not possible without identifying patients.

Public vs. private treatment

Should the public health sector be involved in provision of treatment?

Rec: Funding and equitable access to treatment should be assured for the appropriate treatment approaches in each national situation, according to the burden of disease.

If the country has a public universal healthcare system, then this should include access to opioid dependence treatment.

Payment for treatment of opioid dependence

Should patients be required to pay for their pharmacological treatment of opioid dependence?

Rec: To achieve better coverage and treatment outcomes, pharmacological treatment of opioid dependence should be provided free of charge, or covered by health insurance.

Supervision of methadone/buprenorphine

Should methadone and buprenorphine be supervised?

Research indicates that diversion will occur with both methadone and buprenorphine if they are unsupervised. With buprenorphine, the extent of diversion will also depend on the degree of supervision, as it is easier to divert a tablet placed under the tongue than a liquid. The main problems with methadone diversion are the risk of methadone injecting and fatal overdose in non dependent people. The main problems with buprenorphine diversion are non-medical use of buprenorphine with potential development of dependence syndrome, the risks associated with injecting buprenorphine (Hepatitis C, HIV, endocarditis, local infections). On balance, initiating treatment with supervised dosing, assessing response to treatment, and subsequently allowing unsupervised doses to patients who demonstrate stability, appears to: have a substantial effect in reducing diversion, probably not diminish efficacy, and have support from consumers. The key elements of “stability” appear to include housing, employment, not being dependent on multiple drugs, and ceasing injecting after entering treatment. Supervision of doses of methadone and buprenorphine is recommended for all patients unless they have demonstrated that they are a low risk of diversion.

Are there measures to minimize diversion?

Rec: Normal legal restrictions, staff training and adequate take away policy can minimize diversion.

What are conditions for take home dosages?

Rec: Take home dosing can be recommended when stabilization of dose and social situation are achieved, and when there is a low risk of diversion.

Rec: To optimize the sustainability of programs, there should be systems to prevent or minimize diversion of pharmacotherapy, and to monitor the benefits of treatment. As a minimum, this would include systems that monitor the extent of diversion.

Appendix

List of natural, synthetic and semi-synthetic opioids (Brunton, Lazo & Parker, 2005)

Natural opioids

Endogenous opioids

Endorphins

Dynorphins

Enkephalins

Alkaloids found in opium

Morphine

Thebaine

Codeine

Papaverine

Semi synthetic opioids

Diacetylmorphine (heroin)

Dihydrocodeine

Hydrocodone

Hydromorphone

Nicomorphine

Oxycodone

Oxymorphone

Synthetic opioids

Anilidopiperidines

Fentanyl

Alphamethylfentanyl

Alfentanil

Sufentanil

Remifentanil

Carfentanyl

Ohmefentanyl

Phenylpiperidines

Nocaine

Pethidine (meperidine)

Ketobemidone

MPPP

Allylprodine

Proline

PEPAP

Diphenylpropylamine derivatives

Propoxyphene

Dextropropoxyphene

Dextromoramide

Bezitramide

Piritramide

Methadone

Dipipanone

Levo-alphaacetylmethadol (LAAM)

Loperamide

Diphenoxylate

Benzomorphone derivatives

Pentazocine

Phenazocine

Oripavine derivatives

Buprenorphine

Etorphine

Morphinan derivatives

Butorphanol

Nalbuphine

Levorphanol

Levomethorphan

Others

Dezocine

Lefetamine

Tilidine

Tramadol

Opioid antagonists

Nalmefene

Naloxone

Naltrexone

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11 Psychosocial interventions

Psychosocial, inpatient and residential treatments – guideline

Guidelines for treatment improvement

Moretreat-project

SORAD Stockholm
Sveden

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EUROPEAN COMMISSION
HEALTH & CONSUMER PROTECTION
DIRECTORATE-GENERAL
Directorate C - Public Health and Risk Assessment

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1 Introduction Psychosocial treatment

Psychosocial treatment is an expanding field in the context of treatment of drug dependence. There is no single method, but a set of different forms of psychosocial interventions offered to people. There are a vast number of psychosocial methods available for drug dependence, even if the methods on one hand might look very different; they have some things in common:

- Focus on the misuse.
- The treatment is structured around the patient/treatment.
- Sufficient amount of time for treatment.
- Focus on both the misuse and the psychological factors (Fridell 2007).

The psychosocial methods can be divided into supportive methods, re-educative methods and re-constructive or psychodynamic oriented methods (Berglund et al. 2001 p. 12). Table 1 shows an overview of different methods referred to as psychosocial treatment. A great deal of the material in this overview comes from the meta analysis the Swedish council of technology assessment in health care (SBU 2001, Berglund et al. 2001) which was an initiative to establish an evidence-based practice platform. However, this study has been subject for critique. For example Pedersen (2005) point out that there are problems in the comparison and in the different interventions categories. At the same time the SBU-study is an important pioneering piece of work in a relative new field of research.

Table 1:

Different categories of treatment, aims and methods. Developed after Berglund et al. (2003) and Models of care (2006).

| Method | Aim | Example of interventions |
|-----------------|--|---|
| Supportive | “The aim of supportive methods is to return the patient to emotional balance after a crisis and breakdown. In substance abuse, becoming drug-free is a goal. Symptom relief and new adequate, adjustment strategies are key objectives” (Berglund 2003 p. 326) | Institutional treatment Structure-enhancing interventions Case management |
| Re-educative | “Key goals include symptom relief, modification of evident behaviour, and active acquisition of new and more adaptive behaviours.” (ibid, p. 329) | Drug counselling 12-step model Contingency management Relapse prevention therapy |
| Re-constructive | “A common characteristic of dynamically oriented types of treatment is the focus on interaction between patient and caregiver, where generalisation of previous experiences, behaviours, and thought patterns to the current therapy situation (transference) provides the material for work and change. Goals are symptom relief and personality growth. Insight into one’s own reaction patterns and conflicts are viewed as a condition for change.” (ibid, p. 333) | Interpersonal psychotherapy |

Structured psychosocial interventions should according to the Models of care (2006, p. 43) be:

- Clearly defined.
- Evidence based.
- Delivered as part of clients care plan.
- Normally time limited.
- Delivered by a practitioner.
- Should be competent and adequate training.
- Should receive regular clinical supervision (Irving et al 1999).

The treatment should be identified within a care-plan and can be delivered individually or in group sessions. Due to the fact that the treatments are different in traditions, design, staff and outcome, it is difficult to compare them. What is clear is that some form of psychosocial treatment is better than no treatment at all (Berglund et al. 2003). There is no silver-bullet method, no single method is better than any other (Socialstyrelsen 2001).

1.1 Aims and objectives

Psychosocial treatment is not a single method, but includes different forms of therapies. The idea is that the therapist and the client should cooperate. The significance of this cooperation is to avoid direct confrontation and instead base the interaction on trust and understanding. A very important part of the treatment is that the patient should be active and learn about his or her specific situation, through self-exploration and data gathering. This data is a ground for discussion in the sessions with the therapist. The role of the therapist is to share knowledge about different factors that may be important reasons for drug- or alcoholic misuse. The aim is that the client should learn about those reasons and be able to understand why he or she has problems and what to do about it. An important part of the therapy is for the problematic drug users to become more aware of the negative consequences of the dependence and instead develop a larger self-control, become calmer and more active when it comes to choices of life. Different forms of therapy includes role playing and concrete practices when it comes to different social areas, such as not being late to appointments, buying food and contact with the social governments.

Inpatient drug and alcohol misuses treatment programmes are designed for drug and alcohol misuse disorder (Models of care 2006 p. 90). The aim is to support the addict both in order get free from his/her drug use, but also help with creating a social context (Berglund et al. 2001).

The residential treatment takes place in many various settings and includes both long-term and short-term placements in residential treatment facilities, prisons and other criminal justice facilities, involuntary institutions and halfway houses. In the Models of care, Residential treatment is described as follows:

“Residential rehabilitation programmes aim to engender and maintain abstinence in a residential setting. It is recognised that people with complex problems related to drug misuse may require respite and an intense programme of support and care which cannot realistically be delivered in a community or outpatient setting.” (Models of care p. 99).

2 Research evidence base

Previous research shows that that one way to succeed is to combine psychosocial treatment with some substitution maintenance treatment (Berglund et al. 2001). In this

section we will discuss different psychosocial treatments and inpatient/residential treatment.

2.1 Counselling

The most common form of psychosocial treatment is different forms of care-planned counselling, and that is defined as: ‘...formal structured counselling approaches with assessment, clearly defined treatment, plans and treatment goals and regular reviews, as opposed to advice and information, drop-in support and informal key-working.’ (Models of Care 2002).

2.2 Cognitive behavioural therapy

Cognitive behavioural therapy (CBT) focuses on the interplay between the individual and the environment, and on solving problems. In the US Department of Health and Human services, brief interventions and brief therapies for substance abuse (TIP 34) it is stated that CBT represents:

“(...) the integration of principles derived from behavioural theory, cognitive social learning theory, and cognitive therapy, and it provides the basis for a more inclusive and comprehensive approach towards to treating substance abuse disorders” (Lawton Barry 1999, p. xxi).

Previous research has shown that CBT has especially good outcome on cocaine misuse treatment used in a long term perspective, and that CBT to be more effective than other forms of psychosocial therapy when treating patients with more severe dependence (Schulte et al. 2007). Berglund states that only psycho therapy (cognitive, family and dynamic therapy) shows good results for up to a year of treatment when it comes to treatment of opium addiction in combination with methadone treatment. But when it comes to randomised controlled studies and cocaine abuse cognitive therapy shows no significant effects other than higher retention. Over all, Berglund states, it is the psycho therapies that show the highest retention.

In NICE they write: “Evidence-based psychological treatments (in particular, cognitive behavioural therapy) should be considered for the treatment of comorbid depression and anxiety disorders in line with existing NICE guidance for people who misuse cannabis or stimulants, and for those who have achieved abstinence or are stabilised on opioid maintenance treatment.” (NICE, p. 14).

They also write that: “Cognitive behavioural therapy and psychodynamic therapy focused on the treatment of drug misuse should not be offered routinely to people presenting for treatment of cannabis or stimulant misuse or those receiving opioid maintenance treatment.” (p. 14).

The duration is flexible. Schulte et al (2007) write: “CBT has especially good outcomes in the long-term view and for different patient groups and especially for those with more severe dependence symptoms or co-morbid mental illness. It has been conducted

for cocaine dependence in a number of studies with good results, and also for other substances.” (Schulte et al. 2007, p. 88).

In the Socialstyrelsen (2007) it is pointed out that psychosocial treatment per se have effects on drug dependence, but no individual form of psychosocial treatment is superior to another. Family therapy dynamic forms of therapy and CBT are more effective when it comes to continued participation in treatment (Socialstyrelsen 2007, p. 138).

2.3 *Community Reinforcement Approach*

The Community Reinforcement Approach (CRA) aims to provide opportunities for the illicit drug user to re-structure his or her life situation. The approach aims to eliminate positive feelings of drug use and instead increase the positive attitude towards a life free from drug dependence. In many ways CRA is similar to Motivational Interviewing (MI) in that both therapies tries to enhance the clients will for change. There should be clear goals with living a drug free life, normally patient’s signs a “contract” with the care giver, saying that for a time being, a week, a month - that he or she will not use illicit drugs. CRA is suitable for both residential and out patient treatment, but due to the attempt to affect the client’s surroundings and that the patient then can stay in a familiar surrounding. CRA is mainly used as a method mainly to treat cocaine abuse. (Berglund et al. 2003).

“Community reinforcement and family training is a manualised treatment programme that includes training in domestic violence precautions, motivational strategies, positive reinforcement training for carers and their significant other, and communication training. However, the primary aim of the treatment appears to be encouraging the person who misuses drugs to enter treatment. This intervention consists of up to five sessions.” (NICE, p. 202).

Flexible settings, often in inpatient programmes and in combination with vouchers, but also in outpatient treatment contexts (Azarien, et al. 1982).

2.4 *Group therapy*

Group therapy is a form of counselling where one or several therapists treat groups of clients together as a group. Examples of treatments that effectively can be carried out in groups are cognitive behavioural therapy or interpersonal therapy. It draws on a combination of different theories (NHS 2002).

Studies have found that well-structured 12 step therapy and well-structured cognitive behavioural therapy both produce equal outcomes and are preferred in routine clinical care. An important part is the degree of interactive acquisition, i.e. how well the individuals in the group take ownership of the problem. Since all members in the group are in a similar situation it might be easier to discuss the problems and get social support (NHS, 2002). At the same time the drug addicts’ problems may be hard to

handle also in a group discussion. Group therapy has showed to be particularly effective when it comes to treating depression (McDermut W et al. 2001).

2.5 *Motivational interviewing*

Motivational interviewing (MI) was developed by the clinical psychologists Miller and Rollnick (2003). Motivations can be seen in relation to something or someone. It may not be something that a person lacks or have, but is changeable and flexible and can be influenced. It can change rapidly and is very affected by the state of mind of the person; abstinence can affect an individual's motivation. The starting point must be the patient's own experiences and emotions. Care givers must try to understand the logical reactions, based on previous experiences, that the patient makes, and from there point out the difference in the experienced situation and how the patient would like it to be. MI states very clearly that a weak motivation is not to regard as lack of motivation, motivation is changeable, not a personal trait.

Motivational Interviewing (MI) is often used as a brief intervention. It focuses on enhancing patients' motivation to change behaviour. MI is both guiding and focused of the patient. The main idea is that the therapist should use the users' feelings for the drug use as a starting point in the therapy. He or she should be supportive and optimistic regarding the chances of success (Socialstyrelsen, p. 14). The method is often used together with medical treatment, such as Subutex. The time of treatment is rather short and should be limited in time. (Socialstyrelsen, p. 15).

In a methadone study, Saunders investigated MI's effect as a compliment in treatment. Among the heroine abusers that received MI, reported fewer drug related problems, fewer relapse and stayed longer in the methadone programme. According to Schulte et al (2007) MI has "especially good outcomes for patients with lower initial motivation than for those with higher initial motivation" (p. 91). The method shows good results for cannabis use and heroin use. They conclude that there are moderate evidence that.

2.6 *Relapse prevention therapy*

Relapse prevention therapy (RPT) focuses on different ways to handle breakdowns when the patients are trying to change their behaviour. It can be both a treatment programme for use following the treatment of addictive behaviours and used as stand-alone treatment programme. RPT aims to provide users with self-control techniques in order to identify risks and cope with changes in their behaviour to avoid relapse. RPT is a combination of behavioural and cognitive interventions and emphasises self-management (Parks and Marlatt 2000).

Carroll et al. (1991) found in a study evidence that RPT helped users avoid relapse after finished treatment. This was most significant for cocaine abusers. After 6 - 12 month the cocaine abusers which participated in the study and got a combination of relapse therapy and CBT were still drug free.

Teaching clients strategies to: understand relapse as a process, identify and cope effectively with high-risk situations, cope with urges and craving, implement damage control procedures during a lapse to minimize its negative consequences, stay engaged in treatment even after a relapse, and learn how to create a more balanced lifestyle.

2.7 *Contingency management*

Contingency management focuses on changing a learnt behaviour into a new one. This is done by different means of rewarding good behaviour, for example through shopping vouchers. In NICE Clinical guidelines they write:

“Drug services should introduce contingency management programmes (...) to deduce illicit drug use and/or promote: Engagement with services for people receiving methadone maintenance treatment Abstinence and/or engagement with services for people who primarily misuse stimulants” (NICE 2007, p.10).

2.8 *The 12 step programme*

The 12 step programme is based on cognitive theories and traditions. The 12 step programme has its traditions in the US, and has its base in AA and NA group meetings. The 12 step programme is per say no method, since it is based on the individuals own personal experiences and not on scientific research. The 12 step programme has a strong position in both residential and outpatient care and is used as a control condition for other treatment interventions. (Berglund et al. 2003)

2.9 *Case-Management*

Supportive methods aim to let the patient find an emotional balance and a drug-free life. Methods referred to as supportive is counselling, relaxing, acupuncture, environmental therapeutic methods, case-management and pharmacological forms of treatment. For the patient the goal is to find new life strategies and to ease the symptoms.

CMSA defines case management as “a collaborative process of assessment, planning, facilitation and advocacy for options and services to meet an individual's health needs through communication and available resources to promote quality cost-effective outcomes. “ (CMSA 2008).

Usually case-management are divided into four models (Vanderplachen et al., p. 138);

- Generalist or Standard Case Management - close interaction between case manager and client.
- Assertive community treatment (ACT) /intensive case management – the aim is to work as a team of case.
- Clinical models – combines case management and clinical actives.
- Strength based case management – focusing on the clients strengths and the use of informal help networks area of expertise in order to get an enhanced possibility to give the client the right support.

Case management has been used in drug treatment since the beginning of the 1980s. It is based on the recognition that the misuses often have significant problems in additions to their drug misuse. Case management is most often used as a treatment in the USA and Canada, but there have been European programmes in Germany, Belgium and the Netherlands. The intention with case management can be described as providing continuous supportive care when it comes to contact with other helping resources (Wanderplasshen et al. 2005). Case managements have five core functions:

- Assessment
- Planning
- Linking
- Monitoring
- Advocacy

2.9.1 Outcomes of case management

Earlier studies from Lightfoot et al. (1982), Willenbring, et al. (1991), report positive outcomes of case management. There is ongoing research which model suits which population best (Wanderplasshen et al. 2005).

Generalist or Standard Case Management

Wanderplasshen et al. states that the effects of applying the standard case management model mainly was about “improved treatment participation and retention” (ibid, p. 143). Positive effects reported in uncontrolled studies “could not always be maintained over time.” (ibid, p.144). They conclude:

“Some evidence is available concerning the effectiveness of generalist case management for enhancing treatment participation and retention. Generalist case management might be appropriate for this purpose among several substance abusing populations, but needs to combined over time with other interventions or with more intensive or specialised models of case management in order to affect clients’ psychosocial functioning.” (ibid p. 144).

Assertive community treatment (ACT) /intensive case management

Wanderplasshen et al. found nine randomized and controlled trials. Five of those showed significant differential effects of intensive case managements ACT when compared with other interventions (p. 142). They point out that there are few repetitions of results between the studies. They write:

“Intensive case management appears to be most effective for extremely problematic substance abusers, such as chronic public inebriates and dually diagnosed individuals, since this intervention helps to stabilize and improve psychosocial functioning and to reduce utilization of expensive inpatient services.” (ibid. p.142).

In uncontrolled studies there is evidence that intensive case management is effective, something not present in controlled studies due to the lack of repetition of results between studies.

Clinical Case Management

Wanderplasshen et al. writes that since there are no randomized and controlled trials that have assessed the effectiveness of the Clinical Case Management there is no evidence. (ibid, p. 144).

Strength-based case management

According to Wanderplasshen et al. (ibid) little evidence is available when it comes to the effectiveness strength-based case management. They write:

“We conclude that some evidence exists for the effectiveness of strengths-based case management to improve employment functioning and treatment participation and retention. Given its role in addressing denial and resistance, its appreciation among clients and its potential positive effects, a strengths-perspective on case management might help to enhance treatment participation and retention among persons with little or no motivations for change.” (ibid, p. 143).

2.10 *Inpatient and residential treatment*

It can be very difficult to perform methodological randomized controlled studies within an institution or organisation. The main reason is that, even if the method used is similar between the organisations and institutions, the result may vary due to various and different settings such as organisation structure, management and information. For example Fridell (1996) argues that the organisation of the care giver affects the actual care. Although we are discussing the same kind of intervention it differs a great deal from country to country, and also within different countries. This makes it hard to compare studies made in different countries and draw conclusions to create an evidence base.

American studies have reported that the outcome of long-term residential rehabilitation programmes is in relation to how long the patient stayed in the programme. Also, long-term residential programmes have shown to be cost-effective when it comes to treating problematic highly criminal clients. As well as short-term and other less intense programmes are better adapted for less problematic clients. (Models of Care, 2002)

The Models of Care reports that there is limited evidence that TC is superior to other inpatient/residential treatments. When compared to community residence, there were no different evidence concerning treatment completion, but the day TC residential group had better results in attrition and abstinence rates. (Models of Care 2002 p 105).

The difference between inpatient and residential treatment lies in where it takes place and how it is organized. Inpatient treatment takes place in a controlled environment, for example in a hospital. The patient stays at the hospital during the whole treatment

period. Residential treatment, on the other side, means that the misuser participates in a programme providing both specialised non-hospital based and general interdisciplinary services twenty-four hours a day, all week long. In the residential environment the misuser receives services from staff.

In the UK most residential programmes require that the patient is drug-free on entry but some residential programmes offers detoxification facilities. (Models of Care 2002) In general there are three types of residential treatment, therapeutic communities, 12-step programmes and various forms of general Christian houses. In return, the programmes within the treatment can be either long-term or short-term treatment. (ibid)

According to NIDA therapeutic communities are: drug free programmes in a residential setting where the treatment settings levels are increased due to the person's personal involvement (NIDA 1988). Group pressure and peer influence is used to help the individuals to re-learn social norms and skills. TC's are highly structured programmes where the participants participate in the residential treatment for a longer time, usually 6 to 12 months.

The size of a residential treatment facility can vary in size. Usually the clients prefer to relocate for treatment and travel away from their familiar surroundings. (Models of Care 2002).

2.10.1 Short-term residential rehabilitation

Short-term residential rehabilitation has a planned duration for six to 12 weeks. The patient usually takes part of a medically supervised withdrawal as a first step.

2.10.2 Long-term residential rehabilitation

The long-termed residential rehabilitation does not normally include a medically supervised withdrawal as a first treatment face. The duration for the programmes varies a great deal. But according to the Models of Care the median time in treatment is 10 weeks. (Models of Care) Normally long-term residential treatment is an ongoing process 24 hours a day for 12 weeks and longer. The most well known form of long-term residential treatment is the therapeutic communities (TC) but there are also other forms of treatment.

2.10.2 Halfway houses

Halfway houses are also referred to as low-intensity rehabilitation. This is often the last step of a long-term residential treatment. Halfway houses are normally linked to the original programme, the clients are supposed to live drug free and the halfway house can be seen as a preparation for a life after treatment. The duration of halfway houses varies a great deal. (Models of Care 2002).

2.10.4 Therapeutic communities

A therapeutic community (TC) is not a method, but rather a model for how to organize treatment of drug and alcohol misuse. The aim is to change the conditions for treatment through changing the abusers norms and values. According to Models of Care they are “based on democratic and de-institutionalised principles and aim at abstinence”. TC’s normally is group based and offer various forms of therapy. (Models of Care 2002).

2.10.5 Compulsory/involuntary treatment

NIDA, the National Institute on Drug Abuse in the USA, defines compulsory care as: Compulsory treatment may be defined as activities that increase the likelihood that drug abusers will enter and remain in treatment, change their behaviour in a socially desirable way, and sustain that change. (NIDA 1988 p. 1).

In general there are three different kind of reasons how a person end up in compulsory care:

- The Criminal justice system: a person is, without consent, sentenced to compulsory treatment in a treatment facility due to drug related crime. Or:
- A person is sentenced to treatment within a prison without consent.
- If a person who is undergoing voluntary treatment demands compulsory treatment if he/she tries to end treatment in advance. (LVM-utredningen 2004).

Compulsory care can be problematic. The clients/patients can have great difficulties adjusting in the settlement. (Kinnunen A 1994) It is very difficult to talk about results when it comes to compulsory treatment. There are no randomised studies about the effect of compulsory treatment available. A study made by Gerdner, where 47 persons who had had compulsory treatment under the period 1998-2000, showed no positive or negative effect of the treatment (Gerdner A 2000).

2.11 *Key findings*

In the fact sheet below key findings are presented. There are several guides available covering the research area of psychosocial, inpatient and residential treatment. The main source of information for this guideline comes from NICE, Berglund and Schulte et al (2007) and NHS.

| Method/issue | Key point | Strength of evidence | Source |
|---------------------------------------|---|----------------------|-------------------------|
| Psychosocial interventions in general | Higher intensity in the treatment does not lead to better outcome | ** | (Schulte, p. 87) |
| | Psychosocial interventions in addition to pharmacological treatment improve treatment outcomes in detoxification | **** | (Schulte, p. 87) |
| | Any psychosocial treatment is better than none | **** | |
| | Effectiveness of treatment depends on staff training | | |
| | Treatment for drug misuse should always involve a psychosocial component | | |
| Cognitive-Behavioural Therapy | In moderating cocaine use CBT is more effective than the 12-step approaches | **** | (Shulte, p. 91) |
| | Homework compliance in a CBT treatment improves outcomes | ** | (Shulte, p. 91) |
| | The effects of cognitive-behavioural interventions for cocaine dependence may be more durable than other psychotherapies | *** | (Shulte, p. 91) |
| | “Cognitive behavioural therapy and psychodynamic therapy focused on the treatment of drug misuse should not be offered routinely to people presenting for treatment of cannabis or stimulant misuse or those receiving opioid maintenance treatment” | | |
| | Evidence-based psychological treatments (in particular, cognitive behavioural therapy) should be considered for the treatment of co-morbid depression and anxiety disorders in line with existing NICE guidance for people who misuse cannabis or stimulants, and for those who have achieved abstinence or are stabilized on opioid maintenance treatment. | | NICE |
| Motivational Interviewing (MI) | Motivational Interviewing (MI) is effective to enhance motivation, retention rate, and reduction of use | | (Schulte et. al, p. 93) |
| | Motivational Interviewing can help even as a single-session intervention | ** | (Schulte et al. p. 93) |

| Method/issue | Key point | Strength of evidence | Source |
|--|---|----------------------|------------------------------|
| | MI has “especially good outcomes for patients with lower initial motivation than for those with higher initial motivation” (p. 91). | | (Schulte et al. p. 91) |
| | “Methods of Motivational Interviewing (MI) have shown effectiveness particularly for those with initial low motivation and less severe dependency.” | | (Schulte et al. 2007 p. 114) |
| Community Reinforcement approach (CRA) | Community Reinforcement Approach (CRA) in combination with vouchers as positive reinforcers can reduce cocaine use | | |
| Contingency management (CM) | Vouchers and prizes as reinforcers show effectiveness on the short-term to reduce cocaine use | *** | (Schulte et al. p. 99) |
| | The magnitude and immediacy of reinforcement may be critical to the efficacy of vouchers | ? | (Schulte et al. p. 99) |
| | Contingency management in conjunction with pharmacotherapy may increase treatment retention and compliance for opiate dependence | *** | (Schulte et al. p. 99) |
| Counselling & group counselling | Structured counselling can lead to moderation of cannabis and cocaine use | ** | (Schulte et al.) |
| | Counselling can be effective in different settings and combinations in reducing drug use and enhance treatment retention | * | |
| Therapeutic Communities (TC) and other inpatient treatment | TC are effective in maintaining abstinence, but not more than other inpatient treatment approaches. | ** | (Schulte et al. p. 106) |
| Optimal length | Limited strength of evidence that best outcomes are associated with treatment duration of at least three month with at least weekly sessions. | * | |
| | No significant difference between groups meeting twice or trice a week. | ? | |

| Method/issue | Key point | Strength of evidence | Source |
|---|--|----------------------|------------------|
| Structure | Highly structured relapse prevention seems to be more effective than less structured interventions, with regard to cocaine users with co-morbid depression | ? | |
| Residential and inpatient settings | The same interventions as is available in community settings should be available in residential and inpatient settings | | (Nice, p. 14) |
| Relapse | People who have relapsed should have been offered an urgent assessment. Immediate access to treatment should be considered. | | (Nice, s. 14-15) |
| Strength of Evidence **** Strong evidence: High quality meta-analyses, systematic reviews including one or more RCT with a very low risk of bias, more than one RCT a very low risk of bias *** Moderate evidence: Limited systematic reviews, one RCT with a low risk of bias or more RCTs with a high risk of bias ** Some evidence: one RCT limited by research factors or more case-control or cohort studies with a high risk of confounding * Expert opinion ? Insufficient evidence/unclear/unable to assess (source: Schulte et al 2007, strength of evidence has been applied also to key findings from other sources based on this structure) | | | |

Table 2 – key findings, psychosocial, inpatient and residential treatment

3 Recommendations

An important finding is that psychosocial treatment per se have effects on drug dependence, but no individual form of psychosocial treatment is superior to another (see e.g. Socialstyrelsen 2007; Shulte et al. 2006; Berglund, 2003). In the following we will walk through the different methods and see what recommendations are related to access to care, pathway, other structural aspects and management aspects.

3.1 *Counselling*

Counselling can effectively be used in different settings and combinations in reducing drug use and enhance treatment retention (Schulte et al. 2007). Structured counselling can lead to moderation of cannabis and cocaine use (Schulte et al. 2007).

3.2 *Cognitive behavioural therapy*

CBT can be provided in many different settings e.g. privately founded care, through and within the primary care system, inpatient/residential care, etc. Treatment for drug misuse should always involve a psychosocial component (Schulte et al. 2007, p. 91)

Homework compliance can be used in a CBT to improve outcomes (Schulte et al. 2007, p. 91). Psychosocial treatment has effects on drug dependence, but no individual form of psychosocial treatment is superior to another. Family therapy dynamic forms of therapy and CBT are more effective when it comes to continued participation in treatment (Socialstyrelsen, 2007, p. 138).

3.3 *Community reinforcement approach*

The community reinforcement approach can be carried out in inpatient programmes and in combination with vouchers, but also in outpatient treatment contexts. Community Reinforcement Approach (CRA) in combination with vouchers as positive reinforcers can reduce cocaine use.

3.4 *Group therapy*

It is important that the individuals in the group take ownership of the problem. If all members in the group are in a similar situation it might be easier to discuss the problems and get social support (NHS 2002). Group therapy is particularly effective when it comes to treating depression (McDermut W et al. 2001)

3.5 *Motivational interviewing*

Care givers must try to understand the logical reactions, based on previous experiences, that the patient makes, and from there point out the difference in the experienced situation and how the patient would like it to be. Methods of Motivational Interviewing (MI) have shown effectiveness particularly for those with initial low motivation and less severe dependency.” (Schulte et al. 2007, p. 114). Motivational Interviewing (MI) can be used to effectively enhance motivation, retention rate, and reduction of use. Motivational Interviewing can help even as a single-session intervention.

3.6 *Relapse prevention therapy*

Highly structured relapse prevention seems to be more effective than less structured interventions, with regard to cocaine users with co-morbid depression. People who have relapsed should be offered an urgent assessment. Immediate access to treatment should be considered.

3.7 *Contingency management*

The staff needs to be trained in “appropriate near-patient testing methods and in the delivery of contingency management” (NICE 2007). Vouchers and prizes as reinforcers can be used on the short-term to reduce cocaine use. The magnitude and immediacy of reinforcement may be critical to the efficacy of vouchers. Contingency management in

conjunction with pharmacotherapy may increase treatment retention and compliance for opiate dependence (Schulte et al., p. 99).

3.8 The 12 step programme

The 12 step programme can be used in both residential and outpatient care. The 12 step programme can be used as a control condition for other treatment interventions. (Berglund et al. 2003).

3.9 Case management

Generalist case management might be appropriate for enhancing treatment participation and retention. It can be combined with other interventions or with more intensive or specialised models of case management (Wanderplassen et al. 2005, p. 144).

Intensive case management is most effective for extremely problematic substance abusers. It is also effective for treatment of chronic public inebriates and dual diagnosed individuals (ibid. p.142).

A strengths-perspective on case management might help to enhance treatment participation and retention among persons with little or no motivations for change (ibid, p. 143).

3.10 Inpatient and residential treatment

The same interventions as is available in community settings should be available in residential and inpatient settings. All the different psychosocial treatments should be carried out by professional staff. Short-term and other less intense programmes are better adapted for less problematic clients. (Models of Care 2002).

4 Final notes

Many of the studies in this chapter comes from the US, Canada and England. Very few of them comes from the rest of Europe. It can be hazardous to take a method from the US and use it in societies, which have other conditions, such as in Europe (Uffe Pedersen 2005). There is no single best method, and the research discussed in this overview many times point this out.

The few studies included in this guideline indicates that there is a scientific support for the use of psychosocial interventions. However, there are few studies and it is very difficult to draw any firm conclusion about which method is superior to another. It is indicated that all the different psychosocial treatments should be provided by professional staff. At the same time they are very flexible in their structure and can also to some degree be combined. One such combination is the use of methadone or subutex and psychosocial interventions. Further studies about the effects of psychosocial treatment, not at least based on European material, are recommended.

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12 Detoxification

Detoxification

Guidelines for treatment improvement

Moretreat-project

NAC, Kings College
London

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EUROPEAN COMMISSION
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1 Introduction

1.1 *Definitions*

Context

Detoxification denotes the clearing of toxins from the body of a patient who is intoxicated and/or dependent on substances of abuse. The term is also widely used to describe a set of interventions aimed at managing acute intoxication and withdrawal, so that the effects of drugs are eliminated from dependent users in a safe and effective manner (WHO, 2006). Supervised detoxification may prevent potentially life-threatening complications that might occur if the patient was left untreated. Detoxification can also be seen as a form of palliative care for those who want to become abstinent or must observe mandatory abstinence because of their legal situation or because they have been hospitalized (SAMHSA, 1995). Detoxification is often used as a first step in the patient's drug treatment career. For example, some residential facilities require patients to have become drug-free before entering treatment and some methadone maintenance programmes require patients to have at least attempted detoxification.

Philosophy and approach

Detoxification needs to be placed in the context of other treatment interventions, for detoxification alone does not produce long-term abstinence. Detoxification should be managed in a way that causes as little discomfort as possible. Many addicts are anxious about detoxification and have fears about the effects of withdrawal, deterring some people from seeking treatment. The discomfort of withdrawal symptoms may lead the patient to leave treatment.

As part of a continuum of care for substance-related disorders detoxification should consist of three essential components: evaluation, stabilization and fostering patient readiness for and entry into treatment (SAMHSA, 1995). Those people seeking detoxification should have access to all the components of the detoxification process no matter the setting or the level of intensity. All persons requiring treatment for substance use disorders should receive treatment of the same quality and appropriate thoroughness. Detoxification provides an important therapeutic encounter between the patient and the clinician and should be used as an opportunity to provide biomedical assessment, referral to appropriate services and linkage to treatment services (National Collaborating Centre for Mental Health, 2008a; SAMHSA, 1995). Detoxification should be delivered by staff who are competent in delivering the intervention and receive appropriate supervision (National Collaborating Centre for Mental Health,

2008a). It should also be remembered that detoxification is not often successful, particularly at the first attempt (UK. Department of Health, 2007).

In order to obtain informed consent, treatment staff should give patients detailed information about detoxification and attendant risks. This information should include:

- The physical and psychological characteristics of withdrawal
- The use of non-pharmacological approaches to manage or to cope with withdrawal symptoms
- The loss of opioid tolerance following detoxification and the resulting increased risk of overdose and death from illicit drug use that may be potentiated by the use of alcohol or benzodiazepines
- The importance of continued support, along with psychosocial and appropriate pharmacological interventions, to maintain abstinence, treat comorbid mental health problems and reduce the risk of adverse outcomes, including death (National Collaborating Centre for Mental Health, 2008a).

1.3 Relevance of the problem

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA, 2008) have estimated an average prevalence of problem opioid use of between four and five cases per 1,000 of the population aged 15-64 in Europe and Norway. While drawing attention to the limited data supporting these estimates, the EMCDDA further estimates that this rate suggests that 1.5 million people experience problem opioid use in Europe. Similar estimates for cocaine are not available for Europe as a whole but available for only three countries, Italy, Spain and the United Kingdom. Here the estimates from these countries are between three and six problem users of cocaine users per 1,000 adults aged 15-64.

Using its Treatment Demand Indicator data the EMCDDA has recorded opioids as the principal drug in around 40% of the drug treatment requests recorded in 2005. Recent data suggests a decrease in new requests for opioid treatment, with Bulgaria and the United Kingdom as the only European countries not reporting a decrease. In 2005, there were around 45,000 demands for treatment across Europe where cocaine was reported as the primary drug. Cocaine is reported as a secondary problem drug by around 15% of all outpatient clients. Most countries in Europe report a low proportion of cocaine users among all clients in drug treatment, although the Netherlands and Spain have reported high proportions of 35% and 42% respectively in 2004 (EMCDDA, 2008).

Benzodiazepines are infrequently the primary drug reported by those coming for treatment but are widely used by problem drug users. For example, around 25% of treatment clients recorded by the UK Drug Treatment Outcomes Research Study (DTORS) reported benzodiazepine use (Jones et al, 2007).

1.2 *Aims and objectives*

Aims of detoxification

The aim of detoxification is to eliminate or reduce the severity of withdrawal symptoms in a safe and effective manner when the physically dependent user stops taking drugs (WHO, 2006). Detoxification programmes should include the following elements:

- An assessment of the psychological, psychiatric, social and physical status of patients using defined assessment schedules
- An assessment of the degree of misuse and/or dependence on relevant classes of drugs, notably opioids, stimulants, alcohol and benzodiazepines
- To define a programme of care and to develop a care plan to carry out a risk assessment
- To prescribe medication safely and effectively to achieve withdrawal from psychoactive drugs
- To identify risk behaviours and offer appropriate counselling to minimise harm
- To assess the longer-term treatment needs of patients and provide an appropriate discharge care plan
- To assess and refer patients to other treatments as appropriate
- To monitor and evaluate the efficacy and effectiveness of prescribing interventions
- To provide referral to other services as appropriate (NTA, 2002)

Client groups served

Detoxification patients are those who meet International Classification for Diseases (ICD) 10 or Diagnostic and Statistical Manual (DSM) IV dependence criteria. This group comprises those who are seeking abstinence from their main problem drug. Patients may also be concurrently using opioids, benzodiazepines and stimulants.

Eligibility

Those who are physically dependent on one or more classes of drugs and have made an informed and appropriate decision to undergo detoxification should be eligible for detoxification. Those who have had at least one previous unsuccessful detoxification episode within a community setting and who require a high level of medical and nursing support because of significant comorbid physical and/or psychiatric problems or are polydrug users requiring detoxification from several drugs should be appropriate for inpatient detoxification.

Priority groups

Exclusion

Detoxification services are not appropriate for those who have serious psychiatric morbidity requiring acute psychiatric treatment or have serious physical morbidity such as a life-threatening physical illness (NTA, 2002).

2 Research evidence base.

2.1 Treatment environment and holistic treatment and care

2.2 Effectiveness by treatment setting

Methadone

While community detoxification is the most widely used option, consistently low completion rates have been reported for opiate dependent patients detoxified in the community. One UK study found that 51% were drug-free at 6 month follow-up. Other studies have found abstinence rates between 17 and 28% in outpatient settings. This compares to rates of 80-85% recorded for inpatient detoxification programmes (Gossop et al, 1986; Dawe, 1991; Gossop & Strang, 1991). The only controlled study of inpatient versus outpatient treatment in the UK found that 70% of those in inpatient services were drug-free on discharge compared to 37% of those in an outpatient setting (Wilson, 1975, Day et al, 2005). However, the numbers in this study were small and a Cochrane review concluded that there is a lack of good quality research to guide practice in this area (Day et al, 2005).

Buprenorphine

There is limited evidence for the relative efficacy of outpatient versus inpatient detoxification using buprenorphine. One study found only 12% of patients treated with buprenorphine in an inpatient setting achieved abstinence compared to 24% in a conventional outpatient setting (Digiusto et al, 2005). Another study compared similar detoxification regimens found in a community-based programme in a specialist setting with one in a primary care setting. The settings had similar efficacy with 71% completing detoxification in the primary care setting and 78% in the specialist setting (Gibson et al, 2003)

1.3 Prescribing for opiate dependence

Chronic opiate use leads to withdrawal symptoms which are uncomfortable and can be highly unpleasant (SAMHSA, 1995). However, it is rarely associated with life threatening problems that may arise with alcohol or benzodiazepine withdrawal (Mattick and Hall, 1996).

Table 1

Signs and symptoms of opiate intoxication and withdrawal

| Opioid Intoxication | Opioid Withdrawal |
|------------------------------------|--|
| Signs | Signs |
| Bradycardia (slow pulse) | Tachycardia (fast pulse) |
| Hypotension (low blood pressure) | Hypertension (high blood pressure) |
| Hypothermia (low body temperature) | Hyperthermia (high body temperature) |
| Sedation | Insomnia |
| Meiosis (pinpoint pupils) | Mydriasis (enlarged pupils) |
| Hypokinesia (slowed movement) | Hyperreflexia (abnormally heightened reflexes) |
| Slurred speech | Diaphoresis (sweating) |
| Head nodding | Piloerection (gooseflesh) |
| Symptoms | Increased respiratory rate |
| Euphoria | Lacrimation (tearing), yawning |
| Analgesia (pain-killing effects) | Rhinorrhea (runny nose) |
| Calmness | Muscle spasms |
| | Symptoms |
| | Abdominal cramps, nausea, vomiting, diarrhea |
| | Bone and muscle pain |
| | Anxiety |

Source: Consensus Panelist Charles Dackis, M.D. (SAMHSA, 1995)

The withdrawal syndrome is similar for all the opiates with some variance in severity, time of onset and duration of the symptoms depending on the opiate used, duration of use, the daily dose and the interval between doses (SAMHSA, 1995). Withdrawal symptoms are usually at their most intense between 24 and 72 hours. Symptoms will gradually lessen in intensity although it may be a week or 10 days before the addict begins to feel better again. .

A wide range of criteria have been used for the evaluation of opiate detoxification programmes. These include severity of withdrawal symptoms; completion of detoxification, achievement of an initial period of abstinence; engagement in subsequent treatment (DiGiusto et al, 2005).

Methadone

The most extensively tested medication for detoxification is the long-acting opioid agonist, methadone. Methadone is a long-acting agonist at the μ -opioid receptor site, which displaces heroin or other abused opiates and restabilizes the site and reverses opioid withdrawal symptoms (SAMHSA, 1995).

The initial dose of methadone is determined by estimating the amount of opiate use by gauging the patient's response to administered methadone. The patient should be physically examined to screen for signs of opiate withdrawal. Avoidance of overmedicating is important to avoid overdose, while underdosing is important to avoid so unnecessary discomfort is also avoided (SAMHSA, 1995). While there is little evidence that there is a relationship between opiate dose and withdrawal severity, one recent study found that patients on higher doses of methadone in an inpatient treatment service reported more severe withdrawal symptoms than those on lower doses, although methadone dose did not have an effect on completion rates or length of stay in hospital (Glasper et al, 2008).

Detoxification with tapered doses of methadone shows fewer withdrawal symptoms and fewer drop-outs than placebo (Amato et al, 2005). Methadone has been found to have a better adverse-event profile, particularly in relation to hypotension, compared to clonidine and better detoxification completion rates when compared to lofexidine (National Collaborating Centre for Mental Health, 2008a). Extant studies do not indicate a difference between buprenorphine and methadone for detoxification completion rates but there is no data available to compare abstinence outcomes (National Collaborating Centre for Mental Health, 2008a). However, methadone detoxification is marked by high attrition rates and up to 86% do not complete their detoxification programme (Sees et al, 2000).

A study demonstrated that flexible negotiated detoxification schedule where patients could regulate the rate of their methadone reduction was not superior to fixed rate programmes in an outpatient setting. Fewer of the patients in the negotiated rate group completed the programme and there was no difference in retention between the two groups (Dawe et al, 1991).

Buprenorphine

A Cochrane review found that the evidence for the effectiveness of buprenorphine for managing opioid withdrawal is limited (Gowing et al, 2004). With the limited data available the Cochrane review concluded that the efficacy of buprenorphine with regard to treatment retention, illicit drug use and suppression of withdrawal symptoms is similar to that of methadone, although detoxification with buprenorphine can be conducted more quickly than with methadone (Gowing et al, 2004). There are also no significant differences between the two medications in completion of withdrawal, while a recent review found low rates of abstinence among treatment completers in the studies reviewed (Gowing et al, 2004; Horspool et al, 2008). Buprenorphine is more effective

than clonidine in reducing the signs and symptoms of opioid withdrawal, retaining patients and in supporting the completion of withdrawal. A preliminary study has found that patients codependent on opioids and benzodiazepines undergoing detoxification with buprenorphine reported less severe withdrawal symptoms during treatment than with methadone and were more likely to complete treatment (Reed et al, 2007)..

Dihydrocodeine

Based on the results of two RCTs comparing dihydrocodeine and buprenorphine for detoxification, National Institute for Health and Clinical Excellence(NICE) concluded that those undergoing dihydrocodeine detoxification were less likely to be abstinent at the end of their detoxification programme and no more likely to complete treatment than those receiving buprenorphine (National Collaborating Centre for Mental Health 2008a).

Clonidine and lofexedine

A group of non-opioid drugs called alpha-2-adrenergic agonists, which include clonidine and lofexedine, have been found to reduce noradrenergic hyperactivity seen in opiate withdrawal and have been consequently been used alone or with a rapid reduction in opioid dose to manage opioid withdrawal.

Clonidine has been found to produce a rapid and prolonged reduction of withdrawal symptoms in open and double-blind trials (Gossop, 1988). Clonidine has been found to be as equally effective as low doses of methadone in suppressing withdrawal symptoms (Gowing et al, 2004). However, clonidine does not completely eliminate withdrawal symptoms and patients experience more severe withdrawal symptoms in the first few days of clonidine treatment while methadone patients experience more discomfort at a later stage (Gossop,1988). However, patients are more likely to leave treatment early with clonidine and completion rates for clonidine detoxification are low, ranging from 20 to 40 per cent (Kleber, 2006). A recent NICE review found there was no evidence that clonidine is more effective than lofexedine for managing opioid withdrawal and, because of its greater side effect profile, suggested that clonidine is not used in routine practice (National Collaborating Centre for Mental Health 2008a).

Lofexedine has comparable clinical efficacy to clonidine but has a slight advantage of fewer side effects, and in particular less postural hypotension, a fall in blood pressure when the position of the body changes (Buntwal et al, 2000). A double blind study which randomised low dose opiate patients to lofexedine and clonidine found that both drugs could be used successfully for outpatient detoxification but that treatment with clonidine required more input in terms of staff time (Carnwath and Hardman, 1998). While a Cochrane review found no significant differences between 2- adrenergic and methadone for detoxification treatment in opioid dependents, the additional provision of symptomatic medications enhanced the effectiveness of adrenergic agonists (Amato et

al, 2005). In particular, their combination with opioid antagonists such as naltrexone and naloxone has been found to lead to less severe withdrawal symptoms in detoxification compared to treatment with lofexedine alone (Buntwal et al, 2000; Gowing 2004).

Opiate antagonists

Rapid opiate detoxification regimens have mainly involved the use of opiate antagonists, naloxone and/or naltrexone to precipitate an acute withdrawal state with the ensuing withdrawal symptoms managed with a variety of medications and techniques including concurrent treatment with an alpha-2-agonist such as clonidine and /or benzodiazepine induced sedation (Bearn et al, 1999). Some patients may be attracted to this procedure because a rapid detoxification treatment includes a briefer, less uncomfortable transition from dependence to abstinence. During the 1990s there was international interest in the use of antagonists with drug anaesthesia to detoxify opiate addicts. However, a recent randomised controlled trial found that rapid detoxification with anaesthesia did not lead to improved outcomes compared to rapid detoxification without anaesthesia (De Jong et al, 2005). In addition, there is an absence of controlled trials to evaluate the risk/benefit ratio (Stine et al, 2003).

Buprenorphine and naloxone

A number of recent RCTs have demonstrated that rapid detoxification with buprenorphine-naloxone is safe and well-tolerated by patients with positive outcomes for treatment retention, detoxification completion and abstinence rates in treatment (Amass et al, 2000; Ling et al, 2005).

Other medications for symptomatic treatment

Opiate detoxification when properly conducted usually can be conducted without significant patient discomfort. However patients receiving adequate detoxification doses may still complain of withdrawal symptoms such as diarrhoea or insomnia and which can be treated with adjunctive medications (SAMHSA, 1995). However, there is no systematic evidence that any of the medications work to improve outcomes (National Collaborating Centre for Mental Health, 2008a; UK. Department of Health, 2007).

Psychosocial interventions in combination with detoxification

The majority of the studies examining psychosocial interventions combined with detoxification have featured contingency management techniques during community detoxification (National Collaborating Centre for Mental Health, 2008b). Contingency management in these studies usually begun after stabilisation and continued through the detoxification process until treatment was completed. Patients receiving contingency management were more likely to be abstinent at the end of treatment and to complete

treatment than those patients who did not receive it (National Collaborating Centre for Mental Health, 2008b). This outcome was found with both short-term and longer term detoxification programmes.

Managing benzodiazepine withdrawal

Benzodiazepines have the potential for misuse and dependence and are also often taken in combination with opioids or stimulants. Medical complications of benzodiazepine withdrawal are similar to the problems seen in alcohol withdrawal. Seizures may occur without being preceded by other symptoms of withdrawal but seizures and delirium are rare. Patients have also reported distortions in smell, taste and other perceptions (SAMHSA, 1995). Panic attacks which may emerge during withdrawal may be a result of the emergence of the patient's underlying symptomatology rather than a withdrawal effect (SAMHSA, 1995).

There are a limited number of controlled trials that can provide guidance regarding benzodiazepine withdrawal but the evidence available supports a stepped care approach (Oude Vashaar et al, 2006). Those with low dose benzodiazepine dependence may experience anxiety, apprehension, dizziness and insomnia during withdrawal but do not require special treatment. During early abstinence these patients should be given support and reassurance that the withdrawal effects will soon reduce or disappear (Petursson and Lader, 1984). A meta-analysis of studies found that minimal interventions are effective strategies for reducing benzodiazepine consumption when compared to care as usual (Oude Vashaar et al, 2006).

If minimal intervention fails then supervised gradual withdrawal can be initiated (Petursson and Lader, 1984). However, prescribing medication to assist withdrawal should only be initiated where there is evidence of dependence based on clinical information taken from the patient and significant others, observed symptoms and drug testing (SAMHSA, 1995; UK. Department of Health, 2007). Identifying the specific name of medication, dose and duration of use are vital (SAMHSA, 1995). If the patient is receiving a long-term dose of methadone for concomitant opioid dependence, the methadone dose should be kept stable through the benzodiazepine reduction period (UK Clinical Guidelines).

The treatment aim for benzodiazepine detoxification should be to prescribe a reducing regimen for a limited period of time. Diazepam has been recommended for use in withdrawal regimens. Diazepam has a relatively long half-life and is available in different strength tablets. It can be given as a once-a-day dose. Benzodiazepines, including diazepam, can be withdrawn in proportions of about one-eighth of the daily dose every fortnight. Where the dependence is on therapeutic doses then the dose can be reduced initially by 2-2.5 mg and if withdrawal symptoms appear the dose can be maintained until symptoms improve. If the patient is experiencing severe withdrawal symptoms then the dose may need to be increased to alleviate symptoms (UK. Department of Health, 2007).

Adjunctive therapies such as structured psychosocial interventions, counselling, support groups and relaxation may be helpful to alter negative cognitions related to medication cessation, provide patient education and provide cognitive and behavioural techniques for anxiety reduction and sleep enhancement during withdrawal (UK. Department of Health, 2007; SAMHSA, 1995).

Managing stimulant detoxification

Long-term stimulant use may lead to neuroadaptive states and subsequent withdrawal effects if stimulant use is discontinued. While a number of pharmacological treatments have been tried, there are no medications with proven efficacy to treat stimulant withdrawal.

Antidepressant drugs such as fluoxetine have been used to manage the depressive episodes associated with stimulant withdrawal. There is no evidence that antidepressants have any effect on the withdrawal effects of stimulants regardless of the type of antidepressant used (Lima et al, 2001).

3 Recommendations

3.1 Access to care

Access to the service

Detoxification should be a readily available option for people who are dependent and have expressed an informed and appropriate choice to become abstinent (National Collaborating Centre for Mental Health, 2008a). Information should be made available on criteria for access to detoxification programme. The material should describe who the service is intended for and what are the expected waiting times for entry (NTA, 2002).

3.2 Pathways of care

Programme duration

Most detoxification treatments with methadone use a linear reduction schedule with regular equal dose decrements from an individually tailored starting dose to zero. Treatment programmes typically last 10-28 days. While research suggests that longer periods in treatment with a critical period of 28 days may predict better outcomes, there is little evidence to support more protracted detoxification schedules which may lead to residual symptoms continuing after treatment has finished.

Detoxification with lofexedine can be achieved over periods as short as five days (Bearn et al, 1998).

Setting

A range of settings have been used for detoxification, including specialist in-patient drug dependence units, psychiatric hospital wards, residential rehabilitation programmes, community-based settings and prisons. Different settings may suit different users in different circumstances or suit the same user at different stages of their career (Gossop, 2003). Substance abuse facilities may or may not have the necessary services to provide adequate assessment and treatment of co-occurring psychiatric conditions and biophysical problems. In-patient mental health facilities are available generally to provide treatment for substance use disorders and co-occurring psychiatric conditions

Inpatient detoxification provides 24-hour supervision, observation and support for patients who are intoxicated or experiencing withdrawal. Residential settings vary in the level of care they can provide.

Community-based programmes should be offered to those considering detoxification except for those

- Have not benefited from earlier community-based detoxification
- Need medical and/or nursing care because of significant comorbid physical or mental health problems
- Require complex polydrug detoxification
- Are experiencing significant social problems that limit to the benefits of community detoxification (National Collaborating Centre for Mental Health, 2008a).

In patient care should normally only be considered for people who need a high level of medical and/or nursing support for significant and severe comorbid physical or mental health problems or need concurrent detoxification from alcohol and other drugs which need a high level of medical and nursing expertise (National Collaborating Centre for Mental Health, 2008a).

Residential detoxification should normally only be considered for those who have significant comorbid physical or mental health problems or need sequential detoxification from alcohol and opioids or concurrent detoxification from opioids and benzodiazepines. It may also be considered for those who have less severe levels of dependence, eg those who have only recently started their drug use, or would benefit from the residential setting during and after detoxification (National Collaborating Centre for Mental Health, 2008a).

3.3 *Assessment*

Those presenting for opioid detoxification should be assessed to establish the presence and severity of opioid dependence, as well as misuse of and/or dependence on other substances including alcohol, benzodiazepines and stimulants

Assessment should include

- Urinalysis to aid confirmation of the use of opioids and other drug use/ dependence
- A clinical assessment of the signs of withdrawal if present
- The taking of a history of drug and alcohol use and previous treatment episodes
- A review of current and previous physical and mental health problems
- Risk assessment for self-harm, loss of opioid tolerance and the misuse of drugs or alcohol as a response to opioid withdrawal symptoms
- An assessment of present social and personal circumstances
- A consideration of the impact of drug misuse on family members and any dependents
- Development of strategies to avoid risk of relapse (National Collaborating Centre for Mental Health, 2008a).

Detoxification for those women who are opioid dependent during pregnancy should be undertaken with caution. Comorbid physical and mental health problems should be treated alongside the opioid dependence (National Collaborating Centre for Mental Health, 2008a).

3.4 Staffing Competencies

Community detoxification should be co-ordinated by competent primary or specialist practitioners (National Collaborating Centre for Mental Health, 2008a). Residential and in-patient detoxification programmes should be staffed by multidisciplinary teams with an emphasis on medical and nursing staff.

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13 Treatment improvement guideline on treatment in the Criminal Justice System

Treatment improvement guideline on treatment in the Criminal Justice System

Guidelines for treatment improvement

Moretreat-project

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1 Introduction

1.1 *Material*

As the number of studies on treatment in Criminal Justice System identified in the frame of the “Moretreat” project is small this guideline is mainly based on two reports:

- Stöver H., Hennebel L.C., Casselmann J. (2004) Substitution treatment in European Prisons. A study of policies and practices of substitution treatment in prisons in 18 European countries and
- Stöver H., Weilandt C., Zurhold H., Hartwig C., Thane K. (2007) Final report. The status –quo of prevention, treatment and harm reduction services for people in prisons and in reintegration services for persons on release from prisons.

Both reports are reviews of existing studies and knowledge on treatment offered in prison conditions. Also this paper was inspired by four other documents, released by WHO UNAIDS and UNODC (2007) in the “Evidence for Action Technical Papers Series”, as well:

- Interventions to address HIV in Prisons –Prevention of sexual transmission.
- Interventions to address HIV in Prisons –Drug dependence treatment.
- Interventions to address HIV in Prisons – HIV care, treatment and support.
- Interventions to address HIV in Prisons – Needle and syringe programmes and decontamination strategies.

1.2. *Definition of the target groups and prison*

This guideline is focusing on illicit drug users and especially problematic drug users who are subjects to prevention, treatment and harm reduction programmes offered in the framework of the Criminal Justice System.

The term “prison” is used for all places of detention no matter if the person is in police detention, pre-trial/remand prison, or run by law enforcement, or has already got a prison sentence.

1.3 *Context*

This section is based on EMCCDA (2002) report Drug use in prison which allows to recognize in short how care for drug users in prison is organized across Europe.

Since 1995, an expansion of services for drug users in prison has been noted (Ambrosini, 2001, cited in EMCDDA, 2003) and measures to prevent the transmission of infectious diseases have been introduced. However, compared to the community they have been introduced with a considerable time lag.

The extent to which prisons are covered and the level of service provision vary considerably between and within countries and even states and regions or even within

prisons in one and the same state/region. Notable exception in terms of high coverage is Scotland, which has drug counsellors in every prison; Spain where addiction services are available in 71 out of 73 prisons, Sweden, where a third of the estimated number of inmates with drug problems were covered by treatment motivation programmes in the year 2000; and England and Wales, where since 1999 all prisons have specialised external drug teams (CARAT – Counselling, Assessment, Referral, Advice and Throughcare services) which aim to cover drug-using prisoners' needs from intake to aftercare – although a bottleneck seems to be the lack of referral possibilities. In Scotland, prisoners can now also receive transitional care during the first 12 weeks after release, to facilitate their return to the community.

Health care services in prison are traditionally provided by the prison's own health care staff under the authority of the Ministries of Justice, but prison systems across the EU rely to a large extent on additional external expertise and resources. The services provided by external agencies are general drug prevention information and education, treatment motivation programmes and preparation for release, including referral to community based treatment and to aftercare.

Striving towards “equivalence of care” between community and the prison health care services France in 1994, England/Wales in 2005, and Italy in 2008 have shifted responsibility for health care in prisons to their Ministries of Health and thus involved local and regional health care agencies on a statutory basis (also in Norway, and some cantons of Switzerland). Concrete cooperation agreements between the judiciary system and public or non-governmental health services were also established in Ireland in 1999, Portugal in 1999 and Spain in 2000, and in some states of Germany to increase the quality and coverage of care for imprisoned drug users.

External drugs specialists play an important role in the support to drug users in most, if not all, European prison systems. In Germany, the history of the work in prisons of external drugs agencies and of specialised internal drugs services dates back to the mid-1980s and in 2000, more than 350 drugs counsellors provided their services in German prisons; however, the coverage of this service varies between the federal states (Länder). In recent years many of these external drug counsellor posts have been abolished in several 'Länder'. In 2000, the involvement of external professionals continued to be an important trend in France; and, in Italy, the public drugs services SerT noted a large increase in client numbers, due to their new responsibility with regard to prisoners. The Spanish national strategy on drugs (2000–08) defined the participation of external specialists in the care of drug users in prisons as a priority, and multi-annual cooperation plans between prisons and NGOs have resulted in more than half of the addiction care services (GAD) in Spanish prisons being staffed by external NGO experts. In Belgium and Greece, non-governmental organisations (NGOs) are so far the primary providers of the limited services that are available to drug users in prisons.

Written information materials on drugs and drug-related infectious diseases seem to be available in most prisons in the EU and Norway; however, systematic and repeated opportunities to address prevention issues face-to-face are rare and often depend on the initiative of external agencies or individual prison staff.

Detoxification is offered through medical prison services or in specialised detoxification wards, but quality guidelines are often lacking. A programme through which 1,200 to 1,500 prisoners received detoxification per year has been described as being provided in an ‘essentially unstructured and unsupervised fashion, with no follow-up or medium to long-term planning’ (Department of Justice Equality and Law Reform, 1999). However, quality standards are starting to be introduced, for example the prison service order of December 2000 requests that all prisons in England and Wales offer qualified detoxification services. From 2006 on the prisons in England started the “Integrated Drug Treatment System” (IDTS), featuring in particular the provision of opioid substitution treatment, and the uniting of two separate treatment services in prisons: psychosocial drug treatment, known by the acronym CARATs, and clinical substance misuse management previously described as ‘detoxification’ services (Marteau/Stöver 2009).

In some countries, external agencies are also directly involved in providing longer-term treatment of addiction. Examples are the small intramural programmes for drug users in Denmark and Norway, which are run by specialised external drugs agencies (‘import model’), and substitution treatment in Spanish, French and Italian prisons. The high coverage in Spain has been achieved through the massive involvement of external drugs services (Stöver/MacDonald/Atherton 2006).

Nine EU countries have structured abstinence-oriented treatment programmes inside prisons and Norway provides a treatment motivation programme. The total number of places is, compared with the estimated number of prisoners with drug problems, very low. However, in Spain, 8 984 prisoners participated in the 18 available drug-free treatment programmes in 2000 and, in England and Wales, 3 100 entrants were registered in the 50 intensive treatment programmes in 2000/01. In Sweden, 10% of prison facilities, with a capacity to receive 500 prisoners, are specially reserved for voluntary and compulsory treatment of drug users (Lýsen, 2001) and, in Finland, 18% of incoming prisoners participate in alcohol or drug rehabilitation programmes (Jungner, 2001). In the Austrian prison “Wien-Favoriten”, specialised exclusively in the care of addicts, 110 treatment places are available; Denmark has 30 places and Ireland has nine. The Norwegian treatment motivation programme can take 18 prisoners in charge per year (EMCCDA, 2002: Table 14 OL: Abstinence-oriented treatment <http://ar2002.emccda.europa.eu/en/popups/oltab14-en.html>).

Except for Greece, Sweden and some states in Germany, substitution treatment is now formally approved in prisons in all EU countries and Norway. However, even in countries where a large percentage of problem drug users in the community are in substitution treatment, prisons often follow a detoxification policy only. For example,

coverage rates in prisons in Germany and the Netherlands are thought to be between 1 and 4% (Stöver, 2001; WIAD-ORS, 2001, cited in EMCDDA, 2002) compared to an estimated coverage of 30 to 50 % in the community. Most prison maintenance policies indicate the treatment only during short-term sentences, for pregnant drug users, and for those with long addiction careers or severe mental or physical health problems. Initiation of substitution treatment in prisons is rare, even though it is legally possible in most countries. The major exception is Spain, where substitution rates inside and outside prison correspond.

Ten EU countries and Norway run drug-free wings or prisons. The purpose of some of them is not only to protect non-dependent inmates from drugs, but also to provide treatment in a drug-free environment. Prisoners under methadone substitution are usually excluded from drug-free wards. There are 20 drug-free addiction guidance departments in Dutch prisons space for 446 prisoners; however, one third of the capacity remained unused in 1999. Sweden has 356 places in drug-free units and, in Finland, where currently 10% of all prison wards are drug free, an expansion to 50% is envisaged. Portugal recently opened seven drug-free wards with 195 places, evaluated as a 'great success' and is planning two more units.

1.4 Relevance of the problem

1.4.1 Epidemiology/nature and extent

The source of data used in this section is the Council of Europe Annual Penal Statistics: SPACE I. The prison population in the member states of the European Union comprised of 559,597 prisoners (including pre-trial prisoners) on 1st September 2006, while 35,910 persons in Romania and 12 218 persons in Bulgaria (the two new member states from 2007), were in prison at that time. Therefore, issues of prison and health in prison in particular affect directly more than half a million people at an appointed date and more than a million during a year, because of the high turn-over rate due to entrances and releases in the prison population. In each of the six biggest countries of the European Union, with exception of Italy more than 50,000 persons are in prison at the appointed date,: 86,676 in the United Kingdom, 79,146 in Germany, 88,647 in Poland, 64,120 in Spain, 57,876 in France and 38,309 in Italy. Almost 75% of the prisoners in the European Union are to be found in the six biggest member states. These absolute figures might help to assess the weight and importance of imprisonment rates per country in order to make it possible to compare the states despite their very different population size. It is also necessary to keep in mind that particular countries differently define and construct their prison population in general. Additionally, all following comparisons can only be regarded as approximations because of various differences and irregularities in the national statistics (Stöver et al., 2007).

As Stöver et al. (2007) stated, drawing a detailed picture of the extent and nature of drug use in prisons is often difficult because it is an activity that occurs in extreme

secrecy. Discovery of needles, positive drug tests among prisoners and official statistics of known and sentenced drugs user are indicators reflecting only a part of the actual situation.

According to a recent survey among the Ministries of Justice of the European Member States eight countries reported that 10-30 % of the female prisoners have a drug problem while in other eight 40-60% of the female prisoners as drug users (Zurhold and Haasen, 2005 cited in Stöver et al. 2007).

A review of studies on the prevalence of drug dependence in prisoners reveals a substantial heterogeneity in the history of drug use but underlines as well the higher proportion of drug problems among female inmates (Fazel et al. 2006, cited in Stöver et al. 2007). The review of 13 studies with a total of 7,563 prisoners shows a drug dependence that varied from 10 to 48 % in male prisoners and 30 to 60 % in female prisoners.

A Polish study on prevalence drug use among prisoners shows that 20.3% of all prisoners made an attempt to use any illegal psychoactive substance in prison. Three percent reported intravenous drug use, while 1.3% were sharing needles and syringes (Sierosławski, 2007).

1.4.2 Health problems: HIV and hepatitis

There is a high risk of acquiring HIV and hepatitis in prison for those who continue to inject drugs and share injecting equipment. Several studies conducted outside penal institutions reveal a strong correlation between previous detention and the spread of infectious diseases. Staying in prison has become an independent predictor for the acquisition of hepatitis C. Although injecting drug use in prison seems to be less frequent than in the community, each episode of injecting is more dangerous than outside due to lack of sterile injecting equipment, the high prevalence of sharing and already-widespread infectious diseases (Stöver et al. 2007).

A study carried out in 25 European prisons in 1996-1998 (Rotily and Weilandt, 1999, cited in Stöver et al. 2007) found an overall prevalence of HIV infection of 5.7%, with substantially higher rates in prisons in Portugal (19.7%) and Spain (12,9%). The proportion of prisoners living with HIV is many times higher than the proportion in the general population (for example, 25 times higher in Germany) Rates of hepatitis B virus and hepatitis C virus infection and TB in inmate population are also generally many times higher than in population as a whole.

1.5 *Aim of the guideline*

Aim of this guideline is to identify research evidence on best practices in drug treatment in prison setting in European Union. Relevant recommendations that follow constitute its crucial component.

2 Evidence base

2.1 *Different treatment interventions*

Generally the interventions for drug and alcohol dependence vary greatly throughout Europe and range from 12-Steps programmes to auricular acupuncture, therapeutic communities and provision of substitution programmes, cognitive-behavioural methods and educational programmes (Harrison et al. 2003; Merino 2003). In order to survey drug programmes in the criminal justice system in the EU, 36 programmes had been analysed by Merino (2003). The analysis revealed that programmes aiming at crime reduction along with early intervention are most common (24%; 23%). These interventions are followed by harm reduction (19%) and social integration (14%). In addition, drug free programmes, psychotherapy, drug-free wings and counselling are main offers for crime and demand reduction.

Many studies have shown that criminal justice interventions as stand-alone without associated opioid dependence treatment, have very limited impact on drug using behaviour and recidivism among individuals with drug use. There is a consensus among professionals that drug treatment can be effective if it is based on the needs of prisoners, is of sufficient length and quality and there is continuity of aftercare in prison and in the community (Ramsay, 2003). It is a combination of treatment in prison and follow-up treatment afterwards that provides the best impact (Stöver et al. 2004; see also Kastelic et al. 2008 <http://www.archido.de/index.php?lang=en>)

All in all it can be stated that “positive experience from in-prison treatment helps inmates to continue treatment after release, reduces relapse rates and related health risks, and also reduces delinquency recidivism” (Uchtenhagen 2006, cited in Stöver et al. 2007).

This chapter is focused on effectiveness and usefulness of different treatment interventions, measures in prison settings and consists of seven topics:

1. Testing of infectious diseases and vaccination
2. Drug testing
3. Health care for prisoners with AIDS and Hepatitis
4. Abstinence-oriented programmes
5. Detoxification
6. Harm reduction
7. Case management

2.1.1 Testing of infectious diseases and vaccination

Testing for infectious diseases includes testing for diseases such as HIV, HCV, HBV and HAV, but also for TB and for syphilis (Bick 2007). Testing of infectious diseases and vaccination in a prison setting is significant factor to ensure the prisoners health during incarceration and to ensure the health of their families and friends after

discharge. Therefore not only the individual risk but the public health aspect has to be put in the fore. Besides, the knowledge of an infectious disease is a prerequisite to organize and receive the appropriate care (WHO et al. 2007).

According to a database on diseases in prison elaborated by the WHO, disease testing mostly takes place on admission rather than on release, with the exceptions of Estonia, Finland and Lithuania, where HIV is tested both on admission and on release. In Latvia, Luxembourg and Belgium half of the prisoners are tested for infectious diseases (WHO). If there is mandatory HIV testing in prison, the patient confidentially needs to be addressed cautiously. This is of particular importance if the test reveals a positive result (MacDonald et al. 2006).

The knowledge of the HIV status is essential for receiving the adequate care, treatment and support. There are major differences upon access to voluntary HIV testing. Also there are still differences in the way HIV tests are offered: voluntary or mandatory. It has been shown, that offering HIV test voluntary resulted in a large number of prisoners accepting HIV testing and counselling. Liddicoat et al. (2006) showed that offering HIV test upon incarceration in combination with a brief group counselling and an individual informed consent significantly increased HIV testing rates compared to a historical cohort. In the intervention group 73.1% accepted HIV testing, whereas in the control group only 18% did it (73,1% vs. 18%; $p < 0,0001$).

It is known, that mandatory HIV testing and segregation of HIV-positive inmates are counterproductive (Jacobs 1995). One way to encourage voluntary testing, as proposed by Bausermann et al (2003) is offering oral tests to inmates.

The entrance in the prison poses a good opportunity to test prisoners for hepatitis. There are various forms in which this is done: upon request, testing only prisoners at risk or routinely testing all prisoners. All viral hepatitis forms present a major challenge to the prison health systems (Spaulding et al. 2006) therefore screening and vaccination are ways to face and handle this problem.

To sum up, vaccination against HAV should be offered to prisoners at risk (Neff, 2003, Whiteman et al. 1998) whereas HBV vaccine (Kuo et al. 2004, Sutton et al, 2006) should be made available for all prisoners.

2.1.2 Drug testing

Drug testing is the testing of individuals for their drug use. The aim of drug testing is to detect drug use in the prison, to identify drug users and to achieve information about the level of drug use and the type of drugs used (MacDonald 1997). The testing in prison is usually done by urinalysis; other possibilities would be hair or blood analysis. The frequency as well as the mode of testing can vary considerably: on admission and/or release, before/after holidays or weekend leaves, by suspicion of drug consumption, per random routine, mandatory for all prisoners or only subgroups (Dean 2005).

Mandatory drug testing is one factor found to influence drug-use patterns in prisons. It may decrease or alter drug use due to the fear of detection and sanctioning (Edgar and

O'Donnell 1998; Prendergast et al. 2004; Scottish Prison Service 2000, cited in Dean 2005). But mandatory testing can also have unintended outcomes. In the English pilot trial the percentage of positive tests for opiates and benzodiazepines rose from 4.1% to 7.4% (Gore et al. 1996). A survey among prisoners and staff concluded mandatory drug testing to be counterproductive, especially without adequate follow-up like treatment and counselling programmes. It can also increase the tension inside prison and deflects attention from other important issues (MacDonald 1997), as shown by the number of assaults increased by 20% from 1993 to 1995 (Gore et al. 1996).

Although some forms of drug testing can give a good estimation on the prevalence of drug use (Gore et al. 1999; Fraser and Zamecnik 2002; Harrell and Kleiman 2002) even if not all users will be detected (Edgar and O'Donnell 1998) other studies claim that mandatory drug testing seriously underestimates the prisoners need for harm reduction (Bird et al. 1997).

As the difficulties of mandatory drug testing can be serious, not only regarding the transmission of diseases but also the tension inside the institution, such programmes, if needed at all, should always be linked with adequate treatment and counselling programmes (MacDonald 1997), but to this inmates might fear sanctioning and therefore don't approach staff (Hughes 2000a). The form and mode of drug testing should be carefully considered and research recommends that resources should be shifted from mandatory testing to other interventions (e.g. Gore and Bird 1996; Dean 2005).

2.1.3 Health care for prisoners with HIV/AIDS and hepatitis

Despite different opinions of correctional healthcare providers the delivery of HIV/AIDS care in correctional institutes is less comprehensive than in community settings (De Groot 2000; Bernard et al. 2007).

The cohort of persons entering prisons consists of persons already lacking access to proper medical resources. Therefore correctional institution in which structural barriers to health care are removed and the prisoner is capable, should offer HAART to all HIV-infected prisoners.

There has been evidence that often treatment is initiated in prison. Altice and Mostashari (2001, 1998) report that up to 67% of HIV-positive prisoners first received HAART while in prison (Mostashari et al. 1998; Altice et al. 2001).

The success of a therapeutic intervention is revealed by the adherence to the programme. A Spanish study carried out by Soto Blanco and colleagues (2005) showed that the compliance to HAART was higher than in the community. Predictors of non-compliance were for instance poor or lack of ability to follow the prescribed treatment regime, no visits in a month, difficulties in taking the medication or methadone maintenance treatment (Soto Blanco et al. 2005).

It had been evaluated that attitudes related to trust in medications and the health system have a significant impact on the compliance to HAART. The prisoner's view of the

person who is dispensing the medication will have a probably undeterminable effect of the adherence of HAART (Mostashari et al. 1998).

Among of the other factors that have an impact on the adherence of HAART are modalities of administration. In general three different modalities are differentiated: directly observed therapy (DOT), modified DOT and keep on person (KOP) (Pontali 2005). DOT refers to a system in which the prisoners go to the medical unit or pharmacy and swallow the medication under sight check. During this routine visits the medical staff can record possible side effects, give brief counselling to the patient and react quickly to signs of discomfort of the patient. It can be said that the adherence within is higher compared to KOP, but it should be kept in mind, that the routine visits of the patient involve the loss the confidentiality as the prisoners fear to get “discovered” by other inmates. The difference in a modified DOT is that here the patient receives the daily doses in one package. It is up to the nurse to watch the patient swallow. So the medical staff gets in contact with the patient every day, but the inmate is fully responsible. KOP (sometimes called self-administered therapy (SAT) is the system that allows the inmates to keep a monthly or weekly rations of medication in their cells and take them independently. Here the confidentiality and privacy rights of the patients are fully secured (Pontali 2005).

The literature is inconsistent about the evidence about which modality to prefer. Babudieri et al. (2000) reported that DOT compared to modified DOT was associated with a better virological and immunological response (Babudieri and al. 2000).

Contrarily, it was reported that the degree of adherence was similar in all three regimens. But selection bias needs to be considered, that only highly motivated patients tend to choose KOP (Stöver et al. 2007).

Continuity of care seems to be a very important issue. Wood et al. (2003), Palepu (2003, 2004) and Stephenson et al. (2005) (cited in WHO et al, 2007c) all found that transition between prison and the community is often associated with interruptions in treatment, with negative effects on virological and immunological outcomes. A study of Springer et al. (2004, cited in WHO,2007a) showed that the gains in health conditions of prisoners made during the term of incarceration were lost among re-incarcerated persons, because of relapse to drug use, discontinuation of therapy and, possibly, uncontrolled mental illness. This underscores the need for linkage to aftercare services for prisoners with HIV infection upon their release (Spaulding et al, 2002, cited in WHO, 2007c).

The treatment for HCV has improved substantially over the last decade and it has been shown to be efficient. Depending on the genotype either a 24- to 48-week combination therapy of pegylated interferon and ribavirin is given. This combination achieves an overall sustained virologic response (SVR) of 50% to 80% subjects. However, the genotype 2 and 3 have a higher success rate, with a SVR at about 76-80%, than genotype 1 with SVR for 46-54% (Fried et al. 2002).

It has been shown that treatment for HCV is also feasible and successful for marginalized groups such as IDUs. Although a very high proportion of HCV-infected IDUs circle through the correctional system for their large proportion no therapeutic attempt is being made. Only four studies were identified which evaluated a prison-based treatment of HCV.

The most recent study was undertaken in France, where 37 medical units of French prisons participated. In this prospective cohort study 217 patients were included. They were treated with a combination of pegylated interferon alpha and ribavirin. Six months after the completion of treatment 200 patients were analysed regarding their SVR (sustained viral response). Ninety five patients (47.5%) experienced a SVR. Data was missing for 61 patients and 24 patients were non-responders (Remy et al. 2006).

A Canadian study designed as a retrospective analysis of medical files from 10 federal correctional facilities included 114 inmates. Analysis was performed for 80 treatment subjects. 66.3% of this treatment sample achieved SVR. Those with Genotype 2 and 3, injecting drug use and completion of treatment were significantly more likely to achieve SVR (Farley and al. 2005).

In the study conducted by Allen et al (2003), 93 incarcerated patients were treated with interferon alpha and ribavirin. SVR were achieved by 46% (26 out of 53) after 6 months of treatment.

2.1.4 Abstinence-oriented programmes

Not many studies have been conducted on the effectiveness of psychosocial interventions in the prison setting (Strang et al. 2007) and a need for more studies on effectiveness of treatment programmes was stressed (Costall et al. 2006). The number of studies indicates that it is important for prison systems to develop particular strategies for prison drug treatment rather than simply just reflecting those strategies that exist in the community (Turnbull and Sweeney 1999). In a study among Polish female drug using prisoners TC was found inadequate in a context of incarceration where values of prison sub-culture may be in conflict with values promoted by TC approach (Moskalewicz et al. 2008). Studies have shown that many prisoners do not perceive the prison environment to be supportive for those who wish to abstain from drug use (Swann & James, 1998, cited in WHO et al 2007b).

Generally there is a growing consensus that drug treatment programmes in prison can be effective if they are based on the needs and resources of prisoners and are of sufficient length and quality (Ramsay 2003).

The effectiveness of TC on reducing recidivism for incarcerated drug users was shown (Pearson and Lipton 1999), other treatment approaches including cognitive-behavioural interventions and 12-step programmes were declared as promising but there were not enough studies to evaluate (Pearson and Lipton 1999). Two RCTs (Wexler et al. 1999; Sacks et al. 2004) were identified on TC in prison, both from the USA. TC in prison was associated with reductions in criminal activity, recidivism, and relapse, compared

to a prison control group. For the re-incarceration rate no significant difference was found at 12 months but at five years it was (Smith et al. 2006; Strang et al. 2007). No effectiveness of boot-camps (a military-style scheme) for young offenders was demonstrated in two US studies, as the outcomes of treatment group did not differ from the control group (Strang et al. 2007). For incarcerated women case management, skills training, and TCs are especially recommended (Lewis and Lewis 2006).

On drug-free units, a German study found significant lower criminal recidivism in regular programme completers than in drop-outs (Heinemann et al. 2002). There are some indicators that drug-free units reduce drug use, and some conflicting evidence on recidivism (WHO et al. 2007b). Counselling programmes in prison seem to be effective in reducing re-offending but not drug use, and voluntary programmes seem to be more effective than mandatory programmes, but the study quality on these issues is not good (WHO et al. 2007b).

As summed up by Stöver et al. (2007), abstinence-based treatment programmes provide a good opportunity for those prisoners who are motivated and capable to cease using drugs.

2.1.5 Detoxification

It seems that detoxification with medication is rarely available throughout European prisons, although opioid detoxification without medical assistance is not recommended. As Stöver et al. (2007) stressed, there is a lack of evidence for detoxification programmes, with only two studies published. Therefore further research is needed.

In a Southern England in all-male prison a RCT for opioid detoxification was conducted. The study employed a randomised double-blind, two-group comparison design to compare the relative efficacy, side effect profiles and participant acceptability of opioid detoxification. The used medications were methadone and lofexidine. Only 68 patients commenced the treatment. Thirty-two patients received lofexidine and 36 patients, respectively, methadone. The socio-demographic profiles and patterns of opioid use were comparable. Twenty-one patients were loss to-follow up due to various reasons. Withdrawal scores showed very similar patterns and derived withdrawal scores indices showed no significant differences between treatment groups (Howells et al. 2002).

In an Australian prison the introduction of naltrexone was evaluated. Participants were recruited from 14 prisons. Data were analysed from two subsets drawn from 204 male inmates who participated in a former unsuccessful randomised trial. Patients from first sub-sample received naltrexone (n=68) and patients in the second sub-sample were divided into three groups: naltrexone (n=14), methadone (n=21) or buprenorphine (n=21). All were administrated over 24 months. Retention rates were analysed for subjects in the second sub-sample. Retention in methadone was significantly higher compared to Naltrexone. The evaluation of this study yield at a negative result for naltrexone for prisoners (Shearer et al. 2007).

2.1.6 Harm reduction

Harm reduction programmes aim to limit as far as possible drug-use related health risks to individuals, community and society. The introduction of harm reduction measures is relatively new to prison systems and is often perceived as threatening to the traditional abstinence-oriented drug policy in prisons (Stöver et al. 2007). Harm reduction include: substitution treatment, syringe exchange schemes, provision of bleach to decontaminate injecting equipment and provision of condoms.

Substitution treatment

One of the most important reviews of existing literature on the substitution treatment issue has been done by Kate Dolan and Alex Wodak in their “International review of methadone provision in prisons” (1996). Some of their key findings are as follow:

- significant reduction in sharing injection equipment have been documented for among a group of incarcerated intravenous drug users in Spain who, along with control group, participated in a prison based methadone programme (Marco, 1995).
- in an array of studies, correctional staff perceived prison methadone maintenance programmes (PMMP) to have reduced anxiety amongst prisoners, causing inmates to be less irritable and easier to manage (Gorta, 1992, Herzog, 1993, Magura et al, 1993).
- inmates in New South Wales reported decreases in drug use, drug-related prison violence, crime following release (Bertram & Gorta, 1990a) and considered PMMP to be more effective at preventing HIV in prison than in the community (Bertram&Gorta, 1990b).
- in several studies negative side-effects of PMMT often feared by prison staff, such as stand over tactics or a black market for methadone, were reported not to have occurred.

Stöver et al (2004) reviewed studies appearing between 1995 and 2003 focusing on drug use and related risk behaviours. According to that review methadone maintenance treatment can reduce injecting risk behaviour in penal institutions. One crucial point is that, for MMT to be effective, a moderately dose of methadone must be prescribed and the prescription must last for the entire period of imprisonment. Moreover, MMT provision was shown to be effective in reducing heroin use, drug injection and syringe sharing. A sufficiently high dosage (more than 60 mg) also seems to be important for an increased retention rate, which then can be used for additional health care services. The initiation of MMT also contributes to a significant reduction in serious drug charges and in behaviour related to activities in the drug subculture. Offenders participating in MMT had lower readmission rates and were readmitted at a slower rate than Non-MMT patients. There is evidence that continued MMT in prison has a beneficial impact on transferring prisoners into drug treatment after release (Stallwitz&Stöver 2007).

Research into the subjective experiences of inmates participating in substitution programmes reveals the heterogeneity of prescriptions practices in prisons. In particular,

short courses of methadone detoxifications were frequently experienced as insufficient and inadequate. Most striking was the inconsistency in methadone maintenance prescription inside prison compared to the community.

Needle exchange

Needle exchange is one of the important measures of harm reduction. The term refers to all kind of injecting equipment distribution to people who inject drugs. Prison needle exchange programmes (PNEP), also called needle and syringe programmes or syringe exchange programmes, are often accompanied by counselling or other services (WHO et al, 2007).

A number of reviews on PNEPs have been undertaken, and gathered evidence for the effectiveness of PNEP (Rutter et al. 2001; Stöver and Nelles 2003; Lines et al. 2005; Lines et al. 2006; WHO et al. 2007d). All studies indicate that the implementation of such measures is possible and feasible with no security problems (e.g. Kerr et al. 2004). One of the most important results is the massive decline of needle sharing; a German project in Berlin found 71% of needle sharing before the start of the PNEP, decreasing to 11% at four-month follow up and to almost zero afterwards (Stark et al. 2006). Another outcome from a Swiss evaluation is the decrease over time of injecting drug use after implementing a harm-reduction programme including needle exchange in a female prison (Nelles et al. 1999). Other evidence from those countries where prison needle exchange programmes exist demonstrates that such programmes do not endanger staff or prisoner safety, and in fact, make prisons safer places to live and work; do not increase drug consumption or injecting; reduce risk behaviour and disease (including HIV and HCV) transmission. A drastic reduction in overdoses is reported in some prisons and also increased referral to drug treatment programmes. PNEP has successfully cohabited in prisons with other drug addiction prevention and treatment programmes (Meyenberg et al. 1999; Nelles and Stöver 2002). The method of distribution needs to be considered, as machines may be unreliable (Heinemann and Gross 2001), and on the other hand a personal distribution won't be anonymous; there are advantages and disadvantages for both (Stöver and Nelles 2003).

Another international review on PNEP evaluation found 6 evaluations on PNEP and all were in favour of the program due to the fact that needle sharing decreased dramatically, no new cases of transmission of BBV (blood born viruses) were reported, and no serious negative events occurred (Dolan et al. 2003). A further more recent literature review and additional interviews on six countries with PNEP (Germany, Switzerland, Spain, Moldova, Belarus, Kyrgyzstan) found similar outcomes in very different prison settings: high and low security, large and small institutions, for men and women, single cell and dorm, needle distribution by machines, peers or hand to hand from medical staff:

- no injuries of staff were reported in evaluation reports.
- syringes were not used as weapons.

- drug use or injecting did not increase (only one out of twelve studies found that it did in some cases).
- PNEP can increase uptake of drug treatment services.
- PNEP is very effective to decrease needle sharing (only one study found small increase).
- abscesses and fatal overdoses decreased in some prisons (Lines et al. 2005; Lines et al. 2006).

Prison staff usually but not always was in favour of PNEP, as fear of needle accidents or use as a weapon were expressed (e.g. Heinemann and Gross 2001; Dolan et al. 2003). This emphasizes the importance of adequate staff training on issues of harm reduction. PNEP should be accompanied by such measures like information, and counselling. A Dutch study then found hardly any injecting drug use in prison and therefore no need for a needle exchange programme (van Haastrecht et al. 1997), so the need of PNEP in each prison should be carefully monitored and evaluated, as the drug use behaviour of prisoners might change over time.

Evidence of research is all in favour of PNEP, as well as the numerous overviews and reviews on the topic. Important international organisations like WHO and the Council of Europe strongly recommend the implementation of PNEP (Rutter et al. 2001) as an effective measure of HIV and HCV prevention, to reduce the risk of infectious diseases and other harms connected with injecting drug use.

WHO stresses that carefully evaluated pilot programmes of prison-based needle and syringe programmes may be important in allowing the introduction of these programmes, but they should not delay the expansion of the programmes, particularly where there already is evidence of high levels of injecting in prisons (WHO et al. 2007d).

Provision of bleach

There is no evidence of effectiveness of decontamination with bleach in the community and therefore it seems rather unlikely to be effective in prison. Disinfection as a means of HIV prevention is of varying efficiency, and is regarded only as a secondary strategy to syringe exchange programmes (WHO Europe, 2005). Where bleach programmes are implemented, bleach should be made easily and discreetly accessible to prisoners in various locations in the prison, together with information and education about how to clean injecting equipment and information about limited efficacy of bleach as a disinfectant for un-activating HIV and particularly HCV (WHO et al. 2007d).

The effectiveness of disinfection procedures is also largely dependent upon the method used. A study in 1993 raised doubts about the effectiveness of the '2x2x2' method in the decontamination of used injecting equipment (Shapshak and al. 1993). Scottish research on the effectiveness of bleach provision in a Scottish long-term prison found the measure being suboptimal (Champion et al. 2004), but together with other interventions (substitution treatment, HBV vaccination, staff training and counselling) there was no

evidence for new HIV infections after 12 months of the programme, whereas before there was a massive HIV-outbreak in one Scottish prison (Goldberg and al. 1998). A new review by the WHO recommends bleach only as a second-line strategy after PNEP, due to the rather complicated decontamination process (WHO et al. 2007d). The WHO reported that concerns that bleach might be used as a weapon proved unfounded, and that this “has not happened in any prison where bleach distribution has been tried” (UNAIDS 1997, p 6).

Provision of condoms

The provision of condoms aims at preventing STDs by sexual contacts. Condom use is internationally accepted as the most effective method for reducing the risk of the sexual transmission of HIV and other BBVs (WHO and UNAIDS, 2001). Water-based lubricants reduce the probability of condom breakage and dental dams reduce the risk of STD transmission during oral sex (WHO et al. 2007a).

Condoms are likely to be the most effective method for preventing STDs. No serious negative effects of condom provision in prisons have been found, and the provision of condoms seems feasible in a wide range of prison settings (Stöver et al. 2007).

Although there is a body of research on sexual activity in prison, there are not many studies evaluating the distribution of condoms in prison. Perkins (1998) examined the accessibility of condoms in European prisons and found a wide range of different policies “...on a continuum spanning endorsement of free distribution within prison to total prohibition”.

No negative consequences have been reported from those prison systems where condoms are available and the provision seems feasible in a wide range of prison settings (Jürgens 2006). The provision did not compromise prison security and safety, and there was no increase in sexual activity found (WHO et al. 2007a). Another study found decreased risk behaviour after the initiation of condom distribution and high levels of condom use among prisoners (WHO et al. 2007). Condoms need to be easily and discreetly accessible, in varying anonymous locations as prisoners often might fear to be detected as gay (WHO et al. 2007a).

Despite the availability of condoms, barriers exist to their use in many prisons, and there is often poor knowledge among prisoners of sexual risk behaviour and individual risk prevention (Todts and al. 1997; WHO et al. 2007a). Furthermore there is evidence that condoms, dental dams, and water-based lubricants are not easily and discreetly available, or are not available on a 24-hour basis. In many prisons, consensual sex is also prohibited, which can result in prisoners being reluctant to access safer sex measures for fear of identifying themselves as engaged in such activities. In order to maximize HIV prevention efforts in prison, and reduce the risk of transmission via unsafe sex, condoms, dental dams, and water-based lubricants should be easily and discreetly available through a variety of distribution channels. Experience has shown that discreet areas such as toilets, waiting rooms, workshops, or day rooms are options

that increase the confidentiality of prisoners accessing condoms. Other important measures alongside with condom provision are educational and informational activities for prisoners and staff on topics of STDs and the provision of condoms (WHO et al. 2007a).

2.1.7 Case management

Case management is a type of outpatient, intensive and individualized care provided by one caregiver (or a team) during a well-defined period, intended to guarantee the continuity of care and coordination of services for a limited number of persons. Since the beginning 1990's case management became a widespread intervention as a reaction to the limitations of existing services and in order to help drug abusers with multiple and chronic problems. From that point onwards, hundreds of projects have been implemented – both within criminal justice and substance abuse treatment system aiming at:

- enhancing treatment access, participation and retention.
- improving treatment results concerning alcohol and drug use, employment, psychological problems and criminality.
- promoting coordination and continuity of care.

Any conclusion about the effectiveness of case management for substance abusers is at the moment premature and even unwarranted, given the relative scarcity of randomized and controlled trials, especially concerning some specific models of case management. Several studies of case management among drug abusers involved in the criminal justice system have shown that coercion may help to enhance treatment participation and retention, which is associated with positive effects on clients' drug use and criminal involvement. Empirical evidence concerning the effectiveness of judicial case management is still lacking, but available data do not show compelling evidence of its effectiveness. Positive effects of this intervention are reduced drug use and relapse rates, increased treatment participation and retention and less violation of judicial conditions. Both in the field of substance abuse treatment and in criminal justice system, the value of case management has been proven, but due to lack of sufficient number of randomized and controlled studies this intervention can not - at the moment – be considered as an evidence-based practice (Geenens et al, 2007).

2.2 *Special issues under different treatment modalities*

Special issues as prisoner's needs assessment, qualifications and attitudes of staff and continuity of care are taken into consideration in this section. These issues are regarded as important for quality and adequacy of treatment offered in prison condition and should be included into the guideline.

2.2.1 Prisoner's needs assessment

It is important to accommodate those prisoners who are not motivated or able to stop using drugs, but do need to better understand how to reduce the harms associated with drug use. Research has highlighted the need for treatment providers, in any setting, to identify the needs of clients and their goals, whether this be maintenance or abstinence, and provide support in accordance with this.

The needs of women must be treated specifically. Mostly the different needs of women in prison are not mentioned specifically. As Palmer (2004, 2007) pointed out the complexity and severity of the drug use in women's prisons is far greater than for the male counterparts. Therefore the clinical management or overall management of women in prison needs addressing separately to the needs of men (Stöver et al, 2004).

Henderson (1998, cited in Zurhold et al. 2005) pointed out that compared to men, female inmates show a high incidence of severe mental disorders such as depression and coexisting psychiatric disorders. Health problems seem to be among the most important concerns of female offenders today. Several studies from the United States, Australia and New Zealand agree that women prisoners show a high prevalence of health problems and psychological and psychiatric disorders (Zurhold et al. 2005).

In England and Wales, United Kingdom, 90% of women prisoners have diagnosable mental disorders, substance misuse or both. It is estimated that at least 75% of women arriving in prison have some sort of drug related problems at the time of arrest. Staff working in women's prisons should be aware of the particular risks of self-harm among women in custody.

It is essential that the specific hygiene needs of women should be met from reception with adequate supplies according to individual need (Palmer, 2007).

2.2.2 Qualifications and attitudes of staff

As Spitzer stated (2004) prisoners have the right to receive state of art medical care. The manifold developments in the field of addiction medicine, psycho-social support need to be transferred to the medical and psycho-social services in prisons. Not only the introduction of new substitution drugs, but also topics as the nature of addiction, co-morbidity, interactions with other drugs should be discussed permanently. Also the attitude of staff and their relationship towards prisoners in substitution treatment has to be discussed during vocational trainings.

As pointed out by Michel (2004, cited in Stöver et al. 2004) in their study on substitution treatment in French prison, the vast majority of doctors interviewed prescribing substitution drugs has not been educated in areas of drug addiction.

In some countries a special training before employment as a doctor in prison is envisaged (The Netherlands), in some others countries, e.g. Germany, a special training for doctors on addiction medicine is required (in the community and in the prison) before the start of substitution treatment (Stöver et al, 2004).

The training seminars should focus on adequate behaviour patterns as part of measures initiated to prevent the spread of infections in prison. A single training on behaviour change, however will not be efficient without accompanying structural changes in the prison setting. According to interviews with prison staff, the three following goals need to be met (Stöver and Trautmann, 2001):

- identification staff with the goal of preventing infection (change attitudes).
- acquiring basic medical knowledge.
- accepting and meeting individual and collective needs for safety (cited in Stöver et al. 2007).

2.2.3 Continuity of care

Porporino et al (2002, cited in Stöver et al. 2004) pointed out that continuity of treatment provision is one of the key concepts, particularly following release, and that it is linked to re-offending rates. Many studies have shown that in particular, engagement in transitional aftercare has been proven as crucial for reducing post-prison recidivism (Simpson & Knight, 1999; Vigilante et al. 1999; Butzin et al, 2002, cited in Stöver et al. 2004). Effective and successful drug treatment in prison requires a continuum of care that takes the drug-using inmate from the correctional environment to the re-integrative processes of community-based treatment offers (Hiller et al, 1999, cited in Stöver et al. 2004). This applies not only to drug free interventions but also to substitution therapy (Stöver et al, 2004).

As most prisoners will eventually be released, careful prison discharge planning is essential for preserving the health care advances made in prison, and it requires a comprehensive approach (Spaulding et al. 2002, Springer & Altice, 2005, cited in WHO et al. 2007a).

Studies among female drug users in prisons and after release showed, that problems which women must deal with after leaving the prison are unemployment, lack of roof over head, lack of possibilities to continue education, somatic and psychological problems. Some of them are not able to sustain abstinence. In connection with a long-lasting isolation and long-term abuse period women have no basic social skills and the social reintegration is difficult for them. They have a problem in everyday life organization, cope with stress and emotions. In the first period they feel helpless in the face of everyday problems. They need support of institutions and relatives and friends. Effective penitentiary and post-penitentiary help (psychological help, professional reintegration, social help, learning how to cope with withdrawal symptom) are needed. Respondents think that it is important to facilitate personal links with an institution which they are supposed contact after leaving the prison (Moskalewicz et al. 2008).

3 Recommendations

3.1 *Testing for infectious diseases*

The literature research revealed that testing for infectious diseases and vaccination is a very important tool to promote and secure health in prison. Vaccination for Hepatitis B and A is highly recommended for prisoners. Similar to testing for infectious diseases, drug testing plays an important part in prison. It can have very different aims and methods. It has been observed that mandatory drug testing is rather expensive and can be counterproductive, due to an increasing tension in the prison.

Level of evidence and need for future research: recommendation is based on outcome of studies; testing for infectious diseases and drugs need more evaluation studies.

3.2 *Treatment of infectious diseases*

Prison authorities should ensure that prisoners receive care, support and treatment equivalent to that available to people living with HIV in the community, including ART. Treating HIV-infected prisoners with ART (anti-retroviral therapy) will not only have an effect on the individual health but also an impact of public health outside the prison.

It should be kept in mind that modalities of administration of HAART have different advantages and disadvantages and influence the adherence. The literature is inconsistent about the evidence about which modality to prefer.

It has been shown that treatment for HCV is also feasible and successful for marginalized groups such as IDUs. Stöver et al. (2007) concluded that although there are only very few studies published on the topic of Hepatitis C treatment, the evidence seems to be clear. Treatment in infected inmates is feasible and safe. By reducing the HCV prevalence among inmates in prisons the prevalence of HCV in the general population is also reduced. Therefore, especially from a public health point of view the implementation of HCV treatment in prison and the access to care for all infected prisoners needs to be promoted.

Level of evidence and need for future research: recommendation is based on outcome of studies; more studies are needed about advantages and disadvantages of different HART modalities, because literature is inconsistent.

3.3 *Abstinence oriented programmes*

Not many studies have been conducted on the effectiveness of psychosocial interventions in the prison setting and a need for more studies on effectiveness of treatment programmes was stressed. A number of studies indicate that it is important for prison systems to develop particular strategies for prison drug treatment rather than simply just reflecting those strategies that exist in the community. Generally there is a

growing consensus that drug treatment programmes in prison can be effective if they are based on the needs and resources of prisoners and are of sufficient length and quality. Level of evidence & need for future research: recommendation is based on outcome of studies; not many studies were conducted on this issue, so it's a need for further research.

3.4 *Detoxification*

Regarding treatment for drug dependency, detoxification with adequate medication is rarely available throughout Europe. There is no sufficient literature on this issue to formulate recommendation

Level of evidence & need for future research: There is a lack of evidence for detoxification programmes in prisons, with only two studies published. More studies should be conducted on detoxification treatment.

3.5 *Substitution*

According to existing literature substitution treatment can reduce sharing injection equipment, can result in decreasing in drug use, drug-related prison violence, crime following release. In several studies negative side-effects of PMMT often feared by prison staff, such as stand over tactics or a black market for methadone, were reported not to have occurred.

A sufficiently high dosage (more than 60 mg) also seems to be important for an increase in the retention rate, which then can be used for additional health care services. The initiation of MMT also contributes to a significant reduction in serious drug charges and in behaviour related to activities in the drug subculture. Offenders participating in MMT had lower readmission rates and were readmitted at a slower rate than NON-MMT patients. There is evidence that continued MMT in prison has a beneficial impact on transferring prisoners into drug treatment after release.

Level of evidence & need for future research: recommendation is based on outcome of studies; it seems that this issue is pretty well elaborated.

3.6 *Needle exchange*

A number of reviews on PNEPs (prison needle exchange programmes) have been undertaken, and gathered evidence for the effectiveness of PNEP, so a further discussion on the implementation is needed, as evidence indicates that the implementation of such measures is possible and feasible with no security problems. Prisoners should have easy, confidential access to needles and syringes.

Level of evidence & need for future research: recommendation is based on outcome of studies; there is need for studies which focus on the question why syringe provision in prisons is still so controversial.

3.7 *Provision of bleach*

There is no evidence of effectiveness of decontamination with bleach in the community and therefore it seems rather unlikely to be effective in prison. Disinfection as a means of HIV prevention is of varying efficiency, and is regarded only as a secondary strategy to syringe exchange programmes.

Level of evidence & need for future research: recommendation is based on outcome of studies; need for future research should be considered.

3.8 *Provision of condoms*

Condoms are likely to be the most effective method for preventing STDs. No serious negative effects of condom provision in prisons have been found, and the provision of condoms seems feasible in a wide range of prison settings. Condoms should be made easily and discreetly accessible to prisoners so that they can pick them up at various locations in the prison.

Level of evidence & need for future research: recommendation is based on outcome of studies; there are not many studies evaluating the distribution of condoms in prison.

3.9 *Case management*

Any conclusion about the effectiveness of case management for substance abusers is at the moment premature and even unwarranted, given the relative scarcity of randomized and controlled trials, especially concerning some specific models of case management. Several studies of case management among drug abusers involved in the criminal justice system have shown that coercion may help to enhance treatment participation and retention, which is associated with positive effects on clients' drug use and criminal involvement. Empirical evidence concerning the effectiveness of judicial case management is still lacking, but available data do not show compelling evidence of its effectiveness. Positive effects of this intervention are reduced drug use and relapse rates, increased treatment participation and retention and less violation of judicial conditions.

Level of evidence & need for future research: recommendation is based on outcome of studies; there is lack of studies concerning some specific models of case management.

3.10 *Clients' needs*

Programmes offered in prison should be based on needs of clients and their goals, whether this be maintenance or abstinence, and provide support in accordance with this. The needs of women must be treated specifically. Mostly the different needs of women in prison are not mentioned specifically.

Level of evidence & need for future research: recommendation is based on outcomes of studies, subjective needs should be in focus.

3.11 *Continuity of care*

Effective and successful drug treatment in prison requires a continuum of care that takes the drug-using inmate from the correctional environment to the re-integrative processes of community-based treatment offers. Very important is to facilitate personal links with an institution which people after release are supposed contact after leaving the prison. A careful prison discharge plan is essential for preserving the health care advances made in prison, and it requires a comprehensive approach.

Level of evidence & need for future research: recommendation is based on outcomes of studies.

3.12 *Staff competences*

Prisoners have the right to receive state of art medical care. Staff should be offered vocational trainings including not only medical or therapeutic issue, but also the attitude of staff and their relationship towards drug using prisoners.

Level of evidence & need for future research: recommendation is based on outcomes of studies and authorities opinions.

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Drug treatment for clients with co-occurring disorders (COD)

Guidelines for treatment improvement

Moretreat-project

CIAR Hamburg
Germany

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EUROPEAN COMMISSION
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1 Introduction

The relationship between substance use and mental disorders dates to the late 1970s, when practitioners increasingly became aware of the implications that two parallel disorders imply for treatment outcomes.

1.1 *Definition*

Co-occurring disorders (COD) refer to occurrence of both substance use (abuse or dependence) and mental disorders. The term „co-occurring disorders“ replaces other terms such as „dual disorder“, „dual diagnosis“ or “psychiatric co-morbidity”.

A diagnosis of co-occurring disorders is confirmed when at least one disorder of each type has established independently of the other and is not simply a cluster of symptoms resulting from the one disorder. In the context of substance use clients with co-occurring disorders have one or more disorders relating to the misuse of alcohol and/or other drugs as well as one or more mental disorders.

1.2 *Context*

The nature of the relationships between mental disorders and substance misuse are complex as the latter can occur at any phase of mental illness and can be caused by a number of factors such as self-medication, genetic vulnerability etc. The identification of the primary diagnosis may be problematic due to the mimicking effect of symptoms linked to mental illness and those linked to intoxication and withdrawal of substance use. For this reason the identification of a disorder requires to apply a particular classification system (Wittchen et al. 1996) such as Diagnostic and Statistical Manual (DSM) IV or International Classification for Diseases (ICD) 10.

1.3 *Relevance of the problem*

The co-occurrence of a severe mental illness and a substance abuse or dependence disorder is prevalent enough to be considered a rule rather than an exception. For instance, in the UK the overall prevalence of substance use disorder in mental health patients was 36.3 % (Menezes et al. 1996). Smaller clinical and treatment studies have indicated that at least one half of the patients in psychiatric and substance use treatment have been diagnosed with both co-morbid psychiatric and substance use disorders (Callaly et al. 2001, Krausz et al 1999). In more recent studies consistently comparable results were found. Havassy et al. (2004) found high prevalence rates of severe mental illness in drug treatment clients and also a high prevalence of serious drug problems in mental health patients. Schäfer & Najavits (2007) showed that in clinical populations 25-50% have a lifetime COD of posttraumatic stress disorder and substance use disorder.

The association between depression and substance abuse was particularly striking and became the subject of several early studies in the United States (e.g. Woody and Blaine 1979; De Leon 1989; Pepper et al. 1981; Rounsaville et al. 1982b; Sciacca 1991). Studies conducted in substance abuse programs typically reported that 50-75 % of clients had some type of co-occurring mental disorder (although not usually a severe mental disorder) while studies in mental health settings reported that between 20 and 50 percent of their clients had a co-occurring substance use disorder (Kessler et al. 1996; Sacks et al. 1997, Compton et al. 2000). The study of Rodriguez-Jimenez et al. (2008) revealed that schizophrenic patients exhibit a high lifetime prevalence (40-50%) of comorbid substance use disorders. A number of studies found strong associations between substance use disorders and antisocial personality disorder. Oyefeso et al. (1998) found that the prevalence rate of personality disorder among drug-dependent inpatients was 86 %.

The mentioned studies vary in their settings, sample sizes, methods and criteria for determining a disorder which can result in different estimates. However, despite these differences the reported rates of COD are consistent across all studies.

1.4 Philosophy and treatment approaches

Clients with co-occurring disorders often show poor medication compliance, physical co-morbidities, poor health, and poor self-care. They also have poorer outcomes such as higher rates of relapse, hospitalisation, depression, and suicide risk (Drake et al. 1998b; Schäfer & Najavits, 2007). According to Coffey and colleagues, hospitalisation for clients with both a mental and substance use disorder was more than 20 times higher than for substance abuse only clients and five times higher than for mental disorder only clients (Coffey et al. 2001). Studies in the United States found that individuals with substance abuse disorder and COD seek treatment more frequently than those with one disorder (Narrow et al. 1993). On the other hand those clients with three or more disorders have never received any treatment (Kessler et al. 1996).

Problems in the provision of health care led to new treatment models and strategies in the United States (Anderson 1997; De Leon 1996; Miller 1994a; Minkoff 1989; National Advisory Council [NAC] 1997; Onken et al. 1997; Osher and Drake 1996). The increased interest in providing effective treatment for COD clients is reflected by new patient placement criteria the American Society of Addiction Medicine (ASAM 2001) had put into practice. To increase treatment effectiveness the National Association of Mental Health Program in the US emphasised the importance to know about both mental health and substance abuse treatment when working with COD clients. In addition a classification of treatment settings has been provided to facilitate systematic treatment planning, consultations, collaborations, and integration.

However, in the last decade, dissemination of knowledge has been widespread. Numerous books and hundreds of articles have been published, from counselling manuals and instruction (Evans and Sullivan 2001; Pepper and Massaro 1995, Coffey et

al. 2001). In spite of these developments individuals with substance use and mental disorders commonly appear at facilities that are not prepared to treat them. They may be treated for one disorder without consideration of the other disorder, often shifting from one type of treatment to another as symptoms of one disorder or another become predominant.

2 Research evidence base – key findings

Even though available literature provides information on treatment approaches to respond to clients with co-occurring disorders, in Europe there is only limited evidence on effective treatment interventions for this population. In addition there is little information about the most effective models of treatment delivery. The majority of research on co-occurring disorders has been conducted in the USA, and especially in North America. Due to very different health and social care systems in the United States and Europe evidence generated by US studies can not be simply translated into the European situation. Currently a number of research studies on co-morbidity have been undertaken in Europe which are of value for practice. However until these research findings are peer-reviewed and published the implementation of evidence-based interventions remains difficult.

Evidence from Northern American studies indicates that an existing mental disorder often makes effective treatment for substance use more difficult (Mueser et al. 2000; National Association of State Mental Health Program Directors and National Association of State Alcohol and Drug Abuse Directors 1999). Evidence suggests that outpatient drug treatment can lead to positive outcomes for clients with less serious mental disorders, even if treatment is not tailored specifically to their needs. This conclusion is supported by the results of the comprehensive database “DATOS” on substance abuse treatment (Flynn et al. 1997). Clients who attended outpatient drug treatment for a period of three months reported lower rates of drug use compared to their rate of use prior to treatment (Hubbard et al. 1997; Simpson et al. 1997a).

2.1 Evidence based interventions

On basis of research findings there are a number of interventions which have been identified as currently demonstrating evidence for treatment of co-occurring disorders. These practices are:

- Pharmacological treatment
- Psychosocial interventions
- Contingency management
- Case management / intensive case management
- Family intervention
- Assertive community treatment

This list is not complete and future research may find evidence for further interventions. However, some further approaches will also be presented below.

Pharmacological interventions

Pharmacological proceedings over the past decade have produced antipsychotic, antidepressant, anticonvulsant, and other medications with greater effectiveness and fewer side effects. Due to better medication regimens many people who once would have been too unstable for medical treatment or who had shown a poor prognosis now are enabled to develop more functional lives. Reviews identified a majority of studies suggesting the effectiveness of second-generation antipsychotics, particularly clozapine, for patients with schizophrenia and a co-morbid substance use disorder. (SAMHSA 2005)

Substance abuse treatment programmes increasingly appreciate the importance of providing medication to control drug abuse symptoms as an essential part of treatment. To ensure that proper medication is prescribed when needed it is important to assess and describe the clients' behaviour and symptoms. Support from mutual self-help groups may be a powerful resource for clients to learn about the effects of medication and to accept medication as part of recovery.

Psychosocial interventions

Since identification of the problem of co-occurring severe mental illness and substance use disorder in the early 1980s, psychosocial interventions have steadily been developed and tested. In the following years there were many pre-post studies but still only a few controlled trials (Drake et al. 1998). In recent years numerous controlled trials have been undertaken, most often in Northern America. Treatment approaches are emerging with demonstrated effectiveness in achieving positive outcomes for clients with COD. These promising treatment approaches base upon comprehensive integrated treatment and provide a variety of interventions for clients with COD; substance abuse treatment includes interventions such as contingency management, cognitive-behavioural therapy, relapse prevention, and motivational interviewing. In fact, it is now possible to identify "guiding principles" and "fundamental elements" for COD treatment in COD settings which have been proven effective for the COD population with serious mental illness.

Individual counselling

Studies of individual counselling are largely based on the technique of motivational interviewing (Miller & Rollnick 2002) and most often focused on substance use outcomes. Three studies assessed the impact of a single session (Baker et al. 2002a, 2002b; Hulse & Tait 2002; Swanson, Pantalon, & Cohen 1999) while four studies examined several individual counselling sessions (Graeber et al. 2003; Baker et al. 2006; Edwards et al. 2006; Kavanagh et al. 2004). Findings on substance use, mental health, and other outcomes including treatment attendance were inconsistent. Graeber,

et al. (2003) found remarkable positive results on substance use outcomes following three sessions of motivational interviewing but three other studies on several sessions (3–12) of motivational interviewing and/or cognitive-behavioural counselling found no differences in substance use outcomes (Baker et al. 2006; Edwards et al. 2006; Kavanagh et al. 2004). In the long-term study of Barrowclough et al. (2001) which included 9 months of motivational interviewing and cognitive-behavioural treatment some positive results were found at 9, 12, and 18 months, but most of the differences in substance use and other outcomes were not sustained at 18 months (Haddock et al. 2003). Thus, the evidence for individual counselling based on motivational interviewing and/or cognitive-behavioural counselling is relatively weak and inconsistent.

Group counselling

Group counselling interventions are usually delivered once or twice a week over a period of 6 months or longer. They are most often based upon cognitive-behavioural techniques, education, peer support, and focussed on managing mental and substance use disorders. There are eight studies on group counselling taken into consideration of which half are experiments and half are quasi-experimental. The results of these studies are considerably consistent in demonstrating that group counselling has positive effects on substance use and on other symptoms than mental illness. Bellack et al. (2006) found positive outcomes of a multi-intervention approach (including cognitive-behavioural interventions, skills training and contingency management) for clients with schizophrenia and drug use disorders, although overall attrition was high. Similarly, Weiss et al. (2000, 2007) showed that cognitive-behavioural intervention has positive substance use outcomes for clients with bipolar disorder plus substance use disorder.

Contingency management (CM)

A substantial empirical database supports effectiveness of CM techniques in enhancing treatment retention and confronting drug use (e.g. Higgins 1999; Petry et al. 2000). The techniques have been shown to address the use of a variety of substances such as opioids (e.g. Higgins et al. 1986; Magura et al. 1998), marijuana (Budney et al. 1991), alcohol (e.g. Petry et al. 2000), and cocaine (Budney and Higgins 1998).

CM has been studied among populations of homeless persons, many with COD (Milby et al. 1996; Schumacher et al. 1995). Results show that participants in treatment with contingencies were more likely than those in conventional treatment to be abstinent from drugs, to move into stable housing, and to gain regular employment following treatment.

CM principles and methods can be applied flexible to cope with new situations and can increase treatment effectiveness. It should be noted that many programmes make use of CM principles informally when they reward particular behaviours. CM techniques have not been implemented in community-based settings until recently. The use of vouchers and other reinforcers has achieved empirical support (e.g. Higgins 1999; Silverman et

al. 2001) even though there is little evidence for the efficacy of different reinforcers. The effectiveness of CM principles when applied in community-based treatment settings and specifically with clients who have COD remains to be demonstrated.

Case management / Intensive case management (ICM)

Case management refers to intensive, team-based, multidisciplinary, outreach-oriented and coordinated services, usually involving assertive community treatment (Stein & Test, 1980) or a close variant called intensive case management. All studies of case management interventions, half experiments and half quasi-experiments, incorporated some forms of integrated treatment for co-occurring substance use disorders. These studies produced inconsistent results on substance use outcomes as well as on mental illness symptoms. Six of the studies reported some reductions in substance use, and further studies found effectiveness in other areas such as increasing engagement, increasing community tenure, and improving quality of life. Traditional outcomes of case management, such as increasing community tenure, are consistently obtained with dual diagnosis clients.

ICM has shown to be effective in engaging and retaining clients with COD in outpatient services and to reduce rates of hospitalisation (Morse et al. 1992). Treatment combining substance abuse counselling with intensive case management has been found to reduce substance use behaviours for this population in terms of days of drug use, remission from alcohol use, and reduced consequences of substance use (Bartels et al. 1995; Drake et al. 1993, 1997; Godley et al. 1994). The continued use and further development of ICM for COD is indicated based on its overall utility and modest empirical base.

Family intervention

Only one study could be identified that included family psycho-education as a consistent intervention. Barrowclough et al. (2001) combined family intervention with individual counselling. The results were positive for substance use and other outcomes at various follow-ups, but mostly faded when the intervention ended. In conclusion family intervention for persons with co-occurring disorders has not yet been evaluated sufficiently.

Assertive community treatment (ACT)

The ACT model has been researched widely as a programme designed for people who are chronically mentally ill. Randomised trials comparing clients with COD assigned to ACT programmes with similar clients assigned to standard case management have demonstrated better outcomes for ACT. It has been shown that the ACT model is effective for mental disorders in reducing re-hospitalisation, improvement of alcohol and substance abuse, lower 3-year post-treatment relapse rates for substance use, and improvements of quality of life (Drake et al. 1998a; Morse et al. 1997; Wingerson and

Ries 1999). ACT has not been effective in reducing substance use when the substance use services were not provided directly by the ACT team (Morse et al. 1997). Research also reveals that ACT is more cost-effective than case management (Wolff et al. 1997). Other studies of ACT were less consistent in demonstrating higher effectiveness of ACT compared to other interventions (e.g. Lehman et al. 1998). In addition, the study of Drake et al. (1998b) did not show improvement on several measures important for establishing the effectiveness of ACT with COD; that is retention in treatment, self-reported substance abuse and stable housing. Drake noted that elements of ACT were incorporated gradually into the standard case management which made it difficult to determine the effectiveness of ACT. Further analyses indicated that clients in high-fidelity ACT programmes showed greater reductions in alcohol and drug use and attained higher rates of remissions in substance use disorders than clients in low-fidelity programmes (McHugo et al. 1999). Based on predominately American results ACT is an effective treatment model for clients with COD, especially those with serious mental disorders.

Residential treatment

Nearly all studies on residential treatment compared a more integrated approach to residential treatment with a less integrated approach. Some of the residential programmes were short-term (6 months or less) and some long-term (1 year or more). The long-term studies did consistently find positive outcomes related to substance use. Brunette et al. (2001) showed that long-term residential treatment was more sustainable effective than short-term residential treatment as regards substance use outcomes. The long-term studies also consistently demonstrated positive effects on other outcomes. A number of large-scale, longitudinal, national, multi-site treatment studies have proven the effectiveness of residential substance abuse treatment (Fletcher et al. 1997; Hubbard et al. 1989). In general, these studies have shown that residential substance abuse treatment results in significant reduction of drug use and crime, and in increased employment. The most recent national study is the American DATOS study (Fletcher et al. 1997) which involved a total of 10,010 adult clients admitted to short-term inpatient substance abuse treatment, residential TCs, outpatient drug-free programmes, or outpatient methadone maintenance programmes across 11 cities in the US. Of the 4,229 clients eligible for follow-up and 2,966 were re-interviewed after treatment (Hubbard et al. 1997). Among these clients there was a high prevalence of clients with COD. The DATOS study participants displayed positive outcomes for substance use and other maladaptive behaviours in the first year after treatment. Substance abusers who at least remain in treatment for 3 months have more favorable outcomes than those dropping out earlier (Condelli and Hubbard 1994; Simpson et al. 1997b, 1999; Knight et al. 2000). Broome and colleagues (1999) found that hostility was related to a lower likelihood of staying in residential treatment beyond the 90-day threshold, but depression was associated with a greater likelihood of retention beyond the threshold.

2.2 *Evidence for different treatment models*

In research there is a discussion about the most effective models of treatment and care for people with co-occurring disorders. There are three main models which can be differentiated even though they might exist across different treatment settings such as outpatient treatment, inpatient and residential treatment.

- Serial treatment models are based upon a consecutive treatment of psychiatric and substance use disorders. Patients attend separate treatment for mental health and substance use disorders with little communication between substance use services and psychiatric services. It is argued that such separate treatment services are not appropriate to meet the needs of patients with co-occurring disorders.
- Parallel treatment models deliver substance misuse and mental health services by establishing a liaison to provide the two services concurrently. Specific liaisons are to facilitate assessment and referral between psychiatry and substance use services. However, in practice it may happen that substance misuse and mental health services operate referral criteria that specifically exclude patients with co-occurring disorders, particularly as regards residential rehabilitation.
- Integrated treatment models include treatment for the mental illness and substance use by delivering both pharmacologic and psychosocial interventions. Experience for integrated treatment emerges from the USA and research suggests that treatment and management of co-occurring disorders is most successful through an integration of both types of treatment. Evidence also suggests that clinical teams must provide a treatment approach incorporates assertive community treatment, motivational and behavioural interventions, relapse prevention, pharmacotherapy and social approaches.

Integrated treatment

During the last decade, integrated treatment has continued to evolve, and several models have been described (Drake and Mueser 1996b; Lehman and Dixon 1995; Minkoff and Drake 1991; Solomon et al. 1993). A recent survey in the USA found that only 12 % of clients with COD mental health and substance use problems received interventions for both (Epstein et al., 2004). Thus, current intervention research on co-occurring disorders assumed the need to integrate mental health and substance abuse services at the clinical level (McHugo et al., 2006). In a review of mental health center-based research for clients with serious and persistent mental illness, Drake and colleagues (1998b) concluded that comprehensive, integrated treatment, “especially when delivered for 18 months or longer, resulted in significant reductions of substance abuse and, in some cases, in substantial rates of remission, as well as reductions in hospital use and/or improvements in other outcomes”. Mangrum et al. (2006) examined 1-year treatment outcomes of 216 individuals with co-occurring severe and persistent mental illness and substance use disorders who were assigned to an integrated or parallel treatment condition. Comparisons indicated that the integrated group achieved greater reductions

in the incidence of psychiatric hospitalisation. Several studies which focussed on substance abuse treatment addressing COD have demonstrated better treatment retention and outcome when mental health services were integrated onsite (Charney et al. 2001; McLellan et al. 1993; Saxon and Calsyn 1995; Weisner et al. 2001). On the other hand a prospective study among substance-abusing schizophrenic patients found no statistical significance between integrated and non-integrated treatment programmes as regards the mental state outcomes (Hellerstein 1995). However, research on integrated treatment expands in the US as previous reviews have documented modestly superior outcomes (Brunette et al., 2004; Drake et al., 2004; Mueser et al., 2005). However, there is no clear evidence that adoption of an integrated treatment model by European health services will be effective as well. Research has demonstrated that non-integrated substance abuse treatment programmes can also be beneficial for clients with co-occurring substance use disorders and mental illness - even in case of serious mental symptoms (e.g. Karageorge 2001). Many clients in traditional substance abuse treatment settings who had mild to moderate mental disorders were found to do well with traditional substance abuse treatment methods (Hser et al. 2001; Hubbard et al. 1989; Joe et al. 1995; Simpson et al. 2002; Woody et al. 1991).

Continuity of care

Evidence for the benefits of ensuring continuity of care mainly comes from sources of the United States. A study among criminal justice populations not specifically identified as having COD found that 3 years after completing prison treatment and additional aftercare only 27 % of these offenders returned to prison (Wexler et al. 1999). In contrast, about three-fourths of those not completing both programmes were re-imprisoned. Similar findings have been reported by Knight et al. (1999). A study of homeless clients with COD provided further evidence that aftercare is crucial for positive treatment outcomes (Sacks et al. 2003). Clients who lived in supported housing after leaving a therapeutic community demonstrated a reduction in antisocial behaviour and an increase in social behaviour. Burnam (1995) undertook an experimental evaluation of residential and non-residential treatment for homeless adults with substance abuse disorder and COD in Los Angeles, California. The study found a significant difference between the two groups in favour of residential treatment but no clear difference in substance use at nine months.

3 Recommendations

3.1 *Guidelines for core elements of interventions*

The following guidelines derive from proven models, clinical experience, and the growing empirical evidence (see part 2). It suggests that the provider needs to address in concrete terms the challenges of providing access, assessment, appropriate level of care, integrated treatment, comprehensive services, and continuity of care for clients with COD. This first section provides guidance that is relevant to design processes that are appropriate for this population within each of these key areas¹⁸.

Providing access

A “no wrong door” policy should be implemented for the full range of clients with COD.

“Access” refers to the process of initial contact with the service system and occurs in the following main ways:

- Routine access for individuals seeking services who are not in crisis
- Crisis access for individuals requiring immediate services due to an emergency
- Outreach, in which agencies target individuals in great need (e.g. people who are homeless) who are not seeking services or cannot access ordinary routine or crisis services
- Access that is involuntary, coerced, or mandated by the criminal justice system, employers, or the child welfare system.

Completing a full assessment

The challenge of assessment for individuals with COD in any system involves maximising the likelihood of the identification of COD, immediately facilitating accurate treatment planning, and revising treatment over time as the client’s needs change.

The following levels of assessment should be implemented:

- Screening

Screening is a formal process of testing to determine whether a client does or does not warrant further attention at the current time in regard to a particular disorder and, in this context, the possibility of a co-occurring substance use or mental disorder. Screening processes (conducted by counsellors using their basic counselling skills) always should define a protocol for determining which clients screen positive and for ensuring that those clients receive a thorough assessment.

- Basic assessment

¹⁸ Principles and core elements are following the consensus building process about treatment of COD of the „Treatment Improvement protocol“ Nr 42 (SAMHSA 2005##).

Information gathered in this way is needed to ensure that the client is placed in the most appropriate treatment setting (as discussed in the next parts) and assisted in providing mental disorder care that addresses each disorder. A basic assessment consists of gathering information that will provide evidence of COD and mental and substance use disorder diagnoses; assess problem areas, disabilities, and strengths; assess readiness for change; and gather data to guide decisions regarding the necessary level of care.

In the assessment process (from engagement, screening for and detect COD, diagnosis and level of care to treatment plan) the counsellor should seek to accomplish the following aims:

- To obtain a more detailed chronological history of past mental symptoms, diagnosis, treatment, and impairment, particularly before the onset of substance abuse, and during periods of extended abstinence.
- To obtain a more detailed description of current strengths, supports, limitations, skill deficits, and cultural barriers related to following the recommended treatment regimen for any disorder or problem.
- To determine stage of change for each problem, and identify external contingencies that might help to promote treatment adherence.

A major goal of the screening and assessment process is to ensure the client is matched with appropriate treatment (see below).

Adopting a multi-problem, tailored and phased approached viewpoint

As people with COD generally have an array of mental health, medical, substance abuse, family, and social problems treatment should address immediate and long-term needs for housing, work, health care, and a supportive network services should be able to integrate care to meet the multidimensional problems.

As co-occurring disorders arise in a context of personal and social problems, with a corresponding disruption of personal and social life, approaches are important that address specific life problems early in treatment. These approaches may incorporate case management to help clients find housing or handle legal and family matters.

Services for clients with more serious mental disorders, must be tailored to individual needs and functioning (CSAT 1998). The manner in which interventions are presented must be compatible with client actual needs and functioning. Such impairments frequently call for relatively short, highly structured treatment sessions that are focused on practical life problems. Careful assessment of such impairments and a treatment plan consistent with the assessment are therefore essential.

Clients are progressing empirically through three to five identified phases (Drake and Mueser 1996; Sacks et al. 1998) or stages including engagement, stabilisation, treatment, and aftercare or continuing care. The use of these phases enables the clinician/practitioner (whether within the substance abuse treatment or mental health services system) to develop and use effective, stage-appropriate treatment protocols.

(See the protocol of how to use motivational enhancement therapy appropriate to the client's stage of recovery.)

Providing an appropriate level of care – matching to treatment

The Quadrants of Care, developed in the US and UK-research, and consensus building is a useful classification of service coordination by severity in the context of substance abuse and mental health settings. The four-quadrant framework provides a structure for fostering consultation, collaboration, and integration among drug abuse and mental health treatment systems and providers to deliver appropriate care to every client with COD. Although the material in this guidance relates to all four quadrants, the guideline is designed primarily for addiction counsellors working in quadrant II and III settings. The four categories of COD are

- • Quadrant I: Less severe mental disorder/less severe substance disorder
- • Quadrant II: More severe mental disorder/less severe substance disorder
- • Quadrant III: Less severe mental disorder/more severe substance disorder
- • Quadrant IV: More severe mental disorder/ more severe substance disorder

(COCE 2008)

Table 1

Level of care quadrant

| | |
|--|--|
| Category III Mental disorders less severe Substance abuse disorders more severe Locus of care Substance Abuse System | Category IV Mental disorders more severe Substance abuse disorders more severe Locus of care Substance abuse system, mental health system, hospitals, jails/prisons, emergency rooms, etc. |
| Category I Mental disorders less severe Substance abuse disorders less severe Locus of care Primary health care settings | Category II Mental disorders more severe Substance abuse disorders less severe Locus of care Mental health system |

(COCE 2006)

The quadrant represents a client placement system to facilitate effective treatment (following the American Society of Addiction Medicine – ASAM). In this guidance a related system is recommended that classifies both substance abuse and mental health programmes as basic, intermediate, and advanced in terms of their progress toward providing more integrated care.

- A basic programme has the capacity to provide treatment for one disorder, but also screens for the other disorder and can access necessary consultations.
- A programme with an intermediate level of capacity tends to focus primarily on one disorder without substantial modification to its usual treatment, but also explicitly addresses some specific needs of the other disorder.

- A programme with an advanced level of capacity provides integrated substance abuse treatment and mental health services.

Irrespective of the model adopted, services need to have close collaboration with other providers involved in the care of the patient and carers. Those involved in the care of the patient need to identify a named care co-ordinator with responsibility for co-ordinating care.

Achieving integrated treatment

Integration of care for COD is seen as a continuum. Depending on the needs of the client and the constraints and resources of particular systems, appropriate degrees and means of integration will differ.

Integrated treatment can occur on different levels and through different mechanisms:

- One clinician delivers a variety of needed services.
- Two or more clinicians work together to provide needed services.
- A clinician may consult with other specialties and then integrate that consultation into the care provided.
- A clinician may coordinate a variety of efforts in an individualized treatment plan that integrates the needed services.
- One programme or programme model (e.g., modified residential treatment or intensive outpatient treatment) can provide integrated care.
- Multiple agencies can join together to create a programme that will serve a specific population.

Integrated treatment also is based on positive working relationships between service providers. The four-quadrant category framework (described below) provides a useful structure for fostering consultation, collaboration, and integration among systems and providers to deliver appropriate care to every client with COD.

Ensuring continuity of care

Recovery for COD is a long-term process of internal change, and these internal changes proceed through various stages (De Leon 1996 and Prochaska et al. 1992). The recovery perspective generates at least two main principles for practice: A treatment plan should be developed that provides continuity of care over time. It should be considered that treatment may occur in different settings over time (i.e. residential, outpatient) and that much of the recovery process typically occurs outside of or following treatment. It is important to reinforce long-term participation in these continuous care settings.

Continuity of care implies coordination of care as clients move across different service systems (e.g. Morrissey et al. 1997). Since both substance use and mental disorders frequently are long-term conditions, treatment for persons with COD should take into consideration rehabilitation and recovery over a significant period of time. To be effective, treatment must address the three features that characterise continuity of care:

- Consistency between primary treatment and ancillary services

- Seamlessness as clients move across levels of care (e.g. from residential to outpatient treatment)
- Coordination of present and past treatment episodes

Ideally outreach, employment, housing, health care and medication, financial support, recreational activities, and social networks should be included in a comprehensive and integrated service delivery system. Areas of particular value are housing and employment.

The different organisational structures and settings in which services occur influence the ease or difficulty of providing a service delivery network that is integrated, comprehensive, and continuous.

The support systems should be used to maintain and extend treatment effectiveness. The mutual self-help movement, the family, the faith community, and other resources that exist within the client's community can play an invaluable role in recovery.

3.2 *Guidelines for interventions and programme elements*

Interventions refer to the specific treatment strategies, therapies, or techniques that are used to treat one or more disorders.

Interventions may include psychopharmacology, individual or group counselling, cognitive-behavioural therapy, motivational enhancement, family interventions, 12-Step recovery meetings, case management, skills training, or other strategies. Both substance use and mental disorder interventions are targeted at the management or resolution of acute symptoms, ongoing treatment, relapse prevention, or rehabilitation of a disability associated with one or more disorders, whether that disorder is mental or associated with substance use.

Maintaining therapeutic alliance

Maintaining a therapeutic alliance with clients who have co-occurring disorders (COD) is important and difficult. Guidelines for addressing these challenges should be part of all interventions. It stresses the importance of the practitioners/counsellor's ability to manage feelings and biases that could arise when working with clients with COD.

To build a therapeutic relationship the above listed guidelines for treatment (see 3.1) and the attitude of motivational enhancement are essential.

Motivational Interviewing

Several well-developed and successful strategies from the substance abuse field should be adapted for COD. Motivational Interviewing (MI) is a client-centred, directive method for enhancing intrinsic motivation to change (by exploring and resolving ambivalence) that has proven effective in helping clients clarify goals and commit to change. (See special guidance for Motivational Enhancement for details).

Contingency Management (reinforcement approaches)

Approaches with reinforcement such as Contingency Management (CM) maintain that the form or frequency of behaviour can be altered through the introduction of a planned and organised system of positive and negative consequences. Many counsellors and programmes employ CM principles informally by rewarding or praising particular behaviours. Similarly, CM principles are applied formally (but not necessarily identified as such) whenever the attainment of a level or privilege is contingent on meeting certain behavioural criteria. Detailed demonstration of the efficacy of CM principles for clients with COD is still needed.

Cognitive–Behavioural Therapy (CBT)

Cognitive-Behavioural Therapy (CBT) uses the client's cognitive distortions as the basis for prescribing activities to promote change. Distortions in thinking are likely to be more severe with people with COD who are, by definition, in need of increased coping skills. CBT should be introduced in developing these coping skills in a variety of clients with COD.

Relapse Prevention (RP)

Relapse Prevention (RP) has proven to be a particularly useful substance abuse treatment strategy and it appears adaptable to clients with COD. The goal of RP is to develop the client's ability to recognise cues and to intervene in the relapse process, so lapses occur less frequently and with less severity. RP endeavours to anticipate likely problems, and then helps clients to apply various tactics for avoiding lapses to substance use. Relapse Prevention Therapy, has been specifically adapted to provide integrated treatment of COD, with promising results.

Ensure proper medication

The use of proper medication is an essential programme element, helping clients to stabilise and control their symptoms, thereby increasing their receptivity to other treatment. Maintenance treatment is introduced as a first line treatment (see special guidance). Pharmacological advances over the past few decades have produced more effective psychiatric medications with fewer side effects. With the support of better medication regimens, many people with serious mental disorders who once would have been institutionalised, or who would have been too unstable for substance abuse treatment, have been able to participate in treatment, make progress, and lead more productive lives.

Outpatient programmes with key elements of Assertive Community Treatment (ACT) or Community Reinforcement Approach (CRA)

Because outpatient treatment programmes are widely available and serve the greatest number of clients, it is imperative that these programmes use the best available

treatment models to reach the greatest possible number of persons with COD. Assertive Community Treatment (ACT) and Community reinforcement Approach (CRA), historically designed in the US for clients with serious mental illness or substance use disorder, employ extensive outreach activities, active and continuing engagement with clients, and a high intensity of services. These approaches emphasises multidisciplinary teams and shared decision making. Structured psychosocial interventions (see special guidance) that adopt elements of the mentioned programmes should be introduced in Europe.

Intensive Case Management (ICM)

The goals of ICM are to engage individuals in a trusting relationship, assist in meeting their basic needs (e.g., housing), and help them access and use brokered services in the community. The fundamental element of ICM is a low caseload per case manager, which translates into more intensive and consistent services for each client. ICM has proven useful for clients with serious mental illness and co-occurring substance use disorders. Structured counselling (see guidance for psychosocial interventions) offers similar elements as ICM und should have similar effects in connection with low caseloads per counsellor. (It should be noted that direct translation of ICM models from the mental health settings in which they were developed to substance abuse settings is not self-evident. These initiatives likely must be modified and evaluated in such settings.)

Consideration of cultural contexts

Treatment providers are advised to view clients with COD and their treatment in the context of their culture, ethnicity, geographic area, socioeconomic status, gender, age, sexual orientation, religion, spirituality, and any physical or cognitive disabilities. The provider especially needs to appreciate the distinctive ways in which a client's culture may view disease or disorder, including COD. Using a model of disease familiar and culturally relevant to the client can help communication and facilitate treatment.

Modifications in residential settings

Residential treatment for substance abuse occurs in a variety of settings, including long- (12 months or more) and short-term residential treatment facilities, criminal justice institutions, and halfway houses. In many substance abuse treatment settings, psychological disturbances have been observed in an increasing proportion of clients over time; as a result, important initiatives have been developed to meet their needs. The principles and methods of residential models (see special guideline to psychosocial interventions) have to be adapted to the circumstances of the client, making the following alterations: increased flexibility, more individualised treatment, and reduced intensity.

Provisions for acute and primary care settings

Because acute and primary care settings encounter chronic physical diseases in combination with substance use and mental disorders, treatment models appropriate to medical settings are important. In these and other settings, it is particularly important that administrators assess organisational readiness for change prior to implementing a plan of integrated care. The considerable differences between the medical and social service cultures should not be minimised or ignored; rather, opportunities should be provided for relationship and team building.

Consideration of treatment for special subgroups

The needs of a number of specific subgroups of persons with COD can best be met through specially adapted programs. These include persons with specific disorders (such as bipolar disorder) and groups with unique requirements (such as women, the homeless, and clients in the criminal justice system). A number of promising approaches to treatment for particular client groups should be implemented, while recognising that further development is needed, both of disorder-specific interventions and of interventions targeted to the needs of specific populations.

Important elements after residential placement

Discharge planning is important to maintain gains achieved through residential or outpatient treatment. Depending on programme and community resources, a number of continuing care (aftercare) options should be made available for clients with COD who are leaving treatment. These options include mutual self-help groups, relapse prevention groups, continued individual counselling, psychiatric services (especially important for clients who will continue to require medication), and ICM to continue monitoring and support.

Aid for self help approach

During the past decade, dual recovery mutual self-help approaches have been developed for individuals affected by COD and are becoming an important vehicle for providing continued support in the community. These approaches apply a broad spectrum of personal responsibility and peer support principles, often employing 12-Step methods that provide a planned regimen of change. The practitioner/clinician can help clients locate a suitable group, find a sponsor (ideally one who also has COD and is at a late stage of recovery), and become comfortable in the role of group member.

Promotion of coordination and continuity of care

Continuity of care refers to coordination of care as clients move across different service systems and is characterised by three features: consistency among primary treatment activities and ancillary services, seamless transitions across levels of care (e.g. from residential to outpatient treatment), and coordination of present with past treatment

episodes. Because both substance use and mental disorders typically are long-term chronic disorders, continuity of care is critical; the challenge in any system of care is to institute mechanisms to ensure that all individuals with COD experience the benefits of continuity of care.

Implementation of integrated interventions

Integrated interventions are specific treatment strategies or therapeutic techniques in which interventions for both disorders are combined in a single session or interaction, or in a series of interactions or multiple sessions. Integrated interventions can include a wide range of techniques. Some examples include

- Integrated screening and assessment processes
- Dual recovery mutual self-help meetings
- Dual recovery groups (in which recovery skills for both disorders are discussed)
- Motivational enhancement interventions (individual or group) that address issues related to both mental health and substance abuse or dependence problems
- Group interventions for persons with the triple diagnosis of mental disorder, substance use disorder, and trauma, or which are designed to meet the needs of persons with COD and another shared problem such as homelessness or criminality
- Combined psychopharmacological interventions, in which an individual receives medication designed to reduce cravings for substances as well as medication for a mental disorder. Integrated interventions can be part of a single programme or can be used in multiple programme settings.

Internal capability and care coordination

Recognising that system integration is difficult to achieve (and only an option for small groups of clients) and that the need for improved COD services in substance abuse treatment agencies is urgent, it is recommended that the emphasis should be placed on assisting the substance abuse treatment system in the development of increased internal capability to treat individuals with COD effectively.

Staffing – promoting multidisciplinary team

An essential component of treatment for COD should enhance staffing that incorporates professional mental health specialists, psychiatric consultation, or an onsite psychiatrist (for assessment, diagnosis, and medication); psycho-educational classes (e.g. mental disorders and substance abuse, relapse prevention) that provide increased awareness about the disorders and their symptoms; onsite double trouble groups; and participation in community-based dual recovery mutual self-help groups, which afford an understanding, supportive environment and a safe forum for discussing medication, mental health, and substance abuse issues.

Training of staff

All good treatment depends on a trained staff. It is of special importance to create a supportive environment for staff and encouraging continued professional development, including skills acquisition, values clarification, and competency attainment. An organisational commitment to staff development is necessary to implement programmes successfully and to maintain a motivated and effective staff.

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15 Treatment for stimulants

Treatment for stimulants

Guidelines for treatment improvement

Moretreat-project

NAC, Kings College
London

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EUROPEAN COMMISSION
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1 Introduction

1. Definitions

1.1 Context

Stimulant users include users of powder cocaine, crack cocaine and amphetamines. At present there is not a complete treatment package that has been demonstrated to achieve abstinence and prevent relapse for stimulant users. Consequently treatment for stimulant users should include an initial phase of seeking the cessation of stimulant use, a second phase involving relapse prevention and a third phase that seeks to maintain abstinence through the learning of new skills to achieve this. However stimulant users, like other problem drug users, may experience a range of medical problems or emergencies, psychiatric problems or crises or various social, legal or employment problems which may need the involvement of a range of services beyond drug treatment services (SAMHSA, 1999; NTA, 2002).

1.2 Philosophy and approach

Concerted strategies are required to attract stimulant users into treatment where, unlike opioid treatment, there is no pharmacological treatment such as methadone or buprenorphine they can benefit from. Rapid intake into treatment is required to make the most of high motivation to enter into treatment. Concerted strategies are also required to retain patients in treatment (NTA, 2002).

1.3 Relevance of the problem

Estimates of the extent of problem cocaine use in Europe are available for only three countries, Italy, Spain and the United Kingdom. Here the estimates from these countries are between three and six problem users of cocaine users per 1,000 adults aged 15-64 (EMCDDA, 2008).

Using its Treatment Demand Indicator data the EMCDDA has recorded cocaine as a secondary problem drug for around 15% of all outpatient clients. Most countries in Europe report a low proportion of cocaine users among all clients in drug treatment, although the Netherlands and Spain have reported high proportions of 35% and 42% respectively in 2004 (EMCDDA, 2008).

2 *Aims and objectives*

2.1 Aims of treatment for stimulants

Treatment for stimulant users aims to achieve cessation of stimulant use, prevent relapse and maintain abstinence through the learning of new skills to achieve this. Programmes to treat stimulant misuse should include the following:

- An assessment of the psychological, psychiatric, social and physical status of patients using defined assessment schedules
- An assessment of the degree of misuse and/or dependence on relevant classes of drugs, notably opioids, stimulants, alcohol and benzodiazepines
- To define a programme of care and to develop a care plan to carry out a risk assessment
- To prescribe medication safely and effectively to achieve withdrawal from psychoactive drugs
- To identify risk behaviours and offer appropriate counselling to minimise harm
- To assess the longer-term treatment needs of patients and provide an appropriate discharge care plan
- To assess and refer patients to other treatments as appropriate
- To monitor and evaluate the efficacy and effectiveness of prescribing interventions
- To provide referral to other services as appropriate (NTA, 2002)

Client groups served

Could not find anything to make an evidence-based statement.

Eligibility

Those who have made an informed and appropriate decision to seek help for their stimulant misuse problems should be eligible for treatment.

Priority groups

Could not find anything to make an evidence-based statement

Exclusion

Could not find anything to make an evidence-based statement

2. Research evidence base.

2.1 Treatment environment and holistic treatment and care

2.2 Effectiveness by treatment setting

Patients with a cocaine or other stimulant use problem generally do not require treatment in an inpatient setting as withdrawal syndromes are not severe or medically complex (Kleber et al, 2006). The limited evidence available suggests that most patients can be effectively treated in intensive outpatient programmes. For example, in a study comparing outcomes for dependent crack users when randomly assigned to residential or day drug abuse treatment, relapse outcomes showed that at 12-18 month follow-up outcomes had converged and about half of both groups had remained abstinent (Greenwood et al, 2001). Those people with more severe polydrug and social or psychological problems found residential care more beneficial than less intensive or shorter interventions if they stayed there for at least three months (Simpson et al, 1999).

Treatment entry

116 patients telephoning an outpatient cocaine treatment clinic were randomly assigned to intake appointments scheduled at four times: the same day, 1 day, 3 days or 7 days later. Significantly more subjects scheduled 1 day later attended their intake appointments and those offered intake appointments approximately 24 hours following their initial contact are more than four times as likely to attend their intake appointments as those scheduled later (Festinger et al, 2002).

A study of patients participating in a cocaine treatment study found that minority and unemployed patients and those with more days of cocaine use were less likely to attend the intake appointment usually offered in 24 hours after telephone screening (Siqueland et al, 2002).

2.3 Prescribing for stimulant problems

Pharmacological approaches have been trialled for the treatment of the symptoms of cocaine intoxication, cocaine-related psychosis, the symptoms of acute withdrawal and the maintenance of abstinence over 3-6 months. Although cocaine users do not face physical withdrawal symptoms, during abstinence subjects may experience symptoms such as depression, fatigue, irritability, anorexia and sleep disturbances.

Antidepressants (notably desipramine and fluoxetine), dopamine agonists (notably amantamide, bromocriptine and pergolide, and anticonvulsants (notably carbamazepine and phenytoin) and mood stabilisers (notably lithium) have been trialled for the treatment of cocaine dependence and there is no evidence to support their effectiveness

(Lima et al, 2002). A range of medications, including modafinil, are currently being trialled (Vocci & Elkashef, 2005).

Disulfiram

Cocaine and alcohol are often used in combination and it is difficult for the individual to cease use of only one substance. Disulfiram (Antabuse), used in the treatment of alcohol dependence, has been found to reduce cocaine use indirectly through its effect on alcohol use (Carroll et al 2000). Its use in combination with psychosocial approaches has been found to have an impact on treatment retention and levels of cocaine use, although this effect had faded at one year follow-up in one study . (Carroll et al 2000; 2004). Disulfiram has also been found to reduce cocaine use among patients being treated for opioid addiction (Petrakis et al 2000; George et al 2000).

Maintenance therapy

There is no evidence to support the use of maintenance therapy for stimulant users (UK. Department of Health, 2007). A recent meta-analysis of studies using CNS stimulants for the treatment of cocaine dependence found that CNS stimulants did not decrease dropout rate, cocaine use or craving compared to placebo (Castells et al, 2007).

Studies have shown that providing methadone or buprenorphine maintenance therapies for those with opiate dependence problems but also use cocaine, can lead to reductions in cocaine use, an effect enhanced when used in combination with contingency management techniques or disulfiram (Jofre-Benet, 2004; Schottenfeld et al, 2005).

2.4 *Psychosocial Interventions*

Psychosocial interventions that have been examined for stimulant misuse include:

- Contingency management
- Cognitive Behavioural Therapy
- Skills training
- Relapse prevention
- Cue exposure
- Motivational Interviewing
- Counselling approaches

Contingency management

Contingency management (CM) and reinforcement approaches seek to provide immediate rewards for negative drug tests, with the aim of increasing treatment retention and improving outcomes, with instant loss of reward for recurrent drug use. A review of the evidence on contingency management concluded that the approach is acceptable to patients, contributes to patient retention and is effective in achieving initial abstinence (Van Horn and Frank, 1998). A number of controlled trials identified reinforcement techniques leading to positive outcomes. For example, Higgins et al 1993

reported on 38 cocaine dependent patients and found that, compared with standard drug abuse counselling, 12-week outpatient behavioural treatment led to greater treatment acceptance, longer continuous cocaine abstinence and better retention rates. Continuous cocaine abstinence was improved when a voucher reward system was added to behavioural therapy, with 50% for those receiving the vouchers compared to 10% of those who did not. Treatment retention was improved with 93% of those receiving vouchers retained against 67% of those not receiving vouchers. Other randomised trials have demonstrated similar higher rates of treatment retention and continuous cocaine abstinence (Higgins et al 1994; Silverman et al 1996; Petry et al, 2004; 2006).

A study of cocaine using methadone patients found that the combination of a high value reinforcer of \$100 combined with a low response requirement of 2 days of abstinence (defined as a 50% or greater reduction in cocaine use over the 2 days) resulted in an abstinence rate of 80% of the patients (Robles et al, 2000). This finding was replicated in a subsequent study where continuing reinforcement conditions led to sustained abstinence, although abstinence rates declined over the 11-day period of the intervention (Katz et al, 2002). A controlled trial reported positive outcomes when housing was provided as an incentive for abstinence for homeless people using cocaine (Milby et al 2000).

Combined with group therapy in methadone clinic, the prize-based CM patients had more cocaine-negative urine samples and attended more group sessions than the control group receiving treatment as usual (Petry et al, 2005). Studies have also found both short- and long-term voucher-based reinforcement for cocaine users in methadone maintenance patient samples are effective in decreasing cocaine use (Sigmon et al., 2004; Silverman et al., 2004).

Psychotherapeutic interventions including Cognitive Behavioural Therapy

The results of studies of cognitive-behavioural therapies (CBT) with cocaine dependence are inconsistent. Whilst one study found better long-term outcomes for CBT than clinical management (Carroll et al, 1994), two further studies found no long- or short-term effects (Carroll et al, 1991, Wells et al, 1994). CBT has been found to be differentially effective for participants in studies with a history of depression (Carroll et al, 1994; Maude-Griffin et al, 1998).

One study compared professionally delivered psychotherapy with structured counselling in 487 randomly assigned patients. Patients in the sample receiving combined group and individual counselling had better treatment outcomes than those receiving psychotherapy, who had similar outcomes to those patients receiving group counselling treatment (Crits-Cristoph et al, 1999). Using the data from the same study, the investigators found that there were no significant differences on measures of psychiatric symptoms, employment, medical, legal, family-social, interpersonal or alcohol use problems (Crits-Cristoph et al, 2001). A study of combined psychotherapies randomly assigned 184 individuals to 4-month standard or intensive group therapy and within

these groups, either received no additional services, individual therapy or individual plus family therapy. There were no differences in retention or 12-month follow-up cocaine use outcome for the different treatment modalities or intensities (Hoffman et al 1996).

A recent RCT on brief cognitive behavioural interventions for amphetamine users found that the number of treatment sessions had a significant effect on the level of depression, and also abstinence rates were better in those attending at least twice or more (Baker et al., 2005).

Relapse prevention and skills training

Several studies have failed to demonstrate greater efficacy of skills training or relapse prevention over control approaches (Hawkins et al 1986; 1989; Carroll et al 1991;1994). The studies conducted by Carroll et al found that patients with more severe cocaine use at baseline did better with relapse prevention than other control approaches including clinical management and interpersonal therapy. Whilst a study comparing the effectiveness of relapse prevention approaches and standard group counselling found neither approach similar to the other in an initial study while a two-year follow-up found that those receiving relapse prevention had better outcomes over the longer term. A study of 32 cocaine dependent outpatients found that group delivery of relapse prevention therapy was significantly more effective than individual therapy in the immediate post-treatment period in reducing cocaine use and cocaine-related problems (Schmitz et al, 1997). Monti et al (1997) compared coping skills training (CST) tailored to specific high risk situations of cocaine users with a control approach using manualised meditation and relaxation training. Those patients with CST in addition to their treatment programme experienced shorter and less severe relapses.

Comparisons of psychosocial approaches

CBT and Contingency Management

CBT and 12-step

A study of 128 crack using patients comparing the efficacy of cognitive behaviour therapy (CBT) with 12-step facilitation found that those treated with CBT were more likely to achieve abstinence than those in 12-step. The findings also provided support for matching hypothesis. The authors conclude that CBT is the better choice between the two when patient characteristics are unknown but that both approaches may be effective if more is known about the patient (Maude-Griffin et al , 1998).

Relapse prevention and 12-step

A comparison of a relapse prevention approach with 12-step both delivered in an outpatient setting found no difference in outcomes. However, the study found

significantly better maintenance of reductions in alcohol use in the relapse prevention group, treatment completion was beneficial and produced better treatment outcomes (Wells et al 1994).

Motivational interviewing

A study of cocaine abusers in a private substance abuse/partial hospital programme randomized patients to a motivational interviewing or meditation/relaxation control conditions before they received group sessions on cocaine specific coping skills training or educational discussions. Although the MI did not alter cocaine treatment outcomes, the MI had a differential effect according to baseline level of motivation or ambivalence. Those MI patients with more ambivalence or less motivation for change had fewer cocaine using days at follow-up. Motivational interviewing also improved treatment retention (Rohsenow et al, 1998). Similar findings were reported in a pilot study of patients assigned a MI or a detoxification-only condition. Although participants completed the detoxification programme at equal rates, completers who only received MI increased use of behavioural coping strategies and had fewer cocaine -positive urine samples on beginning the primary treatment programme. Those who had lower initial motivation were more likely to complete detoxification (Stotts et al, 2001). In contrast, more recent studies using brief MI sessions in a treatment population found no differences in the intervention group and the standard treatment group in days abstinent from stimulant drug use suggesting that those in these studies any already have been motivated to change their drug use and consequently did not require an additional motivational intervention (Miller et al, 2003; Rohsenow, 2004; Carroll et al, 2006; Mitcheson et al, 2007). In a small pilot study, cocaine-dependent patients with depression and stabilized with antidepressant were more likely to remain in treatment, complete the programme and have fewer psychiatric rehospitalizations and days in the hospital after MI treatment compared to a group receiving standard treatment (Daley et al, 1998). In a small study comparing amphetamine users receiving MI plus skills training with a control group receiving just a self help booklet, those receiving the intervention were more likely to become abstinent or show greater reductions in drug use, although there was a significant reduction in amphetamine use across the study group as whole (Baker et al, 2001). A later study that replicated and extended the trial with a larger sample reported that abstinence rates were slightly improved by the intervention and that there was a significant increase in the rates of abstinence for those who received two or more treatment sessions (Baker et al, 2005).

Brief interventions

Brief interventions are usually interventions with a maximum of two sessions with the aim of encouraging change in terms of abstinence or the reduction of harmful behaviours associated with drug use (NICE, 2008). A large US RCT with a diverse sample of out-of -treatment cocaine and heroin users tested a brief intervention

conducted by peer educations against screening and written advice and referral. Those receiving the intervention achieved slightly higher abstinence rates than the controls and at 6 month follow-up those receiving the intervention had achieved greater reductions in their cocaine use despite a lack of contact with treatment services (Bernstein et al, 2005).

3. Recommendations

3.1 Access to care

Access to the service

Treatment should be a readily available option for people who have a stimulant problem and have expressed an informed and appropriate choice to seek help (NICE, 2007). Information should be made available on criteria for access to the treatment programme. The material should describe who the service is intended for and what are the expected waiting times for entry (National Treatment Agency, 2002).. Services should respond quickly and positively to initial telephone enquiries and schedule appointments with minimal delay (SAMHSA, 1999)

3.2 Pathways of care

Programme Location

The majority of stimulant users are likely to be seen in an out-patient setting, while crisis management services may be needed for some users with an acute crisis (SAMHSA, 1999; NTA, 2002). Patients with multiple needs are more likely to benefit from intensive residential rehabilitation which can be provided on a day-care basis (NTA, 2002).

Programme Duration

The limited data available and clinical experience suggest that treatment programmes of 12-24 weeks in duration are commonly used for treating stimulant misusers (SAMHSA, 1999). The US Drug Abuse Treatment Outcome Study (DATOS) found that the benefits of treatment among those in residential therapeutic communities were concentrated among those who had stayed for at least three months (Simpson, 1999).

Staffing Competencies

Staff involved in treating stimulant users should include nursing and medical staff, social workers and care managers, psychologists and counsellors. Staff should be

trained in crisis management, specific counselling techniques and trained in mental health issues (NTA, 2002).

3.3 *Assessment*

Those presenting for problematic stimulant use should be assessed to establish the presence and severity of stimulant use, as well as misuse of and/or dependence on other substances including alcohol. Assessment should be brief and focussed to avoid becoming a barrier to treatment for stimulant users who want quick access to treatment (SAMHSA, 1999).

Assessment should include

- Urinalysis to aid confirmation of the use of stimulants and other drug use
- The taking of a history of drug and alcohol use and previous treatment episodes
- A review of current and previous physical and mental health problems
- Risk assessment for self-harm
- An assessment of present social and personal circumstances
- A consideration of the impact of drug misuse on family members and any dependents
- Offer screening for hepatitis, HIV and sexually transmitted infections
- Development of strategies to avoid risk of relapse (NICE, 2007).

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16 Pregnancy and parenting in drug treatment

Pregnancy and Parenting

Guidelines for treatment improvement

Moretreat-project

MUW Vienna
Austria

October 2008

(This protocol includes parts of the manuscript for WHO guidelines and therefore may not be published before the publication of these WHO guidelines; the reference always has to be stated)



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1. Introduction

1.1 *Definitions*

Evidence-based treatment options in the field of substance dependence and pregnancy and parenting are limited since trials are difficult to conduct in this area. Many of these women are poly-drug users, and so standardization and interpretation of the study results is complex. As long as women continue to abuse opioids and other drugs, we will be faced with challenges in the management of pregnant addicts. Getting these women into multidisciplinary treatment as early as possible, where they can be maintained on medication and monitored regularly, is beneficial to both mother and child, in both the short and long term, and should be standard practice. Abstinence of opioids during pregnancy is difficult to maintain, but it presents the ideal goal. Opioid maintenance therapy is the recommended treatment approach during pregnancy and there appear to be few developmental or other effects on these children in the long term. In addition to standardized approaches towards pregnancy, equivalent attention needs to be given to the treatment of the neonatal abstinence syndrome (NAS), which occurs frequently also after opioid medication. Further research in this area would be welcomed, although this obviously presents serious methodological problems.

1.1.1 Effects on mother, fetus and neonate

Substance abuse during pregnancy affects the pregnant women, the fetus and neonate in two different ways: they suffer from direct consequences due to substance use or abuse as well as from indirect ones resulting from the influence of their living environment. Substance dependent women often face difficult domestic circumstances such as violence, sexual abuse or substance abuse by a responsible family-member. Regarding the impact of the experience of violence and abuse during childhood, a strong correlation between childhood trauma and later drug dependence is reported (Schnieders et al. 2006). Furthermore, based on the multifactorial genesis of addiction, genetic influence becomes increasingly important (Lesso et al. 2004; Uhl 2006). Therefore, the need for a stable environment for the developing child, including assistance by health authorities, becomes evident in order to prevent addiction in the second generation.

2. Evidence base

2.1 *Multiple substance abuse during pregnancy*

All of the published literature on the topic of opioid dependence and pregnancy refer to the consequences of either heroin or methadone and more recently to buprenorphine. Other substances co-abused by the target population, tend to be neglected in the analyses. The additional use of other substances represents a potentially confounding factor that may be responsible for a variety of clinical features. We have included these below:

2.1.1 Cannabis

Marijuana abuse is very common in pregnant women (Hurd et al. 2005). However, the facts documenting the direct effects of prenatal cannabis exposure to fetal development are very limited. Hurd et al. report decreased mid-gestational fetal growth (Hurd et al. 2005). Ostrea et al. examined the incidence of SIDS associated with cannabis abuse during pregnancy and found no increased risk (Ostrea et al. 1997). The validity of these results is limited by the fact that only 11 cases of SIDS were investigated. Scragg et al. conducted a nation-wide case-controlled study in New Zealand with 393 cases and 1592 controls, which shows that cannabis abuse as a weak risk factor in SIDS (Scragg et al. 2001). Further research in this domain is indispensable, but in a real-world situation, solely cannabis-abusing pregnant women are difficult to recruit for prospective studies.

2.1.2 Cocaine

Following a major increase in cocaine use in the US over recent decades, the United Nations Office on Drugs and Crime (UNODC) has reported increasing figures for Europe, Asia and Australia – the prevalence ranges between 0.1% and 2.7% (World Drug Report, 2005).

Cocaine abuse represents an increasing and serious health problem, yet there is no proven medication for an effective pharmacological treatment. Cocaine abuse in pregnant women may have teratogenic effects on the fetus and lead to life-threatening complications like cardiac and cerebral ischemias, malignant hypertension, stroke and sudden death (Vascia et al. 2002; Brownlow et al. 2002; Egred et al. 2005).

Preclinical studies suggest that the reinforcing effect of cocaine that promotes its abuse is mediated by blockade of the presynaptic dopamine transporter (Carrera et al. 2004). Presently, support for cocaine-dependent women comprises education about the risks and the consequences of ongoing substance abuse for mother and fetus. Cognitive behavioural therapy and contingency management (CM) is the standard for the treatment of the cocaine-dependent pregnant women, with the aim of cocaine abstinence (Breza et al. 2002).

Physiological changes in pregnancy have a direct effect on the metabolism of cocaine: cholinesterase slows cocaine's metabolism in the pregnant woman as well as in the fetus. Cocaine crosses the placenta rapidly by diffusion due to its lipophilic properties, which gives rise to increased plasma concentrations in the fetus (Farrar et al. 1989; Dempsey et al. 1998; Dempsey et al. 1999).

2.1.3 Amphetamines and Metamphetamines

Handmaker et al. report a larger cranial to body growth ratio in amphetamine-exposed neonates (Handmaker et al. 2006). In 2004, Chang et al. identified several possible consequences for neonates exposed to methamphetamine prenatally. Their results showed smaller subcortical volumes and associated neurocognitive deficiencies. These findings suggest a neurotoxic effect in the developing brain of the fetus related to metamphetamine abuse during pregnancy (Chang et al. 2004).

2.1.4 Benzodiazepines

Benzodiazepines are common drugs used for the treatment of anxiety, insomnia and epilepsy. Despite the fact that benzodiazepines have been on the market for more than 40 years, the safety of their use during pregnancy remains controversial because conflicting results regarding their teratogenicity have been reported (Dolovich et al. 1998; Eros et al. 2002). In addition to the postulated teratogenic component, benzodiazepines have postnatal consequences for the infant. In spite of the apparent equivalence in potentially harmful effects, benzodiazepines are still administered to avoid prescribed opioids during pregnancy (Kandall et al. 1977; Laegreid et al. 1990; Kohen, 2004; Einarson, 2005; Swortfiguer et al. 2005).

Dolovich et al. conducted a meta-analysis and found studies that examined major malformations following benzodiazepine consumption in pregnancy: 11 of the studies reported oral cleft only and three cited other specific malformations (Dolovich et al. 1998). Although Dolovich et al.'s meta-analysis could not show a direct association between fetal exposure to benzodiazepines and the risk of malformations or oral cleft alone in pooled data from cohort studies, the authors outline a significantly increased risk in data from case-control studies (Dolovich et al. 1998).

Eberhard-Gran et al. reported that benzodiazepines may cause adaptation problems in the newborn, concluding that the possible adverse effects of fetal exposure must be balanced against the adverse effects of an untreated maternal mood disorder (Eberhard-Gran et al. 2005).

Moreover, NAS has a prolonged course after intrauterine benzodiazepine exposure, which resembles adult withdrawal symptoms (Lag Reid et al. 1992; Coghlan et al. 1999). Besides the liberal prescription of benzodiazepines, including prescription to opioid-maintained patients, there is a tendency among these patients towards buying this medication on the 'black market'. These patients often take very high doses of benzodiazepines which, require slow detoxification in order to avoid preterm labour or

exacerbation of psychiatric symptoms (Swortfiguer et al. 2005; Eberhard-Gran et al. 2005).

2.1.5 Alcohol

Due to its teratogenic potential, alcohol affects the development of the foetal nervous system which may lead to severe lifelong consequences. One of these is the so called foetal alcohol syndrome (FAS) which is characterized by a dose-dependent severity, growth retardation, craniofacial abnormalities and a permanent nervous system damage (Garcia-Algar et al. 2008).

2.1.6 Opioids

The continuous abuse of illicit opioids during pregnancy leads to adverse consequences in the mother, fetus and neonate. However, in comparison to alcohol, cocaine or benzodiazepine abuse during pregnancy, opioids do not have teratogenic or cytotoxic effects (Chasnoff et al. 1984). The main risk factor is caused by the fluctuation of opioid concentration in the maternal blood, which may cause withdrawal symptoms in the neonate as well as symptoms of overdose, in addition to difficult psychosocial environmental conditions (Finnegan et al. 1992). Heroin use in pregnancy is often related to malnutrition of the pregnant women as well as a poor outcome in neonates (Finnegan et al. 1992). Johnson et al. indicate the inadequacy of antenatal care programmes for women misusing illicit substances, as they often remain in a violent environmental situation and receive poor medical and social care (Johnson et al. 2003). In addition, more than 50% have a co-addicted partner, and successful treatment is only possible if the partners are enrolled in adequate psychosocial and medical care as well (Fischer et al. 2000).

Despite major methodological flaws in published reports about the effects of heroin use during pregnancy (e.g.. no control for nicotine dependence), a significant reduction in birth weight has been reported when compared to neonates of non-smoking methadone-maintained mothers (Hulse et al. 1997).

2.2 *Treatment of drug use during pregnancy*

2.2.1 Pharmacological treatment

Methadone in the context of comprehensive care is associated with more prenatal care, increased fetal growth and less neonatal morbidity and mortality than continued opioid abuse (Finnegan and Kaltenbach, 1992; Council of Europe, 2000; Johnson et al. 2003; Jones et al. 2005; Fischer et al. 2006). Investigations of oral methadone therapy as part of a multi-professional care system during pregnancy have highlighted many benefits over recent decades and the results are well documented: improvement of the medical condition in the pregnant woman, standardized pre-delivery care, prevention of premature birth and prevention of underweight babies (Fischer et al. 1998; Fischer et al.

2000; Daley et al. 2001; Ashley et al. 2003; Jones et al. 2005). These studies also show that higher dosing yields to better results (Kaltenbach et al. 1998). Very often the once daily dose of methadone needs to be split and administered twice daily, taking into account the physiological changes in pregnancy relating to enzyme-induction during the last trimester (Pond et al. 1985; Drozdick et al. 2002).

Although methadone is clearly beneficial, it has been estimated that 60–87% of the infants born to methadone-maintained mothers need treatment for NAS (Finnegan and Ehrlich, 1990; Lacroix et al. 2004; Jones et al. 2005; Lejeune et al. 2006; Fischer et al. 2006; Sarkar et al. 2006).

Buprenorphine, approved in Europe since 1999 for the treatment of non-pregnant opioid-dependent adults, may reduce the incidence and/or severity of NAS. Buprenorphine demonstrates safety for mother and child, and shows effectiveness in the treatment of opioid-dependence during pregnancy, although limited controlled data are published so far (Kayemba-Kay's et al. 2003). To date, the scientific literature includes data on more than 450 babies prenatally exposed to buprenorphine. Results generally suggest that treatment with buprenorphine provides the same benefits to the mother as methadone but, more importantly, may attenuate NAS (Johnson et al. 2003; Kayemba-Kay's et al. 2003; Jones et al. 2005; Lejeune et al. 2006). The majority of information has been gained through French publications, where buprenorphine has been available for more than 10 years; as a result of the office-based prescription policy in France, many patients, including pregnant women, have been treated with buprenorphine. These naturalistic data indicate that the use of buprenorphine in pregnancy is safe; and data regarding buprenorphine use during conception has also been collected (Jernite et al. 1999; Lejeune et al. 2001; Kayemba-Kay's et al. 2003; Lacroix et al. 2004; Lejeune et al. 2006). Limited data from prospective open-label controlled studies of neonates born to buprenorphine-treated mothers are available. Nevertheless, such data support the use of buprenorphine in pregnancy; their results suggest no NAS or a mild NAS, with only a small portion of neonates requiring treatment (Fischer et al. 2000; Johnson, Jones, & Fischer, 2003; Johnson et al. 2001). A prospective report regarding buprenorphine use at the time of conception is available: newborns show low NAS scores and are in good health (Schindler et al. 2003). Buprenorphine represents a possible alternative to methadone in maintenance therapy and is described as a safe drug for maintenance therapy of opioid-dependent women (Kayemba-Kay's et al. 2003).

Two randomized double-blind double-dummy controlled trials using similar methodology (ie Jones et al. protocol shared with Fischer et al.) were designed to obtain safety and efficacy data comparing methadone and buprenorphine in pregnant women (Jones et al. 2005; Fischer et al. 2006). Both of them indicate the safety of both substances for the mothers-to-be and the comparability in efficacy for retaining patients in treatment and in regard to concomitant consumption of illicit drugs. A major influencing factor appears to be the incidence of concomitant consumption which can be reduced through contingency management approaches (Schottenfeld et al. 2005; Carroll

et al. 2005; Kirby et al. 2006). Monetary vouchers were given to patients for opioid- and cocaine-negative urine tests in a study exploring the effectiveness of contingency management in patients with co-occurring cocaine and opioid-dependence by Schottenfeld et al. There may be an improvement in treatment outcome in combining buprenorphine or methadone with contingency management (Schottenfeld et al. 2005).

Interpretation of data on both medications during pregnancy has often entailed a number of problems. The lack of blinded designs and random assignment has left results of many studies subject to potential bias. Concomitant drug use has been prevalent in many study samples, confounding results. Small sample sizes have limited the statistical power of such studies, making it difficult to draw clear conclusions. Attempts to combine results across studies have been difficult due to substantial differences in methodology. A minority of studies included the issue of nicotine dependence, which might have crucial influence on outcome parameters.

Another medication used for maintenance therapy is slow-release morphine, although data on this treatment option during pregnancy is derived from small-scale studies and the medication is registered for treatment in general only in a few countries (Geistlich et al. 1998; Fischer et al. 1999; Eder et al. 2005; Kraigher et al. 2005).

2.2.2 Opioid detoxification/abstinence

Abstinence throughout the course of pregnancy is the ideal clinical aim. However, this is often unachievable and overemphasis on gaining abstinence can be futile. The quest for abstinence may place the mother under a enormous stress, and studies have shown that most opioid-dependent women cannot stay drug-free for the duration of their pregnancy (Dashe et al. 1998; Luty et al. 2003; Fischer et al. 2006). This indicates that many women relapse to opioid use and a resulting continuous cycle of intoxication and withdrawal. This causes wide variations in blood opioid levels, which lead to fetal stress.

Nevertheless, abstinence is feasible. In well-motivated individuals under close medical supervision and with appropriate treatment – i.e. slow reduction of a synthetic opioid, not later than week 32 in pregnancy to avoid preterm delivery – abstinence can be achieved. However, the prospect of abstinence often discourages opioid-dependent mothers from seeking help and refraining from using treatment services. The course of action to be taken needs careful discussion between doctor and patient to confirm that the appropriate treatment is given on an individual basis.

2.2.3 Psychosocial intervention/counselling during prenatal care

Services should be provided in a supportive, culturally sensitive, and non-judgmental environment by all healthcare personnel, from the receptionist to the physician. Literacy- and reading-level information will affect patient education efforts and the ability to obtain informed consent so an assessment should be made of the woman's literacy and reading level. The woman may enter prenatal care in different stages of

pregnancy and from a variety of settings, including hospital emergency rooms, community health centers, family planning clinics, abortion clinics or social service offices. It is essential to be able to offer assessment, triage, case coordination and referral services from any or all of these settings.

Case management services that coordinate the care of the pregnant, substance-using woman and her family are critical. Ideally, case conferences and referral to appropriate services should be managed by one healthcare professional who oversees the multidisciplinary team. An outreach worker who visits the woman in her home should be part of this team. The most difficult issue to resolve, given the financial and staffing constraints experienced by most health care and service providers, is the identification and designation of a case manager.

Counselling about and obtaining written informed consent for medical procedures and treatment are important, as is the clear explanation of confidentiality, privacy and other patient rights. Equally important seems the involvement of the patient's partner. The earlier in pregnancy that opioid-dependent pregnant women have access to psychosocial support, the higher the likelihood of establishing an appropriate living environment for the new family and of settling juridical and financial problems (Kaltenbach et al. 1998; Finnegan, 1991; Grella et al. 2006).

2.3 Neonatal abstinence syndrome (NAS)

An important aim and challenge in the treatment of pregnant opioid-dependent women is avoiding the development of NAS or minimizing its severity and duration. The incidence of NAS in neonates of opioid-dependent women varies between 70% and 95%. NAS is characterized by a variety of symptoms of variable intensity: sneezing, yawning, hyperactive Moro reflex, sleeping after feeding, tremor, increased muscle tone, myoclonic jerks, high pitched crying, excoriation, mottling, generalized seizure, convulsions, fever, sweating, nasal stuffiness, tachypnea, retractions, nasal flaring, poor feeding, excessive sucking, vomiting, diarrhoea, failure to thrive, excessive irritability and, in very rare cases, convulsions (Finnegan and Kaltenbach, 1992).

NAS may start any time during the first 24 hours up to 10 days postnatally, dependent on the medication administered during pregnancy or substance abused. The withdrawal syndrome of heroin in the neonate sets in during the first 24 hours. With methadone, the symptoms don't develop until after 48 hours (Fischer et al. 2006). An even later onset of withdrawal symptoms can be observed if the neonate was exposed to buprenorphine, benzodiazepines or barbiturates *in utero*.

Generally, dosage of opioid-medication (methadone, buprenorphine, slow-release morphine) does not correlate with withdrawal or NAS (Kaltenbach and Finnegan, 1986; Brown et al. 1998; Berghella et al. 2003; Jones et al. 2005; Fischer et al. 2006; Lejeune et al. 2006). A limited number of recent scientific reports refer to a positive correlation of maternal dose and severity of NAS, however, some of these are confounded by additional consumption (Doberczak et al. 1993; Malpas et al. 1995; Marquet et al, 2002;

Dashe et al. 2002). Importantly, higher dosing seems to lead to better results for the mother during the course of treatment (Kaltenbach et al. 1998).

Different standardized and validated scoring systems are used to assess the severity of NAS. The majority of publications refer to the Finnegan Score (Finnegan, 1979; Finnegan, 1985): this score comprises 21 items and a maximum of 45 points. Treatment is initiated at a Finnegan Score greater than 10 points while a reduction in medication starts at a rating of 10 and less. The Finnegan Score should be assessed six times a day. However, many scientists and physicians working with NAS and related scorings use an adaptation of the Finnegan score (different items, different scorings, different threshold for treatment initiation) (Sarkar et al. 2006). This fact complicates the comparability in scoring of NAS in different medical centers in relation to duration and intensity. This also limits the comparability of publications. Another scoring system, which has been used more widely for NAS is the Lipsitz score (Lipsitz, 1975). The heterogeneity of rating and treatment approaches is stressed by Sarkar et al (2006).

2.3.1 Treatment of NAS

It is not easy to determine which substances are the most beneficial in the treatment of NAS, as there are currently no double-blind controlled studies available. Until 1998, the drug of choice was paregoric in the USA, a substance consisting of 44–46% alcohol with opium, benzoic acid, camphor and glycerin. Now, however, some clinicians prefer using phenobarbital, benzodiazepines or morphine (Kaltenbach and Finnegan, 1986; Chiang and Finnegan, 1995; Kandall, 1995; Rohrmeister et al. 2001; Lejeune et al. 2006). Phenobarbital and paregoric seem equally effective, but studies tend to favor paregoric because it is associated with better sucking behaviour (Kron et al. 1976). The American Academy of Pediatrics recommends the use of a tincture of opium for opiate withdrawal; and phenobarbital should be the drug of choice for sedative-hypnotic withdrawal (AAP Committee on Drugs, 1998). A combination of phenobarbital and diluted tincture of opium (DTO) has been favored because of shorter hospital stay and less severe withdrawal symptoms; it should be stressed that the neonates were tapered from phenobarbital on an outpatient basis for an average duration of 3.5 months, which may have been a confounding factor in this study (Coyle et al. 2002).

The effectiveness and safety of opiate treatment in neonates has been dealt with in a recent Cochrane Review, which concludes that opiates represent the preferred initial therapy for NAS, particularly for infants of mothers taking opioids during pregnancy (Osborn et al. 2005). Various reports underline the utility of morphine in this respect. Jackson et al. show the superiority of morphine sulphate in the treatment of NAS, although 83% of patients had positive urinalyses for concomitant drug consumption at the time of delivery (Jackson et al. 2004). Theis et al. show that diazepam is clearly inferior in the treatment of neonatal withdrawal syndrome (Theis et al. 1997). In a comparison study, Langenfeld et al. recommend morphine drops as an alternative treatment of NAS (Langenfeld et al. 2005). However, in all these reports, no

standardized information about urine toxicologies during pregnancy in regard to concomitant consumption have been available. According to a short report by Pacifico et al. morphine hydrochloride is described as the best therapy in the treatment of NAS, but no details are indicated (Pacifico et al. 1989). Shaw and McIvor declare oral morphine for being a successful treatment alternative in neonates born to methadone-maintained mothers; 37% of the infants enclosed in their study received that medication for withdrawal with a median length of treatment of six days (Shaw and McIvor, 1994).

2.4 *Psychiatric co-morbidity in pregnancy*

In the majority of cases, pregnant heroin dependent women suffer additionally from severe psychiatric and somatic illnesses or multiple substance dependences (Marsden et al. 2000; Willenbring, 2005; Galletly et al. 2006; Kurz, 2006; Winklbaaur et al. 2006; Whicker et al. 2006; Watkins et al. 2006; ICD-10; DSM-IV). Therefore, we would emphasize the importance of quality assured diagnosis (applying the ASI for diagnostic procedure) and the requirement for using a broad bio-psycho-social treatment approach that takes psychiatric and somatic co-morbidities into account (Fischer et al. 1998; Kraigher et al. 2001).

Women of childbearing age suffer quite often from psychiatric disorders and are frequently prescribed psychotropic drugs. However, despite the fact that most recent studies have documented the relative safety of these medications during pregnancy (although almost all results are based on a retrospective evaluation), a high level of anxiety regarding their safety persists among patients and healthcare providers alike (Einarson et al. 2005). Teratogenic effects, postnatal behavioural disorders and perinatal syndromes are of particular concern to psychiatrists.

Burke et al. explored the risk of the development of depression in women and found a lifetime risk of 10–30%. Women of childbearing age are at an increased risk with a heightened prevalence of depression (Burke et al. 1991). Given the high risk for depression in women of reproductive age, treatment providers more often have to cope with opioid-dependent women of reproductive age, who additionally receive pharmacotherapy such as antidepressants. While pregnancy seems to afford a protective phase regarding the **first** manifestation of a psychiatric disease (O'Hara et al. 1984), others (e.g.. Evans et al. 2001) report a higher risk of depressive disorders associated with pregnancy. The occurrence of a self-limited neonatal behavioural syndrome observed after *in utero* exposure to serotonin reuptake inhibitors (Moses-Kolko et al. 2005) further complicates the considerations in the care of reproductively active opioid-dependent women presenting with co-morbid depression.

2.4.1 Management of psychiatric co-morbidity in pregnancy

All psychiatric pharmaceuticals cross the placenta barrier. Selective Serotonin Reuptake Inhibitors (SSRIs) are prescribed for the treatment various disorders such as major depression, anxiety and chronic pain. SSRIs are frequently administered by

physicians during pregnancy and the postpartum period (Lattimore et al. 2005). Although early investigations on the effects of SSRIs in pregnancy were misleading, we know today that they include serotonergic overstimulation and withdrawal syndromes, as well as long-term effects on neurobehaviour and performance.

Fluoxetine and its active metabolite norfluoxetine are among the common SSRIs and have been investigated more than sertraline, paroxetine and fluvoxamine. Even though early results showed that, during the first trimester of pregnancy, SSRIs did not seem to increase the risk of neonatal malformations, contradictory data have been published for paroxetine (Kulin et al. 1998; Ericson et al. 1999). Some research has failed to show a higher risk for spontaneous abortions with fluoxetine (Chambers et al. 1996), while a literature review has revealed a possible link between fluoxetine and miscarriage (Baum and Misri, 1996). Pastuszak et al. explored a controversial outcome around the same issue (Pastuszak et al. 1993). Neonates exposed to fluoxetine in the third trimester of pregnancy are at a higher risk for developing neonatal complications like hypoglycaemia, hypothermia, respiratory distress, increased bilirubin, decreased Apgar Scores and increased incidence of prematurity. These symptoms may be originate from either a toxic serotonergic effect, abrupt drug withdrawal or a combination of both (Nordeng et al. 2005).

Chambers et al. performed a trial to explore the possible association between SSRIs in the third trimester of pregnancy and persistent pulmonary hypertension (PPHN) of newborns, a disorder that is associated with infant mortality and morbidity. They found that SSRI-linked PPHN may result from the lung acting as a reservoir for antidepressant drugs leading to an accumulation of antidepressant in the lungs (Suhara et al. 1998 and Lemberger et al. 1985). Increased levels of serotonin in the lungs of the newborn may result in the proliferation of smooth muscle cells typical of PPHN (Chambers et al. 2006).

Newborns exposed to any kind of SSRIs have an elevated risk of convulsions and NAS. A total of 93 neonates (64 with paroxetine, 14 with fluoxetine, 9 with sertraline and 7 with citalopram) were found with a neonatal withdrawal syndrome relating to maternal treatment with SSRIs (Sanz et al. 2005).

If a mild form of depression occurs during pregnancy a non-pharmaceutical treatment like psychotherapy should be the first line approach. If major depression is diagnosed and risk of suicide is found in addition to psychotic symptoms, treatment with psychotropic drugs and inpatient care are indicated (Knoflach-Reichart et al. 2003).

No study has compared neonatal outcomes and the possible long-term complications among depressed women not using medication, depressed women using SSRI medication and unexposed healthy women (Lattimore et al. 2005). Lattimore et al. suggest that women with depression should not be withheld adequate pharmacological treatment in late pregnancy but the neonate should be monitored for possible complications after birth. In the light of the dual diagnosis of affective disorders and opioid dependence in a pregnant patient, the diagnosis must be well evaluated and

appropriate treatment of both disorders initiated as an opioid-maintained patient with untreated depression may relapse and may then be difficult to stabilize. However, such treatment requires an informed risk-benefit assessment.

In addition, healthcare providers need to be vigilant for drug-drug interactions. Enzyme induction may either reduce or increase the opioid plasma level (eg fluvoxamine increases plasma levels of methadone) and appropriate dose adjustments are required in order not to destabilize either the mother-to-be or her fetus (Bertschy et al. 1994; Alderman et al. 1999; De Maria et al. 1999).

2.5 Overview of European literature

Only few studies including pregnant women have been conducted in the countries of the European Union. Most trials on maintenance treatment of opioid dependence exclude pregnant women by definition, since these require specialised management and treatment programmes to minimize harm to the fetus. Most of the scientific literature within the European Union on opioid dependence and pregnancy comes from workgroups in Austria and France. The majority of data from France has a naturalistic character while randomized controlled trials are still very rare among pregnant addicts. French data focuses on therapy with buprenorphine, since buprenorphine has been widely available there through office-based prescription for over 10 years. Work from Austria has focused on comparative trials of buprenorphine and slow-release morphine with methadone as well as on management of NAS. One of the only two double-blind double-dummy randomized controlled trials on the comparison of buprenorphine and methadone maintenance therapy during pregnancy and conception also comes from Austria.

2.5.1 Maintenance treatment during pregnancy

Methadone is currently the gold standard treatment for opioid dependence in pregnancy. There is widespread evidence in European and international scientific literature that methadone is associated with improved maternal medical status and a reduction of fetal and neonatal morbidity. Approximately 60-80% of neonates exposed to methadone require postnatal treatment of NAS (Fischer et al. 2006, Fischer et al. 2000).

Okruhlica et al. 2003 reported in a naturalistic trial on 7 women stabilized on methadone treatment during their pregnancies in Bratislava, Slovakia. The mean methadone dose was 144 mg per day, all conceptions were successful and the neonates were healthy with a mean birth weight of 3033 g, mean head circumference of 34 cm and a mean Apgar score of 9/10/10.

Buprenorphine is gradually becoming a valuable alternative to methadone as the research foundation steadily increases. The predominantly retrospectively gathered data indicates the safe use of buprenorphine in pregnancy.

A large multi-site randomized double-blind double-dummy study comparing the efficacy of buprenorphine to methadone treatment is still ongoing and first results are

being published at the moment (Jones et al. J Subst Abuse Treat 2008). Until now, there have been only two prospective double-blind double-dummy randomized controlled trials comparing buprenorphine with methadone in pregnancy. Both studies, one from Europe (Fischer et al. 2006) and one from the US (Jones et al. 2005), used similar methodology to show the safety and comparability of both substances.

Data from two prospective studies conducted by the group from the Medical University in Vienna was extracted for MoreTreat. Fischer et al. (2006) included 18 pregnant opioid dependent women using a prospective double-blind double-dummy controlled design, comparing methadone with buprenorphine in pregnancy. Mean methadone dose was 47.5 mg and mean buprenorphine dose was 13.5 mg per day, while doses were slightly increased during the last trimester (+ 5 mg for methadone, + 0.5 mg for buprenorphine). No significant differences between both groups were observed in neonatal outcome. Overall 43% of the neonates did not require NAS treatment. NAS occurred 12 hours later (mean) in the buprenorphine group and the mean duration of NAS treatment was 4.8 days in the buprenorphine and 5.3 days in the methadone group. No difference was seen in the dose of medication needed to manage NAS. Retention was better in the buprenorphine maintained women, as eight women of the buprenorphine and six of the methadone group completed the study. Methadone, however, was significantly more effective in prevention of additional opiate consumption, while both groups showed low concomitant consumption of cocaine and benzodiazepines.

Fischer et al. (2000) conducted an open-label, flexible-dosing, buprenorphine maintenance study of 15 opioid-dependent pregnant women. Buprenorphine was well tolerated during induction (Wang score < 4) and all mean birth outcome measures were within normal limits (gestational age at delivery 39.6 +/- 1.5 weeks, Apgar score 8.9/9.9/10, birth weight 3046 +/- 346 g, length 49.8 +/- 1.9 cm and head circumference 34.1 +/- 1.8 cm). NAS was absent in 8 neonates, mild in four cases and moderate (requiring treatment) in three neonates. The mean duration of NAS treatment was 1.1 days.

A consecutive case report by Schindler et al. (2003) analyzed 2 buprenorphine-maintained pregnant women and their neonates in a prospective manner. It was the first report detailing the pregnancies of women treated with buprenorphine at the time of conception and investigated in a prospective study. Both newborn babies were healthy (length 51 cm and 49 cm, birth weight 3430 g and 2800 g, Apgar score 9/10/10 respectively) and had no NAS requiring treatment. These results represented a positive echo of the preceding open-label buprenorphine maintenance trial conducted by Fischer et al. in 2000.

In 1999 a study by Fischer et al. investigated neonatal outcome in babies born to methadone or slow-release morphine maintained opioid-dependent pregnant women. A total of 48 pregnant women were randomized in an open trial, 24 receiving methadone and 24 receiving slow-release morphine maintenance treatment. No difference was

found in the number of days that NAS was experienced by neonates born to methadone or morphine maintained mothers (mean = 16 and 21 days, respectively). All children were born healthy and no serious complications arose. Fewer benzodiazepines ($p < 0.05$) and fewer additional opiates ($p < 0.05$) were consumed by the morphine-maintained women compared with those who took methadone, but no difference was seen in cocaine consumption. Nicotine consumption was reduced significantly in both groups during pregnancy ($p < 0.02$).

Nevertheless the results of this trial have to be discussed critically, since only a small patient sample and a non-blinded design were used. Methadone still remains the golden standard for maintenance treatment in pregnancy while buprenorphine seems to be a good alternative.

2.5.2 Management of the neonatal abstinence syndrome

A recent study by Ebner et al. in 2007 compared prospectively the effects of opioid maintenance treatment with methadone, buprenorphine and slow-release morphine regarding the occurrence and timing of NAS, additionally comparing two different NAS treatments, phenobarbital and morphine hydrochloride. Of the 53 newborns included, 22 were born to mothers maintained on methadone, 14 to mothers maintained on buprenorphine and 17 to mothers maintained on slow-release oral morphine throughout pregnancy. 68% of neonates in the methadone-maintained group ($n=15$), 82% in the slow-release oral morphine-maintained group ($n=14$), and 21% in the buprenorphine-maintained group ($n=3$) required treatment for NAS. The mean duration from birth to requirement of NAS treatment was 33 hours for the morphine-maintained group, 34 hours for the buprenorphine-maintained group and 58 hours for the methadone-maintained group. Further on treatment of NAS using morphine hydrochloride and phenobarbital was compared. In neonates requiring NAS treatment, those receiving morphine required a significantly shorter mean duration of treatment (9.9 days) versus those treated with phenobarbital (17.7 days). Although a non-randomized study design was used, these results indicate a benefit of neonates born to buprenorphine-maintained mothers with regard to the development of NAS requiring treatment. Furthermore, the results suggest a benefit of morphine in comparison with phenobarbital in NAS treatment.

2.5.3 Conclusions

The available evidence suggests that methadone as well as buprenorphine represent a safe treatment for pregnant mothers and their newborn children with no significant differences in neonatal birth parameters. Nevertheless buprenorphine may be able to reduce the severity and frequency of NAS (Winklbaur et al. 2008).

To safely assess treatment in pregnancy, stronger evidence is needed (randomized trials with powerful sample sizes). An effort in this direction represents an ongoing multi-center NIDA-supported study, called MOTHER, which is a double-blind, double-

dummy, randomized, stratified, parallel group study comparing the efficacy of methadone versus buprenorphine. It should be noted that the protocols are dynamic and may be modified, based on the collective experiences of the sites. Modifications made in the protocols are done to enhance comfort for and retention of the patients.

3. Recommendations¹⁹

Strength of evidence:

***** *Strong evidence*: High quality meta-analyses, systematic reviews including one or more RCT with a very low risk of bias, more than one RCT a very low risk of bias

*** *Moderate evidence*: Limited systematic reviews, one RCT with a low risk of bias or more RCTs with a high risk of bias

** *Some evidence*: one RCT limited by research factors or more case-control or cohort studies with a high risk of confounding

* Expert opinion

? *insufficient evidence/unclear/unable to assess*

3.1 Maintenance treatment during pregnancy

Rec. Methadone maintenance therapy is the gold standard pharmacotherapy. There is a growing body of evidence regarding the use of buprenorphine while it was shown effective in recent studies.

Rec. Women who are in treatment should be encouraged to remain in treatment during pregnancy.

Opioid agonist maintenance with methadone is seen a resulting in best combination of outcomes, taking into consideration affects on the fetus, neonatal abstinence syndrome, impact on ante-natal care and on parenting young children. Although many women want to cease using opioids when they find out they are pregnant, opioid withdrawal is a high risk option because any relapse to heroin use could result in disastrous consequences for the newborn. Severe opioid withdrawal symptoms may induce a spontaneous abortion in the first trimester and induce premature labour in the third trimester. Relapse to heroin use during pregnancy can also result in poorer ante natal outcomes. Opioid agonist maintenance is thought to have minimal, if any, long term developmental impact on children and this risk is outweighed by the impact of opioid agonist maintenance on reducing the risk of relapse to heroin use and resulting harms.

Methadone is the gold standard treatment during pregnancy because there is more evidence on the safety of methadone than buprenorphine in pregnancy. If women are being well treated with buprenorphine then the risks of transferring to an alternative treatment should be weighed against the certainty of methadone effects.

¹⁹ Reference of WHO guidelines to be added!

While abstinence during pregnancy is the ideal clinical outcome, it incorporates the risk of opioid use relapse, which can be of great danger for the fetus.

**** Strong evidence

3.2 Treatment of NAS

Rec Clinicians should use opioids or barbiturates for the management of NAS.

Untreated NAS can cause considerable distress to infants and in rare cases seizures. Cochrane reviews indicate that opioids and barbiturates are more effective than placebo or benzodiazepines. Of the two, opioids are probably more effective than barbiturates.

**** Strong evidence

3.3 Blood borne viruses

Rec. Pregnant female drug users should be routinely tested, with their informed consent, for HIV, hepatitis B and hepatitis C, and appropriate clinical management provided including hepatitis B immunisation for all babies of drug injectors.

Once infected with HIV or hepatitis C, most individuals will become lifelong carriers with the potential to transmit the infection to others. It has been estimated that the annual incidence of hepatitis B infection among drug injectors in the UK is around 1% per year¹⁶. However, very few become chronic carriers and therefore the number of female drug users who might infect their baby with hepatitis B is much lower than for HIV or hepatitis C.

Transmission of these viruses from an infected mother to her baby can occur during pregnancy or birth or through breastfeeding. Antenatal transmission of HIV infection occurs in up to 25% of cases where the woman has not received anti-retroviral treatment, reducing to about 2% if treatment is given during pregnancy. Similar rates of infection occur after birth if the baby is breast-fed. Rates of antenatal transmission of hepatitis B are even higher, but infection can be prevented if the baby is immunised shortly after birth. Prevention of HIV and hepatitis B infection thus depends very much on antenatal diagnosis and treatment. The transmission rate of hepatitis C from mother to baby during pregnancy or birth has been found to be about 5% in general population studies¹⁷ but was 12% among drug injectors in an Italian study. Elective Caesarean section appears substantially to reduce the rate of transmission. Assuming a prevalence of hepatitis C among female drug users of 30–60% and a mother-to-baby infection rate of 5–12%, between 15 and 70 babies per 1,000 pregnancies

among female drug injectors will be infected with hepatitis C. To our knowledge, there have been no studies that provide reliable information on the extent of mother to baby transmission of hepatitis C. This is clearly an issue that urgently requires more research. However, the known facts indicate that it is essential that every pregnant drug user who has injected drugs should be offered testing for all three viruses and given appropriate treatment and clinical management if found to be infected.

*** Moderate evidence

3.4 Access to treatment

Rec Every maternity unit should ensure that it provides a service that is accessible to and non-judgemental of pregnant problem drug users and able to offer high quality care aimed at minimising the impact of the mother's drug use on the pregnancy and the baby.

This should include the use of clear evidence-based protocols that describe the clinical management of drug misuse during pregnancy and neonatal withdrawals.

Rec Every maternity unit should have effective links with primary health care, social work children and family teams and addiction services that can enable it to contribute to safeguarding the longer-term interests of the baby.

* Expert opinion

3.5 Breastfeeding

Rec. For women on methadone and buprenorphine, breast feeding is safe and should not be precluded.

A number of opioid-maintained women express a desire to breastfeed their infants. Breastfeeding is not contraindicated in a methadone/buprenorphine-maintained patient if she is known to be free of other drug use and is known to be HIV-seronegative (McCarthy et al. 2000; Philipp et al. 2003; Jansson et al. 2004). If an opioid-maintained mother wants to breastfeed her child, this should be encouraged: it can be helpful for mother-child bonding, and it might decrease NAS symptoms (Abdel-Latif et al. 2006). If the mother is abusing multiple drugs that would expose the infant to diverse agents in varying levels, then breastfeeding may still be contraindicated. Breastfeeding is not recommended if the mother is HIV-infected. Nursing and weaning under opioid maintenance therapy needs to be under special assistance of physicians, as rapid weaning would cause withdrawal in the neonate.

**** Strong evidence

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17 Systemic aspects of drug treatment

Systemic aspects of drug treatment

Guidelines for treatment improvement

Moretreat-project

Institute of Psychiatry and Neurology, Warsaw,
Poland

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EUROPEAN COMMISSION
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1 Introduction

“Since there is no one single treatment that is effective for everyone” (UNODC 2003) a treatment system should offer a range of services meeting different needs of its heterogeneous target population(s). A drug treatment system therefore can ideally be described as a network of interrelated treatment and rehabilitation services that form an integrated response to - first of all - health problems of individuals suffering from drug addiction problems in a defined district, municipality, region or country. From a public health perspective a drug treatment system should also have measurable impact on population health and welfare. As proposed by Babor et al (2008) “The cumulative impact of these services should translate into population health benefits, such as reduced mortality and morbidity, as well as benefits to social welfare, such as reduced unemployment, disability, crime, suicide and health care costs” (p. S52).

There is substantial evidence that drug treatment is not a single episode but a process that involves a number of treatment services, not infrequently over a number of years (Humphreys and Tucker 2002). It should offer easy access, range of services responsive to the needs of target population, co-ordination of care and continuous after-care and/or relapse prevention (Department of Health 2002; UNODC 2003; UNODC/WHO 2008; NTA 2007a). There is no overall consensus what drug treatment system consists of. One approach distinguishes “open access” services including advice and information as well as harm reduction on the one hand, and “structured” services on the other (UNODC 2003). According to UNODC guide “open access” services include what they call “prevention of adverse consequences” covering education about HIV/AIDS and other blood borne diseases, provision of clean injecting equipment, education about overdose risk exposure, basic survival services and health, welfare and legal advice. Structured services cover three large elements: detoxification, relapse prevention and aftercare.

A comprehensive vision of integrated model of care is offered by the British Department of Health. According to its document *Models of Care* (2002, 2008) substance misuse treatment should consists of five tiers:

- Non-substance misuse specific services (e.g. primary health care, psychiatric services, sexual health, vaccination, emergency services, social services including housing, vocational services, non-specific assessment and care management),
- Open access substance misuse services (e.g. advice and information, drop-in, outreach, motivational interviewing and brief intervention, needle exchange, low threshold prescribing, substance abuse-specific assessment and care management),
- Structured community-based substance misuse services (e.g. counselling and psychotherapy, structured day programmes, structured community based detoxification, structured prescribing/maintenance, structured after-care),
- Residential substance misuse specific services,

- Highly specialised non-substance misuse specific services (e.g. specialist liver disease units, HIV specialist units, forensic services, terminal care, specialist personality disorders units).

Despite apparently hierarchical structure integrated model of care should secure equal access to all five tiers to all substance misusers. Access to one or more tiers should solely be dependent on needs of individual patient. Services offered in different tiers are not alternatives. Majority of clients will need parallel or consecutive services located in different tiers. Services distinguished by different tiers may be provided by a network of agencies to offer a client a choice between different treatment approaches. On the other hand, one agency could offer a range of services rather than one specific service.

A definition recently adopted in an EC study reduces scope of drug treatment to structured interventions “drug treatment comprises all structured interventions with specific pharmacological and/or psychosocial techniques aiming at reducing or abstaining from the use of illegal drugs” (Degkwitz Zurhold 2008).

Assessment of a treatment system requires information on a number of treatment or harm reduction units, their capacity, and number of clients. Annual budget and employment are also important to assess economic feasibility. Attempts should be made to estimate what proportion of a population in need of treatment is covered.

The Level of collaboration among institutions involved as well as allocation of resources in different elements of the system are crucial for its efficient functioning. There are no universal rules. Distribution of power and resources must respond to local needs that have to be assessed while establishing and/or improving drug treatment systems.

If a drug treatment system works in a proper way providing a range of care services which are adequate to a range of different needs of addicts, assuring easy access and continuity of care its outcomes are expected to be more paramount than simple sum of outcomes of its elements. Reinforcing systemic aspects of drug treatment may therefore increase its cost-effectiveness which is urgently needed as health expenditures constitute from 50 to over 90 per cent of all labelled expenditures on drug policy in EU countries (EMCDDA 2008b).

Table 1. Health expenditures as percentage of all labelled expenditures on drug policy in selected EU countries in 2005.

| Country | Total (EUR million) | Health (EUR million) | Health as % of total |
|----------------|---------------------|----------------------|----------------------|
| Czech Republic | 16.9 | 11.1 | 65.7 |
| Ireland | 176.8 | 85.8 | 48.5 |
| France | 315.4 | 275.1 | 87.2 |
| Luxembourg | 9.8 | 5.9 | 60.2 |
| Hungary | 1.0 | 0.9 | 90.0 |
| Poland | 107.0 | 67.0 | 62.6 |
| Portugal | 69.1 | 64.6 | 93.5 |
| UK | 1463.8 | 923.3 | 63.1 |

Source: EMCDDA 2008b (tables 1-2). Column 3 calculated for a purpose of this report. Despite similar financial commitment for drug treatment, distribution of these enormous expenditures differs substantially from country to country.

Table 2. Percentage distribution of labelled health expenditures in selected EU countries in 2005.

| Country | Medical products | Out-patient services | Hospital services | Public health services | Health not elsewhere specified |
|------------|------------------|----------------------|-------------------|------------------------|--------------------------------|
| France | 31.6 | - | 59.0 | 9.4 | |
| Luxembourg | 5.1 | 88.1 | - | 3.4 | 3.3 |
| Hungary | | | | 100.0 | |
| Poland | 12.8 | - | 87.0 | - | 0.2 |
| Portugal | - | 1.5 | 2.2 | 96.1 | 0.2 |
| UK | 0.2 | 98.7 | - | 0.01 | 1.0 |

Source: EMCDDA 2008b (tables 2, 4). Percentages calculated for a purpose of this report.

Majority of drug treatment expenditures in France (59%) and particularly in Poland (87%), go to residential services. In contrast, in Luxembourg 88% and in UK 99.7% of those expenditures are located in out-patient sector while almost all drug treatment expenditures in Hungary and Portugal are spent within public health services. These huge differences may partially be attributed to variation in definition of so called “labelled expenditures” adopted within individual countries. Nevertheless, the table above suggests substantial differences in drug treatment systems across Europe with varying focus either on out-patient treatment in some countries or on in-patient treatment in a number of other countries. It seems that there are also countries whose priority is to treat drug addicts within non-specific public health services.

2 Evidence Base

There is a long list of crucial questions to be responded by research on systemic aspects of drug treatment. Should people suffering from drug addiction be treated by general health care, addiction treatment, specific drug treatment? What sector should take responsibility of drug addiction: health care, social welfare, law enforcement or mixture of them? What is rational combination of services to tackle problems associated with drug use in a cost-effective way? Does existing system offers equal access or discriminates certain vulnerable groups? Does a treatment system assures continuity of care, after care and relapse prevention or reinforces revolving door phenomenon? What is its impact on marginalization or social reintegration of clients? What is a population impact of drug treatment?

However, a question of drug treatment as a system seems to be neglected by research as much as by existing reporting systems. No attempts were identified to understand

different policies of different countries with regard to treatment priorities. This study found very few papers on systemic and/or organisational aspects of drug treatment. Most of them come from eastern Europe, from Bulgaria (two papers), Estonia (one paper), Lithuania (one paper) and Poland (three papers) and from Nordic countries (two papers). Few documents were identified from United Kingdom. In addition, some data may have been obtained from EMCDDA, WHO and UNODC reports. This may reflect low research interest across Europe in drug treatment as a system.

The papers identified in this study deal either with the whole drug treatment system or with substitution treatment. The latter interest is justified by relatively short experience with substitution treatment in eastern Europe.

Three broad issues can be distinguished:

- Assessment of a whole treatment system with stress on needs assessment.
- Assessment of a population impact of different treatment systems.
- Assessment of methadone maintenance programmes.

2.1 Assessment of a whole treatment system with stress on needs assessment

Needs assessment is crucial for identification of priorities in building or reforming existing system. A useful checklist for evaluation and prioritisation is offered in *Needs assessment guidance for adult drug treatment* published in UK by National Treatment Agency for Substance Misuse:

- What proportion of your target population has indicated a particular need?
- What are the areas of agreement between service providers and your target population about the target population's needs? What are the areas of disagreement?
- Have you identified any areas of need among your target population that practitioners were largely unaware of?
- Which of the needs of your target population are currently being met, and which are not being met?
- Which services are easy for your target population to access and why? What are the barriers for your target population in having their needs met?
- What are the risks to your target population (or other people) in not having their needs met?
- How confident do you feel that the information you have gathered is broadly representative of the views of your target population and local practitioners?
- To what extent do existing services have the capacity and ability to meet the identified needs?
- Is funding being directed where it is most needed?
- What are the implications for the planning and funding, and resource allocation processes?
- To what extent do existing partnership priorities fit in with the needs identified in the assessment?" (NTA 2007c: 24-25)?

An important prerequisite of successful needs assessment is a demand for such an assessment expressed by important actors like municipality or national/regional authorities (Moskalewicz, Sierosławski, Dąbrowska 2006, Moskalewicz, Sierosławski, Bujalski 2006) or even international organisations (Subata 2007). In addition to financial resources, external support offers better access to existing data sources, and last but not least good prospects for implementation. “Needs assessment is not an end in itself, but a means by which partnerships make increasingly evidence-based and pragmatic decisions about treatment ...” (NTA 2007c: 6).

Even though no study was identified offering a comprehensive needs assessment at the systemic level, several of them will be reviewed here showing a great potential in system assessment studies and presenting their deficiencies too.

Two complementary studies from Bulgaria attempted to assess drug treatment supply on the one hand and its adequacy to patients’ needs, on the other. Mail survey was carried out targeting all out-patient and in-patient services in the country. It was found that the existing network of services provided mainly medical care including detoxification without sufficient stress on psychological and social care (Vassiliev, Raycheva, Panayotov, Daskalov 2007). On the other hand, a study carried out among problematic drug users in 8 major cities in Bulgaria (sample size 893) showed their high level of marginalisation indicated by 58% unemployment rate, low education, 40% of respondents without health insurance, 30% share of representatives of ethnic minorities. Profile of majority of respondents suggests an urgent need for psycho-social and harm-reduction care (Vassiliev, Roussev 2007).

A mail survey among drug treatment services proved its feasibility in Poland too. A simple form was sent out to all out-patient and in-patient services in the country reaching a two-thirds response rate (sample size = 92 institutions). All in all the study sample consisted in 37% out-patient clinics, 12% detoxification wards, 36% residential rehabilitation centres, 5% methadone maintenance programmes and 10% of services termed as other. The study showed a domination of drug-free treatment prevailing in more than 80% services. Nevertheless, one fourth of out-patient clinics and one fifth of substitution programmes provides sterile injection equipment.

The survey revealed striking distribution of the total treatment budget. Out-patient clinics serving more than half of all patients receive less than 10% of the whole budget while long-term residential centres consume over 60% of the budget taking care of 15% of all patients. A number of system assessment measures were elaborated, including:

- Waiting time.
- Retention (percent drop-outs in the beginning of treatment and percent of those completing treatment).
- Number of patients per a staff member.
- Number of patients completing treatment per a staff member.
- Cost per one patient completing treatment.

In most of the above criteria out-patient services proved to be superior including short or non-existent waiting lists, similar as in remaining services retention rates, much higher number of patients per staff member. An annual cost per patient was two times lower compared with residential detoxification, three times lower than in substitution programmes and 20 times lower than in residential rehabilitation (Moskalewicz, Sierosławski, Dąbrowska 2006).

2.2 *Assessment of a population impact of different treatment systems*

Majority of studies on treatment efficacy and effectiveness focus on treatment outcomes; in other words on impact of treatment on individuals who received treatment or at least reported to treatment. Studies attempting measurement of population impact of treatment should be interested in such outcomes like alcohol- or drug- related mortality and morbidity in a given area (not only among patients), coverage rates (what proportions of target group was reached), access to treatment as well as cost of treatment.

Unfortunately, studies measuring population health impact of drug treatment are practically non-existent while rather seldom in a field of alcohol treatment e.g. North American series of research indicating that increased number of alcoholics in treatment (i.e. increased coverage rate) is associated with declining liver cirrhosis mortality (Mann et al 1988).

Two Nordic studies focused more on impact of treatment system on coverage rates. A study presented by Stenius et al (2005) investigated impact of decentralisation and integration of treatment system on coverage rates, utilisation of treatment and clients' satisfaction. The study compared two different treatment systems within Stockholm: one in which decentralisation progressed what led to establishment of more integrated out-patient treatment and another one with less integrated in-patient system. As it comes out from the study the more integrated out-patient system proved to have higher coverage rates with regard to more vulnerable groups and led to higher treatment satisfaction.

In Denmark a population survey estimating number of heavy consumers in 14 counties was combined with treatment research in respective counties. High diversity across counties was reported with regard to coverage rates and cost of treatment. More successful treatment systems tended to be more accessible, provided more structured treatment and offered tailored treatment for specific groups (Pedersen et al. 2004 quoted after Babor et al. 2008).

A recent attempt to review drug treatment coverage rates in EU (Degkwitz, Zurhold 2008) met serious difficulties due to different national definitions of problematic drug users, the reported groups of problematic drug users do not always express a need of treatment (e.g. regular cannabis smokers), some countries focus on opiate users and do not report other problematic drug users, and eventually quality of data provided vary from country to country. The authors of that review realised that “**only** the data on

substitution maintenance treatment allows to draw first conclusions on the treatment coverage". They found that coverage rate for substitution treatment very from 2.5% in Romania to 50% in Italy and UK among 11 countries providing data comparative enough for international comparisons.

In addition, some countries have substantial overlap between out-patient and in-patient treatment that may lead to overestimation of patients in treatment. Very rough review of data provided by individual countries indicates that drug treatment coverage rates range from about 6% in Romania and about 10% in other Eastern European members of EU like in Bulgaria, Slovakia and Estonia to close to 80% in Germany and Ireland, and over 90% in Luxemburg, Malta, Portugal.

2.3 *Assessment of methadone maintenance programmes (MMT)*

There is large evidence available from high-income countries that maintenance therapy offers numerous benefits not only at the individual level but also at the population level including lower pace of infectious diseases and diminished crime rate (Ward, Mattick, Hall 1998). Recently published report from the WHO collaborative study on substitution therapy carried out in seven countries from South-East Asia, Eastern Europe, Middle East showed high treatment retention, substantial reduction in illicit drug use, diminishing risk behaviours, lower criminality after six months follow-up. The study proved that MMT may achieve similar outcomes in culturally diverse low- and middle-income countries to those reported earlier in high-income countries (Lawrison, Ali et al 2008).

As stated earlier, a demand from national or municipal level is important factor in treatment assessment studies. Few years ago, the Warsaw municipality commissioned a study whose aim was to assess accessibility of MMT and demand for this service in Warsaw. A quick and relatively inexpensive study was completed in a couple of months. It consisted of collecting statistical data from existing services, including three MMT and two detoxification units, a survey among current patients receiving MMT, a survey among street addicts and semi-structured interviews with heads of existing MMT-s. Even though opportunistic sampling, the surveys covered over three quarters of patients (180 patients) and over one hundred of street addicts with response rates varying from 73 to 87 per cent. Simple socio-demographic measures disclosed high marginalisation of street addicts compared to those on methadone. All patients on MMT but two had health insurance compared to 44% only among street addicts, all of them but one had stable accommodation compared to 64% among street addicts. Over 90% had a legitimate source of income (salary, pension, welfare) while half of street addicts admitted begging, thefts, dealing as a main source of income.

Average waiting time for admission to MMT was over one year even though one third was immediately admitted due to priorities given to seropositive individuals as well as to pregnant women. Long waiting time resulted in prolonged period of drug taking, health problems, HIV and/or HCV infections and legal problems. For those who were

admitted, MMT did not meet majority of their problems. A simple indicator of adequacy of care was elaborated showing that one third of those suffering alcohol problems and psychological problems did not get appropriate help in those fields, half of those in need of psychological help was not offered any care in this regard, help in finding housing and/or employment was offered to less than 10 per cent of patients having poor accommodation and/or no employment.

Despite insufficient services, three quarters of street addicts expressed interest in participating in MMT. Capture-recapture as well as benchmark methods gave similar estimates of a number of injecting drug users in Warsaw. Both estimates combined with demand for MMT expressed in the survey allowed a conclusion that only one sixth of the demand is satisfied by existing services. Taking under consideration place of residence of addicts and location of existing services, the study recommended establishment of six new services spread closer to their potential users (Moskalewicz, Sierosławski, Bujalski 2006).

An evaluation report on MMT in Estonia provides an useful guidance how to evaluate treatment system or its segment within very limited resources applying qualitative interviews. An evaluation expert commissioned by UNODC visited several MMT in three cities studying available documentation and interviewing 14 staff members and 8 patients. He concluded that “interviewed MMT management representatives and providers indicated that they did not receive adequate training before they started MMT and were “left alone” to learn from their own mistakes. During the past years there was little or no ongoing in-service training for the staff, including physicians, nurses, social workers, psychologists. Some MMT providers reported that while implementing MMT they have faced critical organizational and clinical problems, and did not know where to get support, advice or supervision. As an outcome result, MMT programs were developing “their own approaches”... “in relative isolation”. Interviews with patients showed that patients were disappointed with some aspects of structured MMT, particularly with severe limitations on travel. They felt chained to a MMT site which they were obliged to visit every day and seemed to be unaware of a possibility to receive sufficient amount of methadone to carry on with them while travelling or spending vacations in the country (Subata 2007).

A question of take-home methadone was investigated in Poland in 2003 where a patient had to visit MMT site every day to swallow his/her methadone. A mail survey was carried on in all existing MMT throughout the country with response rate of 90% (10 out of 11 existing sites responded). Despite lack of legal provisions practically all sites under study offered take-home methadone and elaborated specific rules with this regard. This “privilege” was given after a long period of not taking any illicit drugs. Major premises were physical health, employment, need to take care of other family member (Habrata, Chmielewska, Baran-Furga 2003).

Another study run in Lithuania discusses impact of MMT on health and social integration of people participating in MMT in 3 major cities in Lithuania. The study

covered several hundred patients being relatively old (mean age 32.6 years) and relatively well educated (60% having 11+ years of education). WHO Quality of Life questionnaire short version (WHOQOL-BREF 26-items version) and Opioid Treatment Index were administered among patients. The study showed that MMT programmes in Lithuania had potential to affect physical dependence to opioids, but they are not so effective to social and psychological aspects of dependence. To increase impact on quality of life it is recommended to offer more psychological consultations and to employ in MMT more psychologists and social workers (Vangas 2007).

3 Recommendations

Current drug research in which studies on drug treatment as a system have no priority whatsoever, does not provide enough evidence to respond to a crucial question how scarce resources in drug treatment should be allocated.

Considering scarcity of systemic research and their great potential following recommendations can be formulated:

Recommendations

3.1 Evidence based treatment policy

Drug treatment policy should be formulated and adopted by relevant authorities at the national, regional and local levels. Treatment policy should be integrated within general drug policy on the one hand, and with general treatment policy, on the other. Instead of promoting dominant treatment approaches, drug treatment policy should encourage development of drug treatment system(s) at the national and local levels composed of coordinated network of open-access and structured services. Treatment policy should be based on evidence of effectiveness and cost-effectiveness rather than on existing traditions and convictions.

3.2 Comprehensive needs assessment

Needs assessment at the national and local level should precede decisions aiming at expanding or ameliorating existing treatment system. Needs assessment should be methodologically sound but politically – participatory including commitment from local authorities as well as participation of current and potential clients. Comprehensive assessment includes not only epidemiological data but also expectations of potential users of a treatment system as well as available treatment resources with focus on human resources, their competence, attitudes and commitments. There is a variety of components in needs assessment. Majority of them would include:

- Reviewing existing sources of information on drug use and related harms.
- Mapping existing services, and their capacities incl. personal and material resources.
- Tracing clients movements within existing treatment system.

- Assessing existing barriers.
- Identification of unmet needs of current clients.
- Identification of needs of population(s) not in treatment.
- Identification of harms associated with limited access to treatment.

3.3 *Implementation of a differentiated treatment system*

Treatment system should offer a range of services and be tailored to a range of specific needs of heterogeneous target groups. System must offer services which are accessible, of different intensity, requiring varying client's commitment. Clients' needs are very likely to go beyond health needs and to include social, legal and economic dimensions. Therefore, treatment system should spread across different sectors: health, social welfare, criminal justice, employment et cetera. If restricted to specialised drug treatment only, following elements may be distinguished (elaborated from NTA 2007b).

Regular treatment

- counselling,
- detoxification,
- psychotherapy,
- rehabilitation.

After care support

- housing
- vocational training
- employment
- health problems
- psychological problems
- legal problems

Harm reduction

- general health assessment and care
- vaccinations against HBV
- screening for HCV
- needle exchange
- supervised consumption, including maintenance treatment.

3.4 *Care coordination*

Coordination between different elements of the system including inter-sectoral coordination is crucial. It will take into account systemic coordination i.e. appropriate distribution of tasks and resources as well as individual case coordination. To this end,

effective communication structures should be established to secure efficient referrals and continuity of care.

3.5 *Evaluation and research*

Research on drug treatment as a system should be among top priorities among EU research programmes as well as national and regional research funding schemes. Drug treatment system studies do not need to be expensive. Simple approaches work and bring useful information on treatment demand, needs assessment, adequacy of treatment, feasibility, effectiveness and even cost-effectiveness. New approaches need to be invented to study continuity of treatment, level of system integration and population impact of treatment.

3.6 *Tailoring to specific needs*

Population impact of drug treatment system should be continuously studied. This includes proportion of population in-need that receives treatment (coverage rates), morbidity and mortality due to drug-specific causes such as HIV, hepatitis, overdose, social marginalisation (e.g. homelessness, unemployment), crime rates.

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18 Proposal for an exchange system

Objective of the “Moretreat”-project was to develop recommendations for a concept for a European platform that provides “good practice protocols” in drug treatment and allows the implementation of a continuous exchange and improvement process. The platform should enable the improvement of the dissemination of good practice in Europe.

The following inventory refers to the action plan on drugs as the political background. In particular objective 7 of the EU Action Plan on Drugs 2005-2008²⁰ states the need to improve coverage of, access to, quality and evaluation of drug demand reduction programmes and to ensure effective dissemination of evaluated best practices.

Accordingly, the provision of information on best practices in the Member States and the facilitation of exchange of such practices are mentioned as tasks of the EMCDDA in article 2 of the recast of the EMCDDA regulation, which was adopted by the European Parliament and the Council of the European Union in December 2006²¹.

Important aspects of an exchange system are

- Mechanisms of continuous development and presentation of given protocols for different areas of treatment (modalities, system level, cross cutting issues)
- Clarification of different forms for the consensus building and selection process for additional or special areas of drug treatment as well as for revision of existing protocols
- Clarification of possible relations of a possible additional exchange platform with existing concepts for platforms for good practice (drug treatment and other treatment areas) with EMCDDA, public Health officials in Europe and in the Member States.

For the proposal the term ‘knowledge transfer’ is understood as part of the knowledge base and the knowledge infrastructure in the area of drug related interventions. The transfer is an important aspect of efforts for evidence-based interventions and policy.

Over the last decades different systems have developed that enable the development and dissemination of knowledge-based interventions in the areas of health services and care related interventions. This process started first for medical interventions but has expanded to health care in general and also to interventions related to drug problems, to prevention and treatment including the different areas of pharmacological and psychosocial interventions, and also to policy action.

²⁰ The EU drugs action plan (2005-2008), www.emcdda.europa.eu/index.cfm?nNodeID=10360

²¹ „While reaffirming the EMCDDA's main purpose as to provide EU-Member States with 'factual, objective, reliable and comparable information at European level concerning drugs and drug addiction and their consequences', the new regulation broadens the scope of the Centre's tasks.“ www.emcdda.europa.eu/html.cfm/index27868EN.html

The investigation of the current situation in this area is the starting point the proposed improvement of exchange of good practice in the field of drug treatment.

18.1 Methods

To define the next step for a knowledge transfer it is important to understand the current situation as regards the production of guidelines, their implementation in drug treatment, evaluation and improvement at European level. This includes an overview/survey of existing multipliers that play an important role in the development, collection, dissemination and transfer of good practice in each country (but also at the European level).

The inventory of existing platforms for “good practice protocols” in the Member States (e.g. ‘Models of care’ in England or ‘Resultaten scooren’ in the Netherlands) and at international level (e.g. SAMHSA in USA) serve as examples.

Different platforms and efforts of knowledge transfer mainly in the drug treatment area are investigated as basis for a proposal of an exchange system in Europe:

- European network for Health Technology Assessment - EUnetHTA
- World Health Organization has launched the Health Evidence Network (HEN)
- The “National Treatment Agency” (NTA) for substance misuse in England
- Treatment Improvement Protocols“ (TIP) and „Treatment improvement exchange“ (TIE) of the Centre for Substance Abuse Treatment (CSAT) in USA
- Pompidou Group and their role in knowledge transfer
- EMCDDA online portal about best practices – concept of the EMCDDA

The investigation of existing European platforms is completed by an overview related to the knowledge transfer in all Member States.

This overview is based on an inventory which was realised by the project coordinator in cooperation with the EMCDDA in 2007 (see for details – Degkwitz et al. 2007).

The overview refers especially to criteria for quality, selection process, consensus building and the regional knowledge transfer/exchange mechanism.

18.2 Inventory of exchange platforms and knowledge transfer for good practice in health care and drug treatment

A short overview concerning best practice development and exchange in Europe related to health care in general and drug treatment in particular is presented below.

In Europe, the issue of best practice exchange has relatively a short history. The first institutions dedicated to the evaluation of health care technologies were established in the 1980s, initially at regional/local level in France and Spain. The first national agency for Health Technology Assessment (HTA) was established in Sweden in 1987.

The late 1980s and the 1990s can be described as the era of institutionalisation of HTA in Europe. Since then, in almost all countries of the European Union programmes for

HTA have been established through either the foundation of new agencies or institutes or by establishing HTA departments or units in universities or in other existing governmental and non-governmental bodies (Velasco-Garrido & Busse 2005).

Several reviews of the stepwise development and institutionalisation of HTA in Europe have been conducted, each with different focuses and levels of comprehensiveness (see Velasco-Garrido & Busse 2005). The heterogeneity of HTA institutions in Europe reflects the variety of traditions and socioeconomic contexts of European health care systems. There are agencies for HTA with national mandates and those with regional ones. There are HTA institutions conceived to support decisions only at the level of investment in equipment for hospitals and those expected to give advice about policies concerning the organisation of the whole health care system. HTA might be directly committed and funded by governments (national or regional) or by non-governmental organisations spending public money. The bodies performing HTAs are mainly funded by resources from the health care system or from the national research and development budget.

The task of this chapter is to report on different network models of good practice development and exchange/transfer in health care in general. In principle, all following platforms have connections to drug treatment interventions though with great differences in practice.

The chapter is starting with describing general health networks in Europe and at WHO level. Subsequently two exemplary national platforms for best practice dissemination on substance misuse from England and the USA are introduced. Finally the actual European concepts (Pompidou group and EMCDDA) for knowledge transfer in the area of drug treatment are presented.

The presentation of exchange platforms, HTA programmes, and quality assurance systems refers to the

- European network for Health Technology Assessment - EUnetHTA
- World Health Organization (WHO) – the Health Evidence Network (HEN)
- Cochrane Collaboration
- Guidelines International Network (G-I-N)
- Pompidou group and their role in knowledge transfer
- EMCDDA online “best practice portal”

In relation to the mentioned platforms the following aspects are of particular interest:

- Process of the production of guidelines in connection with research, evaluation, evidence reports
- Criteria for quality, the selection process and consensus building
- Knowledge transfer/exchange mechanism

A system of collecting and disseminating evidence – the development of the “European network for Health Technology Assessment” - EUnetHTA²²

“Health technology assessment (HTA)” has been defined as “a form of policy research that systematically examines the short- and long-term consequences, in terms of health and resource use, of the application of a health technology, a set of related technologies or a technology related issue” (Henshall et al. 1997). HTA is concerned with the medical, organisational, economic and societal consequences of implementing health technologies or interventions within the health system.

Areas of Health Technology are diagnostics and treatment methods, pharmaceuticals, rehabilitation and prevention methods and also organisational and supportive systems that build the frame for health care provision. The aim of HTA is to formulate safe, effective health policies that are patient focused and seek to achieve best value. In principle the aim comprises as well different aspects of the problems of drug treatment interventions.

The declared purpose of HTA is to support the process of decision-making in health care at policy level by providing reliable information. In this respect, HTA has been compared to a bridge between the world of research and the world of decision-making (Battista 1996). *This bridge is intended to allow the transfer of knowledge produced by scientific research to the decision-making process.* In order to achieve this objective HTA is committed to the work of collecting and analysing evidence from research in a systematic and reproducible way, and to make it accessible and usable for decision-making purposes, in particular by means of assessment reports.

HTA shares these principles with evidence-based medicine (EBM) and clinical practice guidelines (CPG) and, together with them, builds a body of best practice initiatives (Perleth et al. 2001).

To learn about the knowledge production and exchange it is necessary to look at the implementation of HTA in Europe. In 2004, the European Commission and Council of Ministers defined Health Technology Assessment as “a political priority”, recognising “...an urgent need for establishing a sustainable European network on HTA”. A Commission call was answered in 2005 by a group of 35 organisations throughout Europe, led by the Danish Centre for Evaluation and HTA (DACEHTA) in Copenhagen. The European network for Health Technology Assessment, EUnetHTA, coordinates the efforts of 27 European countries including 24 Member States of the European Union in evaluating health technology in Europe.

The general strategic objective of the Network is to connect public national/regional HTA agencies, research institutions and health ministries in order to enable an effective exchange of information and support to policy decisions by the Member States.

During the first 3 years of existence (2006-2008) EUnetHTA aims at developing an organisational framework for a sustainable European network for HTA along with

²² The European network for health Technology Assessment – <http://www.eunethta.net/>

practical tools to ensure timely and effective production, dissemination and transfer of HTA results.

Initially, the EUnetHTA project is being co-financed by the European Commission (DG Sanco) and contributions from network members.

Specific objectives of EUnetHTA are:

- To establish the organisational and structural framework for the network with a supporting secretariat.
- To develop and implement generic tools for adapting assessments made for one country to new contexts.
- To develop and implement effective tools to transfer HTA results into applicable health policy advice in the Member States and EU – including systems for identification and prioritisation of topics for HTAs and assessment of impact of HTA advice.
- To effectively disseminate and handle HTA results, information sharing and coordination of HTA activities through the development and implementation of elaborate communication strategies and clearinghouse activities.
- To monitor effectively emerging health technologies to identify those that will have greatest impact on health systems and patients (<http://www.eunethta.net/>).
- To establish a support system in countries without institutionalised HTA activity

EuNetHTA as a relevant network is also concerned with the assessment of evidence in the area of drug related action. However, up to now psychosocial interventions in general and especially in drug treatment are a subordinate issue.

The HTA-process contributes to the collection of evidence in the field of drug treatment and also to the dissemination of knowledge. One option is a systematic promotion of these developments.

World Health Organization (WHO) – the Health Evidence Network (HEN)²³

The Regional Office for Europe of the World Health Organization has launched the Health Evidence Network (HEN), an Internet-based resource, whose aim is to provide evidence-based answers for questions posed primarily by public health and health care policy-makers in the European Region (www.euro.who.int/HEN).

HEN is conceived as network of technical members and financial partners, involving United Nations agencies with a mandate related to health, organisations working with evidence-based health policy and health technology assessment, other institutions and governments interested in funding advanced projects related to public health issues.

HEN works with more than 30 international agencies and institutions. They contribute to HEN by, for example:

- proposing questions for response through HEN,
- proposing experts to write and peer review responses to questions,

²³ World Health Organization – the Health Evidence Network (HEN) – <http://www.euro.who.int/HEN>

- identifying and providing evidence for inclusion,
- disseminating the evidence from HEN, and
- suggesting areas for further project development.

The HEN provides concise and standardised reports on available evidence on topics currently under discussion in the countries of the European region, such as reduction of hospital beds or the implementation of disease management programmes.

The rationale of HEN is the growing need for timely and relevant information for decision-making. HEN makes it easier for policy-makers and other interested parties to get rapid access to much of this information in one place.

Services of HEN are the provision of summarised information from a wide range of existing sources: web sites, databases, documents, national and international organisations and institutions.

HEN also replies to specific questions that public health and health care policy-makers may have. The methodological proceeding of HEN after receiving a request is to mobilise a team of specialists, including members of HEN, who search for existing evidence in the area and use it to develop a synthesis report. When the evidence is contradictory, the report outlines the context and level of the debate. Each report goes through three reviews:

- an initial review by the HEN team
- an internal and external peer review
- a quality control by the HEN team

A steering committee advises HEN on its aims, objectives, strategies and approaches.

As regards evidence, the WHO/Europe has, with the advice and help from the high-level European Advisory Committee on Health Research, adopted a broad definition of evidence that includes research findings and context-related information from other types of knowledge. Evidence is defined as "findings from research and other knowledge that may serve as a useful basis for decision-making in public health and health care" (European Advisory Committee on Health Research 2003).

Working together, HEN and the European Observatory on Health Systems and Policies have launched a new series of joint policy briefs to address questions related to the health system policy in Europe.

- The objective is to produce high-quality, accessible material that is of immediate interest to national policy- and decision-makers seeking key messages based on solid foundations, that can be used by researchers and experts as brief but authoritative reviews.
- In addition to a rigorous peer review process – comprising two external reviews and one internal review – a knowledge-transfer review will be an integral element in the new series. The aim is to ensure that each brief highlights the link between research/evidence and health policy.
- Joint policy briefs will be generated in consultation with Member States stakeholders and reviewed by an international advisory board, as well as the editorial team.

HEN disseminates the evidence-based work of its members by providing it as far as possible the web site. In principle the HEN platform is open for questions and evidence assessment for drug related actions, especially drug treatment interventions and policy actions. However, up to now (August 2008) this platform contains no drug related reports (with the exception of one alcohol related report).

Cochrane Collaboration

The Cochrane Collaboration is an international non-profit-making organisation that produces and disseminates systematic reviews of health care interventions and promotes the search for evidence in the form of clinical trials and other studies of interventions.

The Collaboration's major product is its database of systematic reviews. These are based on the best available information about health care interventions. They explore the evidence for and against the effectiveness and appropriateness of interventions (medications, surgery, education, etc.) in specific circumstances. The reviews are prepared by health care professionals and published in the Cochrane Library.

The Cochrane Library is a collection of high-quality evidence-based health care databases, providing instant access to over 2000 full-text articles reviewing the effects of health care interventions. It is published every three months with new and updated Cochrane reviews.

The concept contains production and dissemination of systematic reviews also for the field of drug treatment interventions. For many relevant interventions such reviews are available. These products are important references for the production und dissemination of good practice in drug treatment.

Even though the results are a basis for the elaboration of guidelines and best practice models, the transformation of evidence in guidance for practice is not in the focus of the Cochrane Collaboration.

Guidelines International Network (G-I-N)

The Guidelines International Network (G-I-N)²⁴ focusses on the identification, development and dissemination of guidelines. This is aspired in close cooperation with Cochrane. G-I-N is an international non-profit association of organisations and individuals involved in the development and use of clinical practice guidelines.

In fact, G-I-N seeks to improve the quality of health care by promoting systematic development of clinical practice guidelines and their application into practice, and through supporting international collaboration and dissemination. In October 2008 more than 5,400 documents were available on this site. At present only a few guidelines for drug treatment are available (for example: NICE (GB) report: Drug misuse:

²⁴ See <http://www.g-i-n.net/index.cfm?fuseaction=homepage>

psychosocial management of drug misusers in the community and prison settings (CG51)²⁵).

G-I-N, founded in 2002, is a consequence of many countries that have built up experience in the development, appraisal and implementation of clinical practice guidelines at professional, institutional, regional and national levels. Guidelines activities have taking place all over the world. At the European level this proceedings have resulted in the “Recommendation of the Council of Europe on Guidelines Methodology” and in a generic methodology for guideline appraisal (AGREE Instrument). As well G-I-N was established as forum for communication between those involved in developing, appraising and implementing clinical guidelines.

A major stimulus to international cooperation in guideline development in recent years has been the AGREE Collaboration which was formed in 1998 to develop a common guideline appraisal instrument. The AGREE project highlighted the increasing harmonisation of the methodologies used by guideline agencies and programmes around the world, and the Collaboration itself provided a forum for guideline developers, researchers, and implementers to meet and share ideas.

The concept and the objectives of G-I-N provide information on what is necessary in the field of development and dissemination of guidelines for drug treatment interventions. Unfortunately guidelines for drug treatment interventions are not priority area up to now, and available guidelines are delivered casually and not based on an (European) planning.

Pompidou Group and their role in knowledge transfer

With respect to the knowledge transfer and exchange of “good practice” the core mission of the Pompidou Group is to contribute to the development of multidisciplinary, innovative, effective and evidence-based drug policies in its involved 35 states. It seeks to link policy, practice and science and focuses especially on the particularity of local implementation of drug programmes.

The shifting, dynamic nature of the drug phenomenon required of the Group to adapt its role in order to deal with emerging problems and changes in the drug situation.

Against an international background characterised by the presence of many European and international bodies working in the field of drugs, the Pompidou Group provides a multidisciplinary forum at the wider European level where it is possible for policy-makers, professionals and researchers to discuss and exchange information and ideas on the whole range of drug misuse and trafficking problems. In order to carry out this mission the Pomidou Group adopts a multidisciplinary, integrated approach to all drug problems and employs a variety of working methods.

Because of its links with the Council of Europe the Pompidou Group also ensures that policy recommendations are consistent with public policy as elaborated in other fields

²⁵ <http://guidance.nice.org.uk/CG51>

of the Council's work, such as public health, social cohesion and penal policy and with particular emphasis on ethical issues.

The Research Platform's prime role is to better support the utilisation of research evidence in policy and practice thus facilitating the development of evidence-based policy. Moreover, it signals the latest issues that arise from drug research in the social and biomedical fields and promotes interaction between research disciplines such as these and psychological drug research.

To improve the exchange of knowledge which has been identified as a major gap during the Strategic Conference on linking research, policy and practice – ("Lessons learned, challenges ahead") – the online register has been devised in collaboration with the EMCDDA and in accordance with recommendations of the EU Horizontal Drug Group. The online register devised in 2007 and updated in 2008 offers the possibility to find out who does what in drug research. This initiative is an attempt to improve the exchange of knowledge in drug research. The register contains details of more than 320 researchers and information on about 100 research projects.

The registration of institutes, researchers and actual projects in the field of drug research is an important aspect of exchange of research, but only the first step in the direction of exchange of good practice.

Online "best practices portal" – the concept of the EMCDDA

Based on the initially mentioned political background of the ongoing EU Action Plan that stated the need to improve the provision of information on best practices in the Member States, the task of the facilitation of exchange of such practices is mentioned in the EMCDDA regulation.

The promotion of information dissemination of science-based practices was then included in the EMCDDA 3-year work 2007-2009 programme's objectives. The Centre recognises that an important but currently under-developed area of work of the EMCDDA is to place the descriptive data in the context of identifying and sharing information on best practices.

Main objectives of the best practice portal are to provide an overview of the latest evidence on the effectiveness of different interventions. It will also present tools and standards aimed at improving the quality of interventions, as well as highlighting best practice examples from the field. The portal is primarily aimed at professionals, policy-makers and researchers in the drugs field.

Areas covered in the portal:

(A) Latest available evidence on the efficacy/effectiveness of interventions (summary of knowledge based upon latest reviews)

The overall objective is to provide an online overview on:

- Summary of the conclusions/main findings based on the latest reviews²⁶ (published since 2000) of universal school-based prevention programmes²⁷.
- Overview of applied methodology used in each of the reviews (i.e. criteria for inclusion of studies, review procedure, rating system applied to assess the strength of evidence).

Additional information is provided for the reviews:

- Reference of all studies, systematic reviews, meta-analysis and their abstracts that were taken into consideration in the presented reviews.
- Glossary (all technical terms will be defined, i.e. meta-analysis, randomised controlled trials)
- Summary of content of selected publication on how to assess the quality of systematic reviews and meta-analysis.
- Acknowledgement of limitations of the overview. I.e. the EMCDDA acknowledges that literature reviews on the effectiveness of interventions pose problems because they have not taken into account all relevant published or unpublished systematic, unsystematic reviews or meta-analyses or individual studies. In addition they are subject to reviewer bias, often biased towards English language publications as well as limited to the provision of evidence of what works under controlled research conditions rather than in real-life conditions. Another source that provides useful information on what works in the drug demand reduction field are the views of practitioners who have experience in the implementation of interventions as well as opinions of persons who are recognised as experts in particular fields of interventions.

(B) Tools to evaluate practices

This area will compile existing EMCDDA information on how to evaluate demand reduction activities such as PERK (Prevention Evaluation Resource Kit), EMCDDA guidelines on evaluation of treatment services, workbooks on the evaluation of psychoactive substance abuse treatment, as well as the evaluation instrument database (EIB) which provides tools that can be used for the evaluation of processes and outcomes. Additional material will be added to this section if regarded as relevant and scientifically sound.

(C) Standards, guidelines for the implementation of practices

This area will focus in a first phase on the description of existing quality standards for interventions in Member States as well as existing national guidelines for the implementation of practices (i.e. national guidelines on clinical management of substitution treatment).

Quality standards

²⁶ These reviews aim at assessing the available evidence for the efficacy of measures for the prevention of substance use drawing on systematic reviews, unsystematic reviews, meta-analyses and individual studies (mainly randomised controlled trials).

²⁷ This is the first area the EMCDDA had focus on (started in 2008).

Quality standards or minimum standards belong to the most traditional aspect of quality assurance in service delivery. They specify what agencies should attain in meeting the needs of their clients. These standards set out criteria for the structure of various aspects of service delivery, including the agency organisation and management, patient assessment, treatment delivery (but not content), patient rights, evaluation and staff training and development. Existing models of standards for intervention content (i.e. treatment content) beyond basic procedural aspects of operations will also be described.

Guidelines

A first step will be the collection of national drug use and dependence guidelines on clinical management from Member States. These may refer to guidelines generally concerned with the clinical management of drug misuse and dependence as well as those that focus on specific areas of interventions such as substitution treatment or target groups (i.e. guidelines on clinical management of drug dependence for GPs).

(D) Data base on evaluated Drug Demand Reduction projects in MS, including best practices

Established in 1996, EDDRA provides details on a wide range of evaluated prevention, treatment and harm reduction programmes in the EU, while promoting the exchange of professional expertise and hands-on experience. EDDRA is designed to help professionals and policy-makers planning and implementing interventions in response to drugs. Currently EDDRA contains more than 600 entries.

In 2007, EDDRA has been reviewed and reclassified by the EMCDDA and its national EDDRA managers in a move to improve the system's content and layout. To better identify best practice in evaluation, projects will be structured according to a 'logic model' and classified according to type of intervention and level of quality. This reclassification takes place in the context of the EU drugs action plan (2005–2008) which calls for the 'effective dissemination of evaluated best practices' and the EMCDDA's new mission statement which prioritises the provision of such information. The new-look EDDRA will be migrated to a new technical environment allowing for an improved online presentation of its projects. It will also be integrated into the online portal.

Procedure for the classification of revised projects according to level of quality

Currently all projects that undergo a revision are being classified by two independent project managers according to three basic levels of quality criteria.

Level 3 is the most important level (=model projects in EDDRA) and demands:

Content

Based on a theory that is clearly related to the objectives, the initial situation and the indicators.

Type of design chosen

Research design – Control group (CT/RCT) Logic model plausible? Can the main elements of the programme be described in a Logical Graphical Model (i.e. flow chart)?

Measures – the operational relevance and psychometric quality of measures used in the evaluation.

Dissemination - Provision of all programme material as well as evaluation tools

The “Best practice portal”²⁸ has started – as planned – in 2008 with a general structure following the concept:

Evidence of efficacy

This section contains reviews on the efficacy of different types of intervention.

(This has started but up to now only with collection and transfer in the field of prevention.)

Tools for evaluation

This area contains EMCDDA information on how to evaluate demand reduction activities.

Standards and guidelines

This section contains standards and guidelines for the implementation of practices.

Examples: EDDRA

The Exchange on Drug Demand Reduction Action (EDDRA) provides real-life examples of evaluated practices in the European Union.

18.3 Overview: Guidelines, quality assurance and knowledge transfer in drug treatment in the Member States

Among the European countries there are different mechanisms which rule the identification and dissemination of treatment know-how. These mechanisms also differ with respect to the implementation of an evidence-based culture in the respective national drug treatment systems.

Analysing the status quo of the “knowledge transfer and exchange system of ‘good practice’” implies to assess the main components of the “Quality Systems” in Member States. Accordingly the status quo of quality assurance, knowledge transfer, sharing of experiences and good practice in the drug treatment area in the Member States and Norway has been investigated.

To assess the existence and of the level of quality assurance in drug treatment the following has been considered as main assessment indicators:

- Guidelines – existence, relevance, commitment, contents, funding, guidance for guidelines?
- Guidelines – sources: based on best practice, evidence reports, consensus building process?
- Monitoring – different stages of reporting
- Evaluation – existence and level (systematic, connection to research?)

²⁸ <http://www.emcdda.europa.eu/themes/best-practice>

- Research – outcome studies in drug treatment, clinical research, reviews, evidence reports?

Table 1

List of URLs provided by Member States, Candidates and Norway on national institutions

| Country | URLs |
|----------------|--|
| Belgium | www.portal.health.fgov.be |
| Bulgaria | www.nfp-drugs.bg |
| Czech Republic | www.cekas.cz/php/certifikace.php www.drogy-info.cz |
| Denmark | www.sst.dk www.servicestyrelsen.dk |
| Germany | www.awmf.org/ www.dhs-intern.de www.deutsche-rentenversicherung-bund.de |
| Estonia | www.tai.ee/ |
| Ireland | www.hrb.ie www.publichealth.ie |
| Greece | www.ektepn.gr |
| Spain | www.drogy-info.cz |
| France | www.has-sante.fr |
| Italy | www.iss.it |
| Cyprus | www.ask.org.cy |
| Latvia | www.sva.lv |
| Lithuania | www.vplc.lt |
| Luxembourg | www.relis.lu |
| Hungary | www.eum.hu www.alkohologia.fw.hu |
| Malta | www.sedqa.gov.mt |
| Netherlands | www.ggzkennisnet.nl |
| Austria | www.bmgfj.at |
| Poland | www.kbpn.gov.pl |
| Portugal | www.idt.pt |
| Romania | Not available |
| Slovenia | www.ivz.si |
| Slovakia | www.drogy.sk |
| Finland | www.kaypahoito.fi www.huuko.fi www.neuvoa-antavat.stakes.fi |
| Sweden | www.socialstyrelsen.se/ |
| UK | www.nice.org.uk www.nta.nhs.uk |
| Croatia | www.uredzadroge.hr |
| Norway | www.shdir.no/ |

When summarising the current „quality system“ in Member States – which implies the development, dissemination, and transfer of good practice – the following main conclusions can be drawn.

Quality assurance system in the field of drug treatment has been developed in the majority of the Member States. At the same time main components for knowledge transfer and best practice transfer are only partly implemented at present. This is especially the case for:

- Evaluation and research: While evaluation is realised sporadically, research is inadequately developed.
- Reviews and evidence reports: With few exceptions both has not been established as standard in the Member States. Reviews and evidence reports are most likely to be implemented in medical treatment such as substitution and detoxification.
- A systematic procedure for producing and controlling new protocols - as standard for achieving best practice is not yet implemented.
- The consensus process for development of guidelines is currently mostly based upon expert panels.

The evidence based development of guidelines and the transfer of good practice in the field of drug treatment can be defined as to be at an initial stage compared to other areas of the health system. Currently there are considerable limitations in the transfer of good practice as regards their correspondence with the tasks of the drug action plan and the demands in drug treatment. These gaps are most evident in the realisation of a knowledge infrastructure concerning an exchange system for “good practice” and knowledge transfer.

Regarding the implementation of guidelines and standards in the treatment system, the situation in the Member States can be described according to following basic categories.

- In the first group of states the dissemination of guidance mainly occurs through policy makers and institutions authorised by them.

In this category, public authorities are responsible for the identification and dissemination of defined guidelines and standards for providers. This is an important part of a developing quality system. The dissemination of know-how is mainly based on the experience of different decision-makers – such as policy makers, providers and professionals – and on expert consensus.

The guidelines are mainly limited to general structural aspects of treatment services or interventions. This kind of development and dissemination of guidelines has only a loose connection to drug research; existing research is not regularly involved in the evaluation. There is no regular adaptation/improvement of guidelines based on evaluation, research or evidence reports.

- In the second group the development of standards and guidelines is influenced to a greater extent by professional associations.

The transferred guidelines are based on experience in combination with evaluation of treatment interventions and research. Professional associations and public authorities are responsible for the dissemination.

Dissemination is carried out through professional and scientific channels. These are e.g. publications in national scientific journals, newsletters of involved associations, manuals for interventions, workshops and congresses. This is the traditional structure of quality assurance and a transition to evidence-based identification and dissemination of knowledge is ongoing.

- The third group represents a fully developed knowledge infrastructure as background for knowledge transfer.

Dissemination of treatment know-how is based on continuous data collection and evaluation of existing services. The process of identification, preparation and transfer of „good practice“ is concentrated in a commissioned institution acting at national level.

This agency can be organised in very different ways. The institutionalisation of a knowledge infrastructure for optimal response is influenced by very different traditions in the individual European Member States.

Depending on the national tradition, there exist different links to research. Research can be directly integrated (e.g. if the responsible institution emerged from public health or drug research) or the connexion is assured by relations of cooperation (institutes for quality assurance, institutes for clinical excellence, public health and drug research units).

Depending on the constituting role played by the associations of providers in drug treatment, the professional associations of different professional groups involved in drug treatment, public health or drug research units, or university hospitals involved in treatment and research, the “national agencies” are either directly attached to the health ministries or operate as relatively independent networks.

The individual Member States can be assigned to one of these categories. E.g. the United Kingdom and the Netherlands belong to the group of countries with a full developed system. The Scandinavian countries are in the process of implementing an evidence-based culture of identification and dissemination of know-how in drug treatment. As reported in the country profiles the “good practice” transfer system is only partly implemented and on an initial stage.

18.4 National examples of an exchange system in drug treatment

As an example for countries with a fully developed system for production and exchange of good practice the United Kingdom will be presented in the following. Although the Netherlands has as a similar developed system (www.ggzkennisnet.nl), most evidence reports and protocols are only available in Dutch language. Only some parts of the system (“fact sheets”²⁹) are available in English.

²⁹ Factsheets in english language see: www.ggzkennisnet.nl/ggz/publicaties/raadplegen.asp

After describing the example of the UK a short introduction in the system of the United States is given. Even though the US system this is not transferable to Europe, it serves as a role model for a fully developed system.

The “National Treatment Agency” (NTA) for substance misuse in England

The National Treatment Agency (NTA)³⁰ is a special health authority, created by the Government in 2001 to improve the availability, capacity and effectiveness of treatment for drug misuse in England. In other words, aim of the NTA is to ensure that there is more treatment, better treatment and fairer treatment available to all those who need it. This organisation has been established to survey the development of drug treatment services at a national level. Parallel structures have been established with the Scottish Executive and the Welsh and Northern Ireland Assemblies.

The NTA describes its functions in its own words as follows:

- Exists to serve the needs of drug treatment service users, their unpaid carers and the communities in which they live
- Will seek to work in partnership with service providers, commissioners of treatment services and communities to improve the quality and effectiveness of treatment
- Will be open, accessible and responsive to the needs of all the diverse communities living in England
- Will be independent, rigorous and fair
- Will operate according to the best available evidence
- Will apply expectations of continuous improvement to their own operations
- Will communicate in a clear and timely way with stakeholders.

In order to improve treatment for drug misuse in England, the NTA concentrates on:

- Ensuring that tax payers’ money is spent on expanding and running effective, well-managed and appropriate treatment. That means improving of knowledge of each area’s need for drug treatment and how to plan and pay for services that meet that need.
- Promoting best practice in drug treatment. That means giving drug workers information and guidance on what approaches to treatment are most effective.
- Improving the performance and availability of drug treatment workers. That means developing training, career development and recruitment opportunities for existing and potential employees.
- Improving the commissioning of drug treatment services. The aim is to ensure that the National Pooled Treatment Budget is spent to best effect, on treatment that really works and that meets the needs of local people.

Promoting best practice in drug treatment

³⁰ National Treatment Agency (NTA) – <http://www.nta.nhs.uk/>

Treatment should be based on evidence. Therefore the institution summarises existing research, carries out own studies and tests new approaches to treatment in order to identify what works, and then publishes the findings and recommendations. In order to ensure equally high standards of treatment across the country, the NTA has developed a set of basic national standards that all drug treatment services should meet. Such standards “Models of Care for the Treatment of Adult Drug Misusers” define the national framework for the commissioning of adult substance misuse treatment.

For improving the performance of treatment services and staff, the NTA is working with key organisations and colleges to improve training for new and existing staff.

NTA works in a network with other parts of the health service, including public health and social services, as well as criminal justice agencies including probation and prison services. Additionally NTA works in partnership with those organisations that also strive to tackle the harms associated with addiction.

The important national and regional partners for NTA to develop standards and disseminate good practice are:

- Home Office: The Drug Strategy Directorate within the Home Office is responsible for the Government’s drugs strategy. Close cooperation exists with other departments within the Home Office, including the key criminal justice agencies - probation, police, prison services and youth justice board, to develop policies and approaches to improving treatment, particularly for offenders.
- Healthcare Commission: NTA is working with the Healthcare Commission to develop standards and inspection procedures for drug treatment services
- Royal colleges and training organisations: Cooperation exists with the royal colleges of GPs and psychiatrists, and the British Psychological Society to increase the level of training on drug misuse available in their courses.
- Academic institutions and researchers: NTA works with universities and researchers to identify best practice in drug treatment. In some instances, this involves paying researchers to carry out work on their behalf.
- Government office drug teams: Based in the nine government offices for the regions, these teams are responsible for implementing the national drugs strategy at regional level.
- Drug action teams (DATs): The local consortia responsible for planning and commissioning activities to tackle drug misuse, including drug treatment.
- Drug treatment providers: Drug treatment is provided by NHS organisations (e.g. at hospitals, special clinics and at GP surgeries) and by voluntary organisations and charities. NTA regional managers work closely with the staff of these services in order to improve treatment and share knowledge of what works.
- Service user and carer groups: Drug treatment service users and their carers have developed their own support networks in many areas, and are also represented on many DAT discussion groups. NTA regional managers encourage this involvement, and actively support and consult these groups.

The National Treatment Agency for Substance Misuse (NTA) on behalf of the Department of Health and devolved administrations published an updated version of Drug Misuse and Dependence – UK Guidelines on Clinical Management (28/9/07). The new Clinical Guidelines are based upon the previous evidence-based and well-established Clinical Guidelines but reflect some of the considerable changes that have occurred in drug treatment over the past eight years. The latest Clinical Guidelines also reflect the recent suite of guidance from the National Institute for Health and Clinical Excellence (NICE).

Example for a NTA guideline: „Clinical Guidance“ for „Prescribing“

On the website of the NTA there is a link to “work areas” and among there is a further link to „Clinical Guidance“ http://www.nta.nhs.uk/areas/clinical_guidance/default.aspx.

This website offers „pharmaceutical guidance“ and „prescribing“ with downloads for

- „Best practice guidance for commissioners and providers of pharmaceutical services for drug users“ and
- „Prescribing services for drug misuse“ containing the key findings and recommendations of the NTA’s expert prescribing group on: „The evidence base for the pharmacological treatment of drug misuse, recommended guiding principles of an effective prescribing regime and recommended components of an effective prescribing service“.

Additionally in this area further links to clinical guidelines and an evidence report are available. Especially there is the link to the „National Institute for Health and Clinical Excellence (NICE)“. This institute has produced „technology appraisals“ on:

- “Methadone and buprenorphine for managing opioid dependence”
- “Naltrexone for the management of opioid dependence”.

For the issue of „substitution treatment“ all levels of knowledge for planning, guidance, and guidelines are available. Also corresponding links to research and evidence reports are presented.

In Summary: The NTA-platform for drug treatment shows an exemplary answer to basic questions of “information dissemination on treatment know-how (scientific evidence) and on good practice”:

- Delivery of guidance, standards, guidelines for all areas of drug treatment and settings of interventions
- Preparation of material for different levels of the decision process on treatment planning and carrying out
- The systematic link to different areas of research: monitoring, epidemiology, evaluation, evidence reports, systematic reviews.

„Treatment Improvement Protocols“ (TIP) and „Treatment improvement exchange“ (TIE) of the Centre for Substance Abuse Treatment (CSAT) in USA

The TIPs and TIEs are carried out by the Centre for Substance Abuse Treatment (CSAT)³¹. CSAT is a department in the Substance Abuse and Mental Health Services Administration (SAMHSA) which is the leading Federal agency addressing substance abuse and mental health services in the United States. SAMHSA was established as a services agency in 1992. Its resources and programmes are designed to promote the expansion of service capacity and to improve the infrastructure to address existing gaps in prevention and treatment.

One main goal is the improvement of service quality by a) improving outcomes of programmes as measured by the SAMHSA National Outcome Measures (NOMs) and b) by contributing to the documentation of effective practices through the *National Registry for Effective Programmes and Practices* (see below).

The effectiveness goal is also supported by *Best Practices Planning and Implementation programmes* and *Science to Services programmes*. Success in ‘Science to Services’ requires adequate documentation and dissemination of potential service improvements to the field, and transfer of information about practices that need further research.

For the question of “Best Practice Development and Exchange” the following processes are of particular importance.

“Treatment improvement protocol” (TIP) and the TIP development process

The Treatment Improvement Protocols (TIPs) are best practice guidelines for the treatment of substance abuse. CSAT's Office of Evaluation, Scientific Analysis, and Synthesis draw on the experience and knowledge of clinical, research and administrative experts to produce the TIPs, which are distributed to facilities and individuals across the country.

The TIPs Development Process includes an Editorial Advisory Board. This is a distinguished group of substance abuse experts and professionals in primary care, mental health, and social services. The State Alcohol and Other Drug Abuse Directors generate topics for the TIPs based on the practices current needs for information and guidance.

After selecting a topic, CSAT invites staff from pertinent Federal agencies and national organisations to a Resource Panel that recommends specific areas of focus as well as resources that should be considered in developing the content for the TIP. Soon after that a consensus panel is held, non-federal experts who are familiar with the topic and are nominated by their peers participate in panel discussions over five days. The information and recommendations on which they reach consensus form the foundation of the TIP. The members of each Consensus Panel represent substance abuse treatment programmes, hospitals, community health centres, counselling programmes, criminal

³¹ Centre for Substance Abuse Treatment (CSAT) – <http://csat.samhsa.gov/>

justice and child welfare agencies, and private practitioners. A panel chair ensures that the guidelines mirror the results of the group's collaboration.

As an example the link to the “Treatment improvement Protocols” (www.tie.samhsa.gov/Externals/tips.html) is presented under the heading of „Treatment Improvement Exchange“ (TIE) (see next part). Up to now (December 2007) 45 TIPs are available for different areas of drug treatment interventions. Newer TIPs are revisions of the older ones and replace them against the background of new evidence. Exemplarily the last five protocols are listed:

- TIP 45: Detoxification and Substance Abuse Treatment – This TIP provides clinicians with the latest information on detoxification: the physiology of withdrawal, pharmacologic advances in the management of withdrawal, patient placement procedures and managing detoxification services within comprehensive systems of care.
- TIP 44: Substance Abuse Treatment for Adults in the Criminal Justice System – This TIP presents clinical guidelines to help substance abuse treatment counsellors addressing issues that arise from their clients’ status in the criminal justice system. In addition, it will aid personnel in the criminal justice system in understanding and addressing the challenges of working with offenders with substance use disorders.
- TIP 43: Medication-Assisted Treatment for Opioid Addiction in Opioid Treatment Programs – this TIP provides treatment providers, physicians and other medical personnel with the latest information on medication-assisted treatment for people addicted to opiates. The TIP emphasises the importance of supportive services such as counselling, mental health and other medical services, and vocational rehabilitation in facilitating recovery for patients receiving medication-assisted treatment.
- TIP 42: Substance Abuse Treatment for Persons With Co-Occurring Disorders – the TIP provides information about new developments in the rapidly growing field of co-occurring substance use and mental disorders, and captures the state of the art in the treatment of people with co-occurring disorders.
- TIP 41: Substance Abuse Treatment: Group Therapy – this TIP contains detailed information about group therapy modalities.

The TIPs can be regarded as a combination of what in Europe is known as “quality standards³²” for the implementation of a drug treatment service and “guidelines³³” for assisting decisions of professionals in the treatment process.

The TIPs are living documents on “good practice” that are periodically revised in a consensus process based on new knowledge and experience.

³² Quality standards as generally accepted principles or set of rules for the best/most appropriate way to implement interventions. Frequently they refer to structural (formal) aspects of quality assurance such as environment and staff composition. However they may also refer to process aspects such as adequacy of content, process of the intervention or evaluation processes.

³³ Guidelines are systematically developed statements to assist practitioners and patient decisions about appropriate interventions for specific circumstances.

Organising Treatment exchange

The Treatment Improvement Exchange (TIE) is a resource sponsored by the Division of State and Community Assistance of the Centre for Substance Abuse Treatment to provide information exchange between CSAT staff and State and local alcohol and substance abuse agencies.

Register of “Evidence based Programmes and Practice”

The National Registry of Evidence-based Programmes and Practices (NREPP) is an online registry of mental health and substance abuse interventions that have been reviewed and rated by independent reviewers. The purpose of this registry is to assist the public in identifying approaches to prevent and treat mental and/or substance use disorders that have been scientifically tested and that can be readily disseminated to the field. NREPP is one way that SAMHSA is working to improve access to information on tested interventions and thereby reduces the lag time between the creation of scientific knowledge and its practical application in the field. NREPP is a voluntary, self-nominating system in which intervention developers are elected to participate.

As the “Best Practice Portal” is also a task of the EMCDDA the provided information and the review process are a matter of interest. NREPP publishes a report called an intervention summary on its website for every intervention that has been reviewed. Each intervention summary includes:

- Descriptive information about the intervention and its targeted outcomes
- Quality of research and readiness for dissemination ratings
- A list of studies and materials submitted for review
- Contact information for the intervention developer

Before an intervention will be considered for review, documentation must be provided that shows it meets the following minimum requirements:

1. The intervention demonstrates one or more positive outcomes ($p \leq .05$) in mental health and/or substance use behaviour among individuals, communities, or populations.
2. Intervention results have been published in a peer-reviewed publication or documented in a comprehensive evaluation report.
3. Documentation (e.g. manuals, process guides, tools, training materials) of the intervention and its proper implementation is available to the public to facilitate dissemination.

Reported results of an intervention are evaluated independently by different reviewers according to the Criteria for Rating Quality of Research using a defined number of criteria.

An important target of SAMHSA National Registry for Evidence-Based Programs and Practices is to increase the number of candidate programmes applying by 12 (6 each year) from a 2005 baseline of 18.

In addition to these processes the CSAT is linked to a “Co-Occurring Centre for Excellence” and Technical Assistance Publications (TAPs). TAPs are publications, manuals, and guides developed by CSAT to offer practical responses to emerging issues and concerns in the field of substance abuse treatment.

Policy makers, providers or professionals can find for example the evaluated intervention for „substance abuse treatment“, for „adults“ in an urban setting on the following website: <http://www.nrepp.samhsa.gov/find.asp>. In case of the example „Brief Marijuana Dependence Counselling“ (May 2007) the abstract provides a short description: „Brief Marijuana Dependence Counselling (BMDC) is a 12-week intervention designed to treat adults with a diagnosis of cannabis dependence. Using a client-centered approach, BMDC targets a reduction in the frequency of marijuana use, thereby reducing marijuana-related problems and symptoms. BMDC is based on the research protocol used by counselors in the Center for Substance Abuse Treatment's Marijuana Treatment Project conducted in the late 1990s.“ The respective treatment manual offers guidelines for counsellors that can be downloaded directly.

Additionally the CSAT platform delivers assistance to other decisions as to “Peer-to-Peer” support or a “locator” for services:

- “Recovery Community Services Program” (RCSP); Peer-to-peer recovery support services help people to initiate and sustain recovery from alcohol and drug use disorders. Some RCSP grant projects also offer support to family members of people needing, seeking, or in recovery.
- “Substance Abuse Treatment Facility Locator” – This directory of drug and alcohol treatment programmes shows the location of facilities around the country that treat alcoholism, alcohol abuse and drug abuse problems. The Locator includes more than 11,000 addiction treatment programmes, including residential treatment centres, outpatient treatment programmes, and hospital inpatient programmes for drug addiction and alcoholism. Listings include treatment programmes for marijuana, cocaine, and heroin addiction, as well as drug and alcohol treatment programmes for adolescents, and adults.

All in all the different platforms provides under the umbrella of the “Centre for Substance Abuse Treatment” (CSAT) and their systematic links to different areas of research, preparation, dissemination and implementation of “good practice” deliver essential hints for improvement in the Member States and at European level.

18.5 The future of the exchange of good practice in drug treatment in Europe

Compared to the situation in the year 2005, when the proposal for this work package has been prepared, the situation in Europe has changed. The main developments are:

- The general decision about the location for the exchange platform in the field of responsibility of the EMCDDA has been made.

- This platform has a general concept (see “Best Practice Platform” above).
- This platform has already started.

Consequently recommendations for further developments and improvement of best practice exchange have to consider the new developments.

To contribute to the improvement of best practice the following aspects should be the main focus:

- The different areas of the implemented portal have to be filled with contents. For some areas this mainly demands the collection of information while in other areas there is a weak substructure at all.
- The quality of the delivered products have to be enhanced and the procedures for quality assurance have to be supported.
- The production of evidence reports, guidelines for implementation and manuals for interventions in Europe needs to be strengthened.

Strengthen evidence based culture and infrastructure in Member States

Support in establishing evidence-based cultures and qualifications of knowledge infrastructure in drug treatment at the level of Member States is the indispensable basis for a new level in development and exchange of good practice. In this respect there are different areas where the Member States can benefit from advice and support from the EU.

Main issues are the implementation of authorised institutions/platforms for the coordination and dissemination, as well as for quality assurance and guideline development. A further issue is the coordination with existing research (Drug Research, Health Care, and Clinical Excellence) institutions and networks.

Based on the investigation of the “quality system” and the transfer of drug treatment know-how in Member States it can be summarised that quality assurance systems have been developed in the majority of the Member States. However, up to now the main components for knowledge transfer and best practice transfer are only partly implemented in the Member States. This is especially the case for

- evaluation and research,
- reviews/evidence reports,
- implementation of a systematic procedure for producing and controlling new protocols, consensus process, and
- for the development of guidelines.

The area of evidence-based development of guidelines and transfer of good practice in drug treatment must be reinforced and referring to the corresponding tasks of the EU drug action plan.

Adjuvant network for identification and exchange of good practice

In addition to existing activities and the developments within the Pompidou Group and the “Best Practice Portal” of the EMCDDA, in Europe a self-contained network is required in the field of drug treatment, prevention and policy action complementary to and in close cooperation with the EUnetHTA and the G-I-N.

The organisational frame should be a net of national/regional official agencies, public bodies, MoHs, research institutions, and international organisations/networks. This net should have the similar priority tasks as the HTA Net and the G-I-N in general:

- Procedures (defined and standardised elements of guidance for obtaining evidence and best practice) which have only to be adopted.
- Priority areas for issues of evidence reviews, research, identification and preparation of good practice as to drug treatment interventions.
- A workplan to realise the main objectives in responsibility of national institutes of the Member States (main areas of drug treatment interventions – evidence, implementation guidance, manuals).

The main reason for the necessity of a distinct net is that the currently initiated HTA (and also the G-I-N) process refers first of all to the central health topics of medical care. Issues concerning psychosocial interventions and drug treatment (appraisal of available evidence, development of guidelines and models of “good practice” and its transfer) are not of first priority in these networks and therefore delayed - this is the experience of the last years.

Important additional aspect of the European exchange platform

Evidence reports are of important value but they should be completed by „treatment improvement guidance“ (the main examples are the “treatment improvement protocols” to all areas of intervention in the US) or guidelines. This requires the implementation of consensus building processes (protocol, procedure) for additional or special areas of drug treatment as well as for revision of existing protocols.

The integration of best practice examples (based on criteria) should be broadened by an online registry of mental health and substance abuse interventions which is reviewed and rated by independent reviewers (Example: The National Registry of Evidence-based Programmes and Practices (NREPP) in the US). Such a procedure has been started with the “Best Practice Portal” on basis of the EDDRA database. However, it still has a substantial lack as regards the scientific evaluation of the interventions and the selection criteria and available resources.

19 Management of the project

This part of the report follows the procedure of the project as it is grounded in the proposal of the project – “description of the action”, Annex I of the contract.

The paragraphs follow the 7 work packages and the corresponding 8 deliverables as they are elaborated in the proposal.

19.2 Inventory of good practice and their evidence (workpackage 4)

„Development of the methodological procedure“ (deliverable 1)

Objective was to develop an unified methodological procedure for the collection of evidence and the presentation of guidance.

Therefore an procedures was developed (and corresponding instruments) that should allow the evaluation of the dimensions, standards and assessment levels of the relevant interventions:

- Dimensions are: Approach, context, duration, staff, client groups, eligibility, inclusion and exclusion criteria, treatment access to service, referral pathways, integrated care pathways
- Standards are: management standards, commissioning standards, responsibilities; performance/outcome monitoring; seamless provision of services and support from one setting to the other (e.g. community – prisons/hospitals, psychiatry), care coordination, departure planning, monitoring
- Assessment levels are: process-management, phases of treatment, performance/outcome monitoring.

For identification of evidence a search strategy in Europe and on the level of the member States has been developed.

For data extraction a “review protocol” for data extraction from studies are presented.

A corresponding data base with the possibility of online data entry for partners has been established (see below).

„Implementation of methodological procedure“ (deliverable 2)

Implementation of the methodological procedures with the associated partners has been realised. Corrections and specification of the procedures took place in dialogue between Hamburg and the partners.

The search of interventions in drug treatment in all European regions through the associated partners for the different aspects of drug treatment (treatment modalities, system level, cross-cutting issues) had been implemented.

The project members started the collection of information, data and literature about the evidence and effectiveness of these interventions through searching in national and international databases and through contacts to experts in the area of drug treatment. The following relevant process issues (as to methodological procedures) have been implemented:

- Main aspects of the methodology (collection of evidence)
- Elaboration and agreement about data extraction (for evidence)
- Implementation of a central database
- Identification of the “most relevant” studies on drug treatment interventions for the preparation of draft protocols (detailed problems see below)
- Agreement about an unified structure of the drafts (treatment improvement protocols)
- Method for development of standards for treatment interventions based on evidence

Further methodological aspects of the project are covered in the next chapters.

Handling of methodological problems

Problems of identification of evidence

In identifying the additional evidence – not represented in international scientific databases – on the level of the Member States practical problems on the background of limited resources arrived.

The problem was addressed by clarification of the search strategy (evidence search) between the partners (in the Kick-off meeting – August 2007). The result was a stepwise procedure and a hierarchy with regard to a search strategy (How to come to the „most relevant“ regional evidence?):

Step 1: Through central search identified papers, that are reassigned to partners

(This studies should be integrated in an European evidence report.)

Step 2: Search in (regional) databases (based on a centrals search terms, which focus on the interesting interventions)

(The general search term has been developed in Hamburg and adopted by the partners)

Step 3: Expert based (research institutes, public health experts) collection of the additional/grey literature.

Adoption of data extraction form and the database

The main aspects of the introduced data extraction are confirmed by the practical experience of the partners. Sometimes, the identification and collection of the “most relevant” interventions/studies/treatment modalities was found to be difficult and required a consultation with further experts. Furthermore, some difficulties raised due to the differentiated extraction sheets, which occupy sometimes much time. In general, the process of identification and especially the assessment of interventions requires in some

cases more time as expected. Especially the sheets for the assessment of study quality are difficult to answer on the basis of a single publication.

Methodological problems of the data extraction form (and the database) came up with the first experiences. Problems are discussed on the Kick-up meeting based on practical examples. This meeting had a training aspect as regard to the extraction process.

A common problem (especially in the additional grey literature) was, that the studies had seldom information as to the differentiated aspects of the data extraction.

Also most of these studies could not reach the quality that a differentiated quality assessment (conceptualised for the level of RCTs) was applicable.

A revision process of the database refers to cancellation of single items.

Problems of the Web-based database in (limited time of access) are only solved partly during the project time; one solution was to make the database (FilemakerPro) physically available in the centres.

“Reviews about interventions in drug treatment and their effectiveness“ (deliverable 3)

In the project regional search strategies have been realised by partners, and the studies are regionally assessed. So the origin of special evidence is comprehensible.

But the elaboration of systematic regional reviews (for different interventions) and a special presentation of national evidence (evidence by member states) doesn't make sense.

As a consequence the evidence, that was identified in this project is presented in two corresponding ways:

- European evidence as to different interventions; the report on evidence took place in a special section (see part 5.1) and in the evidence parts of the protocols (see part 6);
- Additional European evidence (not presented in international journals and in English language) is considered (if additional information are delivered) also in the protocols (part 6). In part 5.2 studies with their content and origin are described.

19.3 Drafts of good practice protocols (workpackage 5)

The general aim was to produce drafts for “good practice protocols” for different treatment modalities/interventions, for so called “cross cutting” issues, and also for the “system aspects” of drug treatment

All partners worked on basis of the reviews of good practice, evidence of effectiveness for drug treatment in the EU-Member states:

- International evidence,
- European evidence (published in English language)
- European evidence (available in the form of scientific reports, published in national scientific journals and grey literature)

Selection process – „Drafts of models of good practice guidance“ (deliverable 4)

The selection process of the (most) relevant areas of interventions is corresponding to the overall objective and the target groups of the moretreat-project:

- The guidelines serve from a public health perspective for implementation of different interventions according to evidence of effectiveness (for every intervention according to the hierarchy of aims of treatment).
- The guidance/guidelines as the products of the project are directed to public health authorities, providers and different groups of professionals. (That means: Main tasks are not directed to internal protocols for special treatment aspects – as dose schemes for different medications for example, but to general aspects of implementation).

On this background the project selected the following most relevant areas for “treatment improvement protocols” based on evidence and the responsibilities for drafts:

- | | |
|---|------------------|
| • Brief intervention and brief therapies for drug treatment | TUD – Dresden |
| • Enhancing motivation for change in drug treatment | ITACA – Rome |
| • Interventions in blood-borne diseases“ – needle exchange, prevention, testing advice, Injection rooms | CIAR – Hamburg |
| • Maintenance treatment (different medications) | MUM – Vienna |
| • Psychosocial interventions | SU – Stockholm |
| • Detoxification | KLC-NAC – London |
| • Treatment in Criminal Justice System | IPiN – Warsaw |
| • Comorbid mental health disorder – drug treatment with co-occurring disorders | CIAR – Hamburg |
| • (Drug treatment in primary care | TUD – Dresden) |
| • Treatment for stimulant use disorders | KLC-NAC – London |
| • (Treatment for multi-substance users | ITACA – Rome) |
| • Pregnancy and parenting in drug treatment | MUW – Vienna |
| • (Inpatient and residential treatment | SU – Stockholm) |
| • System | IPiN – Warsaw |

Three of this in the beginning of the project planned protocols have been cancelled (protocols in brackets) for different reasons:

- “Drug treatment in primary care” is integrated with the protocol on “Brief intervention and brief therapies for drug treatment” for reasons of overlapping. The most important setting for brief interventions is primary care and on the other hand: in primary care brief interventions are the dominant interventions;
- “Treatment for multi-substance users” has been cancelled because the project could not find enough specific evidence for a protocol. The main issues of treatment for “multi-substance” use, that is the rule rather than the exception is considered in the guidance for treatment of opioid-addicts, co-occurring disorders, and harm-reduction.
- The issue of “Inpatient and residential treatment” has been integrated as a special chapter in the guidance for “psychosocial interventions”.

Structure of the guidelines/protocols

The project discussed a common structure for the drafts (“treatment improvement protocols/good practice guidelines” for different areas of drug treatment interventions.

The starting point for an unified structure of the drafts had been: Definition, aims and objectives, research evidence, access, assessment, process-management, standards, performance and outcome monitoring.

As the general structure was worked out:

A. Definition & objectives

- Definition or problem definition

Context, Philosophy and approach, Location, Programme duration, Staffing/Competencies

- Aims & objectives

Aims of treatment/of the intervention, Client groups served, Eligibility, Priority groups, Exclusion (contraindication)

B. Evidence

- General description of the current situation with regard to the available data
- Short description of the main outcomes all studies

(Structure of evidence report depends on the specific intervention; international and european evidence is reported separately – if adequate)

C. Recommendations

Structure of recommendations differs for interventions.

If adequate it contains the following aspects

- Access – Access to the service, Referral pathways and relevant pathways of care, Integrated Care Pathways
- Assessment (level, assessment dimensions)
- Treatment phases, -processes, standards – co-ordination, planning and review
- Core management standards – Commissioning standards (detailed standards or schemes/protocols), Clinical management and responsibility

Modifications of structure for guidelines are decided for treatment/interventions for special groups (for example stimulant users, co-morbidity, pregnancy, or prison)

General structure (for special groups or cross cutting issues) is:

For point A. (Definition & objectives)

- Definition of the special group
- Epidemiology, Prevalence, Nature and extent (particular needs)

For point B. (Evidence base)

- Service accessibility and service utilisation
- Effectiveness of treatment and interventions

For point C (Recommendations)

Structure of recommendations differs for special groups or issue.

These structures are relevant also for the “fact sheets” or short versions of the guidelines.

“Fact sheets” of all “treatment improvement guidelines”

Short versions (“Fact sheets”) of the guidelines (three to four pages) were produced and translated to French and German for easement of dissemination.

19.4 Organisation and realisation of the consensus process and finalisation of the good practice (workpackage 6)

Objective and stages as to the proposal were:

- Realisation of formal consensus process (based on the drafts) via Delphi procedure based on nominal group technique
- Organisation of a conferences in Hamburg (3 days) to discuss and resolve open questions in the draft protocols
- Finalisation of “good practice protocols” by all partners (full version)

„Realisation of the consensus process“ (deliverable 5)

Preparation of consensus building

Preparation of the consensus process in the project implied:

- Selection of experts in different areas of treatment
- Allocation of drafts to the planned consensus conference
- Connect drafts of close-by areas or levels of treatment to associated partners, experts and collaborative partners

The process of achieving consensus had been carried out through:

- Draft protocols will be sent to all involved partners with a short questionnaire (not realised) with closed and open questions, which highlight potential barriers to consensus.
- The questionnaires will be analysed by experienced experts.
- All points potentially not consensual will be collected and discussed in the consensus conference.
- In case of divergent opinions regarding relevant issues a consensus document will be prepared including both, the opinion of the majority of experts as well as the opinion of the minority of experts.

The final documents (good practice protocols) should circulate one last time after the conference for last input.

In principle this procedure – the steps from drafts, reviews by experts, collection of open questions, discussion and revised versions with the same circuit again – has been realised.

But as to a time lag in preparation for most of the draft this process was not as systematic as planned and not harmonised in front of the consensus conference.

Especially after the conference several experts were involved to discuss the recommendations of the final version of the treatment improvement guidelines.

Consensus conference

The consensus conference has been realised in the last week of May, 2008 in Hamburg. Participants were the partners of the projects and some additional experts. As many of the draft had been on an elemental stage the formal consensus process was not possible at the conference.

So the conference focussed on principal methodological questions as the evidence based interventions. Broad discussed was the question how guidelines are based on evidence and how they are systematically connected.

Consensus about the structure and the scope of the intended guidelines had been achieved. The conference came to the conclusion that the project should not aim to “protocols” in a strict sense, if a protocol refers to a mandatory procedure for a special treatment.

So to products of the project are presented as “treatment improvement guidelines”. This title signalise that improvement of the different areas of drug treatment is a process and that the guidelines should be renewed periodically if experience and knowledge is expanded.

“Good practice protocols” (deliverable 7)

In the period after the consensus conference:

- The drafts are revised
- Send to internal and external reviewers
- Have been summarised in an additional short version (translated) and
- are presented in their final version (final report).

19.5 Proposal of a system (workpackage 7)

Aim was a proposal for the improvement of exchange of “good practice” in drug treatment on an European level.

The proposal should consider existing platforms (especially EMCDDA plans) and clarify the connecting with national platforms in the member states (existing official platform for guidelines, exchange of good practice, improvement of treatment in Public Health areas).

„Proposal for a system of regular exchange of good practice guidance in drug treatment“ (deliverable 6)

Based on an investigation of existing European platforms and the situation in Member states (in cooperation with the EMCDDA) a proposal for improvement in the area of development and dissemination of good practice in Europe has been presented (see part 7).

19.6 Dissemination of results (workpackage 2)

Aims as to the proposal were

- Dissemination of protocols of good practice in drug treatment to all member states in Europe
- Dissemination of all protocols of the project to all relevant networks, services and organisations
- Dissemination of the final report to support public health authorities and drug treatment commissioners in the member states

Dissemination of the project results is based on the following deliveries:

- “Evidence reports” (revised versions) (deliverable 3)
- “Good practice protocols” (deliverable 7) – in short and comprehensive versions
- “Final report” (deliverable 8)

In the dissemination of the results of the project there is a time lag based on the delay in the completion of the drafts.

Dissemination of the guidelines, the fact sheets and the evidence reports to networks on national and European level is ongoing. Publications of parts of the report are in preparation.

In the focus of attention is the presentation (of different parts of the project results) in sections of the EMCDDA:

- evidence reports,
- guidelines/guidance for different interventions,
- special activities with the fact sheets.

19.7 Evaluation and quality assurance (workpackage 3)

The aims of the evaluation progress were

- to ensure the methodological procedure of the project,
- to ensure the compliance with the detailed/structured workplan (related to the time schedule, results, deliverables),
- to assure the quality of the work progress by the associated partners.

Evaluation follows the expected results of the whole project:

- Reviews of good practice and evidence for different drug treatment intervention modalities and their effectiveness,
- Good practice protocols for drug treatment interventions in Europe,
- A final report on different “good practice guidance” for drug treatment,
- A proposal for establishing a platform for guidance for treatment on a European level that serves a continued improvement of drug treatment in the member states (sustainability).

Main indicators for the progress of the project chosen in the proposal were.

(The project results as to indicators have been reported in the chapters before; here the results are summarised.)

- Established methodological procedure

Result: has been realised (with some revisions); see details before.

- Regional reviews about interventions in drug treatment and their effectiveness

Result: Delivered are in this report reviews about the international and European evidence as to different pharmacological and psychosocial drug treatment interventions;

- Drafts of models of good practice (approx. 15)

Result: These draft have been delivered.

- Results of the consensus panels based on evaluated findings of the evidence reviews

Result: A formal consensus process was not realised; this for the development of guidelines relevant process need more time as was available in the frame of the project; for the drafts was a review process organised.

- Proposal for a system of dissemination of good-practice guidance for drug treatment

Result: As during the project the installation of a “best-practice portal” under the head of the EMCDDA came to a decision, the main question for the moretreat project changed to recommendations for improvement of the platform.

- Good practice protocols (approx. 15)

Result: This report contains 11 guidelines for treatment improvement; 4 papers have been canceled; their results are partly integrated in the elaborated guidelines.

- Final report, printed in 90 copies, PDFs dissemination via internet/Email

Result: As the report is too comprehensive a printed version has been quitted; the whole report will be send by a PDF-document; the most relevant products – short versions of the guidelines (fact sheets) in English, French and German, the full guidelines and der evidence reports are presented in different networks and used for scientific publication.

- Database via EMCDDA (e.g. EDDRA) and 150 daily visits

Result: The basis for this aim of the project has been produced. For realisation more time is needed.

In the project a regular controlling of the progress as to the named indicators had been realised by the responsible partner (TUD, Dresden). The situation was reported periodically to the coordinating center. A interim evaluation of the situation of the project has been compiled for the interim report.

19.8 Coordination (workpackage 1)

Main components of coordination had been:

- Implementation of an intranet platform to exchange information between partners

Result: A regular exchange by internet had been assured. The database for data entry of regional evidence (online available for every partner keyword protected) has been implemented.

- Control timetable of the project in regular contact with the partners

Result: The timetable has been controlled regular by the coordinating center in cooperation with TUD that was responsible for evaluation.

Time lags (for example in drafting and the consensus conference) are reported above.

- Coordination of exchange from results (reviews, drafts) between the associated partners

Result: Reviews and in between results of partners are disseminated in time and available for all partners.

- Collecting results from partners (regarding research protocol)

Result: The results of the review process are integrated in an online database and in (for the different interventions) in the evidence parts of the drafts.

- Coordination of the steering committee; continuous information of the committee as basis for their periodical assess of the quality

Result: The steering committee has been informed about the progress of the project regularly. At critical points of the project there has been direct contact with the committee.

- Planning of expert meetings and consensus processes/conference

Result: Has been realised. For detailed information as to problems in the consensus process see above.

- Adaptation of the results of the process evaluation

Result: The report about process evaluation was presented for the interim report. Consequences were integrated in the following procedures of the project.

- Dissemination of the good practice protocols and the final report

Result: As we had a time lag in the production of the main results of the project (guidelines – the full and short version) the dissemination of results has started jet. The main tasks for dissemination will follow after the time period of the project.

- Report of the evaluation of quality insurance process of the project (interim process report)

Result: Results have been integrated in the interim report.

- Compiling Final Report

Result: Has been realised in the timeframe of the project.

19.9 Financial issues

The project has been realised in the frame of the contractual regulated financial budget. In the frame of the budget Hamburg as the coordinating center requests for two shift between parts of the budget.

First: Travelling that was planned for coordinating the project with the partners has been proved as not necessary because the partners are connected by email and regular phone conferences. The main parts of these resources should go into staff cost.

The second relevant change to planned budget is that printing of the final report for dissemination to the health authorities has been cancelled.

The main reason is, that the final report containing the evidence reports and the guidelines is too comprehensive for printing and dissemination. So the project changed its concept.

First short versions of the guidelines (see chapter 2) are produced. These versions are translated into French and German language and will be disseminated by email broader than by printed versions. The second change is, that the single guidelines should be presented inside the report but as single products to the different national and European platforms engaged in drug treatment guidance.

All changes of budget have been realised inside the planned budget and are explained in the special financial report.

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Annexes

Annex I: Sheets for data extraction

1. General information about the intervention/study

The screenshot shows a web-based data entry form titled "DAF_web0707". The form is for a study by "Gossop, M et. al, 2003". The interface includes a navigation bar with tabs for "General Inform.", "Interventions", "Sampling", "Population", "Outcome Var.", "Results Outcome", "Study Quality I", and "Study Quality II". The "General Inform." tab is active. The form contains several input fields and checkboxes. The "Reviewer" field is "Degkwitz" and the "Date" is "31.08.07". The "Author(s)" field is "Gossop, M et. al" and the "year" is "2003". The "ArticleTitle" field is "The National Treatment Outcome Study ...". The "ArticleTitle" field has a sub-field "original" and a "full_citation_available_in_endnote" checkbox which is checked. The "Editor" field is empty. The "BookTitle" field is empty. The "City" field is empty. The "Publisher" field is empty. The "Volume" field is empty. The "Issue" field is empty. The "Pages" field is empty. The "Journal" field is empty. The "abstract" field is empty. The "language" field is "English". The "TypeOfPublication" field is empty. The "Author address" field is empty. The "electronic ressource number link to pdf" field is empty. The "Country of origin" field is "United Kingdom". The "Studydesign" field is "Prospective cohort study". The "Focus of the trial" field has three radio buttons: "individual" (selected), "group", and "NA". The "Intervention area" field has a list of checkboxes: "Advice and information", "Harm reduction interventions", "Community prescribing Interventions" (checked), "Structured day programmes", "Structured psychosocial interventions/ Care planned counselling", "Other structured treatment", "Inpatient drug treatment" (checked), "Residential rehabilitation" (checked), "Aftercare", and "Selfhelp". The "Intervention part of larger interv" field has two radio buttons: "yes" and "no" (selected). The "Number of Interventions" field is "4".

DAF_web0707

Gossop, M et. al, 2003

Log Out

new Review

delete Review

List

Help

General Inform. Interventions Sampling Population Outcome Var. Results Outcome Study Quality I Study Quality II

Reviewer Degkwitz Date 31.08.07

Author(s) Gossop, M et. al year 2003

ArticleTitle The National Treatment Outcome Study ...

ArticleTitle original

full_citation_available_in_endnote ☒ yes ☐ no Please continue with the field >link to pdf<

Editor

BookTitle

City Publisher Volume Issue Pages

Journal

abstract

language English

TypeOfPublication

Author address

electronic ressource number link to pdf

Country of origin United Kingdom

Studydesign Prospective cohort study

Focus of the trial ☒ individual ☐ group ☐ NA

Intervention area

☐ Advice and information

☐ Harm reduction interventions

☒ Community prescribing Interventions

☐ Structured day programmes

☐ Structured psychosocial interventions/ Care planned counselling

☐ Other structured treatment

☒ Inpatient drug treatment

☒ Residential rehabilitation

☐ Aftercare

☐ Selfhelp

Intervention part of larger interv ☐ yes ☒ no

Number of Interventions 4

2. Interventions

DAF_web0707

Gossop, M et. al, 2003

Log Out List Help

General Inf. Interventions Sampling Population Outcome Var. Results Outcome Study Quality I Study Quality II

New interv. specialist inpatient
Delete interv. 2 defined interventions

Condition of intervention
☐ experimental condition
☒ not applicable
☐ control condition
☐ only one intervention

What? level_of_focus
detox treatment with an following inpatient stay from 2 weeks to 3 month with psychosocial rehabilitative interventions

How? Delivery scope frequency
inpatient

Who? target population
opiate users, (polysubstance users) no clear definition of a target group

Setting check all that apply
☒ Hospital
☒ Mental health
☐ Home
☐ Medical practice
☐ Health care/outpat clinic
☐ Community-based Org.
☐ Prison
☐ Street
☐ Workplace
☐ Shelter
☒ Drug treatm. facility
☐ Community-wide
☐ Other Setting
☐ Does Not Apply

Setting_describe
based in psychiatric hospitals, medical supervised combination with ps intervention and reha aspects

Other_aspects
treatment as usual

Theory
☐ yes
☒ no

Theory describe

Place EC_state
United Kingdom
Place town (name)
UK wide
Other state, name
no special town
Town_inhabitants
not reported

Population density check all that apply
☐ Urban
☒ Mixed
☐ Suburban
☐ Not Reported
☐ Rural

Assessment of exposure to the intervention
☒ Resource Utilization
☐ Observation
☒ Interview
☐ Other
☐ Self-administered Questionnaire
☐ Laboratory Test
☒ Record Review
☐ Not reported/Did not assess

Assessment of exposure describe

3. Sampling (for the study/arms of the study)

DAF_web0707

Gossop, M et. al, 2003

Log Out List Help

General Inf. Interventions Sampling Population Outcome Var. Results Outcome Study Quality I Study Quality II

Overview of defined interventions, study arms

| |
|-----------------------|
| specialist inpatient |
| methadone maintenance |
| |
| |
| |
| |

Since the point >Focus of the trial is 'individual'< you don't have to fill out these fields
Please continue with the next Layout (Population)

HELP - Sampling codes:
 Entire elig pop = Entire eligible population
 Probabil samp = Probability sample
 Conven sample = Convenience/self-selected sample
 Not reported
 Not applicable

| Allocation of individuals or groups | Description of Individuals or groups N=sampl frame | Allocation | | Observation | | Number analysed |
|-------------------------------------|---|---------------------|-------------------|---------------------|-------------------|-----------------|
| | | Intervention n Samp | Comparison n Samp | Intervention n Samp | Comparison n Samp | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

4. Study population

Description of the target or included population – differentiated for the different interventions

DAF_web0707

Gossop, M et. al, 2003 Log Out List Help

General Inf. Interventions Sampling Population Outcome Var. **Results Outcome** Study Quality I Study Quality II

New result
Delete result

Name of outcome, result ?

1 defined outcomes

| InterventionArm | Pre % | Post % | Time1 % | Time2 % | Time3 % | Time4 % | P-value CI or other |
|-----------------------|-------|--------|---------|---------|---------|---------|------------------------|
| specialist inpatient | | | | | | | |
| methadone maintenance | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Outcome: further aspects

further results describe ?

Implementation addressed
☐ yes
☐ no

Implementation_describe

Costs addressed
☐ yes
☐ no

Costs describe

other_issues addressed
☐ yes
☐ no

other_issues describe

Example

7. Study quality I

DAF_web0707

Gossop, M et. al, 2003 Log Out List Help

General Inf. Interventions Sampling Population Outcome Var. **Results Outcome** **Study Quality I** Study Quality II

Gossop, M et. 2003 **Quality assessment 1** **Summary_ratings**

Dictionary

A) SELECTION BIAS ?

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?
☐ very likely ☐ somewhat likely ☐ not likely

(Q2) What percentage of selected individuals agreed to participate?
☐ 80-100% ☐ 60-79% ☐ less than 60% ☐ not reported ☐ not applicable

Rate selection bias ☐ strong ☐ moderate ☐ weak

B) ALLOCATION BIAS ?

Indicate the study design
☐ RCT study ☐ Quasi-experimental ☐ other

Allocation_1_verweis

(i) Is the method of random allocation stated? ☐ yes ☐ no

(ii) If the method of random allocation is stated is it appropriate? ☐ yes ☐ no

(iii) Was the method of random allocation reported as concealed? ☐ yes ☐ no

Rate allocation bias ☐ strong ☐ moderate ☐ weak

C) CONFOUNDERS ?

(Q1) Prior to the intervention were there between group differences for important confounders reported in the paper?
☐ yes ☐ no ☐ can't tell

Relevant Confounders reported in the study:

(Q2) If there were differences between groups for important confounders, were they adequately managed in the analysis?
☐ yes ☐ no ☐ not applicable

(Q3) Were there important confounders not reported in the paper?
☐ yes ☐ no

Relevant Confounders NOT reported in the study:

Rate confounders ☐ strong ☐ moderate ☐ weak

D) BLINDING ?

(Q1) Was (were) the outcome assessor(s) blinded to the intervention or exposure status of participants?
☐ yes ☐ no ☐ not reported ☐ not applicable

Rate blinding ☐ strong ☐ moderate ☐ not applicable

8. Study quality II

DAF_web0707

Gossop, M et. al, 2003

Log Out List Help

General Inf. Interventions Sampling Population Outcome Var. Results Outcome Study Quality I Study Quality II

Gossop, M et. 2003 Quality assessment 2

Summary_ratings

E) DATA COLLECTION METHODS

(Q1) Were data collection tools shown or are the known to be valid?

☐ yes ☐ no

(Q2) Were data collection tools shown or are they known to be reliable?

☐ yes ☐ no

Rate data collection ☐ strong ☐ moderate ☐ weak

F) WITHDRAWALS AND DROP-OUTS

(Q1) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

☐ 80-100% ☐ 60-79% ☐ less than 60% ☐ not reported ☐ not applicable

Rate withdrawals ☐ strong ☐ moderate ☐ not applicable

G) ANALYSIS

(Q1) Is there a sample size calculation or power calculation?

☐ yes ☐ partially ☐ no

(Q2) Is there a statistically significant difference between groups?

☐ yes ☐ no ☐ not reported

(Q3) Are the statistical methods appropriate?

☐ yes ☐ no ☐ not reported

(Q4a) Indicate the unit of allocation (circle one)

☐ community ☐ organisation/institution ☐ group ☐ provider ☐ client

(Q4b) Indicate the unit of analysis (circle one)

☐ community ☐ organisation/institution ☐ group ☐ provider ☐ client

(Q4c) If 4a and 4b are different, was the cluster analysis done?

☐ yes ☐ no ☐ not applicable

Q5) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?

☐ yes ☐ no ☐ can't tell

H) INTERVENTION INTEGRITY

(Q1) What percentage of participants received the allocated intervention or exposure of interest?

☐ 80-100% ☐ 60-79% ☐ less than 60% ☐ not reported ☐ not applicable

(Q2) Was the consistency of the intervention measured?

☐ yes ☐ no ☐ not reported ☐ not applicable

Analysis_comments

Intervention Integrity_comments

Is there a discrepancy between the two reviewers with respect to the component ratings?

☐ yes ☐ no

If yes, indicate the reason for the discrepancy

Annex II: General search strategies

Table 1: Search strategy for opiate related disorders

| Search step | Items / Combinations |
|-------------|---|
| 1 | (opiate\$ or opioid\$ or heroin or methadone or buprenorphine or morphin\$ or diamorphin).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 2 | (abuse\$ or depend\$ or addict\$).mp. or exp opioid-related disorders/ or exp substance-related disorders/ or exp substance abuse, intravenous/ or exp heroin dependence/ or withdrawal syndrome/ [mp=title, original title, abstract, name of substance word, subject heading word] |
| 3 | 1 and 2 |
| 4 | exp opioid-related disorders/dt or exp substance-related disorders/dt or exp substance abuse, intravenous/dt or exp heroin dependence/dt |
| 5 | 5. exp drug therapy/ |
| 6 | pharmacothera\$.mp. or *Heroin/tu or *Heroin Dependence/rh or *Heroin/ur or *diamorphin/tu or diamorphin/ad or morphin\$/tu or morphin/ad or *Methadone/tu or *Methadone/ad or *Buprenorphine/ad or *Buprenorphine/tu or *Adrenergic alpha-Agonists/ad or *Adrenergic alpha-Agonists/tu or *Analgesics, Opioid/tu or *Analgesics, Opioid/ad or *Narcotics/tu or |

| | |
|----|--|
| | *Narcotics/ad or *Narcotic Antagonists/tu or *Narcotic Antagonists/ad or *Clonidine/tu or *Clonidine/ad or *lofexidine/tu or *lofexidine/ad or *Naloxone/ad or *Naloxone/tu or *naltrexone/tu or *naltrexone/ad [mp=title, original title, abstract, name of substance word, subject heading word] |
| 7 | 4 or 5 or 6 |
| 8 | 3 and 7 |
| 9 | exp psychothera\$/ or exp behavioural thera\$/ or exp behavioural treatment/ or exp aversive therap\$/ or exp therapeutic communit\$/ or exp cognitive therap\$/ or exp counselling/ or exp psychosocial treatment/ or exp motivational interviewing/ or exp relapse prevention/ or exp contingency management/ or exp voucher/ or exp 12-step/ or exp cue exposure treatment/ or exp rehabilitation/ or intervention.mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 10 | 3 and 9 |
| 11 | 8 or 10 |
| 12 | exp alcohol-related disorders/ |
| 13 | 11 not 12 |

Table 2: Search strategy for stimulant related disorders

| Search step | Items / Combinations |
|-------------|---|
| 1 | (cocaine or crack or amphetamine\$ or methamphetamine\$).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 2 | (abuse\$ or depend\$ or addict\$ or cocaine-related disorder\$ or substance-related disorder\$ or substance abuse or cocaine dependence or amphetamine dependence or withdrawal).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 3 | 1 and 2 |
| 4 | exp drug therapy/ |
| 5 | (labetalol or benzodiazepine\$ or dopamine agonist\$ or amantadine or bromocriptine or propranolol or anticonvulsant\$ or dextroamphetamine or methylphenidate or amphetamine or diethylpropion or buprenorphine or carbamazepine or topiramate or baclofen or tiagabine or modafinil or selegiline or pergolide or dopa or carbidopa or naltrexone or fluoxetine or bupropion or desipramine or disulfiram or mazindol or vaccination or guanfacine or terguride or haloperidol or flufenazine or ritanserine or valproate or ondansetron or cyclazone or dexamethasone or metyrapone or nimopidine or isradipine or gepirone or venlavaxine).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 6 | 4 or 5 |
| 7 | 3 and 6 |
| 8 | (psychotherap\$ or behavioural treatment or aversive therap\$ or therapeutic communit\$ or cognitive therap\$ or counselling or psychosocial treatment or motivational interviewing or relapse prevention or contingency management or voucher or 12-step or cue exposure or rehabilitation).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 9 | 3 and 8 |
| 10 | 7 or 9 |
| 11 | limit 10 to (humans and english language and "therapy (optimized)" and "all adult (19 plus years)" and yr="2004 - 2007" and (clinical trial, all or clinical trial or comparative study or controlled clinical trial or meta analysis or randomized controlled trial)) |
| 12 | exp alcohol-related disorders/ |
| 13 | 11 not 12 |

Table 3: Search strategy for cannabis related disorders

| Search step | Items / Combinations |
|-------------|--|
| 1 | (cannab\$ or marijuana or THC or Tetrahydrocannabinol or Dronabinol).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 2 | (abuse\$ or depend\$ or addict\$ or cannabis-related disorder\$ or substance related disorder\$ or substance abuse or cannabis dependence or cannabis abuse or cannabis withdrawal or marijuana-related disorder\$ or marijuana dependence or marijuana abuse or marijuana withdrawal).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 3 | 1 and 2 |
| 4 | exp cannabis-related disorders/dt or exp substance-related disorders/dt or exp substance abuse/dt or exp cannabis dependence/dt or exp cannabis abuse/dt or exp cannabis withdrawal/dt or exp marijuana-related disorder\$/dt or exp marijuana dependence/dt or exp marijuana abuse/dt or exp marijuana withdrawal/dt |
| 5 | exp drug therapy/ |
| 6 | (Pharmacotherap\$ or bupropion or divaleproex or natrexlon or nefazodone or Rimonabant).mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 7 | 4 or 5 or 6 |
| 8 | 3 and 7 |
| 9 | exp psychotherap\$/ or exp behavioural therap\$/ or exp behavioural treatment/ or exp aversive therap\$/ or exp therapeutic communit\$/ or exp cognitive therap\$/ or exp counselling/ or exp psychosocial treatment/ or exp motivational interviewing/ or exp relapse prevention/ or exp contingency management/ or exp voucher/ or exp 12-step/ or exp cue exposure/ or exp rehabilitation/ or intervention.mp. [mp=title, original title, abstract, name of substance word, subject heading word] |
| 10 | 3 and 9 |
| 11 | 8 or 10 |
| 12 | exp alcohol-related disorders/ |
| 13 | 11 not 12 |