

Drug misuse: opiate detoxification for drug misuse

NICE guideline

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If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

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Introduction

This guideline makes recommendations for the treatment and management of people who are undergoing detoxification for opiate dependence arising from illicit drug misuse. It is concerned with opiate detoxification in community, inpatient, residential and prison settings, and will refer to the misuse of other drugs such as stimulants, benzodiazepines and alcohol only in so far as they impact on an opiate detoxification. The guideline does not address the particular problems of detoxification of pregnant women and the related management of neonates whose mothers misuse opiates during pregnancy.

Opiate misuse is often characterised as a long-term, chronic relapsing condition with periods of remission and relapse; while abstinence may be one of a range of long-term goals of treatment, it is not always achieved. However, detoxification is a key stage in achieving abstinence for people who are opiate dependent.

Pharmacological approaches are the primary treatment option for opiate detoxification, with psychosocial interventions providing an important adjunct (NICE is also developing a clinical guideline on the psychosocial management of drug misuse'; see section 6 below).

Patient-centred care

This guideline offers best practice advice on the care of people undergoing detoxification for opiate dependence.

Treatment and care should take into account service users' needs and preferences. People who misuse opiates should have the opportunity to make informed decisions about their care and treatment, in partnership with healthcare professionals. If service users do not have the capacity to make decisions, healthcare professionals should follow the Department of Health guidelines – 'Reference guide to consent for examination or treatment' (2001) (available from www.dh.gov.uk). From April 2007 healthcare professionals will need to follow a code of practice accompanying the Mental Capacity Act (summary available from www.dca.gov.uk/menincap/bill-summary.htm).

Good communication between healthcare professionals and service users is essential. It should be supported by evidence-based written information tailored to the service user's needs. Treatment and care, and the information service users are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

Families and carers should have the opportunity to be involved in decisions about the service user's care and treatment, unless the service user specifically excludes them.

Families and carers should also be given the information and support they need.

Key priorities for implementation

Providing information, advice and support

- Detoxification should be a readily available treatment option for people who are opiate dependent and have expressed an informed and appropriate choice to become abstinent. **[1.1.1.1]**
- In order to obtain informed consent, healthcare professionals should provide accurate and detailed information about the components of detoxification and the associated risks and benefits, including:
 - the physical and psychological aspects of opiate withdrawal symptoms, including the length and intensity of symptoms, and how these may be managed
 - the use of non-pharmacological approaches, where appropriate, to manage or cope with opiate withdrawal symptoms
 - the potential medical risks inherent in detoxification
 - the loss of opiate tolerance that follows detoxification and the ensuing risks, including overdose, because there is a potential risk of an increase in illicit drug and/or alcohol use as a response to opiate withdrawal symptoms
 - the importance of continued psychosocial interventions and support, and appropriate pharmacological treatments, to maintain abstinence, and where necessary to treat comorbid mental health problems. **[1.1.1.4]**

The use of opiate agonists

- Buprenorphine or methadone should be considered the first-line treatments in opiate detoxification. When deciding between these medications, healthcare professionals should take into account the following factors:
 - if the service user is currently maintained on methadone or buprenorphine, opiate detoxification should normally be started on the same medication
 - the informed preference of the service user. **[1.3.1.1]**

Rapid and ultra-rapid detoxification

- Ultra-rapid detoxification under general anaesthesia or heavy sedation (where the airway needs to be supported) must not be offered. This is because of the risk of serious adverse events, including death. **[1.3.4.1]**

Community detoxification

- Community detoxification should normally include:
 - prior stabilisation of opiate drug use through appropriate pharmacological treatment
 - effective co-ordination of care by competent primary or specialist practitioners
 - the provision of psychosocial interventions, where appropriate, during the stabilisation and maintenance phases. **[1.4.1.2]**

Inpatient detoxification

- Inpatient detoxification should be considered for people who have had at least one previous unsuccessful detoxification attempt 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 and require concurrent detoxification from alcohol. **[1.4.2.2]**

1 Guidance

The following guidance is based on the best available evidence. The full guideline ([\[add hyperlink\]](#)) gives details of the methods and the evidence used to develop the guidance (see section 5 for details).

1.1 *Principles of care for people considering opiate detoxification*

1.1.1 Providing information, advice and support

- 1.1.1.1 Detoxification should be a readily available treatment option for people who are opiate dependent and have expressed an informed and appropriate choice to become abstinent.
- 1.1.1.2 Healthcare professionals should involve service users, and where appropriate their families and carers, in collaborative decision making about their treatment and subsequent care.
- 1.1.1.3 People who are opiate dependent should be treated with the same care, respect and privacy as any other individual.
- 1.1.1.4 In order to obtain informed consent, healthcare professionals should provide accurate and detailed information about the components of detoxification and the associated risks and benefits, including:
- the physical and psychological aspects of opiate withdrawal symptoms, including the length and intensity of symptoms, and how these may be managed
 - the use of non-pharmacological approaches, where appropriate, to manage or cope with opiate withdrawal symptoms
 - the potential medical risks inherent in detoxification
 - the loss of opiate tolerance that follows detoxification and the ensuing risks, including overdose, because there is a potential

risk of an increase in illicit drug and/or alcohol use as a response to opiate withdrawal symptoms

- the importance of continued psychosocial interventions and support, and appropriate pharmacological treatments, to maintain abstinence, and where necessary to treat comorbid mental health problems.

1.1.1.5 Healthcare professionals should explore with people who present for detoxification whether to involve their families and carers in their treatment, ensuring that the service user's right to confidentiality is respected.

1.1.1.6 Healthcare professionals should give appropriate advice to service users, and, where appropriate, facilitate referrals to relevant specialists (for example, dieticians), on aspects of lifestyle to which service users should pay particular attention during opiate detoxification. These include:

- a balanced diet
- adequate hydration
- sleep hygiene
- regular physical exercise.

1.1.1.7 Healthcare professionals who are responsible for the delivery and monitoring of an agreed care plan should ensure that:

- an appropriate therapeutic relationship is established and sustained
- the service user is helped to identify situations or states where he or she is vulnerable to drug use and to consider alternative coping strategies
- full access to a wide range of appropriate healthcare services is available to all service users
- maintaining engagement with services remains a major focus of the care plan

- effective liaison and collaboration with other care providers is maintained.

1.1.1.8 People who are opiate dependent and considering self-detoxification should be encouraged to seek detoxification within a structured treatment programme.

1.1.1.9 For service users considering opiate detoxification, healthcare professionals should provide information about self-help groups (such as 12-Step groups) and service user support groups (such as The Alliance) and, where appropriate, facilitate engagement with such services.

1.1.2 Supporting families and carers

1.1.2.1 Healthcare professionals should enquire about and discuss concerns regarding the impact of drug use on families (including children) and carers. They should also:

- consider offering the family member/carer an assessment of their personal, social and mental health needs
- provide verbal and written information and advice on the impact of drug use on service users, families (including children) and carers
- provide specific information about detoxification and the settings in which it may take place
- provide information about self-help and support groups for families and carers.

1.2 Assessment

1.2.1 Clinical assessment

1.2.1.1 For people presenting for opiate detoxification, an assessment should be conducted to determine opiate dependence, as well as the misuse of and/or dependence on other substances including

stimulants, alcohol and benzodiazepines. The assessment should include:

- urinalysis to aid the identification of the use of opiates and other substances; consideration may also be given to alternative/additional methods such as oral fluid and/or breath testing
- clinical assessment of opiate withdrawal symptoms where present (the use of formal rating scales may be considered as an adjunct to but not as a substitute for clinical assessment)
- previous history of drug and alcohol misuse, and current or previous treatment for these problems
- current and previous physical health problems and comorbid mental health problems, and current or previous treatment for these problems
- risk factors including risk of self-harm, potential increase in illicit drug or alcohol use as a response to opiate withdrawal symptoms, and loss of tolerance
- social and personal circumstances including employment and financial status, living arrangements, social support, criminal activity and the presence of any dependants.

1.2.1.2 Healthcare professionals should, in addition to near-patient testing, normally use confirmatory laboratory tests (analyses of biological samples, for example, urine or oral fluid) to test for the presence of certain target drugs, when opiate dependence or tolerance is uncertain, including:

- when a young person first presents for opiate detoxification
- when a near-patient test result is inconsistent with clinical assessment.

1.2.1.3 Near-patient and confirmatory testing should be conducted by appropriately trained staff according to established standard operating and safety procedures.

1.2.2 Subgroups requiring special consideration

1.2.2.1 Opiate detoxification should not be routinely offered to:

- people with a medical condition that requires urgent treatment
- people in police custody, or on a short prison sentence or a short period of remand
- people presenting to an acute or emergency setting. The primary emergency problem should be addressed, and opiate withdrawal symptoms appropriately treated, with referral to further drug services as appropriate.

1.2.2.2 For women who are opiate dependent during pregnancy, detoxification should only be undertaken with caution, and referral for specialist advice should be considered.

1.2.2.3 For people who are opiate dependent and have comorbid mental and/or physical health problems, such problems should be managed and treated, alongside the opiate dependence, in line with relevant NICE guidance (see section 6).

1.2.3 Care for people who misuse other medicines and/or substances in addition to opiates

1.2.3.1 For people presenting for opiate detoxification who also misuse alcohol, healthcare professionals should consider the following.

- If the service user is not alcohol dependent, attempts should be made to address their alcohol misuse. Healthcare professionals should be aware that service users may increase their alcohol misuse as a response to withdrawal symptoms associated with opiate detoxification, or substitute alcohol for their previous opiate misuse.
- If the service user is alcohol dependent, alcohol detoxification should be offered. This should be carried out before starting opiate detoxification in a community setting, but may be carried

out concurrently with opiate detoxification in an inpatient setting or with stabilisation in a community setting.

1.2.3.2 Healthcare professionals should consider benzodiazepine detoxification for people presenting for opiate detoxification who are also benzodiazepine dependent. Healthcare professionals should take into account the service user's informed choice and the severity of dependence for both substances when deciding on benzodiazepine detoxification, and whether it should be carried out concurrently with or separately from opiate detoxification.

1.2.4 Monitoring of detoxification

1.2.4.1 Healthcare professionals should be aware that medications used in opiate detoxification are open to risks of misuse and diversion in all settings (including prisons), and should consider:

- appropriate monitoring of medication compliance
- means of limiting the possibility of diversion where necessary, including the use of supervised consumption.

1.3 *Pharmacological interventions in opiate detoxification*

1.3.1 The use of opiate agonists

1.3.1.1 Buprenorphine or methadone should be considered the first-line treatments in opiate detoxification. When deciding between these medications, healthcare professionals should take into account the following factors:

- if the service user is currently maintained on methadone or buprenorphine, opiate detoxification should normally be started on the same medication
- the informed preference of the service user.

1.3.1.2 Dihydrocodeine should not be routinely used in opiate detoxification.

1.3.2 Use of adjunctive medications in opiate detoxification

1.3.2.1 Lofexidine may be considered for:

- people who have made an informed and appropriate decision not to use methadone or buprenorphine for detoxification
- people who have made an informed and appropriate decision to detoxify within a short period – usually less than 7 days
- mild or uncertain dependence, including in young people.

1.3.2.2 Clonidine should not be used for opiate detoxification.

1.3.2.3 Naltrexone and naloxone should not be routinely used to precipitate opiate withdrawal at the start of detoxification.

1.3.2.4 When prescribing adjunctive medication during detoxification, healthcare professionals should:

- be alert to the interactions between the adjunctive medications prescribed, as well as the interactions of the adjunctive medications with the opiate agonist
- limit use to the minimum dose required to address identified withdrawal symptoms or symptoms that have been experienced in previous detoxifications, including agitation, nausea, insomnia or pain.

1.3.3 Dosage and duration of detoxification

1.3.3.1 When determining the starting dose, duration and regimen (for example, linear or stepped) of detoxification, healthcare professionals, in discussion with the service user, should consider:

- the severity of dependence (particular caution should be exercised where there is uncertainty about dependence)
- the stability of the service user (including polydrug and alcohol use, and psychiatric comorbidity)
- the pharmacology of the chosen detoxification medication and any adjunctive medication

- the setting in which detoxification is conducted.

1.3.3.2 The duration of opiate detoxification should normally be within 4 weeks in an inpatient/residential setting and within 12 weeks in a community setting.

1.3.4 Rapid and ultra-rapid detoxification

1.3.4.1 Ultra-rapid detoxification under general anaesthesia or heavy sedation (where the airway needs to be supported) must not be offered. This is because of the risk of serious adverse events, including death.

1.3.4.2 Opiate detoxification may be undertaken under light or moderate sedation where the service user is able to respond to appropriate verbal stimulation and can maintain a patent airway. It should only be undertaken where adequate medical and nursing support is available, regular monitoring of the service user's level of sedation and vital signs is carried out, and staff have the competence to support airways.

1.4 *Detoxification in community, inpatient, residential and prison settings*

1.4.1 Community detoxification

1.4.1.1 Healthcare professionals should normally consider community detoxification in preference to inpatient or residential detoxification as the first-line treatment for people who have made an informed and appropriate decision to undergo opiate detoxification.

1.4.1.2 Community detoxification should normally include:

- prior stabilisation of opiate drug use through appropriate pharmacological treatment
- effective co-ordination of care by competent primary or specialist practitioners

- the provision of psychosocial interventions, where appropriate, during the stabilisation and maintenance phases.

1.4.2 Inpatient and residential detoxification

1.4.2.1 Inpatient and medically managed residential detoxification should be conducted with 24-hour medical and nursing support commensurate with the complexity of the service user's drug misuse and physical and psychiatric problems. Both pharmacological and psychosocial interventions to support the effective treatment of both the drug misuse and other significant psychological and physical comorbidities should be available.

1.4.2.2 Inpatient detoxification should be considered for people who have had at least one previous unsuccessful detoxification attempt 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 and require concurrent detoxification from alcohol.

1.4.2.3 Residential detoxification that is medically managed should be considered for people who have had at least one previous unsuccessful detoxification attempt within a community setting and/or who may be experiencing considerable social chaos and who:

- have comorbid physical and/or psychiatric problems **and**
- are polydrug users, and require concurrent detoxification from opiates and benzodiazepines, or sequential detoxification from opiates and alcohol

or

- have less severe levels of opiate dependence, for example if early in their drug-using career.

1.4.2.4 Residential detoxification that is not medically managed should be considered for people who have had at least one previous unsuccessful detoxification attempt within a community setting and/or who may be experiencing considerable social chaos and who:

- have less severe levels of opiate dependence, particularly if early in their drug-using career **and**
- would significantly benefit from a residential rehabilitation programme throughout and after detoxification.

1.4.3 Detoxification in prison settings

1.4.3.1 For people in prison who have made an informed and appropriate decision to undergo opiate detoxification, the same treatment options for detoxification that are available in the community should be offered. Healthcare professionals should take into account additional considerations specific to the prison setting, including:

- limitations in the assessment of dependence, with the associated risk of opiate toxicity in the early period of treatment
- length of sentence or remand, and the possibility of unplanned release
- risks of self-harm, suicide and post-release overdose.

1.5 *Specific psychosocial interventions*

Psychosocial interventions are considered in more detail in a separate NICE clinical guideline on the psychosocial management of drug misuse (in development; see section 6 below).

1.5.1 Contingency management

Contingency management provides a system of incentives to change behaviour. The emphasis in contingency management is on offering incentives for behaviours such as abstinence or reduction in illicit drug use, and engagement or participation in health promoting interventions.

For example, incentives are provided when a service user submits a biological sample (for example, urine or oral fluid) that is negative for the specified drugs. For contingency management to be effective, healthcare professionals need to discuss with the service user which incentives are to be used so that they are perceived as genuinely reinforcing by those participating in the programme. Incentives need to be provided consistently, and as immediately as possible after submission of the sample. Limited increases in the value of incentives with successive periods of abstinence also appear to be effective.

A variety of incentives have proved effective in contingency management programmes including privileges (for example, take-home methadone doses), vouchers (which can be exchanged for goods or services of the service user's choice) and monetary incentives.

For more information please see appendix C.

1.5.1.1 Contingency management aimed at reducing illicit drug use should be considered both during detoxification and for a period of up to 3–6 months after completion of the detoxification.

1.5.1.2 Contingency management during and after detoxification should adhere to the following principles.

- The scheme should provide incentives (usually privileges or vouchers) contingent on each presentation of a drug-negative screen (for example, free from non-prescribed opiates or cocaine).
- The frequency of screening should be set at three tests per week for the first 3 weeks, two tests per week for the next 3 weeks and once weekly thereafter until stability is achieved.
- If vouchers are used they should have monetary values in the region of £5 which increase in value with each additional, continuous period of abstinence.
- Urinalysis is the preferred method of testing but consideration may be given to the use of oral fluids.

1.5.1.3 When delivering contingency management programmes, healthcare professionals should ensure that:

- the target goal is agreed in collaboration with the service user
- the service user fully understands the relationship between the desired behaviour change and the incentive schedule
- incentives are individualized, with choice available so that the incentive is perceived as such by the service user (not just the healthcare professional) and supports a healthy/drug-free lifestyle.

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from www.nice.org.uk/page.aspx?o=275093.

This guideline is relevant to adults and young people who are opiate dependent and have been identified as suitable for a detoxification programme. The guideline will be of relevance to the NHS and related organisations, including prison services and inpatient and specialist residential and community-based treatment settings. Although the guideline may comment on the interface with other services, such as those provided by the voluntary sector, it will not provide specific recommendations directed solely at non-NHS services, except insofar as they are provided under contract to the NHS.

The guideline does not specifically address:

- people whose primary drug of misuse is a non-opiate
- people who misuse alcohol, prescription drugs or solvents
- diagnosis or primary prevention pharmacological maintenance programmes
- pregnant women who misuse opiates and the care of neonates whose mothers have misused opiates during pregnancy.

This guideline should be read in conjunction with 'Drug misuse and dependence: guidelines on clinical management', which provides advice to healthcare professionals on the delivery and implementation of a broad range of interventions for drug misuse, including those interventions covered in this guideline. Further information is available from www.nta.nhs.uk

How this guideline was developed

NICE commissioned the National Collaborating Centre for Mental Health to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence and developed the recommendations. An independent Guideline Review Panel oversaw the development of the guideline (see appendix B).

There is more information in the booklet: 'The guideline development process: an overview for stakeholders, the public and the NHS' (second edition, published April 2006), which is available from www.nice.org.uk/guidelinesprocess or by telephoning 0870 1555 455 (quote reference N1113).

3 Implementation

The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the Department of Health in 'Standards for better health', issued in July 2004. Implementation of clinical guidelines forms part of the developmental standard D2. Core standard C5 says that national agreed guidance should be taken into account when NHS organisations are planning and delivering care.

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CGXXX).

[NICE to amend list as needed at time of publication]

- Slides highlighting key messages for local discussion.
- Costing tools

- costing report to estimate the national savings and costs associated with implementation.
- costing template to estimate the local costs and savings involved.
- Implementation advice on how to put the guidance into practice and national initiatives which support this locally.
- Audit criteria to monitor local practice.

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future.

4.1 *Adjunctive medication during detoxification*

For people who are opiate dependent and require adjunctive medication during detoxification in addition to their opiate agonist reducing regimen or in addition to an adjunctive alpha₂ adrenergic agonist (for example, lofexidine), what medications are associated with greater safety and fewer withdrawal symptoms?

Why this is important

Studies assessing the use of adjunctive medication for detoxification, particularly when alpha₂ adrenergic agonists were used, have indicated the use of a large variety of adjunctive medications for the management of withdrawal symptoms. The variety and quantity of such medications suggests the need for research to guide decisions on how best to manage withdrawal symptoms with minimal risk of harm to the service user.

4.2 *Predictors of benefit from inpatient/residential detoxification*

For people who are receiving inpatient/residential opiate detoxification, what participant characteristics are associated with greater levels of abstinence and completion of treatment, and lower levels of relapse?

Why this is important

There are relatively few studies comparing inpatient/residential and community detoxification. However, the studies that have been conducted do not strongly indicate the efficacy of inpatient/residential detoxification for all people. Therefore it is important to assess if there are particular subgroups more likely to benefit.

5 Other versions of this guideline

5.1 *Full guideline*

The full guideline, 'Drug misuse: opiate detoxification for drug misuse', contains details of the methods and evidence used to develop the guideline. It is published by the National Collaborating Centre for Mental Health, and is available from [NCC website details to be added], our website (www.nice.org.uk/CGXXXfullguideline) and the National Library for Health (www.nlh.nhs.uk). **[Note: these details will apply to the published full guideline.]**

5.2 *Quick reference guide*

A quick reference guide for healthcare professionals is available from www.nice.org.uk/CGXXXquickrefguide

For printed copies, phone the NHS Response Line on 0870 1555 455 (quote reference number NXXXX). **[Note: these details will apply when the guideline is published.]**

5.3 *'Understanding NICE guidance'*

Information for people who misuse opiates and their carers ('Understanding NICE guidance') is available from www.nice.org.uk/CGXXXpublicinfo

For printed copies, phone the NHS Response Line on 0870 1555 455 (quote reference number NXXXX). **[Note: these details will apply when the guideline is published.]**

6 Related NICE guidance

Naltrexone for the management of opioid dependence. NICE technology appraisal guidance 115 (2007). Available from www.nice.org/TA115

Methadone and buprenorphine for the management of opioid dependence. NICE technology appraisal guidance 114 (2007). Available from www.nice.org/TA114

Bipolar disorder: the management of bipolar disorder in adults, children and adolescents, in primary and secondary care. NICE clinical guideline 38 (2006). Available from www.nice.org/CG038

Depression: management of depression in primary and secondary care. NICE clinical guideline 23 (2004). Available from www.nice.org/CG023

Anxiety: management of anxiety (panic disorder, with or without agoraphobia, and generalised anxiety disorder) in adults in primary, secondary and community care. NICE clinical guideline 22 (2004). Available from www.nice.org/CG022

Self-harm: the short-term physical and psychological management and secondary prevention of self-harm in primary and secondary care. NICE clinical guideline 16 (2004). Available from www.nice.org/CG016

Schizophrenia: core interventions in the treatment and management of schizophrenia in primary and secondary care. NICE clinical guideline 1 (2002). Available from www.nice.org/CG001

NICE is developing the following guidance (details available from www.nice.org.uk):

- Substance misuse interventions: an assessment of community-based interventions to reduce substance misuse among the most vulnerable and disadvantaged young people. NICE public health intervention guidance (publication expected March 2007.)

- Drug misuse: psychosocial management of drug misuse. NICE clinical guideline (publication expected July 2007.)

7 Updating the guideline

NICE clinical guidelines are updated as needed so that recommendations take into account important new information. We check for new evidence 2 and 4 years after publication, to decide whether all or part of the guideline should be updated. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.

Appendix A: The Guideline Development Group

Dr Clare Gerada (Chair, Guideline Development Group)

General Practitioner (London Practice); Primary Care Lead for Drug Misuse & Chair at the Royal College of General Practitioners

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Appendix B: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The panel includes members from the following perspectives: primary care, secondary care, lay, public health and industry.

[NICE to add]

[Name; style = Unnumbered bold heading]

[job title and location; style = NICE normal]

Appendix C: Contingency management – key elements in the delivery of a programme

Contingency management has been used to reinforce a variety of behaviours including abstinence from drugs (Higgins et al. 1993), reduction in drug use (Elk et al. 1995), promoting engagement with psychosocial interventions (Petry et al. 2006) and ensuring compliance with physical health interventions (Malotte et al. 1998). Although the principles of contingency management are relatively straightforward, implementing such a programme in practice requires careful organisation. The different types of incentives that can be used and key implementation issues will be discussed below. All the interventions have a strong base in psychological theory (Domjan 2003).

Reinforcement schedules

There are four main methods for delivering incentives that have been applied to drug treatment: clinic privileges, vouchers, monetary incentives and award draws.

Clinic privileges

Trials assessing privileges within treatment have focused on contingency management for people undergoing methadone maintenance treatment. Privileges used for reinforcement include take-home methadone doses (Stitzer et al. 1992). Privileges are commonly provided in drug treatment in the UK but tend not to be used consistently. Their use more formally within a contingency management programme may have a significant impact on particular target behaviour. Other examples of privileges that may be used include access to a rapid dosing line, a reserved parking space for a specific duration or a special food item in a clinic cafeteria (Petry & Martin 2002).

Voucher reinforcement

Service users receive 'vouchers' of various monetary values for each biological sample (usually urine) that is negative for the tested drugs. Each voucher usually escalates in value as the number of uninterrupted negative samples increases. For example the first negative sample earns £1.50, the

next £3, the third £5 etc. If a positive sample is submitted no voucher is given and the next voucher earned for a negative sample is reset to £1.50.

One advantage of the voucher system is that it allows for individual preferences, with service users able to spend their vouchers on a variety of items. In some programmes, a staff member purchases the items chosen by the service user and they can veto certain requests that may not support a healthy drug-free lifestyle; other trials have used onsite stores where the items can be purchased directly. Voucher systems seem to have a high level of acceptability among service users, with fewer than 5% refusing to participate in these trials (Petry 2000).

Monetary incentives

There have been a few studies, mainly on offering incentives for compliance with physical health interventions (Malotte et al. 1998, 1999; Seal et al. 2003), that have assessed the use of monetary incentives. It appears that low value (for example, £1.50/\$3) incentives are as effective as higher value (for example, £10/\$20) incentives.

Awards

This is more formally referred to as the 'variable magnitude of reinforcement procedure' (Prendergast et al. 2006). Participants receive the opportunity to participate in draws, often from a number of slips of paper kept in a bowl, for providing a negative biological specimen. Often the number of draws increases with the submission of continuous negative samples (Petry et al. 2005). Provision of a specimen indicating recent drug use results in the withholding of draws and the number of draws earned for a negative sample is reset to one.

The awards available typically range from £1 (for example, in the form of a food voucher) through £20 (for example, a choice of a discman, watch, phone credits) to £100 (for example, a TV, stereo, MP3 player). Service users are given a choice of prizes within a particular category to ensure they receive something they perceive as reinforcing. The chance of winning is inversely related to prize costs. For example, there may be a 1 in 2 probability of

winning a £1 prize, and 1 in 250 probability of winning a £100 prize (Petry 2000).

The evidence suggests that all the above reinforcement systems can be effective, with some evidence to suggest a slight but not significant advantage for monetary incentives over the other methods. However, in the NHS it may prove easier to implement contingency management through the use of privileges and vouchers, because of their potentially greater acceptability to services.

Key issues in implementing a contingency management programme

Kellogg and coworkers (2005) summarised five key aspects of implementing contingency management:

- Incentives should be given frequently.
- It should be very easy to earn incentives at the start.
- Incentives need to include material goods and services that are of use and value to service users.
- The connection between incentives and behaviour should be clear.
- The emphasis should be on incentive-oriented rather than punishment-oriented approaches.

Frequency and ease of earning incentives at the start

The first two issues discussed by Kellogg and coworkers (2005) are closely linked. In order to strengthen the connection between the incentive and the behaviour it is important that the incentives are provided frequently. However, for incentives to be earned frequently the target behaviour must not be too difficult, particularly at the start of the programme. Abstinence from drugs can be a difficult target for many people who misuse drugs, so some trials use 'successive approximation' – a system in which service users receive reinforcement for approximations of abstinence. For example, Elk and coworkers (1995) reinforced reductions in benzoylecognine metabolites to encourage initial attempts at abstinence.

Providing early access to incentives is an important aspect of establishing contingency management programmes. A common method is 'priming' – service users are provided with reinforcement for the first time they attend the clinic. For example, Higgins et al. (1993) provided service users with their choice of a restaurant voucher or cinema tickets for their first session. Similarly, Petry and Martin (2002) offered participation in a draw on the first day of treatment. The aim of priming is for service users to experience the reinforcements available in attending treatment and to encourage them to continue with the intervention.

Material goods and services

The use of material goods and services as incentives in contingency management programmes has been extensively examined in trials and implementation studies. A key point to emphasise in providing such incentives is that the items provided should be perceived as genuinely reinforcing by the service user participating in the programme. For example, vouchers or clinic privileges should all be chosen in conjunction with the service user.

Connection between incentive and behaviour

Incentives are likely to be more effective if their distribution is directly connected to specific and observable behaviours and if the service user receives them immediately after they exhibit the behaviour (for example, attending a therapy session). The greater the delay in receiving the reinforcement, the weaker its effect is likely to be.

Incentive-oriented rather than punishment-oriented

One major advantage to contingency management is its emphasis on providing incentives for positive target behaviours, whereas some aspects of current practice can focus on a more negative approach such as the loss of privileges and discharge from services. Almost all trials showing the efficacy of contingency management have been incentive-oriented (for example, Higgins et al. 1993; Stitzer et al. 1992). Furthermore, adding a punitive aspect (reduction in methadone dose when testing positive for illicit drug use) to a contingency management incentive-oriented treatment has not been found to

be effective (for example, Iguchi et al. 1988). This suggests a shift away from punishment-oriented to incentive-oriented treatment may be beneficial in changing drug users' behaviour.

Maintenance of behaviour after reinforcement

A final important issue not mentioned by Kellogg and coworkers (2005) is how to maintain the target behaviour once the reinforcement schedule has been completed. Firstly, it would be good clinical practice not to terminate a contingency management programme until the service user is stabilised. Secondly, a number of studies have reduced the frequency and value of incentives towards the end of treatment in order to lessen the impact after the primary contingency management programme has been completed. For example, Higgins et al. (1993, 1994) after 12 weeks of voucher reinforcement with escalating incentives provided \$1 lottery tickets for each negative urine sample over a further 12 weeks. Petry et al. (2004, 2005) gradually reduced the number of prize draws available from three times a week in the first 3 weeks, to twice a week in the next 3 weeks, to finally once a week for 6 weeks.

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