Health Research Board

HRB drug and alcohol evidence reviews

The effectiveness of interventions related to the use of illicit drugs: prevention, harm reduction, treatment and recovery. A 'review of reviews'

The effectiveness of interventions related to the use of illicit drugs: prevention, harm reduction, treatment and recovery.

A 'review of reviews'

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HRB National Drugs Library

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Health Research Board

The Health Research Board (HRB) is the lead agency in Ireland supporting and funding health research. We provide funding, maintain health information systems and conduct research linked to national health priorities. Our aim is to improve people's health, build health research capacity and make a significant contribution to Ireland's knowledge economy. The HRB is Ireland's National Focal Point to the European Monitoring Centre on Drugs and Drug Addiction (EMCDDA). The focal point monitors, reports on and disseminates information on the drugs situation in Ireland and responses to it and promotes best practice and an evidence-based approach to work in this area.

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HRB drug and alcohol evidence reviews to date

Munton T, Wedlock E and Gomersall A (2014) *The role of social and human capital in recovery from drug and alcohol addiction*. HRB Drug and Alcohol Evidence Review 1. Dublin: Health Research Board

Munton T, Wedlock E and Gomersall A (2014) *The efficacy and effectiveness of drug and alcohol abuse prevention programmes delivered outside of school settings*. HRB Drug and Alcohol Evidence Review 2. Dublin: Health Research Board

Nic Gabhainn S, D'Eath M, Keane M and Sixsmith J A (2016) *Scoping review of case management in the treatment of drug and alcohol misuse, 2003–2013*. HRB Drug and Alcohol Evidence Review 3. Dublin: Health Research Board

Murphy L, Farragher L, Keane M, Galvin B and Long J (2017) Drug-related intimidation. *The Irish situation and international responses: an evidence review*. HRB Drug and Alcohol Evidence Review 4. Dublin: Health Research Board

Bates G, Jones L, Maden M, Corchrane M, Pendlebury M and Sumnall H (2017) *The effectiveness of interventions related to the use of illicit drugs: prevention, harm reduction, treatment and recovery. A 'review of reviews'*. HRB Drug and Alcohol Evidence Review 5. Dublin: Health Research Board

Foreword

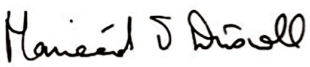
One of the objectives of the Health Research Board Stategy 2016-2020 is to promote and support evidence synthesis and knowledge translation activities to help policy-makers, service planners and providers make evidence-based decisions. In order to inform the deliberations of the steering committee working on the new National Drugs Strategy and to support the development of a strategy based on evidence the HRB, on behalf of the Drugs Policy Unit in the Department of Health, commissioned the Public Health Institute at Liverpool John Moores University to undertake this review

The aim of this review is to provide a synthesis of the best international research on responses to problem drug use. The approach taken by the HRB when commissioning this study was to identify evidence through a 'review of reviews'. This provides an overview of the most recent high quality evidence in the treatment, recovery, harm reduction and prevention areas.

Incorporating evidence into policy has been a concern of several countries developing drugs strategies in recent years. Part of this process is identifying responses which have been shown to work but, just as importantly, also identifying what evidence is relevant to the national situation, where the gaps in evidence are and what interventions are shown not be effective or produce harmful results.

Ensuring that a strategy is evidence-based requires an acknowledgement that evidence is constantly improving and knowledge on effective responses will develop during the term of the strategy. A dynamic strategy supports this development and recognises the value of the evidence produced by the evaluative process built into responses. This review will not answer all the questions that will arise when policy makers and practitioners face difficult decisions with regard to selecting, implementing and evaluating responses, but it will serve as valuable guide to seeking the evidence to support decisions and identifying those areas where the evidence base needs to be built.

The Health Research Board is pleased to make this contribution to policy development in this important area of public health and to provide a resource that will be of great interest to policy makers, practitioners, researchers and the general public both in Ireland and internationally.



Dr Mairead O'Driscoll
Interim Chief Executive

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Acronyms

BBV	blood-borne virus
CBT	cognitive behavioural therapy
DIMS	Drug Information and Monitoring System
DBST	dry blood spot test
DAART	direct active antiretroviral therapy
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
HAART	highly active antiretroviral therapy
HCV	hepatitis C virus
JBI	Joanna Briggs Institute
LAAM	Levo-α-acetylmethadol
MDTF	multidimensional family therapy
MMT	methadone maintenance treatment
NA	Narcotics Anonymous
NICE	National Institute for Health and Care Excellence
NSP	needle and syringe programme
OST	opioid substitution therapy
PTSD	post-traumatic stress disorder
PWID	people who inject drugs
RCT	randomised controlled trial
STI	sexually transmitted infection
THC	tetrahydrocannabinol
WHO	World Health Organization

1 Summary

This review examines the evidence on the effectiveness of interventions in the areas of prevention, harm reduction, treatment and long-term recovery related to illicit drug misuse and dependence. The primary research questions for this review were:

- Which interventions are effective in reducing the initiation, or continued use, of illicit drugs and related harmful behaviours among children and young people aged up to 25 years?
- Which interventions are effective in reducing harmful behaviours related to illicit drug use?
- Which interventions are effective in treating drug misuse among people who misuse or who are dependent on illicit drugs?
- What interventions are effective in supporting people who misuse illicit drugs to fully recover from their illicit drug misuse and become better reintegrated into the community following/alongside treatment?

Evidence was identified through a 'review of reviews' approach. High-quality systematic reviews published since 2010 were identified through a comprehensive search of relevant electronic databases, and screened for relevance against pre-defined inclusion and exclusion criteria. The quality of relevant reviews was determined using the quality check tool in the Joanna Briggs Institute *Reviewers' Manual* for undertaking umbrella reviews (Joanna Briggs Institute, 2014). Lower-quality reviews and reviews published prior to 2010 were included where evidence was missing on key interventions.

In total, 97 review articles were identified to answer the primary research questions and were divided across three reviews under the headings 'prevention' (13 reviews), 'harm reduction' (24 reviews) and 'treatment and recovery' (62 reviews), with two reviews covering both harm reduction and treatment interventions. Outcomes relating to the review research questions were summarised in outcomes tables of evidence. The quality of the evidence was determined using a GRADE approach and rated 'low', 'medium' or 'high' depending on the quality and extent of primary studies and the consistency of the direction of findings.

1.1 Key findings

Key findings from the evidence for interventions on prevention, harm reduction, treatment and recovery are presented here. These are based on the direction of evidence relating to the intervention approaches considered in this review, and the quality of the available evidence. These statements of evidence should be considered alongside evidence discussed in the main body of the report and presented in outcomes tables (linked under each evidence statement here).

1.1.1 Prevention

School-based programmes

Low-moderate quality review-level evidence suggests that some structured, comprehensive school-based programmes that combine the teaching of skills such as refusal, decision-making and coping, raise awareness of social influences on drug use, provide information about drug use, and may be effective in preventing drug use. However, this evidence is inconsistent and inconclusive, and can be applied predominantly to cannabis use (any use or frequency of use) only. Low-quality

review-level evidence suggests that school-based programmes that focus mainly on increasing knowledge of the risks of drug use alone appear ineffective in preventing drug use.

Low-quality review-level evidence also suggests that drug use and sexual health prevention interventions may be more effective if interventions focus on multiple domains rather than school-based only programmes, although impact on drug use appears limited.

See Section 5.2 Universal school-based prevention programmes

Family-based interventions

Moderate-quality review-level evidence suggests that universal family interventions that include both parents and children may be effective in preventing cannabis use, but evidence on other drug use is inconclusive. Programmes may be most effective when targeting multiple domains (e.g. school alongside family, mentoring or media settings). There was low-quality and mixed review-level evidence on the effectiveness of prevention targeted at families of at-risk young people, and therefore no conclusions could be made about these approaches.

See Section 5.3 Family-based prevention interventions; Section 5.4 Additional cannabis prevention interventions

Brief and/or motivational interventions

Moderate-quality review-level evidence suggests that brief interventions set within schools appear to be generally ineffective in preventing drug use. Similarly, low-quality review-level evidence suggests that brief interventions set within healthcare settings appear to be generally ineffective in preventing drug use. Interventions that are based on motivational interview may have some benefits when delivered in emergency department or primary care settings, but this evidence was low quality and findings were inconclusive.

See Section 5.5 Brief and/or motivational interventions

Mass media interventions

Low-quality review-level evidence suggests that mass-media campaigns delivered alone to prevent drug use are unlikely to be effective, with mixed and inconsistent drug use outcomes from campaigns. Low-quality review-level evidence suggests that interventions delivered through computers and the Internet may have positive effects on cannabis use.

See Section 5.6 Media interventions

Mentoring interventions

Low-quality review-level evidence suggests that mentoring interventions may be ineffective in preventing drug use among high-risk young people. However, this is based on very few primary studies and findings are therefore inconclusive.

See Section 5.7 Mentoring interventions

1.1.2 Harm reduction

Needle and syringe programmes

The review-level evidence is low quality and inconclusive regarding the impact of needle and syringe programmes in community and prison settings, although the evidence suggests they may be associated with reductions in harms, including transmission of blood-borne viruses and sharing of injecting equipment. Needle and syringe programmes appear to have a greater impact when delivered in combination with opioid substitution therapy, and this is associated with reduced harms for people who inject drugs, including risk of blood-borne virus infection and risky injection behaviours.

See Section 6.3 Provision of needles and other injecting equipment; Section 6.12 Individuals in contact with the criminal justice system who use drugs

Psychosocial and behavioural interventions

Evidence on the effectiveness of psychosocial and behavioural interventions for reducing harms related to drug use is mixed. There is insufficient evidence to assess the effectiveness of individual psychosocial interventions on reducing harms. There is low-moderate quality review-level evidence that multisession psychosocial

interventions and peer education training may be associated with some reductions in harms among people who inject drugs. Low-quality review-level evidence suggests that peer-based interventions targeting people who inject drugs and intranasal heroin users may also be effective in reducing initiation of injecting, although this evidence is based on a small number of primary studies.

See Section 6.5 Psychosocial and behavioural interventions

Overdose prevention (including naloxone distribution)

The provision of opioid overdose prevention training with take-home naloxone is supported only by low-quality review-level evidence. It may be associated with reduced overdose mortality among people who inject drugs, and improved response to overdose.

See Section 6.6 Overdose prevention

Drug consumption rooms

A combination of low- and moderate-quality evidence indicates that drug consumption rooms appear likely to be acceptable to people who inject drugs. They may be associated with reduced sharing and reuse of syringes and reduced drug-related litter, and not associated with increases in injecting drug use.

See Section 6.7 Drug consumption rooms

Blood-borne virus treatments for people who inject drugs

Low-quality review-level evidence suggests that effective treatment options for people with HIV and hepatitis C are suitable for people who inject drugs. This includes highly active antiretroviral therapy and direct antiretroviral therapy for people with HIV and combination treatment with ribavirin plus recombinant, or pegylated interferon-α, for chronic hepatitis C.

See Section 6.11 Individuals with BBVs who use illict drugs

Drugs other than opioids

There is insufficient evidence to draw conclusions on the effectiveness of harm reduction interventions targeting populations other than people who inject drugs. For example, there is a need for high-quality research on the impact of harm reduction delivered in recreational, festival or nightlife settings such as analytical chemistry approaches (`drug checking') or harm reduction information provision.

See Section 6.10 Additional harm reduction approaches

1.1.3 Treatment

Pharmacological treatments for opiate use

High-quality review-level evidence supports the use of methadone and buprenorphine for reducing use of illicit opioids, and as agents supporting abstinence through detoxification. Evidence suggests that better treatment retention may be achieved with methadone and that for individuals who have not responded to maintenance treatment, there is moderate-quality evidence to support the use of injectable heroin prescription in combination with flexible-dose oral methadone. High-quality evidence suggests that detoxification treatments are enhanced when delivered in combination with structured psychosocial interventions. Review-level evidence on relapse prevention treatment with naltrexone was low in quality, but indicates that naltrexone implants (but not oral naltrexone) may be effective in supporting continued abstinence among those highly motivated to remain abstinent.

See Section 7.3.1 Pharmacological treatments - Opioids

Pharmacological treatments for stimulants and cannabis use

Primarily low-moderate quality review-level evidence consistently suggests that pharmacological treatments alone or delivered alongside psychosocial interventions may not be effective in treatment for dependence on stimulants, including cocaine and amphetamines, or cannabis. Evidence on cannabis abuse or dependence is limited by the low number of studies included in reviews examining the effectiveness of these treatments.

See Section 7.3.2 Pharmacological treatments – Stimulants; Section 7.3.3 Pharmacological treatments – cannabis

Psychosocial treatments

Moderate-quality review-level evidence consistently supports the use of multidimensional family therapy (MDFT) for the treatment of young people's drug use over other psychosocial intervention types. This evidence supports the application of MDFT in treatment for cannabis use only however.

For adults, moderate-quality review-level evidence supports treatment with couples-based interventions over cognitive behavioural therapy (CBT) among people with cocaine dependence and a non-drug dependent partner. Further moderate-quality review-level evidence supports the use of contingency management for people with cocaine or opioid dependence, although the long-term impact of contingency management on abstinence is unclear. Additionally, moderate-quality review-level evidence indicates that drug use treatments based on CBT or motivational interview may be effective in comparison to no treatment, but are no more or less effective than other psychosocial treatment approaches. The review-level evidence on mindfulness-based treatments is limited and of low quality, but suggests that mindfulness interventions may achieve reduced drug use.

See Section 7.4 Psychosocial and motivational treatments

Residential rehabilitation treatments

Review-level evidence on the effectiveness of residential programmes is limited and of low quality. There is no consistent evidence on the effectiveness of different therapeutic community models or 12-step group participation in residential settings, and it is difficult to draw conclusions, due to the limitations of the evidence base.

See Section 7.5 Residential rehabilitation treatment programmes

1.1.4 Treatments focusing on long-term recovery and reintegration

Review-level evidence on the effectiveness of interventions to support recovery and reintegration was limited. Evidence on peer-supported interventions was limited and was based on small numbers of primary studies with methodological issues, but low-quality review-level evidence indicates that peer coaching, recovery housing and mutual aid approaches may have benefits for drug use outcomes.

Review-level evidence on the effectiveness of continuing care programmes is mixed, and is based on a small number of primary studies. Low-quality review-level evidence suggests that case management approaches for people in drug treatment/recovery may have beneficial outcomes.

See Section 7.6 Interventions focusing on recovery and reintegration

1.1.5 Other treatment approaches

Supportive practice

Evidence was identified on two further approaches for treating illicit drug use – treatments based on acupuncture and physical activity. Moderate-quality review-level evidence suggests that physical activity interventions as part of drug treatment may support abstinence from drug use, although this was based on a small number of primary studies. Additionally, low-quality review-level evidence suggests that acupuncture may enhance the effectiveness of pharmacological treatments for opioid craving, but is not effective when delivered alone.

See Section 7.7 Other treatment approaches

Treatments for individuals in contact with the criminal justice system

Moderate-quality review-level evidence supports the use of opioid substitution therapy (OST) in prison and community settings to reduce drug use among people with opioid dependency who are in contact with the criminal justice system. There is low-quality review-level evidence suggesting that high-dose methadone may be more effective than low-dose methadone maintenance treatment

(MMT), and that buprenorphine maintenance may be as effective as MMT. There is insufficient evidence to draw conclusions regarding detoxification and relapse prevention in criminal justice system settings.

There is moderate-quality review-level evidence to support treatment through prison-based therapeutic communities to reduce drug relapse and criminal activity among prisoners. Benefits were identified for therapeutic communities alone and with aftercare provision. Evidence on other treatment types for this population, including drug courts, boot camps and psychosocial interventions, is inconclusive and is based on small numbers of studies.

See Section 7.8 Individuals in contact with the criminal justice system

Treatments for individuals with co-occurring drug use and mental illness

Moderate-quality review-level evidence indicates that individuals with co-occurring drug use and trauma are likely to benefit from treatments that include CBT interventions focusing on drug use and post-traumatic stress disorder (PTSD). For people with severe mental illnesses and drug misuse, there is insufficient evidence to draw conclusions on the effectiveness of psychosocial interventions. For individuals – in particular, women with borderline personality disorders and drug use disorders – moderate-quality evidence suggests that there may be benefits from treatments based on dialectical behaviour therapy and dynamic deconstructive psychotherapy.

See Section 7.9 Individuals with drug use problems and co-occurring mental illness

Treatments for pregnant and parenting women

Evidence on the effectiveness of pharmacological treatments for pregnant women with opiate use is limited, but low-quality review-level evidence suggests that slow-release morphine may be more beneficial than methadone for heroin use, and buprenorphine may be as beneficial as methadone on drug use outcomes. Moderate-quality review-level evidence indicates that home visit programmes are no more effective than no treatment, and low-moderate quality review-level evidence on integrated treatment programmes is inconclusive. Low-moderate quality review-level evidence based on a small number of studies did not support the use of psychosocial interventions in place of comprehensive usual care for the treatment of drug use in this population.

See Section 7.10. Pregnant and parenting women

2 Background

Recent analysis of drug use in the EU reveals that while historical patterns of use have been maintained, new behaviours are emerging, with an accompanying shift in treatment and intervention responses (EMCDDA, 2015a). In Ireland, between 2006 and 2014 treatment demand for problematic drug use (primarily opiates) increased (Bates *et al.*, 2016), and although general population surveys have shown a decrease in all forms of drug use by children (Hibbell *et al.*, 2011), there have been recent increases in past year cannabis and ecstasy use (National Advisory Committee on Drugs and Alcohol, 2016).

The Irish National Drugs Strategy (interim) 2009–2016 (NDS) implements priority actions in supply and drug demand reduction, as well as steering policy ambition towards rehabilitation and recovery from problematic drug use. The Department of Health 2013 progress report (Department of Health, 2014) identified work taken towards achieving key NDS priorities, and these will be taken forward in the Strategy that will begin in 2017. They include the prioritisation of universal and selective prevention activities (including social and personal health education; drug awareness; outreach; family and early years interventions) as well as the long-term development of an integrated national treatment and rehabilitation service (including the prevention and treatment of blood-borne viruses).

This review was commissioned by the Health Research Board (HRB) and is designed to explore the evidence on responses to problem drug use to support the development of the new Irish National Drugs Strategy. It examines evidence on effective delivery of interventions in the areas of prevention, harm reduction, treatment and recovery relating to illicit drug use, with the overarching aim of reducing the use of illicit drugs and related harms, and increasing successful recovery and rehabilitation following drug misuse.

Primary research questions

1. Which interventions are effective in reducing the initiation, or continued use, of illicit drugs and related harmful behaviours among children and young people aged up to 25 years?
2. Which interventions are effective in reducing the harms related to drug use?
3. Which interventions are effective in treating drug misuse among people who misuse drugs?
4. What interventions are effective in supporting people who use drugs to recover following/alongside drug treatment and become better reintegrated into the community?

3 Methods

The review was carried out in accordance with the pre-defined project scope and methodology, as outlined in the review protocol (Appendix 1, Section 11.1).

3.1 Search strategy

The search approach taken for the review was comprehensive and aimed to identify all potentially relevant reviews. Searches were conducted in a range of topic and methodology-specific databases, supplemented by a search of key websites, to identify high-quality systematic reviews relevant to the different intervention areas for this review: prevention, harm reduction, treatment and recovery.

Search terms

An initial search strategy was developed using a combination of topic-relevant and method-relevant key search terms and MeSH headings to identify relevant articles within MEDLINE. This strategy was adapted for searching within the other electronic databases used. A sample search strategy used is presented in Appendix 2 (Section 11.2).

Electronic sources

The following major health and health economics databases were searched in August 2015:

Databases searched	Studies retrieved
Cochrane Library of Systematic Reviews	1,288
DARE	275
Joanna Briggs Institute Database of Systematic Reviews	22
Campbell Collaboration Library	179
EPPI Centre Library	3
PsycINFO	1,899
Health Technology Assessment database	77
Total identified	**3,743**
Duplicates removed	**94**
TOTAL	**3,649**

3.2 Inclusion and exclusion criteria

Inclusion in the review was limited to English language studies and search limits were applied so that only studies published since 2010 were retrieved for screening. References from the database searches were downloaded into EndNote, deduplicated and screened on title and abstract against pre-defined inclusion and exclusion criteria. All references judged to be potentially relevant for the review were included and the full-text article was retrieved and screened again against the same criteria. At both title and abstract and full-text screening stages, references were screened by two reviewers independently, with any disagreements

on inclusion and exclusion resolved through discussion between reviewers and consultation with a third reviewer if necessary. Articles that were identified as being relevant were categorised under the four review headings.

Types of studies

High-quality systematic reviews of quantitative data including meta-analyses and narrative synthesis only were included in this review. It was decided to include high-quality reviews for two reasons: i) to limit the inclusion of poor-quality evidence and ii) in consideration of the large amount of evidence available relating to this topic. However, it was decided that where any gaps in the included evidence were identified, then reviews of lower quality would be considered. Additionally, high-quality systematic reviews published prior to 2010 that included evidence not covered by reviews published after that date were considered for inclusion. Systematic reviews of qualitative evidence were not included in this review.

Types of interventions

Prevention

Interventions, activities or programmes with an aim of preventing or reducing illicit drug use among young people (aged 25 and under) were eligible for inclusion. For example, the review sought to identify evidence on school-based programmes, family-based programmes, brief interventions and mass media campaigns, but any intervention that aimed to prevent initiation of or reduce drug use among young people was considered. Interventions were compared with other interventions, normal conditions and no intervention. Reviews of interventions with the primary aim of treating drug use disorders or reducing problematic drug use were excluded from this strand of the review, and considered under 'Treatment and recovery'.

Harm reduction

Interventions, activities or programmes with an aim of reducing the harms and risks that individuals are exposed to relating to drug use were eligible for inclusion. For example, the review sought to identify evidence on needle and syringe programmes, supervised drug consumption facilities and blood-borne virus treatment and testing, but any intervention that aimed to reduce drug-related harms among current drug users was considered. Interventions were compared with other interventions, normal conditions (for example, harm reduction practice as normal in the case of studies into new innovations) and no intervention.

Treatment and recovery

Interventions that aim to bring about cessation or reduction of drug use, or continued recovery from drug use, were eligible for inclusion. This included treatments such as substitute prescribing, psychosocial interventions (for example, brief interventions and contingency management interventions), residential treatment programmes, recovery communities and mutual aid interventions (for example, peer support networks, 12-step programmes). All illicit drugs were considered relevant for this review.

Reviews that examined interventions for alcohol, tobacco or other legal drugs only were excluded from all strands of this review.

Types of populations

Harm reduction or treatment interventions aimed at any population who use illicit drugs, or are in recovery from drug use, were eligible for inclusion. However, reviews of prevention interventions were only included if they encompassed studies that focused on children and young people aged 25 years and younger but, where review participants included both young people and older adults, they were eligible for inclusion. In particular, the review sought to highlight evidence on interventions for 'high-risk' groups including, but not limited to, prisoners and people in contact with the criminal justice system, homeless populations, sex workers, Travellers, pregnant and parenting women, people with mental health problems and lesbian, gay, bisexual and transgender (LGBT) populations.

Types of outcomes

Reviews that included drug use or treatment outcomes or outcomes relating to harmful behaviours were eligible for this review. Primary outcomes of interest were:

- Prevalence of drug use (according to the reviewed study, but including length of time of drug abstention, amount of drugs used per day, money spent per day, craving)
- Frequency of drug use

- Cessation of drug use
- Drug dependence
- Drug-related morbidity and mortality
- Prevalence and transmission of blood-borne viruses including hepatitis B, hepatitis C and HIV
- Uptake of testing and treatment for blood-borne viruses, and uptake of hepatitis B vaccination
- Prevalence of high-risk behaviours associated with drug use; injection equipment sharing and risky injection behaviours, drug-driving
- Injecting-related injuries
- Overdose
- Use of needle and syringe programmes (NSPs) and uptake of drug treatment and use of health services
- Disposal of used needles and equipment
- Risky sexual behaviours
- Treatment outcomes (such as time participants spend in treatment, retention rate at a given time, drop out, adverse treatment effects)

Secondary outcomes of interest were:

- Criminal activity (such as recidivism, incarceration, arrest)
- Mental health symptoms (depression, anxiety, post-traumatic stress disorder)
- Social functioning and reintegration (e.g. housing status, employment status and quality of employment, education status (including statutory and vocational qualifications)
- Alcohol use

Reviews that only included outcomes such as knowledge and attitudes towards drug use, or intentions towards future drug use were excluded.

3.3 Assessment of quality of reviews

All reviews identified as being relevant for inclusion after full-text screening were assessed using the Joanna Briggs Institute tool for assessing the quality of systematic reviews (Joanna Briggs Institute, 2014). Two reviewers independently assessed the quality of all studies. Any disagreements were resolved through discussion between the review team. A score out of 10 was assigned to each study based on the quality assessment. Reviews were categorised as being 'high quality' if: i) they scored 8 or more and ii) the authors adequately evidenced the quality assessment process undertaken. Reviews scoring 5–7 were rated 'medium' quality and reviews scoring 4 or lower were rated 'low' quality. Details of the scoring system used to assess review quality are provided in Appendix 3 (Section 11.3).

3.4 Data extraction

Data from each article included in this review were extracted into a predesigned table in Access, and were independently checked for accuracy by a second reviewer. A range of data were collected, including review methodology, intervention types, participants and outcomes. Verified outcomes (e.g. those measured through blood or urine analysis, police records, treatment records) were prioritised, but self-reported outcomes were included where verified outcomes were not available or to supplement these. Unless otherwise stated, outcomes are for the longest follow-up time reported. Where meta-analysis data were available for three or more primary studies on a given outcome combined, these data were extracted and are included in the evidence tables provided.

Summary tables of the reviews identified were developed and are presented here for each intervention type. Evidence tables for each outcome identified were created for each treatment comparison and were coded using a traffic light system to indicate the direction of effect (Joanna Briggs Institute, 2014). The evidence table number matches the 'evidence table reference' given next to each outcome in the summary tables presented under each intervention type in this review.

3.5 Categorisation of review-level evidence

The quality of the evidence available for each outcome examined was determined according to GRADE criteria, with evidence rated 'high', 'medium' or 'low' strength:

- **High-quality review-level evidence** – one or more up-to-date systematic reviews rated high quality using the JBI tool that are based on at least two high-quality primary studies with consistent results.
- **Moderate-quality review-level evidence** – one or more up-to-date systematic reviews of high or moderate quality as determined by JBI tool; based on at least one high-quality primary study or based on at least two primary studies of moderate quality with consistent results.
- **Low-quality review-level evidence** – one or more systematic reviews of variable quality as assessed using the JBI tool; based on primary studies of moderate or low quality (or where the quality of primary studies was unknown) or based on inconsistent results in the reviews.

Up-to-date systematic reviews were those reviews published since 2010. Quality of primary studies was based on the assessment of quality undertaken in the reviews identified. Quality of review-level evidence was calculated and reported in the summary tables and text in this review.

4 Summary of results

4.1 Study selection process

The 3,649 articles identified through the literature search were assessed against review inclusion and exclusion criteria. Following a rigorous screening process (Figure 1), 97 articles were identified that were eligible for inclusion in this review. The 97 articles were categorised according to the area of interventions that each review article focused on, including treatment/recovery (n=62), harm reduction (n=24) and prevention (n=13). Two reviews were included in both the treatment/recovery and harm reduction reviews. Articles that were excluded from the review at the full-text screening stage or later are provided in section 10.3 – References to excluded articles.

4.2 Articles included in this review

In total, 97 systematic reviews were included across the three reviews. A summation of the evidence identified is provided in Table 1 (prevention), Table 8 (harm reduction) and Table 18 (treatment and recovery). The identified reviews included seven articles published before 2010 and 90 articles published between 2010 and 2015. Reviews published before 2010 were only included where they filled an important gap in the evidence; for example, no high-quality reviews published after 2010 were available on the effectiveness of methadone maintenance treatment. Of the 97 included articles, 85 were rated high quality, 10 were rated medium quality and one was rated low quality.[1] Reviews rated medium or low quality were only included where they filled an important gap in the evidence.

4.2.1 Areas of intervention identified

Findings are presented under the three major intervention areas of prevention, harm reduction and treatment and recovery. Within each major heading, the evidence that was identified was grouped into the following main types of interventions:

Prevention

- Universal school-based programmes
- Universal and targeted family-based programmes
- Brief interventions in primary care, emergency department and school settings
- Mentoring interventions
- Media interventions, including media campaigns and computer/Internet-based interventions
- Interventions targeting young people with mental health disorders.

Harm reduction

- Provision of needles and injecting equipment
- Pharmacological interventions
- Psychosocial and behavioural interventions
- Opioid overdose prevention programmes with distribution of naloxone

1 Additionally, one article was a pooled analysis of evidence rather than a systematic review and therefore was not assigned a quality rating.

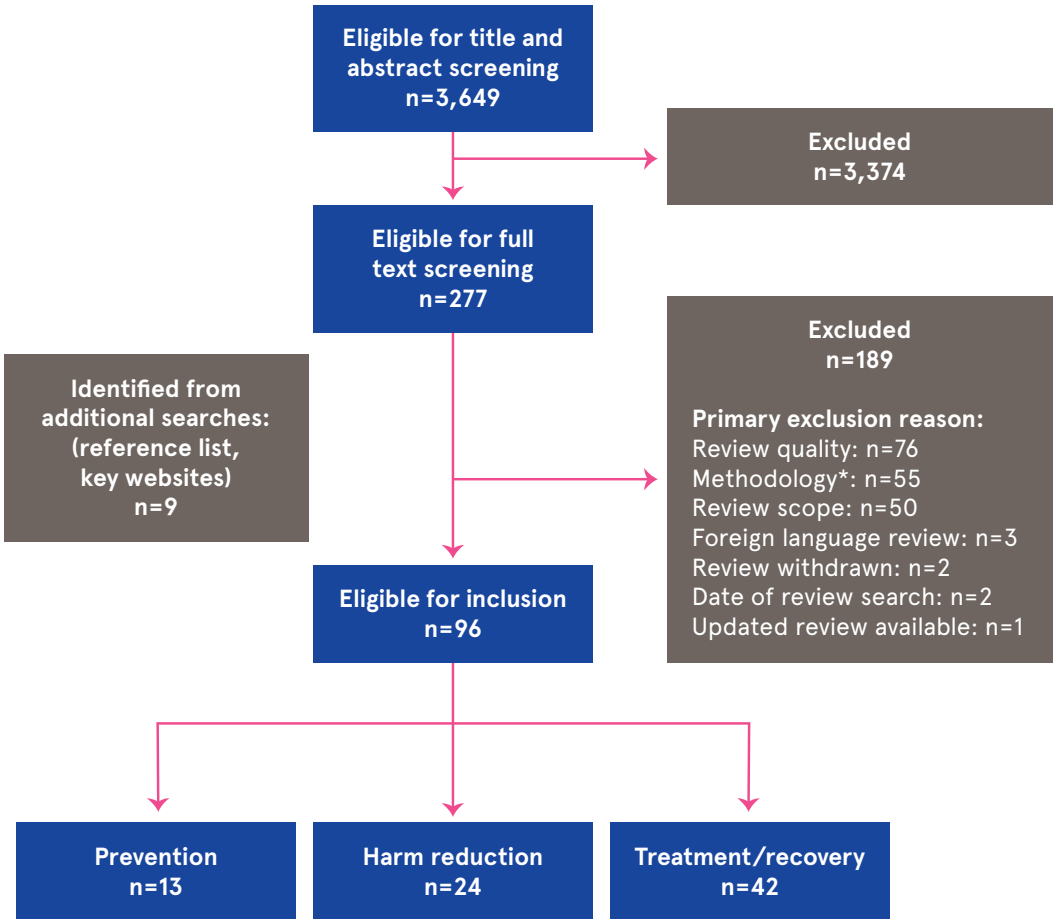
- Drug consumption rooms
- Interventions to prevent initiation of injecting
- Interventions to increase uptake of blood-borne virus testing
- Interventions to reduce harm in recreational settings
- Interventions to increase uptake and adherence to blood-borne virus treatment
- Interventions targeting individuals in contact with the criminal justice system
- Interventions targeting individuals who are sex workers.

Treatment and recovery

- Pharmacological treatments for opiate use
- Pharmacological treatments for stimulant use
- Pharmacological treatments for cannabis use
- Psychosocial interventions
- Residential rehabilitation
- Treatments focusing on long-term recovery and reintegration
- Treatment interventions for individuals in contact with the criminal justice system
- Treatment interventions for individuals with co-occurring drug use and mental illness
- Treatment interventions for pregnant and parenting women.

Additionally, evidence was identified on physical activity and acupuncture-based interventions and these are discussed under 'other treatment approaches'.

4.2.2 Study selection diagram



* articles excluded based on methodology were those that were not a systematic review, were a protocol for a systematic review only, were systematic reviews of qualitative evidence, or were systematic reviews of reviews.

Figure 1: Study selection diagram

5 Prevention

In total, 13 systematic reviews were included in this review. A summation of the evidence identified is provided in Table 1. The evidence that was identified was grouped by intervention type including:

- Universal school-based programmes
- Universal and targeted family-based programmes
- Brief interventions in primary care, emergency department and school settings
- Mentoring interventions
- Media interventions including media campaigns and computer/Internet-based interventions.

Additional evidence was identified relating to cannabis prevention interventions and interventions targeting young people with mental health disorders.

5.1 Quality of included prevention reviews

Initially, only reviews that scored 8 or higher on the JBI tool, and included assessment of primary-level evidence quality, were included in this review. For the prevention strand of the review, 11 reviews published since 2010 met these criteria. Additionally, two studies published since 2010 and rated 'medium' quality on the JBI quality assessment tool were included to cover intervention gaps not covered by the high-quality evidence. Review scores on the JBI assessment are provided in the summary of reviews identified (Table 1) and full details of quality assessment for each review are provided in Appendix 4 (Section 11.4).

5.2 Universal school-based prevention programmes

Typically, school-based programmes aim to inform young people about the risks and effects of drug use, and to modify young people's social skills and personality traits such as drug refusal skills, self-esteem and self-efficacy. Multicomponent school-based programmes addressing young people's social influences and social skills are considered best practice for reducing drug use, and specifically cannabis use (EMCDDA, 2015b). In Ireland, there has been a drive to develop drug use education through schools in the context of Social, Personal and Health Education (SPHE) (Department of Health, 2015). This is one of the most frequently used prevention approaches for drug use, due to the ease of access to young people and an educational platform (Stockings *et al.,* 2016). However, young people who are most at risk of drug use may be less likely to attend school and so access to this group may be limited through school-based programmes (Degenhardt *et al.,* 2016).

Two reviews were identified that looked at universal school-based programmes (Table 2).[2] One review (Faggiano *et al.,* 2014) looked at drug use programmes and one review (Jackson *et al.,* 2012) looked at programmes aiming to reduce both drug use and sexual risk behaviours. Only one primary study featured in both reviews. The review by Jackson and colleagues included predominantly school-based programmes, and family-based programmes are considered in section 5.3 of this review.

2 Targeted brief interventions delivered in school settings are examined in section 7.4 Brief interventions.

Table 1: Summary of prevention reviews identified

Citation	Prevention intervention details	Target population details	Number of relevant studies included	Location	JBI score for review quality (/10)
Carney *et al.*, 2014	Brief interventions delivered in school settings	Schoolchildren who had prior experience of drug use	6	USA n=4; UK n=2	10
Faggiano *et al.*, 2014	Universal school-based programmes	Schoolchildren	51	USA n=42; Australia n=2; UK n=2; China n=1; Czech Republic n=1; Hong Kong n=1; South Africa n=1; Europe n=1	10
Ferri *et al.*, 2013	Media campaigns	Young people	16	USA n=14; Australia n=1; Canada and USA n=1	10
Jackson *et al.*, 2012	Interventions to reduce drug use and risky sexual behaviour in school and family settings	Predominantly schoolchildren	18	USA n=12; South Africa n=2; Australia n=1; Canada n=1; Namibia n=1; UK n=1	9
Newton *et al.*, 2013	Motivational interview within emergency departments	Young people with a history of cannabis use or associated high-risk behaviours.	2	USA n=2	10
Norberg *et al.*, 2013	Cannabis prevention programmes	Children and young people	25	USA n=21; Australia n=1; UK n=1; Europe n=1	10
Patnode *et al.*, 2014	Brief interventions set within primary care and computer-based interventions	Children and young people	6	USA n=5; USA and Czech Republic n=1	10
Salvo *et al.*, 2012	Range of interventions	Children and young people with mental disorders	3	NR	9
Tait *et al.*, 2013	Computer-based interventions in a range of settings	Young people	10	USA n=5; Germany n=2; Australia n=2; USA and Canada n=1	10
Thomas *et al.*, 2013	Mentoring interventions	Children and young people aged 6–18 years	6	USA n=5; Sweden n=1	7
VanBuskirk *et al*,. 2014	Motivational interview within primary care	Young people	2	USA n=2	8
Vermeulen-Smit *et al.*, 2015	Family-based interventions	Young people and their parents	22	USA n=22	7
Wood *et al.*, 2014	Universal and targeted computer-based interventions in a range of settings	Young people	10	USA n=6; USA and Canada n=1; Australia n=2; Germany n=1	9

Table 2: Universal school-based prevention programmes - summary

Population	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Children and young people	Universal programmes	1 (H 1)	Faggiano *et al.,* 2014	Cannabis use Outcome table 1
				Hard drug use Outcome table 2
				Other drug use Outcome table 3
				Any drug use Outcome table 4
	Curriculum interventions to prevent sexual health risk behaviours and drug use	1 (H 1)	Jackson *et al.,* 2012	Drug use and sexual health Outcome table 5
	Curriculum interventions with additional components to prevent sexual health risk behaviours and drug use	1 (H 1)	Jackson *et al.,* 2012	Drug use and sexual health Outcome table 5
	Whole school programmes	1 (H 1)	Jackson *et al.,* 2012	Drug use and sexual health Outcome table 5

Findings from one review (Faggiano *et al.,* 2014) that included over 50 primary studies of universal school-based drug prevention programmes suggest that generally this intervention approach is not effective in reducing use of illicit drugs. However, some specific 'manualised' programmes (i.e. those that are structured and specify programme activities, usually in the form of a curriculum) that combine the teaching of skills such as refusal, decision-making and coping with awareness raising regarding the social influences on drug use and information provision were found to be effective. The review examined different school-based interventions based on an adaptation of Thomas' (2006) classification of school-based smoking prevention interventions:

- Programmes based on a social competence approach: include principles of affective education and assumes that risk of drug use is increased among those with poor personal and social skills. Interventions are often based on social learning theory which assumes that drug-related behaviours are influenced by modelling and imitating the behaviour of others, and this reinforces pro-drug decisions. These types of programmes aim to teach cognitive-behavioural and general skills around decision-making, coping, goal setting, and resistance.
- Programmes based on a social norms approach: assume that drug use arises from inaccurate estimates of drug use among peers, and how this might lead to a desire for social acceptability or normalisation through drug use. Interventions focus on education, and aim to correct misestimates by providing accurate information on the true extent of use.
- Knowledge-focused programmes: assume that drug use is influenced by information deficits, i.e. poor knowledge about associated risks and dangers. Participants are provided with information regarding prevalence, and the health, social and legal risks associated with drug use.

Low-quality review-level evidence suggests that knowledge-based programmes are not likely to be effective in preventing use of cannabis or other drugs. Across outcomes, including cannabis use, hard drug use and other drug use at different follow-up times, the review indicates that there were no consistent effects for interventions based on social competence or social influence approaches, although programmes based on a social competence approach were better supported. Prevention programmes that were based on a combination of social competence and

influence approaches had more promising results and there was some evidence to suggest that these interventions may lead to reduced short-term drug use, and reduced long-term use of cannabis and hard drugs. However, the evidence on combined programmes was inconsistent and inconclusive. The authors of an earlier review looking at cannabis and alcohol prevention programmes in school settings[3] concluded that comprehensive programmes, which combine information with training in refusal skills, self-management skills and social skills, are most likely to be effective (Lemstra *et al.,* 2010).

Across all intervention approaches included in the review by Faggiano and colleagues, the strongest evidence was regarding cannabis use, as only small numbers of primary studies included in the review looked at other outcomes. It is important to note that where there were mixed results, outcomes sometimes favoured the intervention groups and sometimes favoured controls, suggesting that some programmes may be harmful.

One review was identified that examined school-based programmes (and programmes in other settings) that addressed both drug use and sexual risk behaviours (Jackson *et al.,* 2012). For each type of school-based programme, including curriculum interventions (with or without additional components) and whole school or multicomponent programmes, interventions appeared generally not to be effective in drug use outcomes. Evidence suggests that programmes that address sexual health and drug use outcomes in school programmes may be more effective for sexual risk behaviours and alcohol use, although this evidence is inconclusive (Jackson *et al.,* 2012). The authors concluded that the most effective interventions are those that focus on multiple domains rather than school-based only programmes, although impact on drug use appears to remain limited.

5.3 Family-based interventions

Family-based programmes are one of the most commonly used approaches internationally to prevent drug misuse in young people (Stockings *et al.,* 2016). These interventions can be aimed at all individuals (the parents and young people) or parents only in a range of settings. Information around the harms of drug use and sessions on effective parenting, communication and discipline typically feature on these programmes (ALICE RAP, 2014). Currently, in Europe interventions involving the whole family are more likely to be recommended than those that train parents only (EMCDDA, 2015b). In Ireland, family-based programmes are recognised as having an important role in developing parenting skills and breaking the cycle of drug use among children who live currently with a parent who misuses drugs (Department of Health, 2015).

Two reviews rated high quality using the JBI tool included family-based interventions (Jackson *et al.,* 2012; Patnode *et al.,* 2014). Additionally, one review rated medium quality (Vermeulen-Smit *et al.,* 2015) specifically reviewed the effectiveness of family-based interventions on drug use among young people and was included, as the review covered intervention areas not covered in the high-quality review (Table 3).

The review by Vermeulen-Smit and colleagues (2015) included universal interventions as well as interventions targeting high-risk groups and individuals already using drugs on a recreational basis. High-risk groups included a range of populations such as delinquents, those at risk of drug use, juvenile offenders, children of drug-using parents, those in high-risk neighbourhoods, homeless youth, children of parents with HIV and children of divorced parents. Interventions aiming to reduce drug use in recreational users included i) a brief family intervention and ii) a coping skills training intervention delivered to parents only. The review by Jackson and colleagues (2012) included a small number of studies not set in schools that were based around parent or family interventions; the remaining review included multiple evaluations of a mother-daughter targeted computer-based intervention (Patnode *et al.,* 2014). Across the three reviews, the interventions were delivered in a range of settings and comprised a variety of components.

3 This systematic review (Lemstra *et al.,* 2014) was excluded from our review, as all drug-related primary studies included in the review were included in the more up-to-date systematic review included here (Faggiano *et al.,* 2014).

Table 3: Family-based interventions – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Children and adolescents	Range	Universal family-based interventions	3 (1M, 2H)	Jackson *et al.*, 2012; Patnode *et al., 2014;* Vermeulen-Smit *et al.*, 2015	Frequency of drug use Outcome table 6
Adolescents using illicit drugs recreationally	Community	Targeted family-based interventions	1 (M)	Vermeulen-Smit *et al.*, 2015	Frequency of drug use Outcome table 7
High-risk adolescents	Community	Targeted family-based interventions	1 (M)	Vermeulen-Smit *et al.*, 2015	Frequency of drug use Outcome table 8
				Vermeulen-Smit *et al.*, 2015	Drug disorders Outcome table 9

5.3.1 Universal family-based interventions

Low-quality review-level evidence suggests that universal family-based interventions may reduce initiation and use of cannabis among adolescents (Jackson *et al.*, 2012; Patnode *et al.*, 2014; Vermeulen-Smit *et al.*, 2015), but may not be effective on initiation of drugs other than cannabis (Jackson *et al.*, 2012; Vermeulen-Smit *et al.*, 2015). Findings suggest that a combined parent and child intervention approach may be more effective in reducing cannabis initiation and use than interventions that target parents alone.

5.3.2 Targeted family-based interventions

The evidence on the effectiveness of family interventions that target 'high-risk' adolescents is inconclusive. Low-quality review-level evidence suggests that targeted family interventions have no impact on prevention of illicit drug use, but their impact on reducing frequency of hard drug and cannabis use and later drug dependency varied across different studies, with some positive and negative intervention effects (Vermeulen-Smit *et al.*, 2015). Evidence is scarce on family interventions targeted at children of drug-using parents, but low-quality review-level evidence suggests that targeted family interventions may be effective in reducing the frequency of illicit drug and cannabis use.

In addition, one article that was excluded from this review based on methodological quality was identified that looked at the provision of interventions to prevent drug use among children from drug-affected families (Broning *et al.*, 2012). The article contained little evidence of relevance to this review, but the authors concluded that there is preliminary evidence to support programmes delivered over a substantial period of time with components including skills training for children, parents and families to reduce drug use. However, the evidence relating to illicit drug use was scarce and inconclusive.

5.4 Additional cannabis prevention interventions

One review rated high quality was identified that looked specifically at the impact of prevention programmes on cannabis use (Norberg *et al.*, 2013). The review included evidence from a range of interventions, including universal school and family programmes, and interventions targeting groups

such as females, athletes and at-risk populations. Of the 25 studies included in the review by Norberg and colleagues, 14 are included within the evidence presented in previous sections of this review.

The authors compared cannabis outcome-related effect sizes across studies considering different approaches including uni- and multi-modal universal and targeted interventions. It was identified that universal programmes that target multiple domains (for example, school programme alongside parent/family, mentoring or media components) may be more effective in preventing cannabis use than universal interventions set in one domain or targeted interventions. Similarly, an earlier review (Jones *et al.,* 2006) indicated that comprehensive community-based programmes are more effective than school or community only-based interventions in preventing both licit and illicit drug use.

5.5 Brief and/or motivational interventions

Brief and motivational interventions are applied across the domains of harm reduction, prevention and treatment to motivate and change behaviour.[4] Brief interventions can take place in a number of settings including schools, work, university, primary care and emergency departments and hospitals (Stockings *et al.,* 2015). They are often delivered opportunistically to encourage or motivate individuals, including those deemed at risk of becoming drug users, to change their behaviour. For individuals who are already misusing drugs a brief intervention may not be appropriate or sufficient to change an established behaviour, but brief interventions are applied to recreational users or individuals at risk of misusing drugs. While evidence on effectiveness in drug prevention is scarce, there is substantial evidence to suggest that brief interventions may be effective in alcohol prevention (Tanner-Smith *et al.,* 2015). In the UK, brief interventions are recommended for engaging with individuals who are unlikely to have contact with drug services (NICE, 2007). Similarly, motivational interventions (primarily delivered as motivational interviewing) seek to strengthen an individual's motivation to change behaviour or reduce ambivalence regarding drug use. Motivational interviewing may form part of a brief intervention or a more substantial programme or series of sessions to support an individual to recognise a need to change behaviour or attitude towards drug use.

Four reviews were identified that examined brief and/or motivational interventions across a range of settings (Table 4). The review of school-based brief interventions (Carney *et al.,* 2014) included six interventions based on a combination of screening, motivational interview, information provision and brochures that were targeted at current drug users. The reviews of interventions based in primary care (Newton *et al.,* 2013) and emergency departments (VanBuskirk and Wetherell, 2014) included studies that utilised motivational interview interventions. The non-school-based reviews (Newton *et al.,* 2013; VanBuskirk and Wetherell, 2014) included a range of studies, with the majority focusing on legal drugs and primarily alcohol, with just two studies included in each review that focused on illicit drugs, which are reported here.

5.5.1 School-based interventions

One review looked at brief interventions targeted at current drug users in school settings (Carney *et al.,* 2014). Primarily moderate-quality review-level evidence suggests that brief interventions delivered in schools to children already using drugs are neither more nor less effective than information provision at reducing use of any drug, cannabis or alcohol, or at reducing cannabis-related dependence or behavioural outcomes. However, brief interventions may be more effective in comparison to assessment only conditions for reducing cannabis use (Carney *et al.,* 2014).

5.5.2 Primary care-based interventions

Two reviews were identified that looked at brief and/or motivational drug prevention interventions in primary care settings (Patnode *et al.,* 2014; VanBuskirk and Wetherell, 2014). The review by Patnode and colleagues (2014) covers three brief interventions, including one computer-led screening and brief advice intervention, one counselling session and one study including a therapist-led and computer-led brief interventions. Findings relating to use of cannabis

4 Interventions that target people who are misusing or dependent on drugs that fall within the field of brief or motivational interventions are covered in the treatment strand of this review. Within this prevention strand, interventions may include people who use drugs recreationally or are not currently using drugs.

and other drugs were mixed and inconclusive, with only one arm of the computer-led intervention indicating consistent significant intervention effects. Additionally, one review examined motivational interviews delivered in primary care settings to young people at risk of drug misuse (VanBuskirk and Wetherell, 2014). There is low-quality review-level evidence to indicate that motivational interviewing may be effective for drug prevention when delivered in primary care settings; however, drug use findings were limited greatly by low numbers of participants and studies. The review authors examined the effectiveness of motivational interview delivered in primary care on other health behaviours and concluded that this approach may be effective, which adds to previous evidence suggesting that alcohol brief interventions delivered in primary care may have positive impacts (O'Donnell *et al.,* 2013).

Table 4: Brief and motivational interventions – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Children and young people	Emergency department	Motivational interview	1 (H)	Newton *et al.,* 2013	Cannabis abstinence Outcome table 10
					Cannabis use Outcome table 10
					Alcohol use Outcome table 11
	Primary care	Motivational interview	1 (H)	VanBuskirk and Wetherell, 2014	Cannabis use Outcome table 12
					Drug use Outcome table 12
					Trouble due to alcohol use Outcome table 13
		Brief interventions	1 (H)	Patnode *et al.,* 2014	Cannabis use Outcome table 14
					Cannabis cessation Outcome table 14
					Cannabis initiation Outcome table 14
					Drug use Outcome table 14
Adolescents already using drugs	School	Brief interventions	1 (H)	Carney *et al.,* 2014	Drug use Outcome table 15
					Cannabis quantity Outcome table 15
					Cannabis frequency Outcome table 15
					Cannabis dependence Outcome table 15
					Alcohol frequency Outcome table 16
					Alcohol quantity Outcome table 16
					Behavioural outcomes Outcome table 17

5.5.3 Emergency department-based interventions

One review was identified that looked at the effectiveness of a motivational interview delivered to young people with a history of cannabis use or associated behaviours who visited an emergency department. Low-quality review-level evidence indicates that in comparison to handout-only control groups, motivational interviewing delivered in an emergency department may be effective in increasing abstinence from cannabis use among young people with a history of cannabis use. However, there was no evidence of effectiveness on other drug-related outcomes such as days of use, injury or risk sex (Newton *et al.,* 2013). Findings were limited by the low number of studies included in the review that focused on illicit drugs and it is not possible to draw conclusions on the effectiveness of brief interventions in this setting on that basis. A review by the EMCDDA (2016a) of brief interventions in emergency department settings identified that there are potential benefits to this approach, but the current evidence base is largely focused on alcohol prevention.

5.6 Media interventions

Interventions in the form of mass media campaigns can target illicit drug use as well as prevent use of drugs such as alcohol or tobacco. The EMCDDA (2013) describes two types of mass media campaigns relating to drug use: i) information campaigns that may warn the population about risks and harms and provide information about support services and interventions; and ii) social marketing campaigns that provide information on prevalence of drug use, look at social and legal norms and promote positive behaviours. In general, such campaigns are implemented and disseminated using television commercials, radio broadcasts, newspaper or magazine advertisements, brochures, posters in public spaces, as well as Internet-based campaigns. While media campaigns have the potential to reach a wide audience, potential disadvantages include their passive nature, with no guarantee that they will obtain significant exposure, be consciously noticed by the target audience, or have the direct effect of altering attitudes and subsequent health-related behaviours (Slater *et al.,* 2006). Additionally, there are concerns about unintentional harmful effects from media campaigns that may raise interest or awareness of particular drugs (EMCDDA, 2013). With these potential flaws in mind, media campaigns tend to be part of a wider campaign that involves multiple rather than standalone intervention strategies (Wakefield *et al.,* 2010).

Media campaigns have been demonstrated to have positive effects in areas such as smoking prevention and road safety (Wakefield *et al.,* 2010). While there are many examples of media campaigns to prevent or reduce drug use, there is a lack of evidence on their effectiveness (EMCDDA, 2013), which might reflect potential difficulties in evaluating widespread campaigns. Examples of media campaigns in Ireland include the 'What's in the pill?' and the new 'What's in the powder?' campaigns on university campuses. These media campaigns provide facts and information through multiple formats including posters, factsheets and social media. The focus of these campaigns is more on harm reduction than on preventing drug use, however.

In addition to interventions that are delivered through mass media, technological developments have increased the potential for Internet- and computer-based prevention programmes. These are often undertaken independently by the young person, meaning that programmes can be tailored to their needs and personalised feedback can be provided (Dennhardt and Murphy, 2013). Further appealing characteristics of computer programmes include their ability to allow the user to manage their own pace, privacy, low associated costs and suitability for engagement with young people through multimedia (Stockings *et al.,* 2016). Best practice in Europe supports computer-based programmes for reducing drug use in the medium term. This includes both universal programmes and those targeted at recreational drug users (EMCDDA, 2015b).

Three reviews were identified that looked at the effectiveness of media-based interventions to prevent drug use (Table 5). One review examined media campaigns on drug use among children and adolescents (Ferri *et al.,* 2013) and two reviews looked at computer-based and Internet-based interventions (Tait *et al.,* 2013; Wood *et al.,* 2014). There was substantial overlap between these two reviews with regard to the primary studies included. The review by Ferri and colleagues included standalone TV and radio advertisements and Internet interventions, and multicomponent campaigns including a combination of TV, radio, printed media and Internet modules.

Table 5: Media interventions – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Children and young people	Community	Multicomponent media campaign	1 (H)	Ferri *et al.*, 2013	Any drug use Outcome table 18
					Cannabis use Outcome table 18
					Methamphetamine use Outcome table 18
		TV/radio advertisement	1 (H)	Ferri *et al.*, 2013	Any drug use Outcome table 19
	School/ community	Universal computer and Internet-based interventions	3 (H)	Ferri *et al.*, 2013; Tait *et al.*, 2013; Wood *et al.*, 2014	Cannabis use Outcome table 20
			1 (H)	Wood *et al.*, 2014	Polydrug use Outcome table 20
					Any drug use Outcome table 20
	College	Targeted computer and Internet-based interventions	1 (H)	Ferri *et al.*, 2013; Wood *et al.*, 2014	Any drug use Outcome table 21

5.6.1 Media campaigns

One review looked at the effectiveness of a range of media campaigns on drug use among children and adolescents (Ferri *et al,*. 2013). The review looked at drug use among participants following exposure to TV public service announcements and multicomponent interventions, including television, radio and printed media alone or in combination with a school-wide campus intervention or curriculum-based intervention.

There was little evidence to support the application of media campaigns to reduce drug use among young people and the authors note that interventions and outcomes were not easily comparable. There was low-quality review-level evidence to suggest that standalone television commercials may reduce cannabis use, but findings are limited by the design of the one study that looked at this effect. Evidence on the effectiveness of multicomponent media campaigns (those incorporating a combination of television, radio and printed media), including those delivered alongside a school-based intervention, was mixed and inconclusive. It is important to note that some interventions appeared to have adverse effects where participants were more likely to use drugs following exposure to media campaigns.

5.6.2 Computer-based and Internet-based interventions

Three reviews rated high quality using the JBI tool examined the effects of computer-based and Internet-based interventions to prevent drug use among young people[5] (Ferri *et al.*, 2013; Tait *et al.*, 2013; Wood *et al.*, 2014). Universal programmes consisted typically of 10–15 sessions and were delivered in school or online to children of a range of ages. Programmes were knowledge-based and skill-based, with skills for drug refusal or dealing with peer pressure featuring on all programmes. Primarily low-quality review-level evidence suggests that universal computer-based programmes for young people appear largely ineffective in reducing drug use immediately following the intervention; however, evidence suggests that there may be benefits in the medium term. The evidence is most substantial for cannabis use, with high-quality review-level evidence suggesting a positive overall intervention effect (Tait *et al.*, 2013). Findings from studies on the mother-daughter computer intervention

5 Additionally, the review by Woods and colleagues (2014) examined interventions delivered to older adults, but these interventions are not included here.

covered within the family interventions section of this review (Section 5.3, Patnode *et al.,* 2014) add to this evidence, suggesting that computer-based interventions may have positive effects on cannabis use among young people.

Additionally, the reviews reported findings from two programmes that targeted recreational drug users in college, including one study that provided personalised computer feedback based on motivational interview and one online counselling programme. Low-quality review-level evidence suggests that an online counselling programme may be effective in reducing short-term cannabis use, but there were no intervention effects reported for the personalised Internet-based feedback intervention (Ferri *et al.,* 2013; Woods *et al.,* 2014).

5.7 Mentoring interventions

Peer mentoring is a system of giving and receiving support that is founded on the key principles of respect, shared responsibility and mutual agreement on what is helpful. In this sense, peer support has been regarded as a holistic approach that can be utilised as a powerful strategy for preventing drug and alcohol use (MacArthur *et al.,* 2015). For example, there is a growing body of evidence supporting how peer mentoring can act as an effective approach to engage individuals in skill-building activities as well as provide social support and reinforcement of behaviours that support prevention of drug use (Petosa and Smith, 2014). For example, a previous meta-analysis indicates that mentoring may be an effective approach to prevent alcohol use (Thomas *et al.,* 2011).

While encouraging health-promoting behaviours does not simply involve telling individuals what they should or should not do, through the mechanism of social influence there are instances when a person's behaviour is significantly influenced by that of another. More specifically, individuals are more likely to copy or take on board the advice of their peers, i.e. those they are familiar with and/or have a sense of shared identity with. In other words, health-related behaviour, such as drug and alcohol use, can be influenced by the behaviour and advice of individuals perceived as sharing a similar lifestyle, cultural background, linguistic and socioeconomic circumstance (Huang *et al.,* 2012; Salvy *et al.,* 2012). In relation to the prevention of drug use, peers can be more effectively used as mentors, whereby individuals are used to actively encourage abstinence from such behaviours.

For young people in particular, mentoring can offer a useful method of engagement, as this allows mutual respect and a conversation to take place in a shared cultural language as well as a more equal power balance that enables individuals to speak confidently and openly while providing support. Mentoring by adults, such as a teacher trying to encourage a young person not to consume drugs, may be less effective as the young person is likely to feel as though they are being subjected to authority and do not have a choice in the matter.

In Ireland, there are several examples of longstanding mentoring projects that have been shown to provide opportunities to help young people lead healthy and happy lives free from harmful behaviours such as drug and alcohol misuse (UNESCO Child and Family Research Centre, 2012). For example, The Big Brothers Big Sisters Youth Mentoring Programme was established in Ireland in 2001, and has two key strands – a community-based programme that facilitates friendship between a young person and an older adult in the community, as well as a school-based programme that 'matches' young people to a slightly older student from the same school. Through the scheme, it is expected that mentees will be able to develop supportive friendships with their peer mentors in a safe environment, which can enable them to increase their confidence and self-esteem, and welcome a positive role model into their lives (UNESCO Child and Family Research Centre, 2012).

One review rated medium quality was identified that examined the effectiveness of mentoring interventions to reduce or prevent drug use (Thomas *et al.,* 2013; Table 6). These were delivered to children and adolescents who were generally perceived as being at high risk, although it was not clear in all included studies how this was determined. Mentors varied, but included older adults, trained adults and peers, and members of a 'Big Brothers' or 'Big Sisters' programme. In one study included in this review, participants were homeless adolescents who received a mentoring intervention alongside drug use treatment.

Table 6: Mentoring-based interventions – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Adolescents including predominantly those at high risk	Community	Mentoring-based interventions	1 (M)	Thomas *et al.*, 2013	Drug use Outcome table 22
				Thomas *et al.*, 2013	Drug use initiation Outcome table 22
				Thomas *et al.*, 2013	Alcohol use Outcome table 23
				Thomas *et al.*, 2013	Alcohol initiation Outcome table 23
Homeless adolescents	Community	Mentoring-based intervention	1 (M)	Thomas *et al.*, 2013	Drug use Outcome table 24
				Thomas *et al.*, 2013	Alcohol use Outcome table 25

Review findings indicate that mentoring interventions may have little effect on drug and alcohol use when delivered to high-risk adolescents (Thomas *et al.*, 2013). Low-quality review-level evidence suggests that a mentoring intervention including older adults as mentors may reduce cannabis use in high-risk adolescents. For all other outcomes reported, including illicit drug use, any drug use, drug use initiation, alcohol use and alcohol use initiation, there were no statistically significant benefits for participants who received any of the range of mentoring interventions included in the review. Similarly, low-quality review-level evidence suggests no benefit to homeless adolescents from a mentoring intervention delivered in combination with drug use treatment, although findings were based on a very small sample who were followed up in the study.

Findings throughout were limited by the small number of studies and heterogeneity between populations and intervention approaches. Additionally, the review authors stated that there was a lack of rigorous evaluation across studies. Consequently, while the evidence indicates that mentoring interventions appear ineffective in preventing or reducing drug use in high-risk children and adolescents, it is difficult to draw firm conclusions based on the limited evidence available.

5.8 Interventions for children and adolescents with mental health disorders

The risks of smoking, abusing alcohol and other drugs are higher among individuals with severe and mild mental illness than among the general population (Hartz *et al.*, 2014). Adolescents with a mental disorder have been shown to have high rates of both alcohol and illicit drug abuse, as have adolescents with anxiety disorders (Abram, 2016). Additionally, drug use is linked with increased poor mental well-being (Lai *et al.*, 2015) and, among heavier cannabis users, psychoses (Volkow *et al.*, 2014).

It is suggested that high rates of comorbidity with drug misuse and mental disorders may be due to overlapping genetic vulnerabilities (Kendler *et al.*, 2003) and overlapping environmental triggers such as stress, exposure to drugs and trauma (Alado *et al.*, 2010; Brady and Sinha, 2005). Experiencing mental health problems, as a result of negative experiences in childhood, can be an independent predictor of experiencing addiction to drugs (Anda *et al.*, 2006), such as if drugs are used to help cope with or alleviate symptoms. There is a clear overlap between drug misuse and mental illness, and the social and economic costs of treating both issues are likely to have greater costs than each on their

own (Whiteford, 2013). It is important, therefore, that individuals with a mental illness are considered as key populations to target when planning and delivering drug prevention programmes.

One review rated high quality examined drug prevention among children and young people with mental health disorders (Salvo *et al.,* 2012; Table 7).

A limited amount of evidence, however, was included in the review (Salvo *et al.,* 2012) on three disorders:[6] individuals with a disruptive behavioural disorder or ADHD, or those at high risk of early psychosis. For each disorder, low-quality review-level evidence was based on individual studies and small samples and, therefore, while findings included some promising results, the evidence on drug prevention interventions targeting children with mental health disorders is inconclusive.

6 The review also included evidence on high-risk populations, but there was a lack of information about the nature of interventions to include the evidence in this review.

Table 7: Interventions for people with mental health disorders – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Children with a DBD	Psychiatric clinics and MH centres	Multicomponent: CBT, parent intervention and behavioural and social skills programme	1 (H)	Salvo *et al.,* 2012	Cannabis use Outcome table 26
Adolescents with ADHD	Psychiatric clinics and community	ADHD medication	1 (H)	Salvo *et al.,* 2012	Drug use Outcome table 27
					Drug disorder Outcome table 27
Adolescents and young adults at high risk of early psychosis, including cannabis users	Not reported	MI and CBT	1 (H)	Salvo *et al.,* 2012	Drug use Outcome table 28

DBD – disruptive behavioural disorder. MH – mental health. MI – motivational interview. CBT – cognitive behavioural therapy. ADHD – attention deficit hyperactivity disorder

5.9 Prevention interventions – key messages

School-based programmes

Low-moderate quality review-level evidence suggests that comprehensive school-based programmes that combine the teaching of skills such as refusal, decision-making and coping, raise awareness of social influences on drug use, and provide information about drug use may be effective in preventing drug use. However, this evidence is inconsistent and inconclusive, and can be applied predominantly to cannabis use (any use or frequency of use) only. Low-quality review-level evidence suggests that school-based programmes that focus mainly on increasing knowledge of the risks of drug use alone appear ineffective in preventing drug use.

Low-quality review-level evidence also suggests that drug use and sexual health prevention interventions may be more effective if interventions focus on multiple domains rather than school-based only programmes, although impact on drug use appears limited.

Family-based interventions

Moderate-quality review-level evidence suggests that universal family interventions which include both parents and children may be effective in preventing cannabis use, but evidence on other drug use is inconclusive. Programmes may be most effective when targeting multiple domains (e.g. school alongside family, mentoring or media settings). There was low-quality and mixed review-level evidence on the effectiveness of prevention targeted at families of at-risk young people and therefore no conclusions could be made about these approaches.

Brief and/or motivational interventions

Moderate-quality review-level evidence suggests that brief interventions set within schools appear to be generally ineffective in preventing drug use. Similarly, low-quality review-level evidence suggests that brief interventions set within healthcare settings appear to be generally ineffective in preventing drug use. Interventions that are based on motivational interview may have some benefits when delivered in emergency department or primary care settings, but this evidence was low quality and findings were inconclusive.

Mass media interventions

Low-quality review-level evidence suggests that mass media campaigns delivered alone to prevent drug use are unlikely to be effective, with mixed and inconsistent drug use outcomes from campaigns. Low-quality review-level evidence suggests that interventions delivered through computers and the Internet may have positive effects on cannabis use.

Mentoring interventions

Low-quality review-level evidence suggests that mentoring interventions may be ineffective in preventing drug use among high-risk young people. However, this is based on very few primary studies and findings are therefore inconclusive.

6 Harm reduction

In this section, evidence is presented on the effectiveness of a range of harm reduction interventions for people who use illicit drugs. This is categorised according to intervention type.

6.1 Review articles included in this review

In total, 23 systematic reviews and one paper that pooled evidence from UK studies were included in the harm reduction strand of this review. A summation of the evidence identified is provided in Table 8. The evidence that was identified was grouped by population, including:

- Interventions for people who use illicit drugs
- Interventions for vulnerable groups within the drug-using population including people living with a blood-borne virus (BBV), people in contact with the criminal justice system and sex workers.

The following types of interventions were identified:

- Provision of needles and injecting equipment
- Pharmacological interventions
- Psychosocial and behavioural interventions
- Drug consumption rooms
- Opioid overdose prevention programmes with distribution of naloxone
- Interventions to prevent initiation of injecting
- Interventions to increase uptake of BBV testing
- Interventions to reduce harm in recreational settings
- Interventions to increase uptake and adherence to BBV treatment
- Interventions targeting people in contact with the criminal justice system
- Interventions targeting people who are sex workers

6.2 Quality of included reviews

Initially, only reviews that scored 8 or higher, and included assessment of primary-level evidence quality, were included in this review. For the harm reduction strand of the review, 17 reviews published since 2010 met these criteria. Additionally, five studies rated 'medium' quality on the JBI quality assessment tool and one 'high-quality' review published before 2010 were included where missing or scarce evidence was identified on relevant intervention types. Furthermore, one non-systematic review that pooled evidence from the UK only was included, as this review was considered highly relevant to Irish policy. Review scores on the JBI assessment are provided in the summary of reviews identified (Table 1) and full details of quality assessment are provided in Appendix 4 (Section 11.4).

6.3 Provision of needles and other injecting equipment

Needle and syringe programmes (NSPs) are a fundamental component of harm reduction services and provide access to sterile injection equipment for people who inject drugs (PWID). Through this provision of equipment, NSPs aim to prevent BBVs, bacterial infections and overdoses,

and frequently provide a setting for a range of health interventions (Hunt, 2003). The impact of NSPs on BBV infection may be greater where clients engage in other health interventions in addition to needle exchange, or are provided with additional paraphernalia: for example, NSPs in the Netherlands have observed a significant reduction in HIV and overdoses after increasing foil provision for smoking (Kools, 2009).

Effective disposal systems for used equipment are vital for improving the safety of communities and tackling negative attitudes towards needle exchange programmes (World Health Organization, 2004). For example, in the UK, the provision of sharps boxes and public sharps bins at NSPs is encouraged to ensure safe disposal of used needles and equipment (NICE, 2014). Conversely, some NSPs operate a returns policy where clients are required to swap used needles and syringes for new ones, although this is not considered to be good practice. NSPs can be integrated within other services (e.g. a pharmacy) or they can operate on their own as a static specialist service or outreach programme.

For NSPs to be effective, they must reach as many injecting individuals as possible. The Irish National Drug Strategy 2009–2016 included an objective to 'expand the availability of, and access to needle exchange services (where required)'. The partnership initiative between the Elton John AIDS Foundation, the Irish Pharmacy Union and the Health Service Executive Pharmacy Needle Exchange Programme has been expanding the provision of NSPs across Ireland since 2011 (Bingham *et al.*, 2015). As of 2013, there were 24 fixed-site needle exchanges and a total of 71 exchanges based within pharmacies in Ireland, with an estimated 9,200 clients served annually and more than 350,000 syringes distributed (EMCDDA, 2015c).

Evidence on the effectiveness of NSPs was identified in six systematic reviews, including five which were rated high quality and one which was rated medium quality (Table 9). Additionally, one review article which pooled analyses from evidence from the UK was identified (Turner *et al.*, 2011).

Table 8: Needle and other injecting equipment provision interventions – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People who inject drugs	Community	NSP	4 (H 3, M 1)	Aspinall *et al.*, 2013; Abdul Quader *et al.*, 2013; Gillies *et al.*, 2010; Hagan *et al.*, 2011	BBV infection Outcome table 29
			2 (H 2)	Gillies *et al* 2010; Jones *et al.*, 2011	Injection risk behaviours Outcome table 30
		NSP plus OST	2 (H 1, NA[1] 1)	Turner *et al.*, 2011; Jones *et al.*, 2010	BBV infection Outcome table 31
			1 (NA[1])	Turner *et al.*, 2011	Injection risk behaviours Outcome table 32

1 This article was not a systematic review. Therefore, it was not scored using the JBI tool.

Table 9: Summary of reviews identified – Harm reduction

Citation	Harm reduction intervention details	Target population details	Number of studies included	Location	JBI score for review quality (/10)
Abad *et al.*, 2015	HIV and STI behaviour change interventions	Female sex workers who use drugs	18	USA n=18	8
Abdul-Quader *et al.*, 2013	Needle and syringe programmes	People who inject drugs	15	USA n=5; UK n=3; Canada n=2; Australia n=1; China n=1; Ireland n=1; Vietnam n=1; France and Spain n=1.	9
Akbar *et al.*, 2011	Strategies to reduce harm in recreational settings associated with polydrug use	People in recreational settings including people who use drugs	5	Sweden n=3; UK n=2	7
Aspinall *et al.*, 2013	Needle and syringe programmes	People who inject drugs	12	Canada n=5; USA n=5; Europe n=2	9
Bolier *et al.*, 2011	Strategies to reduce drug use and harm in recreational settings	People in recreational settings including people who use drugs	2	Netherlands n=1; Sweden n=1	7
Camp Binford *et al.*, 2012	Antiretroviral adherence interventions	People who inject drugs living with HIV	45	Not reported	8
Clark *et al.*, 2014	Opioid overdose prevention/naloxone distribution	People who use opiates	19	USA n=13; UK n=4; Canada n=1; Germany and UK n=1	7
Gillies *et al.*, 2010	Provision of injecting paraphernalia	People who inject drugs	13	USA n=11; Canada n=2	8
Gowing *et al.*, 2011	Opioid substitution therapy	People who inject drugs	38	USA n=26; Australia n=3; UK n=3; Italy n=1; Germany n=1; Canada n=1; Malaysia n=1; Ukraine n=1	8
Hagan *et al.*, 2011	Range of harm reduction interventions to prevent HCV	People who inject drugs	26	USA n=11; Australia n=6; Canada n=5; UK n=2; Ireland n=1; Netherlands n=1; Italy n=1; France n=1	9
Jones *et al.*, 2008	Needle and syringe programmes	People who inject drugs who are in contact with the criminal justice system	19	USA n=16; Canada n=3; France n=1; Germany n=1; Netherlands n=1; Russia n=1; Switzerland n=1	10
Jones *et al.*, 2010	Needle and syringe programmes	People who inject drugs	16	USA n=11; France n=1; Canada n=2; Russia n=1; The Netherlands n=1	10
Jones *et al.*, 2013	Interventions to increase uptake of BBV testing	High-risk groups including current and former people who inject drugs	8	UK n=3; France n=2; Ireland n=1; Netherlands n=1; USA n=1	10
MacArthur *et al.*, 2012	Opioid substitution therapy	People who inject drugs	15	USA n=5; Canada n=1; UK n=1; Netherlands n=1; Austria n=1; Italy n=1; Thailand n=2; Puerto Rico n=1; China n=1	8
Malta *et al.*, 2010	Adherence to antiretroviral therapy	People who use drugs who are living with HIV	38	Not reported	7
Meader *et al.*, 2010	Multisession psychosocial interventions	People who inject drugs	35	Not reported	9

Table 9 (continued): Summary of reviews identified – Harm reduction

Citation	Harm reduction intervention details	Target population details	Number of studies included	Location	JBI score for review quality (/10)
Meader *et al.*, 2013	Multisession psychosocial interventions	People who inject drugs	51	USA n=44; Australia n=2; Thailand, Russia, China, Kazakhstan, USA and Thailand together n=1	9
Potier *et al.*, 2014	Drug consumption rooms	People who inject drugs	75	Canada n=51; Australia n=17; Europe n=2; Not reported n=9	6
Sacks-Davis *et al.*, 2012	Behavioural interventions	People who inject drugs	6	Not reported	9
Turner *et al.*, 2011	Needle and syringe programmes and opioid substitution therapy on hepatitis C incidence	People who inject drugs	6	UK n=6	Not applicable
Underhill *et al.*, 2014	HIV risk reduction interventions	People who inject drugs who are in contact with the criminal justice system	37	USA n=34; Australia, China and Iran n=1	9
Wang *et al.*, 2013	Interventions to reduce the number of sexual partners and drug and alcohol abuse	People who use drugs who are living with HIV	3	USA n=3	8
Werb *et al.*, 2013	Range of interventions to prevent initiation of injection	People who use drugs	8	North America n=5; Europe n=1; Australia n=1; Central Asia n=1	9
Zanini *et al.*, 2010	Combination treatment with ribavirin plus recombinant, or pegylated interferon-α, for chronic hepatitis C	People who use drugs who are living with hepatitis C	19	Not reported	8

6.3.1 Needle and syringe programmes alone

Four reviews, all rated high quality, looked at the impact of NSPs on BBV outcomes (Abdul-Quader *et al.*, 2013; Aspinall *et al.*, 2013; Gillies *et al.*, 2010; Hagan *et al.*, 2011). Evidence on the impact of NSPs on HCV prevalence and incidence was inconclusive and of low quality (Gillies *et al.*, 2010; Hagan *et al.*, 2011). Moderate-quality review-level evidence suggests, however, that NSP exposure is associated with reduced HIV transmission among PWID (Aspinall *et al.*, 2013). Furthermore, low-quality review-level evidence from one review (Abdul-Quader *et al.*, 2013) suggests an association between structural-level interventions that allow the expansion of NSPs on a large scale and a significant decrease in HIV and HCV incidence, and HIV prevalence. Additionally, low-quality review-level evidence suggests that provision of non-needle/syringe injecting paraphernalia is associated with reduced sharing of paraphernalia (Gillies *et al.*, 2010) and one review identified mixed findings among studies looking at the impact of NSPs on injection risk behaviour (Jones *et al.*, 2010).

6.3.2 Needle and syringe programmes combined with OST

Two reviews looked at the effectiveness of providing full harm reduction (opioid substitution therapy [OST] delivered with NSP coverage) in comparison with reduced or minimal harm reduction (Jones *et al.*, 2010; Turner *et al.*, 2011). The review by Jones and colleagues was rated high quality, and the article by Turner and colleagues was a pooled analysis of UK evidence rather than a systematic review article and was not rated using the JBI tool. The evidence suggests that OST delivered in combination with NSP is associated with reduced incidence of HIV and HCV (Jones *et al.*, 2010; Turner *et al.*, 2011) and reduced injection risk behaviours (Turner *et al.*, 2011).

6.4 Opioid substitution therapy

Opioid substitution therapy (OST) enables PWID to consume drugs in a regulated and safer manner. OST is provided in drug treatment settings, and outcomes around achieving abstinence from illicit drugs are considered in the drug treatment strand of this review. OST is a well-supported treatment approach for people who use opioids and is linked with positive treatment outcomes. However, OST is also an important harm reduction intervention for people who use drugs, including those who are not ready to achieve abstinence. For example, outcomes of OST may include reducing risky injection practices, reducing illicit drug use and increasing access to other interventions. In Ireland, OST is provided in various settings, including community treatment services, specialised general practices and prison drug services. The number of individuals in Ireland receiving OST has increased since 2005. Buprenorphine has been available as an alternative pharmacological agent in Ireland since 2002, although the vast majority of individuals receive MMT (EMCDDA, 2015d).

Two reviews rated high quality were identified that examined the impact of OST on relevant outcomes (Gowing *et al.*, 2011; MacArthur *et al.*, 2012). Findings from these reviews are reported in full in the treatment strand of this review, alongside other outcomes for pharmacological treatments for individuals with opioid dependency (see Section 7.3.1). Briefly, findings indicate that OST was associated with significant reductions in injecting, sharing of equipment, risk of HIV infection and HCV infection, and opioid use among people with a recent history of injecting opioids.

6.5 Psychosocial and behavioural interventions

In the UK, NICE recommends that all people who misuse drugs are provided with information and advice about reducing exposure to BBVs (NICE clinical guideline 51). Four reviews rated high quality using the JBI tool were identified; these reviews looked at the effectiveness of psychosocial or behavioural harm reduction interventions delivered to people who inject drugs (Table 10). Two reviews looked at the effectiveness of multisession psychosocial interventions on injection risk behaviours (Meader *et al.*, 2010) and sexual risk behaviours (Meader *et al.*, 2013) and two reviews looked at a range of behavioural interventions on blood-borne virus prevalence and injection risk behaviours (Hagan *et al.*, 2011; Sacks-Davis *et al.*, 2012).

Table 10: Psychosocial and behavioural interventions – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People who inject drugs	Community	Behavioural interventions	2 (H 2)	Hagan *et al.*, 2011; Sacks-Davis *et al.*, 2012	Blood-borne virus prevalence Outcome table 33
			1 (H 1)	Sacks-Davis *et al.*, 2012	Injection risk behaviours Outcome table 34
					Injecting frequency Outcome table 34
		Multisession psychosocial intervention	2 (H 2)	Meader *et al.*, 2010; Meader *et al.*, 2013	Injection risk behaviours Outcome table 34
					Sexual risk behaviours Outcome table 35

Moderate-quality review-level evidence was identified; this evidence suggests that multisession psychosocial interventions aimed at people who inject drugs may have beneficial impacts on sexual risk behaviours (Meader *et al.,* 2013), but not on injection risk behaviours (Meader *et al.,* 2010). Evidence regarding behavioural interventions was limited and was based on small numbers of primary studies: Low-quality evidence suggests that the impact of behavioural interventions is mixed, with the provision of peer education training associated with reduced injecting frequency and injection risk behaviours (Sacks-Davis *et al.,* 2012), but not with changes in prevalence of HCV infection (Hagan *et al.,* 2011; Sacks-Davis *et al.,* 2012). Low-quality review-level evidence indicates that counselling interventions (Sacks-Davis *et al.,* 2012) are not effective in changing injection behaviours and neither counselling interventions (Sacks-Davis *et al.,* 2012) nor motivational interview appear to have an impact on HCV incidence (Hagan *et al.,* 2011).

6.6 Overdose prevention

This section focuses on interventions aiming to reduce the risk from overdose among current drug users, rather than reducing risk through universal drug prevention interventions or increasing access or uptake of drug treatment. Evidence suggests that up to half of all deaths among drug users may be caused by overdose, with individuals who use opioids and those who participate in polydrug identified as being particularly at risk (EMCDDA, 2015e). Almost 70,000 people a year are estimated to die following an opioid overdose (World Health Organization, 2014). In Ireland in 2013, 219 individuals were reported to have died following an opioid overdose (Health Research Board, 2016a).

Currently in Ireland, response to prevent overdose throughout specific training and programmes is limited. Naloxone[7] is an opioid antagonist that quickly reverses opioid intoxication, without significant adverse effects (Boyer, 2012). In the UK, naloxone can be provided to anyone, or to individuals such as family members and friends of drug users, although in practice provision varies between legislative adminsitrations. The provision of naloxone and training in overdose management to individuals who may encounter overdose (such as families and friends of injecting opiate users) is recommended by the World Health Organization, alongside other interventions to reduce risk and drug use, such as access to OST and detoxification (World Health Organization, 2014).

No high-quality reviews were identified that looked at overdose prevention. One review rated medium quality (Clark *et al.,* 2014) was identified that examined opioid overdose prevention programmes and naloxone administration and was included in the absence of high-quality reviews on this topic (Table 11).

7 Further information on naloxone and its role in the management of opioid overdose is available from the EMCDDA: Strang J and McDonald R (2016) *Preventing opioid overdose deaths with take-home naloxone*. European Monitoring Centre for Drugs and Drug Addiction. Luxembourg: Publications Office of the European Union. Available at www.drugsandalcohol.ie/25045/1/Naloxone.pdf

Table 11: Overdose prevention – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People who inject drugs	Community	OOPP with naloxone distribution	1 (M 1)	Clark *et al.,* 2014	Overdose mortality Outcome table 36
					Response to overdose Outcome table 36
					Naloxone administration Outcome table 36

Low-quality review-level evidence suggests that provision of overdose prevention training leads to effective administration of naloxone and appropriate responses to overdose (Clark *et al.*, 2014). Low-quality review-level evidence also suggests that increased provision of overdose prevention training including naloxone distribution is associated with lower opioid-related mortality (Clark *et al.*, 2014). A review published by the EMCDDA (EMCDDA, 2015e) was carried out based largely on the same evidence base as the review by Clark and colleagues. The EMCDDA review corroborates findings presented here and concludes that the provision of overdose prevention training with take-home naloxone appears to be associated with decreasing overdose-related deaths, and improved response to overdose.

6.7 Drug consumption rooms

Drug consumption rooms, also known as supervised drug consumption/injection facilities, are sites where individuals can use illicit drugs under supervision from medical or trained staff. The provision of these facilities aims to ensure the safety of PWID, reduce risk of overdose and BBV transmission and put PWID in contact with health professionals (EMCDDA, 2015f). Such facilities give health professionals the opportunity to provide PWID with materials and advice such as sterile needles and injecting equipment, condoms and referrals to other health services (Kerr and Palepu, 2001).

As of June 2015, there were 74 drug consumption facilities in Europe, with the majority in the Netherlands, Germany, Switzerland and Spain, and examples further afield in Australia and Canada (EMCDDA, 2015f). In Ireland, there are currently no drug consumption rooms available, but there has been debate recently around future provision of these services. Qualitative research undertaken with PWID and experts in the field has suggested that PWID would be likely to use drug consumption rooms in Ireland (O'Shea, 2007) and drug consumption rooms are included in the 2016 Misuse of Drugs Act Amendment Bill. As with interventions that provide needles and other injecting equipment, however, evaluating the impact of these facilities on outcomes such as BBV prevalence may be challenging. For example, when examining outcomes, attributing causality to consumption facilities rather than other interventions may be difficult (EMCDDA, 2015f).

No high-quality reviews were identified that looked at any other type of drug consumption facilities. Consequently, one review rated medium quality was included. It examined the impact of 'safer injecting facilities' on a range of outcomes relating to injection and sexual risks and BBVs (Potier *et al.*, 2014; Table 12).

Table 12: Supervised injection facilities – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People who inject drugs	Community	Drug consumption room availability	1 (M 1)	Potier *et al.*, 2014	Overdose Outcome table 37
					Injection risk behaviours Outcome table 38
					Drug-related litter Outcome table 39
					Injection drug use Outcome table 38

Findings from one review that looked at the provision of drug consumption rooms (Potier *et al.,* 2014) were generally positive, but were inconclusive due to the quality of evidence available. Low-quality review-level evidence suggests that drug consumption rooms are associated with reduced cases of overdose, improved injection risk behaviours and reductions in drug-related litter. No association between drug consumption room access and injecting drug use was reported. Additionally, low-quality evidence suggests that drug consumption rooms are likely to be acceptable to PWID (Potier *et al.,* 2014).

6.8 Route transition interventions

Although use of drugs through any method of administration may be associated with a wide range of harms, injecting drugs is associated with increased risk to health and, in particular, is a significant risk factor for acquisition of BBVs. The risk of premature death is significantly greater among individuals who inject drugs than among the general population (Mathers *et al.,* 2013) and new injectors may be particularly at risk (Carneiro *et al.,* 2000). Effective harm reduction interventions that aim to prevent initiation of injecting drug use are therefore desirable. While this may overlap with prevention programmes designed to reduce initiation of drug use, the focus of this review is on harm reduction among current drug users.

One review rated high quality using the JBI tool that examined the effectiveness of interventions aiming to prevent initiation of injecting drug use was included (Werb *et al.,* 2013; Table 13). The review looked at a range of interventions and phenomena, including two interventions relevant for this review: peer-based behaviour modification and law enforcement to prevent the initiation of injecting drug use.

Low-quality review-level evidence suggests that peer-based behaviour modification interventions (including 'Break the Cycle' which targeted current PWID, and an AIDS education and injecting prevention intervention, which targeted intranasal heroin users) may have positive impacts on injecting initiation. This included current PWIDs injecting in front of non-injectors, willingness to initiate a non-injector and initiation of injection. Low-quality evidence indicates that there is no association between increased police deterrence and initiation of injecting drug use (Werb *et al.,* 2013).

6.9 Interventions to increase uptake of BBV testing

People who inject drugs are at risk of acquiring and transmitting BBVs through the sharing of needles and other injecting equipment, and through risky sexual practices. Frequently, however, large proportions of PWID are unaware of their BBV status and, due to poor engagement with health services, may not have access to testing. In Ireland, numbers of PWID with HIV have decreased in recent years (Health Protection Surveillance Centre, 2014). Data for 2015, however, suggest that the rate of new cases of HIV may be increasing as a result of an outbreak among PWID in the Dublin area (Health Protection Surveillance Centre, 2015). Numbers of PWID in Ireland with hepatitis C are not available, but in the general population prevalence has decreased since 2011. Among the majority (79%) of individuals with hepatitis C, however, the likely risk factor was considered to be injecting drug use (Health Protection Surveillance Centre, 2013). In Ireland, hepatitis C testing and a hepatitis B immunisation programme are widely available in the community.

Table 13: Route transition interventions

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People who inject drugs	Community	Injection initiation prevention	1 (H 1)	Werb *et al.,* 2013	Injection drug use Outcome table 40

Table 14: Blood-borne virus testing – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People who inject drugs	Community	Targeted case finding in primary care	1 (H 1)	Jones *et al.,* 2013	BBV testing uptake Outcome table 41
People who inject drugs	Community, prison	DBST provision	1 (H 1)	Jones *et al.,* 2013	BBV testing uptake Outcome table 41
People who formerly injected drugs	Community	Targeted case finding in primary care	1 (H 1)	Jones *et al.,* 2013	BBV testing uptake Outcome table 41

One review was identified that looked at approaches to increasing awareness and uptake of hepatitis C testing (Jones *et al.,* 2013). The review looked at interventions for 'high-risk' groups including PWID and other groups such as migrant populations and people with mental illness (Table 14). Evidence on PWID was available in interventions which included targeted case finding in primary care, and provision of dried blood spot testing (DBST).

Low-quality review-level evidence suggests that targeted case finding in primary care is associated with increased offering and accepting of testing for hepatitis C among current and former PWID. However, the review authors report that both studies of targeted case findings reported high rates of failure to attend and drop out from HCV treatment services following referral (Jones *et al.,* 2013). Low-quality review-level evidence suggests that offering DBST in drug services and prisons is associated with an increased rate of testing uptake in comparison with services offering venepuncture only, although the review authors note that the intervention effect varied greatly across sites (Jones *et al.,* 2013). Findings in this review were limited by the small number of primary studies available.

6.10 Additional harm reduction approaches

The majority of harm reduction interventions focus on reducing or tackling the risks from injecting drug use, particularly relating to opioid use. However, use of a wide range of other drugs is associated with a variety of acute and long-term harms and it is important therefore to identify and implement harm reduction interventions to reduce these risks.

6.10.1 Harm reduction in recreational settings

Recreational settings such as nightclubs and festivals are associated with use of drugs including ecstasy, amphetamines and new psychoactive drugs, with high proportions of patrons reporting lifetime and recent drug use (Fletcher *et al.,* 2010). Use of these drugs is associated with a range of harms, and in recreational settings risk may be increased through use in combination with other drugs, particularly alcohol. It has been identified that a variety of strategies are involved with effective harm reduction in recreational settings; these include staff training, law enforcement, user/patron prevention and harm reduction interventions (van Hasselt *et al.,* 2012).

Examples of interventions to tackle the harms from illicit drug use in recreational settings include the introduction of guidelines to increase safety in nightlife settings, with objectives such as the provision of free water, outreach education and on-site pill testing (Fletcher *et al.,* 2010). For example, in the Netherlands, pill testing was introduced in 1992 as part of the Drug Information

and Monitoring System (DIMS) project, with the primary aim of reducing the risk of contaminated drugs being used. The provision of pill testing kits in recreational settings such as nightclubs and festivals allows people who use drugs to gain feedback regarding the content and potency of what they are consuming. This approach has been criticised for potentially informing people who use drugs that what they are consuming is 'safe' (van Hasselt *et al.,* 2012), and there remain doubts regarding the accuracy and consistency of commonly used testing equipment (Fletcher *et al.,* 2010).

Two reviews rated medium quality were identified that looked at harm reduction interventions in nightclubs and other licensed premises, but did not provide conclusive evidence regarding the effectiveness of interventions (Akbar *et al.,* 2011; Bolier *et al.,* 2011). The reviews included interventions based around staff training to increase understanding, response to and management of drug use and the effects of drug use among patrons. One review included evidence on the effectiveness of an educational intervention involving the distribution of leaflets and infocards containing information regarding drug risks and harm reduction strategies (Bolier *et al.,* 2011). The review by Akbar and colleagues assessed the types of interventions that have been applied in these settings to reduce polydrug use rather than intervention effectiveness. The review authors reported that interventions were too heterogeneous to allow useful comparisons between the different approaches. The review by Bolier and colleagues included two primary studies that looked at illicit drug use, with the remaining studies focusing on alcohol use. Low-quality review-level evidence suggests that there are no positive or negative impacts resulting from the provision of educational materials in nightlife settings and that an intervention by nightclub doormen may lead to increased refusal of entrance to drug-impaired individuals (Bolier *et al.,* 2014).

No evidence was identified on pill testing kits or similar interventions for inclusion in this review, reflecting the lack of evidence available (at primary or review level) on this approach.

6.10.2 Other interventions and drugs

No reviews were identified that looked at harm reduction interventions aimed at groups such as people who use cannabis or cocaine, or other harm reduction approaches such as mass media campaigns or educational programmes. Additionally, it is noted that no evidence was identified specifically relating to the provision of information through approaches such as leaflets, web-based materials or videos designed to reduce harm among drug users, although this may have formed part of other interventions examined, such as needle and syringe programmes.

6.11 Individuals with BBVs who use illicit drugs

A review in 2011 of the prevalence of BBVs among PWID worldwide suggested that in Ireland, around three-quarters (74.6%) of PWID may have hepatitis C and a minority (17.5%) have hepatitis B (Nelson *et al.,* 2011). However, data from Ireland included in this review were from 2001 and 2003. In the UK, current data indicate that approximately half of PWID in Scotland, England and Wales have been infected with hepatitis C and around two out of five PWID are currently living with the virus (Public Health England, 2015). Lower proportions of PWID in the UK are infected with HIV (1%) and hepatitis B (less than 1%).

In Ireland, there has been a decrease in the number of new cases of HIV among PWID since 2006. Since 2012, however, numbers have increased (Health Protection Surveillance Centre, 2014) and data from 2015 suggest concerns about an HIV outbreak among PWID in Dublin (Health Protection Surveillance Centre, 2015). Similarly, numbers of PWID diagnosed with hepatitis B and hepatitis C have decreased since 2006 in the general population in Ireland (Health Protection Surveillance Centre, 2013). However, among those diagnosed with hepatitis C, the majority of cases were identified as injecting drug users for whom this was the most likely risk factor for their diagnosis. There is a high risk of BBVs among vulnerable groups within the drug-using population in Ireland, such as people who are homeless, are in prison or are involved in sex work.

It is therefore important to identify evidence on interventions to reduce harms among PWID who are living with a BBV, and four reviews were identified in this category (Table 15). This included one review rated high-quality using the JBI tool that looked at interventions to increase treatment uptake and adherence for hepatitis C among PWID (Zanini *et al.,* 2010) and three reviews that looked at interventions for people with HIV (Camp Binford *et al.,* 2012; Malta *et al.,* 2010; Wang *et al.,* 2013). Two reviews rated high quality (Camp Binford *et al.,* 2012; Wang *et al.,* 2013) examined the effectiveness of risk reduction interventions for this population (Wang *et al.,* 2013) and HIV treatment (Camp Binford *et al.,* 2012) and one review rated medium quality was identified that examined an alternative HIV treatment intervention (Malta *et al.,* 2010). The review by Camp Binford and colleagues looked at interventions to improve adherence to HIV combination treatment including direct active antiretroviral therapy (DAART), contingency management and nurse-delivered interventions. The review by Malta and colleagues (2010) looked at the use of highly active antiretroviral therapy (HAART) among the drug-using population.

Table 15: Interventions to increase uptake and adherence to BBV treatment – summary

Population	Setting	Intervention/ treatment	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People living with HIV who inject drugs	Community	Direct active antiretroviral therapy	1 (H 1)	Camp Binford *et al.,* 2012	HIV treatment outcomes Outcome table 42
		Contingency management	1 (H 1)	Camp Binford *et al.,* 2012	HIV treatment outcomes Outcome table 42
		Nurse-delivered interventions	1 (H 1)	Camp Binford *et al.,* 2012	HIV treatment outcomes Outcome table 42
		Highly active antiretroviral therapy (HAART)	1 (M 1)	Malta *et al.,* 2010	HIV treatment outcomes Outcome table 42
		`Risk reduction' interventions	1 (H 1)	Wang *et al.,* 2013	Needle sharing Outcome table 43
				Wang *et al.,* 2013	Drug use Outcome table 43
People living with hepatitis C who inject drugs	Community	Combination treatment with ribavirin plus recombinant, or pegylated interferon-α, for chronic hepatitis C	1 (H 1)	Zanini *et al.,* 2010	HCV treatment outcomes Outcome table 44

6.11.1 People living with HIV

Three reviews were identified that looked at harm reduction approaches for PWID who are living with HIV. One review looked at the effectiveness of 'risk reduction' interventions including case management, guided harm reduction programmes and peer mentoring on drug use outcomes among PWID (Wang *et al.,* 2013). Low-quality review-level evidence suggests that risk reduction interventions for PWID with HIV can be beneficial by reducing drug use (Wang *et al.,* 2013). Findings are limited by a low number of studies and limited outcomes, and heterogeneity in terms of intervention approach.

Two reviews examined the effectiveness and suitability of HIV treatments among PWID (Camp Binford *et al.,* 2012; Malta *et al.,* 2010). Findings were generally positive towards the use of HAART and DAART as appropriate HIV treatment approaches. Low-quality review-level evidence suggests that adherence to HAART among PWID is comparable with adherence among the general population and when delivered in combination with OST leads to greater adherence to treatment than if HAART is used alone (Malta *et al.,* 2010). Low-quality review-level evidence suggests that DAART is associated with improved HIV treatment outcomes among PWID. Evidence is inconsistent on the effectiveness of contingency management and nurse-delivered interventions aimed at increasing treatment adherence (Camp Binford *et al.,* 2012).

6.11.2 People living with Hepatitis C

One review rated high quality using the JBI tool was identified that looked at the effectiveness of combination treatment with ribavirin plus recombinant, or pegylated interferon-α, for chronic hepatitis C among PWID (Zanini *et al.,* 2010). It is suggested that combination treatment for hepatitis C is appropriate for this population, as evidence in this review indicates no significant differences in sustained virological response and treatment drop out among PWID in comparison to people who do not use drugs.

6.12 Individuals in contact with the criminal justice system who use drugs

A range of interventions is available to PWID in prisons in Ireland, including OST and psychosocial interventions, predominantly counselling and motivational interventions. Evidence suggests that among prisoners in Ireland the most commonly used drug is cannabis (past year use 69%), with almost one-third reporting past year use of heroin and cocaine (Drummond *et al.,* 2014). Lifetime injecting drug use prevalence has been estimated at 26%, with 1% of the prison population believed to be current injecting drug users (Drummond *et al.,* 2014). The same study identified that among those who injected drugs, around half had ever shared needles or syringes.

Two reviews were identified that looked at harm reduction interventions delivered in criminal justice settings (Table 16). One review rated high quality looked at a range of HIV risk reduction interventions for people in contact with the criminal justice system in different settings (Underhill *et al.,* 2014). In the majority of primary studies included in this review, study populations included, and in many cases actively recruited, people who used drugs. HIV risk reduction interventions included increasing accessibility to HIV testing, a range of psychosocial interventions and OST. Additionally, one review also rated high quality (Jones *et al.,* 2008) was identified that examined the effectiveness of needle and syringe programmes in prisons, and was included as no reviews published after 2010 examined needle and syringe programme delivery in this setting.

Table 16: Interventions for people in contact with the criminal justice system who use drugs – summary

Population	Setting	Intervention/ treatment	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Prisoners with opioid dependency	Prison	Needle and syringe programmes	1 (H 1)	Jones *et al.*, 2008	Blood-borne viruses Outcome table 45
People in contact with the criminal justice system who use drugs	Prison, community	HIV risk reduction interventions	1 (H 1)	Underhill *et al.*, 2014	Blood-borne viruses Outcome table 46
				Underhill *et al.*, 2014	Injection risk behaviours Outcome table 47
				Underhill *et al.*, 2014	Sexual risk behaviours Outcome table 48
		BBV test intervention	1 (H 1)	Underhill *et al.*, 2014	Blood-borne virus testing Outcome table 49

6.12.1 HIV risk reduction

Moderate-quality review-level evidence indicates that improving accessibility to HIV testing through offering on-site testing in probation and immediate next day testing in prison is associated with increased uptake of HIV testing (Underhill *et al.*, 2014). A range of HIV risk reduction interventions were examined for effectiveness on drug and sexual risk behaviours, and evidence suggests that for the majority of interventions, findings were either inconclusive or suggest no intervention effect on a range of outcomes (Underhill *et al.*, 2014). The provision of OST was included in the review and was associated with positive outcomes: this is explored further in the treatment strand of this review of reviews.

6.12.2 Needle and syringe programmes

Low-quality review-level evidence indicates that prison-based distribution of injecting equipment through needle and syringe programmes may have benefits on BBV incidence (Jones *et al.*, 2010). However, the evidence was from two uncontrolled studies and, as a result, it is difficult to draw any conclusions about effectiveness.

6.13 Sex workers who use drugs

When compared with sex workers who do not inject drugs, sex workers who also inject drugs appear to be at risk of poor health outcomes, including HIV and participation in risky injecting and sexual behaviours (Ditmore, 2013). Furthermore, many individuals may enter sex work as a means to fund their drug use (Jeal and Salisbury, 2004). In Ireland, research on drug use among sex workers is limited, but suggests high levels of drug use, injection drug use and BBVs among this population (Cox and Whitaker, 2009; Nelson *et al.*, 2010). The potential benefits of harm reduction services for reducing both risky sexual and drug use behaviours among sex workers are clear, but it is suggested that accessing services and interventions can be particularly difficult for this population due to the stigma and laws regarding both drug use and sex work (Ditmore, 2013).

One review rated high quality using the JBI tool was identified (Abad *et al.*, 2015) and examined harm reduction interventions for sex workers (Table 17).

Table 17: Interventions for sex workers who use drugs – summary

Population	Setting	Intervention/ treatment	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
Female sex workers who use drugs	Community	Harm reduction interventions	1 (H 1)	Abad *et al.,* 2015	Sexual risk behaviours Outcome table 50
				Abad *et al.,* 2015	Drug risk behaviours Outcome table 50

One review rated high quality using the JBI tool was identified that looked at a range of harm reduction interventions, which were typically based on HIV or sexually transmitted infection (STI) and drug use prevention education that targeted sex workers who use drugs. Low-quality review-level evidence was mixed and inconclusive on the effectiveness of these interventions on risk behaviours relating to sex and drug use among sex workers (Abad *et al.,* 2015). Evidence in the review was limited by the lack of high-quality, robust studies within this population and it is not possible to draw conclusions on the effectiveness of these interventions. Additionally, evidence from one article not included in this review (Jones *et al.,* 2014) identified one study that examined a peer-led mobile outreach programme among female sex workers who use drugs. The authors reported that use of the programme was associated with use of addiction treatment services and a drug and alcohol counsellor. It suggests that outreach services may be an effective approach for increasing access to treatment among this population, although further evidence is required before conclusions can be drawn.

6.14 Key messages – Harm reduction interventions

Needle and syringe programmes

The review-level evidence is low quality and inconclusive regarding the impact of needle and syringe programmes in community and prison settings, although the evidence suggests that they may be associated with reductions in harms, including transmission of blood-borne viruses and sharing of injecting equipment. Needle and syringe programmes appear to have a greater impact when delivered in combination with opioid substitution therapy, and this is associated with reduced harms for people who inject drugs, including risk of blood-borne virus infection and risky injection behaviours.

Psychosocial and behavioural interventions

Evidence on the effectiveness of psychosocial and behavioural interventions for reducing harms related to drug use is mixed. There is insufficient evidence to assess the effectiveness of individual psychosocial interventions on reducing harms. There is low-moderate quality review level-evidence that multisession psychosocial interventions and peer education training may be associated with some reductions in harms among people who inject drugs. Low-quality review-level evidence suggests that peer-based interventions targeting people who inject drugs and intranasal heroin users may also be effective in reducing initiation of injecting, although this evidence is based on a small number of primary studies.

Overdose prevention (including naloxone distribution)

The provision of opioid overdose prevention training with take-home naloxone is supported only by low-quality review-level evidence. It may be associated with reduced overdose mortality among people who inject drugs and improved response to overdose.

Drug consumption rooms

A combination of low- and moderate-quality evidence indicates that drug consumption rooms appear likely to be acceptable to people who inject drugs. They may be associated with reduced sharing and reuse of syringes and reduced drug-related litter, and not associated with increases in injecting drug use.

Blood-borne virus treatments for people who inject drugs

Low-quality review-level evidence suggests that effective treatment options for people with HIV and hepatitis C are suitable for people who inject drugs. This includes highly active antiretroviral therapy and direct antiretroviral therapy for people with HIV and combination treatment with ribavirin plus recombinant, or pegylated interferon-α, for chronic hepatitis C.

Drugs other than opioids

There is insufficient evidence to draw conclusions on the effectiveness of harm reduction interventions targeting populations other than people who inject drugs. For example, there is a need for high-quality research on the impact of harm reduction delivered in recreational, festival or nightlife settings such as analytical chemistry approaches (`drug checking') or harm reduction information provision.

7 Treatment and recovery

In this section, evidence is presented on the effectiveness of treatments for drug misuse and dependence. Findings on evidence of interventions to support recovery and reintegration are also included in this section. However, as noted in Section 7.6, we found no suitable review-level evidence for inclusion in this type of intervention approach.

7.1 Review articles included in this review

In total, 62 systematic reviews were included in the treatment and recovery strand of this review. A summation of the evidence identified is provided in Table 18. This included six reviews published before 2010 and 56 published between 2010 and 2015. Reviews published before 2010 were only included where they filled an important gap in the evidence; for example, no high-quality reviews published after 2010 were available on the effectiveness of methadone maintenance.

The evidence that was identified was grouped into the following main types of treatment or recovery interventions:

- Pharmacological treatments for opiate use
- Pharmacological treatments for stimulant use
- Pharmacological treatments for cannabis use
- Psychosocial interventions
- Residential rehabilitation
- Treatments focusing on recovery and re-integration
- Treatment interventions delivered within the criminal justice system
- Treatment interventions for people with drug use problems and co-occurring mental illness
- Treatment interventions for pregnant and parenting women

Additionally, evidence was identified on physical activity and acupuncture-based interventions and these are discussed under 'other treatment approaches'.

7.2 Quality of included reviews

Initially, only reviews that scored 8 or higher, and included assessment of primary-level evidence quality, were included in this review. For the treatment strand of the review, 52 reviews published since 2010 and six published before 2010 met these criteria. Additionally, three studies published after 2010 and rated 'medium' quality, and one review rated 'low' quality on the JBI quality assessment tool were included where missing or scarce evidence was identified on relevant intervention types. Review scores on the JBI assessment are provided in the summary of reviews identified (Table 18) and full details of quality assessment for each review are presented in Appendix 4 (Section 11.4).

Table 18: Summary of reviews identified

Citation	Treatment intervention details	Population details	Number of studies included	Location	JBI score for review quality
Alvarez *et al.*, 2013	Pharmacological treatment using antipsychotics	Cocaine dependents	12	USA n=12	10
Amato *et al.*, 2013	Tapered methadone for managing opioid withdrawal	Opiate dependents	23	USA = 6; UK = 7; Spain = 4; China n=2; Iran n=2; Germany n=2; Austria n=1; Italy n=1	10
Amato *et al.*, 2011b	Psychosocial treatment plus agonist maintenance treatment for relapse prevention	Opiate dependents	35	UK n=31; Germany n=1; Malaysia n=1; China n=1; Scotland n=1	9
Amato *et al.*, 2011a	Psychosocial plus pharmacological treatment for opioid detoxification	Opiate dependents	11	USA n=10; UK n=11	9
Bender *et al.*, 2011	Range of psychosocial interventions	Adolescent cannabis users	15	Not reported	9
Benishek *et al.*, 2014	Contingency management	Drug dependents	18	USA n=17; China n=1	10
Blodgett *et al.*, 2014	Continuing care	People in recovery	33	Not reported	7
Boyuan *et al.*, 2014	Acupuncture	Opiate dependents	16	Not reported	8
Castells *et al.*, 2010	Pharmacological treatment using psychostimulants	Cocaine dependents	16	USA n=15; Australia n=1	10
Chiesa and Serretti, 2014	Mindfulness-based interventions	People with drug misuse	24	Not reported	9
Cooper *et al.*, 2015	Range of psychosocial interventions	Adult cannabis users	33	USA n=13; Australia n=7; Germany n=3; Brazil n=2; Canada n=2; Switzerland n=2; multi-country n=2; Denmark and Ireland=1	10
Ferri *et al.*, 2011	Heroin maintenance	Opiate dependents with previous treatment failures	8	Netherlands n=2; UK n=2; Canada n=1; Germany n=1; Spain n=1; Switzerland n=1	10
Ferri *et al.*, 2013	Slow-release oral morphine maintenance	Opiate dependents	3	Austria n=2; Australia n=1	10
Filges 2015a	Multidimensional family therapy	Adolescent drug users	5	USA n=4; Belgium n=1; France n=1; Germany n=1; Switzerland n=2	9
Filges 2015b	Cognitive behavioural therapy	Adolescent drug users	7	USA n=6; Netherlands n=1	10

Table 18 (continued): Summary of reviews identified

Citation	Treatment intervention details	Population details	Number of studies included	Location	JBI score for review quality
Gowing *et al.*, 2009a	Opioid detoxification – buprenorphine	Opiate dependents	22	USA n=12; Germany n=3; UK n=1; Australia n=1; India n=1; Iran n=1; Israel n=1; Italy n=1; Switzerland n=1	10
Gowing *et al.*, 2009b	Opioid detoxification – opioid antagonists	Opiate dependents	9	USA n=3; UK n=3; Italy n=2; Australia n=1	10
Gowing *et al.*, 2011	Pharmacological – maintenance	Opiate dependents	38	USA n=26; Australia n=3; UK n=3; Italy n=1; Germany n=1; Canada n=1; Malaysia n=1; Ukraine n=1	10
Gowing *et al.*, 2014	Alpha-adrenergic agonists for management of the acute phase of opioid withdrawal	Opiate withdrawers	25	USA n=5; Spain n=5; UK n=4; Italy n=3; China n=2; Australia n=1; India n=1; Switzerland n=1; Taiwan n=1; Germany n=1; Hungary n=1	9
Hayhurst *et al.*, 2015	Diversion interventions	Drug-dependent prisoners	16	USA n=11; UK n=4; Canada n=1; Australia n=1	10
Hedrich *et al.*, 2012	Opioid substitution therapy	Opiate-dependent prisoners (pre- and post- release)	21	North America n=10; Australia n=5; France n=2; Spain n=2; Iran n=2	8
Hunt *et al.*, 2013	Psychosocial interventions	Individuals with severe mental illness and co-occurring drug use	32	USA n=19; Australia n=6; UK n=3; Denmark n=1; Germany n=1; Ireland n=1; Switzerland n=1	9
Jegu *et al.*, 2011	Slow-release oral morphine maintenance	Opiate dependents	13	Austria n=7; Australia n=3; Bulgaria n=1; India n=1; Slovenia n=1	9
Larney *et al.*, 2010	Opioid substitution treatment in prison in reducing HIV risk behaviours	Opiate-dependent prisoners	5	Iran n=1; Australia n=1; Canada n=1; Puerto Rico n=1	8
Larney *et al.*, 2014	Pharmacological – naltrexone	Opiate dependents	9	Not reported	9
Lee *et al.*, 2015	Psychosocial interventions	Adults with borderline personality disorder and co-occurring drug use disorder	10	Not reported	9
Lindstrom *et al.*, 2015	Family behaviour therapy	Adolescent cannabis users	2	USA n=2	10

Table 18 (continued): Summary of reviews identified

Citation	Treatment intervention details	Population details	Number of studies included	Location	JBI score for review quality
MacArthur *et al.*, 2012	Opioid substitution therapy	Opiate injectors	14	USA n=10; Australia n=3; Israel n=1	8
Malivert *et al.*, 2012	Residential therapeutic communities	Drug misusers	12	USA n=7; Canada n=2; Australia n=2; Peru n=1; Spain n=1	4
Marshall *et al.*, 2014	Pharmacotherapy for cannabis use	Cannabis dependents	14	USA n=10; Australia n=3; Israel n=1	9
Mattick *et al.*, 2009	Pharmacological – maintenance treatments	Opiate dependents	11	USA n=7; Sweden n=1; Australia n=1; Hong Kong n=1; Thailand n=1	10
Mattick *et al.*, 2014	Pharmacological – buprenorphine maintenance	Opiate dependents	31	North America n=15; Europe n=9; Middle East n=4; Australia n=2; Asia n=2	10
Milligan *et al.*, 2011	Integrated treatment programmes	Pregnant or parenting women	9	Not reported	9
Milligan *et al.*, 2010	Integrated treatment programmes	Pregnant or parenting women	21	Not reported	9
Minozzi *et al.*, 2011	Pharmacological treatment using naltrexone	Opiate dependents	13	USA n=4; Israel n=2; Russia n=2; Germany n=1; Italy n=1; Spain n=1; Malaysia n=1; China n=1	10
Minozzi *et al.*, 2013	Pharmacological – methadone maintenance	Opiate-dependent pregnant women	4	Australia n=2; USA n=1; multi-country n=1	9
Minozzi *et al.*, 2014	Detoxification treatment alone or in combination with a psychosocial intervention	Opiate dependents	2	USA n=2	10
Minozzi *et al.*, 2015a	Pharmacological treatment using dopamine agonists	Cocaine dependents	24	USA n=22; Spain n=1; Brazil n=1	10
Minozzi *et al.*, 2015b	Pharmacological treatment using anticonvulsants	Cocaine dependents	20	USA n=18; Mexico n=1; Netherlands n=1	10
Mitchell *et al.*, 2012	Range of interventions	Drug-using offenders	74	USA n=65; Canada n=4; Australia n=3; UK n=1; Taiwan n=1	10
National Collaborating Centre For Mental Health, 2008	Range of interventions	Drug misusers	Not reported	Not reported	9
Pani *et al.*, 2010	Pharmacological treatment using disulfiram	Cocaine dependents	7	USA n=7	10
Pani *et al.*, 2011	Pharmacological treatment using antidepressants	Cocaine dependents	37	USA n=37	10

Table 18 (continued): Summary of reviews identified

Citation	Treatment intervention details	Population details	Number of studies included	Location	JBI score for review quality
Perez-Mana *et al.*, 2011	Pharmacological treatment using indirect dopamine agonists	Psychostimulant dependents	11	USA n=7; Australia n=2; Sweden n=1; Finland n=1	10
Perez-Mana *et al.*, 2013	Pharmacological treatment using psychostimulants	Psychostimulant dependents	29	USA n=26; Australia n=2; Finland n=1	10
Perry *et al.*, 2009	Therapeutic communities in prison	Drug-using offenders	24	USA n=23; Australia n=1	8
Perry *et al.*, 2015a	Range of interventions	Drug-using offenders with co-occuring mental illness	9	USA n=9	10
Perry *et al.*, 2015b	Range of psychosocial interventions	Female offenders	9	USA n=8; Spain n=1	10
Perry *et al.*, 2015c	Pharmacological treatment – opioid substitution therapy	Opiate-dependent offenders	14	USA n=9; England n=2; Iran, Australia, Germany, Norway n=1	10
Rapp *et al.*, 2014	Case management	People with drug dependency	31	Not reported	10
Reif *et al.*, 2014a	Peer recovery coaching	People in recovery	11	Not reported	9
Reif *et al.*, 2014b	Recovery housing	People in recovery	10	All USA	7
Roberts *et al.*, 2015	Range of psychosocial interventions	People with trauma and co-occurring drug misuse	14	USA n=12; Australia n=2	9
Shonin *et al.*, 2013	Mindfulness interventions	Prisoners	8	USA n=7; Taiwan n=1	9
Smedslund *et al.*, 2011	Motivational interview	Drug misusers	59	USA n=44; Australia n=5; Netherlands n=3; UK n=3; Canada n=2; Germany n=1; New Zealand n=1	10
Terplan *et al.*, 2015	Contingency management and motivational interviewing	Pregnant and parenting women	14	USA n=13; Australia n=1	9
Torchalla *et al.*, 2012	Integrated treatment programmes	People with trauma and co-occurring drug misuse	17	Not reported (primarily USA)	8
Turnbull and Osborn, 2012	Home visits	Pregnant and parenting women	7	Not reported	9
Vanderplasschen *et al.*, 2013	Residential therapeutic communities	People in recovery	30	USA n=30	7
Wang *et al.*, 2014	Physical activity	Opiate dependents	22	Not reported	8
Watson *et al.*, 2013	Brief interventions in outpatient settings	Drug misusers	2	USA n=2	10
Zgierska *et al.*, 2009	Mindfulness-based interventions	Drug misusers	25	Not reported	9

7.3 Pharmacological treatments

7.3.1 Opioids

The most recent study of its kind estimated that there are 20,790 opioid users in Ireland (Kelly *et al.,* 2006) and heroin is the most common primary drug of clients entering drug treatment, with around 4,000 cases in Ireland in 2013 (Health Research Board, 2016b). Three pharmacological treatment types for opioids were identified in this review: opioid maintenance, opioid detoxification and relapse prevention. In addition, evidence was identified on the delivery of opioid maintenance and opioid detoxification alongside psychosocial interventions.

Opioid maintenance

Opioid maintenance treatments aim to minimise the harms related to opioid use and to reduce illicit drug use through the replacement of an illegal opioid with a prescribed alternative medicine. The opioid agonist methadone has been the primary substitute treatment provided in Ireland since 1992 and is the recommended treatment, although buprenorphine is an available alternative and suggested for use in the 2009–2016 Drugs Strategy. In the UK, both methadone and buprenorphine, using flexible dosing regimens, are recommended by NICE as options for OST. In Ireland, around 10,000 individuals received OST in 2014, the number having increased substantially through the preceding decade (EMCDDA, 2015d). In almost all cases, methadone has been the substitute treatment provided, although in recent years a small proportion of cases have received buprenorphine.

Detoxification

Detoxification is the process through which individuals who wish to become drug-free eliminate opioids from their body while minimising the risk of unpleasant withdrawal symptoms. Different pharmacological agents are used as detoxification agents to ameliorate symptoms associated with withdrawal. For example, in the UK, methadone and buprenorphine are recommended for use as detoxification agents by NICE. In Ireland, opioid detoxification is provided in a range of both inpatient and outpatient settings including detoxification units, residential treatments and general practitioners (EMCDDA, 2016b).

Relapse prevention

Many individuals who attempt to abstain from using drugs may relapse during or following drug treatment. Relapse prevention interventions are designed to prevent this process. For example, in the UK, NICE recommends naltrexone as a treatment option in detoxified, formerly opioid-dependent people who are highly motivated to remain in an abstinence programme.

Evidence was identified in 12 reviews on these intervention types and the various pharmacological agents are summarised in Table 19.

Table 19: Pharmacological treatments for opiate use – summary

Population	Setting	Intervention/ treatment	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People with opioid dependence	Community	OST	Methadone	1 (H 1)	Mattick *et al.*, 2009	Retention in treatment Outcome table 51
				1 (H 1)	Mattick *et al.*, 2009	Illicit opioid use Outcome table 52
				1 (H 1)	Mattick *et al.*, 2009	Criminal activity Outcome table 54
				1 (H 1)	Mattick *et al.*, 2009	Mortality Outcome table 55
			Buprenorphine	1 (H 1)	Mattick *et al.*, 2014	Retention in treatment Outcome table 51
				1 (H 1)	Mattick *et al.*, 2014	Illicit opioid use Outcome table 52
				1 (H 1)	Mattick *et al.*, 2014	Illicit drug use (non-opioid) Outcome table 53
				1 (H 1)	Mattick *et al.*, 2014	Criminal activity Outcome table 54
			Supervised injectable heroin and methadone	1 (H 1)	Ferri *et al.*, 2011	Retention in treatment Outcome table 51
				1 (H 1)	Ferri *et al.*, 2011	Illicit opioid use Outcome table 52
				1 (H 1)	Ferri *et al.*, 2011	Mortality Outcome table 55
				1 (H 1)	Ferri *et al.*, 2011	Adverse events Outcome table 56
				1 (H 1)	Ferri *et al.*, 2011	Criminal activity Outcome table 54

Table 19 (continued): Pharmacological treatments for opiate use – summary

Population	Setting	Intervention/ treatment	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People with opioid dependence	Community	OST in combination with psychosocial interventions	Agonist treatment	1 (H 1)	Amato *et al.*, 2011b	Retention in treatment Outcome table 57
				1 (H 1)	Amato *et al.*, 2011b	Abstinence Outcome table 58
		Opioid detoxification	Methadone	1 (H 1)	Amato *et al.*, 2013	Completion of treatment Outcome table 59
				1 (H 1)	Amato *et al.*, 2013	Abstinence Outcome table 60
			Buprenorphine	1 (H 1)	Gowing *et al.*, 2009a	Completion of treatment Outcome table 59
			Alpha2 adrenergic agonist	1 (H 1)	Gowing *et al.*, 2014	Completion of treatment Outcome table 59
				1 (H 1)	Gowing *et al.*, 2014	Withdrawal severity Outcome table 61
			Opioid antagonists	1 (H 1)	Gowing *et al.*, 2009b	Completion of treatment Outcome table 59
				1 (H 1)	Gowing *et al.*, 2009b	Withdrawal severity Outcome table 61

Table 19 (continued): Pharmacological treatments for opiate use – summary

Population	Setting	Intervention/ treatment	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Reference citations	Outcome Outcome table reference
People with opioid dependence	Community	Opioid detoxification in combination with psychosocial interventions	Not specified	1 (H 1)	Amato *et al.*, 2011a	Dropout of treatment Outcome table 62
				1 (H 1)	Amato *et al.*, 2011a	Illicit opioid use Outcome table 63
		Relapse prevention	Oral naltrexone	1 (H 1)	Minozzi *et al.*, 2011	Retention in treatment Outcome table 64
				1 (H 1)	Minozzi *et al.*, 2011	Abstinence Outcome table 65
				1 (H 1)	Minozzi *et al.*, 2011	Reincarceration Outcome table 67
			Naltrexone implants	1 (H 1)	Larney *et al.*, 2014	Retention in treatment Outcome table 64
				1 (H 1)	Larney *et al.*, 2014	Abstinence Outcome table 65
				1 (H 1)	Larney *et al.*, 2014	Illicit opioid use Outcome table 66
People with opioid dependence and a recent history of IDU	Community	Opioid maintenance	Not specified	1 (H 1)	Gowing *et al.*, 2011	Illicit opioid use Outcome table 68
				1 (H 1)	Gowing *et al.*, 2011	Injecting drug use Outcome table 69
				1 (H 1)	Gowing *et al.*, 2011	Injecting risk behaviours Outcome table 69
				1 (H 1)	MacArthur *et al.*, 2012	HIV incidence Outcome table 70

Opioid maintenance

Six systematic reviews rated high quality using the JBI tool examined the effects of OST (Ferri *et al.,* 2011; Mattick *et al.,* 2009; Mattick *et al.,* 2014; Gowing *et al.,* 2011; MacArthur *et al.,* 2012). No high-quality evidence was initially identified that examined the effects of methadone maintenance treatment, and therefore one high-quality review from 2009 was included as a result (Mattick *et al.,* 2009).

High-quality review-level evidence from randomised controlled trials (RCTs) supports the use of methadone rather than non-pharmacological treatments for reducing use of illicit opioids and for treatment retention, but not for other outcomes, including reducing crime or mortality (Mattick *et al.,* 2014). Non-RCT evidence shows positive effects of OST on mortality, however. Moderate-quality review-level evidence suggests that buprenorphine is as effective as methadone in reducing use of opioids, but less effective for treatment retention (Mattick *et al.,* 2014). Additionally, moderate-quality review-level evidence suggests that among recent injectors use of either methadone and buprenorphine is effective in reducing opioid use and injecting risk behaviours (Gowing *et al.,* 2011). One review looked at risk of HIV infection and moderate-quality review-level evidence suggests that both methadone and buprenorphine are effective in reducing the risk of HIV infection (MacArthur *et al.,* 2012).

Moderate-quality review-level evidence suggests that prescribing injectable heroin alongside oral methadone may have benefits for increasing treatment retention and for reducing illicit heroin use and mortality, but may lead to increased risk of experiencing adverse treatment events (Ferri *et al.,* 2011). Review authors conclude that injectable heroin prescription should be considered for those individuals who have not responded to maintenance treatment. Two reviews examined the use of slow-release oral morphine for OST (Ferri *et al.,* 2013; Jegu *et al.,* 2011). In both reviews, authors concluded that due to the lack of controlled trials using slow-release oral morphine it was not possible to assess its effectiveness for OST although treatment retention appeared similar to other maintenance therapies.

Additionally, one review was identified that examined OST (including methadone, buprenorphine and Levo-α-acetylmethadol (LAAM) delivered in combination with psychosocial interventions (Amato *et al.,* 2011b). High-quality review-level evidence indicates that no benefits derive from combining more structured psychosocial or behavioural interventions and OST, as opposed to using OST delivered with standard psychosocial support on outcomes including abstinence and treatment retention.

Opioid detoxification

Four systematic reviews rated high quality using the JBI tool examined the effects of opioid detoxification (Amato *et al.,* 2013; Gowing *et al.,* 2009a; Gowing *et al.,* 2009b; Gowing *et al.,* 2014). The two reviews published before 2010 were included to take account of evidence on buprenorphine (Gowing *et al.,* 2009b) and opioid antagonists (Gowing *et al.,* 2009a).

High-quality review-level evidence suggests that there is no difference between methadone and other pharmacological agents, including buprenorphine, in terms of detoxification completion or achieving abstinence (Amato *et al.,* 2013; Gowing *et al.,* 2009a). When compared with placebo treatment, detoxification with methadone is associated with reduced treatment drop outs and withdrawal (Amato *et al.,* 2013). Moderate-quality review-level evidence suggests that alpha2-adrenergic agonists are less effective than reducing doses of methadone in reducing symptoms of withdrawal (Gowing *et al.,* 2014). Low-quality review-level evidence limits any conclusions that can be reached about the overall effectiveness of opioid antagonists combined with alpha2-adrenergic agonists in opioid detoxification (Gowing *et al.,* 2009b).

One review rated high quality was identified that examined the delivery of detoxification treatments combined with psychosocial interventions on opiate use and treatment outcomes (Amato *et al.,* 2011a). The evidence suggests that detoxification and psychosocial treatments combined are more effective than pharmacological treatments delivered alone for opiate use, opiate abstinence and treatment completion.

Relapse prevention

Two systematic reviews examined the effects of naltrexone (Larney *et al.,* 2014; Minozzi *et al.,* 2011). Low- quality review-level evidence suggests that abstinence is more likely to be maintained with naltrexone implants than either placebo implants or treatment with oral naltrexone (Larney *et al.,* 2014). Low-quality review-level evidence suggests that oral naltrexone is no more effective in maintaining abstinence than treatment with placebo or no pharmacological treatment (Minozzi *et al.,* 2011).

7.3.2 Stimulants

In Ireland, there are around 600 cases of treatment for cocaine use annually and numbers have remained steady overall since 2005 (EMCDDA, 2015d). Cocaine is the second most prevalent drug after cannabis, with 1.5% of the population reporting use in the past year and 0.5% within the past month (National Advisory Committee on Drugs and Alcohol, 2012). Stimulants other than cocaine, such as amphetamines and methamphetamine, are used by a small proportion of the population and only a small number of treatment cases have been recorded. For example, in 2013, there were 130 cases of stimulant treatment (EMCDDA, 2015d). Although the use of OST and other pharmacological treatments for opiate use is well supported, pharmacological agents are less prominent in the treatment of other illicit drugs. There is a growing evidence base on the effectiveness of pharmacological agents for the treatment of stimulants.

Eight high-quality reviews were identified for inclusion in this review. These examined the effectiveness of a range of pharmacological agents, including those delivered alongside psychosocial interventions, in the treatment of stimulant use (Table 20). They included six reviews that looked at cocaine dependence and two reviews that looked at amphetamine dependence. There was some overlap between the types of pharmacological agent examined in the eight reviews identified and, as a result, there was overlap in terms of primary studies that provided the evidence in the included reviews. Out of 164 articles reporting findings from primary studies included across the reviews, there were 124 unique articles.

Table 20: Pharmacological treatments for stimulants – summary

Population	Setting	Intervention/ treatment	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Outcome table reference
People with cocaine dependence	Community/ outpatient	Pharmacological treatments alone	Dopamine agonists	1 (H 1)	Minozzi *et al.*, 2015a	Cocaine abstinence Outcome table 71
					Minozzi *et al.*, 2015a	Cocaine craving Outcome table 73
					Minozzi *et al.*, 2015a	Drop out during treatment Outcome table 75
					Minozzi *et al.*, 2015a	Adverse events during treatment Outcome table 78
People with cocaine dependence	Community/ outpatient	Pharmacological treatments alone	Anticonvulsants	1 (H 1)	Minozzi *et al.*, 2015b	Cocaine use Outcome table 72
					Minozzi *et al.*, 2015b	Cocaine craving Outcome table 73
					Minozzzi *et al.*, 2015b	Drop out during treatment Outcome table 75
					Minozzi *et al.*, 2015b	Treatment compliance Outcome table 77
					Minozzi *et al.*, 2015b	Adverse events during treatment Outcome table 78
					Minozzi *et al.*, 2015b	Anxiety Outcome table 79
					Minozzi *et al.*, 2015b	Depression Outcome table 80
People with cocaine dependence	Community/ outpatient	Pharmacological treatments alone	Pyschostimulants	1 (H 1)	Castells *et al.*, 2010	Cocaine use Outcome table 72
					Castells *et al.*, 2010	Cocaine abstinence Outcome table 71
					Castells *et al.*, 2010	Cocaine craving Outcome table 73
					Castells *et al.*, 2010	Treatment completion Outcome table 76
					Castells *et al.*, 2010	Drop out during treatment Outcome table 75
					Castells *et al.*, 2010	Depression Outcome table 80

Table 20 (continued): Pharmacological treatments for stimulants – summary

Population	Setting	Intervention/ treatment	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Outcome table reference
People with cocaine dependence	Community/ outpatient	Pharmacological treatments alone	Antipsychotics	1 (H 1)	Alvarez *et al.*, 2013	Cocaine use Outcome table 72
					Alvarez *et al.*, 2013	Cocaine craving Outcome table 73
					Alvarez *et al.*, 2013	Drop out during treatment Outcome table 75
			Disulfiram	1 (H 1)	Pani *et al.*, 2010	Cocaine use Outcome table 72
					Pani *et al.*, 2010	Cocaine abstinence Outcome table 71
					Pani *et al.*, 2010	Drop out during treatment Outcome table 75
People with cocaine dependence	Community/ outpatient	Pharamcological treatment alone or with psychosocial intervention	Antidepressants	1 (H 1)	Pani, 2011	Cocaine abstinence Outcome table 71
					Pani, 2011	Cocaine use Outcome table 72
					Pani, 2011	Cocaine craving Outcome table 73
					Pani, 2011	Treatment retention Outcome table 74
					Pani, 2011	Drop out during treatment Outcome table 75
					Pani, 2011	Depression Outcome table 80
People with cocaine dependence	Community/ outpatient	Pharmacological treatment plus psychostimulant	Indirect dopamine agonists	1 (H 1)	Perez-Mana *et al.*, 2011	Cocaine abstinence Outcome table 71
					Perez-Mana *et al.*, 2011	Treatment retention Outcome table 74

Table 20 (continued): Pharmacological treatments for stimulants – summary

Population	Setting	Intervention/ treatment	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Outcome table reference
People with amphetamine dependence	Community	Psychostimulants plus psychosocial intervention	Psychostimulants	1 (H 1)	Perez-Mana *et al.,* 2013	Amphetamine use Outcome table 82
					Perez-Mana *et al.,* 2013	Psychostimulant abstinence Outcome table 81
					Perez-Mana *et al.,* 2013	Amphetamine craving Outcome table 83
					Perez-Mana *et al.,* 2013	Drop outs during treatment Outcome table 84
		Pharmacological treatment plus psychostimulant	Indirect dopamine agonists	1 (H 1)	Perez-Mana *et al.,* 2011	Psychostimulant abstinence Outcome table 81
					Perez-Mana *et al.,* 2011	Treatment retention Outcome table 85

Cocaine

There were seven reviews identified and rated high quality using the JBI tool that examined the effectiveness of treatments for cocaine dependence. Six reviews looked at the impact of treatments using a range of overlapping pharmacological agents including dopamine agonists (Minozzi *et al.,* 2015a), indirect dopamine agonists (Perez-Mana *et al.,* 2011), anticonvulsants (Minozzi *et al.,* 2015b), psychostimulants (Castells *et al.,* 2010), antipsychotics (Alvarez *et al.,* 2013), antidepressants (Pani *et al.,* 2011) and disulfiram (Pani *et al.,* 2010).

Low-moderate quality review-level evidence indicates that pharmacological treatments for cocaine dependence included in these reviews, delivered alone or alongside other interventions, were ineffective in comparison to other treatments including placebo, alternative medication or no treatment for a range of outcomes including cocaine use, abstinence, treatment outcomes and mental health symptoms. No consistent evidence was identified to support the use of any one type of pharmacological treatment. Findings were limited by the high risk of bias identified within the reviews regarding many primary studies.

Amphetamines

Two reviews rated high quality using the JBI tool were identified that examined the effectiveness of pharmacological treatments for amphetamine or methamphetamine dependence (Perez-Mana *et al.,* 2013; Perez-Mana *et al.,* 2011). In one review, psychostimulants delivered in combination with psychosocial interventions were examined (Perez-Mana *et al.,* 2013) and low-moderate quality review-level evidence indicates that no benefits from this approach were found for treatment or drug use outcomes. In one review, indirect dopamine agonists delivered alongside psychotherapy were examined and low-quality review-level evidence indicates that treatment is not effective for abstinence or treatment retention outcomes (Perez-Mana *et al.,* 2011).

7.3.3 Cannabis

Cannabis is the most used illicit drug in Ireland and worldwide. The latest data on prevalence of drug use suggest that 6% of the population in Ireland used cannabis in the previous year (National Advisory Committee on Drugs and Alcohol, 2012), and the rate of cannabis dependence and abuse is estimated at 0.6% and 1.3% respectively (National Advisory Committee on Drugs and Alcohol, 2013). The data suggest that risk is highest among males and younger adults with lifetime cannabis use. Among 15–16 year-olds, use is estimated at 22% for boys and 15% for girls (Hibell *et al.,* 2011). Treatment data indicate that in 2014 there were over 2,500 cases of individuals entering treatment for cannabis in Ireland, with the number of cases more than doubling over the preceding decade (EMCDDA, 2015b).

Relapse following treatment for cannabis use is common and may be linked to recognised symptoms of withdrawal during treatment for cannabis dependence. The identification of pharmacological treatments to reduce withdrawal during treatment is therefore important, but there is little consistent evidence supporting the use of any medication for this purpose. One review rated high quality was identified in this review that looked at the effectiveness of a range of pharmacological agents for people with cannabis dependence (Marshall *et al.,* 2014; Table 21). Treatments included THC preparations, mixed-action antidepressants, SSRI antidepressants, anticonvulsants with mood stabilisers, buspirone, atomoxetine and N-acetylcysteine.

The evidence identified was limited due to the small amount and low quality of primary evidence available (Table 21). Outcomes for each treatment agent were examined in one or two primary studies only, and sample sizes across these studies were small and the quality of review-level evidence was rated moderate or low for all outcomes. While no evidence was identified to support the use of pharmacological treatments for cannabis dependence, there was evidence to suggest that treatment with a range of pharmacological agents was no more effective than placebo in treatment for cannabis dependence on outcomes including abstinence, adverse treatment effects and withdrawal from treatment due to adverse effects.

7.4 Psychosocial and motivational treatments

It is important not only to address the physiological elements of drug misuse but also the many psychosocial factors, such as a person's beliefs, attitudes, motivations and emotions, that significantly contribute to and maintain drug misuse. Behavioural and psychosocial interventions are recommended to people who use a range of drugs to treat their drug use and support long-term recovery (World Health Organization, 2009). In some cases, this can be in addition to pharmacological treatments, but for many individuals these interventions can form the mainstay of treatment. NICE recommends that individuals experiencing drug misuse should have access to evidence-based and well-designed psychosocial interventions (based on behavioural, cognitive, motivational and social theories) in addition to standard care or in conjunction with existing pharmacological drug treatments (NICE, 2007). NICE recommends the use of interventions such as brief interventions,[8] contingency management and self-help groups.

In Ireland, evidence from 2010 suggests that in over half of approximately 8,000 treatment cases (58%), individuals received either individual or group counselling. In one-third of cases, a brief intervention was delivered (e.g. brief motivational interviewing) and in a quarter of cases, individual or group education and awareness programmes were provided (Bellerose *et al.,* 2011).

There are many types of psychosocial treatments, including the following interventions for which review-level evidence on intervention effectiveness was identified across 10 reviews (Table 22):

8 Evidence on the effectiveness of brief interventions will be discussed as part of the prevention strand of this review.

Table 21: Pharmacological treatments for cannabis – summary

Population	Setting	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Outcome table reference
People with cannabis dependence	Community/ outpatient	THC preparations	1 (H 1)	Marshall *et al.*, 2014	Cannabis abstinence Outcome table 86
				Marshall *et al.*, 2014	Treatment completion Outcome table 87
				Marshall *et al.*, 2014	Adverse effects during treatment Outcome table 88
				Marshall *et al.*, 2014	Withdrawal due to adverse effects Outcome table 89
People with cannabis dependence	Community/ outpatient	Mixed action antidepressants	1 (H 1)	Marshall *et al.*, 2014	Cannabis abstinence Outcome table 86
				Marshall *et al.*, 2014	Treatment completion Outcome table 87
				Marshall *et al.*, 2014	Adverse effects during treatment Outcome table 88
				Marshall *et al.*, 2014	Withdrawal due to adverse effects Outcome table 89
People with cannabis dependence	Community/ outpatient	SSRI antidepressants	1 (H 1)	Marshall *et al.*, 2014	Cannabis abstinence Outcome table 86
				Marshall *et al.*, 2014	Treatment completion Outcome table 87
People with cannabis dependence	Community/ outpatient	Anticonvulsant and mood stabiliser	1 (H 1)	Marshall *et al.*, 2014	Cannabis abstinence Outcome table 86
				Marshall *et al.*, 2014	Treatment completion Outcome table 87
				Marshall *et al.*, 2014	Withdrawal due to adverse effects Outcome table 89
People with cannabis dependence	Community/ outpatient	Buspirone	1 (H 1)	Marshall *et al.*, 2014	Treatment completion Outcome table 87
				Marshall *et al.*, 2014	Adverse effects during treatment Outcome table 88
				Marshall *et al.*, 2014	Withdrawal due to adverse effects Outcome table 89
People with cannabis dependence	Community/ outpatient	Atomoxetine	1 (H 1)	Marshall *et al.*, 2014	Treatment completion Outcome table 87
				Marshall *et al.*, 2014	Adverse effects during treatment Outcome table 88
				Marshall *et al.*, 2014	Withdrawal due to adverse effects Outcome table 89

Table 21 (continued): Pharmacological treatments for cannabis – summary

Population	Setting	Pharmacological agent	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Outcome table reference
People with cannabis dependence	Community/ outpatient	N-acetylcysteine	1 (H 1)	Marshall *et al.*, 2014	Treatment completion Outcome table 87
				Marshall *et al.*, 2014	Adverse effects during treatment Outcome table 88
				Marshall *et al.*, 2014	Withdrawal due to adverse effects Outcome table 89

Brief interventions

In England and Wales, NICE recommends brief interventions as an opportunistic method of engaging individuals who have no contact or limited contact with drug services (NICE, 2007). Typically, these involve one to four sessions lasting around 10–45 minutes each, and aim to explore individuals' ambivalence about changing their behaviour while providing supporting and non-judgemental feedback in a person-centred manner. Motivational interviewing is one example of a brief intervention. This person-centred method aims to enhance individuals' intrinsic motivation to change their behaviour through investigating and resolving ambivalence, and helping the individual to recognise that changing is in line with their own key interests and values.

Brief interventions are a common approach for drug prevention: evidence on brief interventions delivered with the intention of preventing drug use (rather than treating drug misuse/dependence) is discussed in the prevention part of this review (Section 5.5).

Contingency management

Intervention approaches based on contingency management involve the provision of a reward as an incentive to reinforce a desired outcome. Typically, the incentive consists of a voucher or cash prize for achieving abstinence or attending treatment sessions and the value of the incentive may increase with repeated success or attendance.

Cognitive behavioural therapy

Cognitive behavioural therapy (CBT) focuses on supporting an individual in changing how they think and the behaviours they undertake. It has been demonstrated to help many mental health conditions such as depression, obsessive-compulsive disorder, stress and anxiety. In England and Wales, CBT is recommended by NICE for the treatment of people with co-occurring drug use and mental health disorders, but not for individuals with drug misuse alone.

Behavioural couples therapy

Couples-focused interventions such as behavioural couples therapy are targeted at individuals using drugs who are in contact with a close, non-drug-using partner. The treatments are developed from theories of relationship therapy. Normally, behavioural couples therapy will involve delivery of treatment sessions over a period of around three months, with a primary focus on the individual who is misusing drugs.

Mindfulness-based interventions

Mindfulness-based interventions are used as treatment for a range of disorders and increasingly in drug misuse treatment. Interventions primarily include meditation activities based on Buddhist principles, but may be supplemented by a range of other psychosocial approaches.

Table 22: Psychosocial treatments – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Reviews(s)	Outcome Outcome table reference
Young people who are regular users of cannabis		Multidimensional family therapy	1 (H 1)	Filges 2015a	Drug use Outcome table 90
			1 (H 1)	Filges 2015a	Treatment retention Outcome table 92
			1 (H 1)	Filges 2015a	Education Outcome table 93
		Family behaviour therapy	1 (H 1)	Lindstrom *et al.*, 2015	Drug use Outcome table 90
			1 (H 1)	Lindstrom *et al.*, 2015	Criminal activity Outcome table 91
		Cognitive behavioural therapy	1 (H 1)	Filges *et al.*, 2015b	Criminal activity Outcome table 91
Adults who are regular users of cannabis	Community or outpatient	Cognitive behavioural therapy	1 (H 1)	Cooper *et al.*, 2015	Cannabis use Outcome table 94
			1 (H 1)	Cooper *et al.*, 2015	Cannabis dependence severity Outcome table 95
			1 (H 1)	Cooper *et al.*, 2015	Cannabis-related problems Outcome table 96
Adults with drug misuse or dependence	Community or outpatient	Cognitive behavioural therapy	1 (H 1)	National Collaborating Centre for Mental Health, 2008	Cocaine abstinence Outcome table 97
		Couples therapy	1 (H 1)	National Collaborating Centre for Mental Health, 2008	Abstinence from drugs Outcome table 98
		Contingency management	2 (H 2)	Benishek *et al.*, 2014; National Collaborating Centre for Mental Health, 2008	Abstinence from drugs Outcome table 99
		Mindfulness-based interventions	2 (H 2)	Chiesa and Serretti, 2014; Zgierska *et al.*, 2014	Drug use Outcome table 100
		Motivational interview	2 (H 2)	Smedslund *et al.*, 2011; Watson *et al.*, 2013	Drug use Outcome table 101
			1 (H 1)	Smedslund *et al.*, 2011	Treatment retention Outcome table 102

7.4.1 Psychosocial treatments for young people

Three high-quality reviews were identified that examined the effectiveness of psychosocial interventions delivered to young people with drug misuse problems. Across the primary studies included in all three reviews, young people predominantly used cannabis as their primary drug. Two reviews examined evidence on family-based interventions including multidimensional family therapy (MTFD; Filges *et al.,* 2015a) and family behaviour therapy (Lindstrom *et al.,* 2015). One review examined evidence on CBT delivered alone or in combination with other interventions (Filges *et al.,* 2015b).

Moderate-quality review-level evidence suggests that MDFT is effective in reducing drug use frequency and severity in comparison to other interventions among adolescents, including CBT, but it is generally no more or less effective in treatment retention (Filges *et al.,* 2015a; Filges 2015b). Low-quality review-level evidence on the effectiveness of family behaviour therapy on drug use and crime was inconclusive and was based on a small number of studies only (Lindstrom *et al.,* 2015). Additionally, low-quality review-level evidence, also based on low numbers of studies, suggests that CBT treatments do not have beneficial impacts on crime (Filges *et al.,* 2015b).

7.4.2 Psychological and motivational treatments for adults

Initially, four reviews rated high quality were identified that examined psychosocial interventions including CBT for cannabis use (Cooper *et al.,* 2015) and motivational interview (Smedslund *et al.,* 2011; Watson *et al.,* 2013) and contingency management (Benishek *et al.,* 2014) for the treatment of a range of drug use disorders. In recognition of the lack of evidence relating to cocaine treatment, evidence from one additional review published before 2010 (National Collaborating Centre for Mental Health, 2008) was included; this examined the effectiveness of CBT and couples therapy treatments. Additional evidence was extracted from this review related to contingency management treatment.

CBT and couples therapy

For adults who use cannabis, moderate-quality evidence suggests that CBT is generally more effective for outcomes relating to cannabis use and dependency in comparison to individuals receiving no treatment, but it is no more or less effective than other interventions (Cooper *et al.,* 2015). Low-quality review-level evidence on the effectiveness of CBT combined with contingency management was mixed and inconclusive in comparison to other interventions (Cooper *et al.,* 2015).

One review rated high quality was identified that examined CBT and couples therapy for treatment for cocaine use (National Collaborating Centre for Mental Health, 2008). Moderate-quality review-level evidence indicates that couples-based interventions are more effective than relapse-prevention CBT in achieving abstinence. Evidence indicates that CBT, including relapse-prevention and standard CBT, is no more or less effective than standard care in achieving abstinence. Couples-based interventions were not compared with any treatment types other than CBT.

Contingency management

Two reviews were identified that examined the effectiveness of contingency management interventions (Benishek *et al.,* 2014; National Collaborating Centre for Mental Health, 2008). Evidence indicates that contingency management may be effective in achieving abstinence among people who use stimulants or opioids following treatment, but it suggests that this effect may be diminished at longer-term follow-up.

Moderate-quality review-level evidence suggests that there is no difference for abstinence at six months between prize-based contingency management treatment and treatment as usual, although high-quality review-level evidence suggests short-term benefits in favour of contingency management (Benishek *et al.,* 2014). Moderate-quality review-level evidence suggests that contingency management is more effective than control interventions in achieving abstinence, but effectiveness may not be maintained at long-term follow-up (National Collaborating Centre for Mental Health, 2008).

Motivational interview

One review was identified that looked at the effectiveness of motivational interviewing delivered to individuals with dependence on or abuse of alcohol, cannabis, cocaine or multiple drugs[9] (Smedslund *et al.,* 2011). Moderate-quality evidence suggests that individuals who receive motivational interview (delivered either in a one-off session or over a series of sessions) may have reduced drug abuse in comparison to those who do not receive treatment. However, moderate-quality evidence suggests that motivational interview may be no more or less effective than other forms of treatment interventions for improving drug abuse and treatment retention (Smedslund *et al.,* 2011).

In addition, one review was identified that looked at the provision of brief motivational interviewing in hospital outpatient settings to reduce drug abuse (Watson *et al.,* 2013). Findings for illicit drug use were inconclusive and greatly limited as the evidence was based on two primary studies only (the majority of studies in the review focused on alcohol abuse only).

7.4.3 Mindfulness-based treatments

Evidence on the effectiveness of mindfulness-based interventions on any drug use and cocaine use was inconclusive. There is evidence to suggest that mindfulness-based interventions may result in reduced drug use, but this was based on limited primary-level evidence (Chiesa and Serretti, 2014; Zgierska *et al.,* 2014).

7.5 Residential rehabilitation treatment programmes

Residential rehabilitation is provided to a minority of people in drug treatment, typically those whose needs may not be met through community drug treatment services. The focus of these treatments is primarily on abstinence. Residential facilities are widely available in Ireland, with around two-thirds based within hospital settings where a combination of therapeutic approaches are applied (EMCDDA, 2014).

Initially, no reviews rated high quality were identified that examined evidence on residential rehabilitation. Two systematic reviews were identified that examined the effects of residential rehabilitation in therapeutic communities (Table 23; Malivert *et al.,* 2012; Vanderplasschen *et al.,* 2013). Both were rated low quality using the JBI tool and therefore an additional review rated high quality published in 2008 (National Collaborating Centre for Mental Health, 2008) was included. In addition to evidence on therapeutic communities, one of the reviews (National Collaborating Centre for Mental Health, 2008) examined the effectiveness of residential 12–step programmes.

9 Of the 59 studies within the review by Smedslund and colleagues, 29 studies looked at treatment for alcohol use only. It was not possible to separate findings for illicit drug treatments alone within the review findings, and thus findings relating to alcohol treatments are included here. It should be noted therefore that findings for motivational interview treatment presented here are from 29 studies for which the treated drug was alcohol. Of the remaining 30 studies, 18 focused on multiple drugs, 8 focused on cannabis treatments and four focused on cocaine.

Table 23: Residential treatment programmes – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome(s) Outcome table reference
Adults with drug misuse or dependence	Residential (community/ prison)	Residential rehab	2 (M 1; L1)	Malivert *et al.,* 2012; Vanderplasschen *et al.,* 2013	Treatment completion Outcome table 103
			3 (H 1; M 1; L 1)	Malivert *et al.,* 2012; National Collaborating Centre for Mental Health, 2008; Vanderplasschen *et al.,* 2013	Drug use Outcome table 104
			1 (1 M)	Vanderplasschen *et al.,* 2013	Employment Outcome table 105
	Residential	12-step	1 (H 1)	National Collaborating Centre for Mental Health, 2008	Drug use Outcome table 104

The evidence on the effectiveness of residential rehabilitation programmes included in these reviews was limited and was based on low-quality review-level evidence, and included a mix of community and prison-based therapeutic communities (Malivert *et al.,* 2012; National Collaborating Centre for Mental Health, 2008; Vanderplasschen *et al.,* 2013). Consequently, it is difficult to draw any conclusions about the effectiveness of residential therapeutic communities on drug use and recovery. However, low-quality review-level evidence indicates that participation in a residential therapeutic community is associated with improved employment outcomes (Vanderplasschen *et al.,* 2013). There was no consistent evidence on the effectiveness of different therapeutic community approaches compared with one another. Additionally, one review examined evidence on residential 12–step group participation and evidence suggests that participation may have benefits for drug use over CBT and other residential programmes, but this was based on one study only and review quality evidence was low (National Collaborating Centre for Mental Health, 2008).

7.6 Interventions focusing on recovery and reintegration

Drug treatments such as pharmacological and psychosocial interventions typically focus primarily on reducing drug use or abstinence, and reducing harmful behaviours. It is recognised that interventions that provide support beyond the initial treatment period are required to support the long-term recovery of people who use illicit drugs. This includes treatments that provide social and emotional support and those with a wider focus on social reintegration. The EMCDDA points towards treatments that focus on housing, education and employment as being a significant part of the recovery process to enable full reintegration into the community following drug addiction, and recommend that these outcomes are integral parts of drug treatment programmes (Sumnall and Brotherhood, 2012).

Initially, only two high-quality reviews (Blodgett *et al.,* 2014; Reif *et al.,* 2014a) were identified that examined treatments focused on long-term recovery. Consequently, one low-quality review (Reif *et al.,* 2014b), one medium-quality review (Bender *et al.,* 2011), and one high-quality review published before 2008 (NCCH 2008) that examined additional evidence were included in this review. The six identified reviews (Table 24) included evidence on the following intervention types:

Interventions based on peer support

Emotional, social and informational support is thought to be an important factor in predicting long-term recovery following drug misuse. Types of social support interventions include peer-based recovery interventions and programmes based on models of mutual aid (for example 12-step programmes). Peer recovery interventions include those such as peer recovery coaching and recovery housing. Peer recovery housing involves the provision of short-term housing for people in recovery from drug and/or alcohol dependence. Peer recovery coaching is defined as a mentoring and support service delivered to individuals with drug use disorders by a peer with more experience of recovery, with potential benefits for both provider and recipient. Peer recovery coaches may be volunteers or paid, receive training, and are likely to be involved in the development and strategy of recovery services (White, 2009), in comparison to the more informal role played by peers in mutual aid models such as 12-step groups (Bassuk *et al.*, 2016).

Mutual aid models are somewhat similar to peer-based recovery treatments in the use of peer support, but differ through the role of the peer and the nature of the intervention. In mutual aid groups, individuals act informally as sponsors, with the emphasis being on peers supporting each other (as opposed to the role of peer recovery coaches to support those with less experience of recovery). Mutual aid participants follow a model of recovery, most prominently 12-step programmes such as Narcotics Anonymous (NA), whereas in peer recovery interventions, individuals are likely to be encouraged to identify recovery pathways that suit their needs. Self-help approaches include support groups, but may also involve individual counselling or mentoring or the use of books and support information. In England and Wales, NICE recommends that all individuals engaging with drug treatment services are made aware of mutual aid and self-help programmes and that service staff support interested clients in engaging with these services; Public Health England recommends the further development of mutual aid groups across Europe (Public Health England, 2013).

In Ireland, there are currently a large number of NA groups, presently providing around 212 weekly sessions nationwide (data obtained from Narcotics Anonymous Ireland website www.na-ireland.org/). NA is based on the 12-step model and the primary approach is one that involves the therapeutic value of addicts helping one another, while sharing their experiences of addiction, aspirations and journey towards recovery. Although not a religious programme, it teaches a set of spiritual principles.

Continuing care

Continuing care can be defined as a period of lower-intensity treatment following the completion of an initial high-intensity period of treatment, for example in a residential treatment setting (Proctor and Herschman, 2014). The aim of continuing care is to provide ongoing support to individuals with previous drug use problems to prevent relapse and encourage continued recovery. Continuing care encompasses a range of approaches including self-help groups, individual or group counselling, social skills training and case management. Case management may be used to define a range of strategies, but it is broadly a coordinated approach to deliver mental health services, treatment for drug abuse and social services to increase engagement with different services and to achieve common goals.

Table 24: Treatments focusing on long-term recovery – summary

Population	Intervention	Setting	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Outcome table reference
People in recovery from drug dependence	Continuing care	Community	2 (H 1; M 1)	Bender *et al.*, 2011; Blodgett *et al.*, 2014	Drug use Outcome table 106
	Case management		1 (H 1)	Rapp *et al.*, 2014	Treatment retention Outcome table 107
			1 (H 1)	Rapp *et al.*, 2014	Drug use Outcome table 108
	Recovery housing		1 (M 1)	Reif *et al.*, 2014b	Drug use Outcome table 109
			1 (M 1)	Reif *et al.*, 2014b	Re-incarceration Outcome table 110
			1 (M 1)	Reif *et al.*, 2014b	Employment Outcome table 111
	Peer recovery coaching		1 (L 1)	Reif *et al.*, 2014a	Drug use Outcome table 112
	Mutual aid and self-help		1 (H 1)	NCCH, 2008	Drug use Outcome table 113

7.6.1 Interventions based on peer support or mutual aid

One systematic review rated high quality was identified that examined the effectiveness of peer recovery coaching (Reif *et al.*, 2014a). One additional review rated medium quality that looked at recovery housing was included (Reif *et al.*, 2014b).

One review examined evidence regarding recovery housing including the Oxford House recovery home model and other recovery housing interventions (Reif *et al.*, 2014b). Moderate-quality review level-evidence indicates that, compared to usual care treatments, residency in recovery homes may be associated with improved drug use outcomes. Evidence indicates that residency in recovery homes may be associated with improved employment and reduced criminal behaviour, but evidence on these outcomes was limited. One review rated high quality examined evidence relating to peer recovery coaching (Reif *et al.*, 2014a). Low-quality review-level evidence indicates that peer recovery coaching interventions may be associated with reduced drug use in comparison with individuals receiving usual aftercare, but this evidence was further limited by the low quality of primary-level evidence.

One review from 2008 examined the effects of self-help groups and mutual aid (National Collaborating Centre for Mental Health, 2008). Evidence suggests that drug use is reduced with participation in 12-step groups. However, this evidence was limited, as review authors noted that self-help groups frequently formed part of treatment alongside other interventions and therefore the effectiveness of self-help groups alone is difficult to determine on the basis of the current review-level evidence available.

7.6.2 Continuing care

One systematic review rated high quality was identified that examined the effectiveness of assertive continuing care for people recovering from cannabis dependency (Bender *et al.,* 2011). No systematic reviews of high quality were identified that examined the effectiveness of continuing care on other drugs and one medium-quality review was therefore included (Blodgett *et al.,* 2014). This review examined a range of treatments defined as continuing care for people with dependence on drugs including alcohol and/or illicit drugs. Evidence on the effectiveness of continuing care was mixed. Moderate-quality review-level evidence suggests that, compared to control treatments, continuing care may have a positive effect on drug use (Blodgett *et al.,* 2014), but evidence regarding treatment with assertive continuing care found no difference for cannabis use compared to treatment as usual (Bender *et al.,* 2011). Evidence on assertive continuing care was high quality but was based on a small number of studies.

Additionally, one systematic review looked at the effectiveness of a case management approach for people with drug dependence (Rapp *et al.,* 2014). Low-quality review-level evidence suggests that, compared to standard care, case management may be an effective approach for increasing treatment retention. Additionally, low-quality evidence suggests that case management may have a small positive effect on drug use.

7.7 Other treatment approaches

Reviews of two additional treatment approaches were identified in this review, both targeting people with addictions to opioids only (Table 25). One review (Boyuan *et al.,* 2014) investigated the effectiveness of acupuncture for drug treatment, which is offered as part of drug treatment in Ireland by both statutory and non-statutory providers (EMCDDA, 2015g) and one review (Wang *et al.,* 2014) investigated the effectiveness of physical activity interventions. Physical activity interventions have been demonstrated to have positive effects on a range of mental health disorders such as depression (Mead *et al.,* 2009); in addition, mental health disorders, including drug use disorders, are less prevalent among those who are physically active (Strohle *et al.,* 2007).

Table 25: Other treatments – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Outcome table reference
People with addiction to opioids	Community/ outpatient	Acupuncture	1 (H 1)	Boyuan *et al.,* 2014	Opioid craving Outcome table 114
			1 (H 1)	Boyuan *et al.,* 2014	Depression Outcome table 115
			1 (H 1)	Boyuan *et al.,* 2014	Anxiety Outcome table 116
		Acupuncture and pharmacological treatment	1 (H 1)	Boyuan *et al.,* 2014	Opioid craving Outcome table 114
			1 (H 1)	Boyuan *et al.,* 2014	Anxiety Outcome table 116
		Transcutaneous electrical nerve stimulation	1 (H 1)	Boyuan *et al.,* 2014	Opioid craving Outcome table 114
			1 (H 1)	Boyuan *et al.,* 2014	Anxiety Outcome table 116
	Community/ outpatient	Physical activity	1 (H 1)	Wang *et al.,* 2014	Abstinence from heroin Outcome table 117
			1 (H 1)	Wang *et al.,* 2014	Anxiety Outcome table 118
			1 (H 1)	Wang *et al.,* 2014	Depression Outcome table 119

7.7.1 Acupuncture

One review rated high quality using the JBI tool examined the effects of acupuncture treatments on opioid craving and mental health symptoms (Boyuan *et al.,* 2014). There was no evidence identified of the effectiveness of acupuncture treatments on drug use or treatment outcomes, as the review examined effects on psychological symptoms (heroin craving, anxiety and depression). Low-quality review-level evidence indicates that pharmacological treatment impact on opioid craving may be enhanced if delivered in combination with acupuncture. However, acupuncture alone is no more effective than psychosocial or pharmacological treatments, or placebo. Evidence is mixed on the effectiveness of acupuncture alone compared to no treatment. For mental health symptoms, evidence indicates that acupuncture treatments may be effective in reducing depression, but evidence on impact on anxiety status is mixed.

7.7.2 Physical activity

One review rated as high quality using the JBI tool examined the effects of physical activity interventions on abstinence from heroin and mental health symptoms (Wang *et al.,* 2014). Evidence indicates that physical activity interventions are more effective than a range of psychosocial treatments or no treatment in maintaining abstinence from heroin, but are no more effective in reducing anxiety or depression symptoms.

7.8 Individuals in contact with the criminal justice system

There are around 800 treatment cases a year among prisoners in Ireland (Health Research Board, 2016b) and it is estimated that on any day, over 500 prisoners (of the total prison population of around 4,000) will receive OST (EMCDDA, 2015d). The most common primary problematic drug is heroin, with increasing proportions of prisoners seeking treatment for cannabis and benzodiazepine use.

The Irish Prison Drugs Policy and Strategy commits to reducing supply of drugs into prison and supporting prisoners to become drug free (Irish Prison Service, 2006). Methadone maintenance treatment has been available through the Irish Prison Service since 2002 and prisons in Ireland are expected to provide a range of treatments including OST, detoxification programmes and psychosocial interventions, predominantly counselling and motivational interventions. There is a commitment to consider therapeutic communities to support the post-release recovery and reintegration of prisoners who use drugs (Irish Prison Service, 2015). Diversion interventions, such as drug treatment courts, aim to support individuals with drug use problems into treatment as an alternative to further involvement with the criminal justice system, such as a prison sentence. In Ireland, a review of the Dublin drug treatment court from the Irish Department of Justice, Equality and Law Reform (2010) concluded that the court has positive impacts on offenders, although participation was noted to be low.

Nine high-quality reviews were identified that examined the effectiveness of a range of treatments provided to people in contact with the criminal justice system (Table 26). Initially, seven reviews were identified; these looked at pharmacological treatments (Perry *et al.,* 2015c; Hedrich *et al.,* 2012; Larney *et al.,* 2010) and non-pharmacological treatments (Hayhurst *et al.,* 2015; Mitchell *et al.,* 2012; Perry *et al.,* 2015b; Shonin *et al.,* 2013). Evidence on non-pharmacological treatments was limited and therefore additional evidence was identified in two high-quality reviews published before 2010 (National Collaborating Centre for Mental Health, 2008; Perry *et al.,* 2009). In addition, one review rated high quality using the JBI tool was identified that examined the effectiveness of treatments for people with mental illness who are in contact with the criminal justice system (Perry *et al.,* 2015a).

Table 26: Treatments delivered in the criminal justice system – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Evidence table reference
People with opioid dependence in contact with the criminal justice system	Prison	OST	3 (H 3)	Perry *et al.*, 2015c; Hedrich *et al.*, 2012; Larney *et al.*, 2010	Drug use Outcome table 120
			2 (H 2)	Hedrich *et al.*, 2012; Larney *et al.*, 2010	Injecting drug use Outcome table 121
			2 (H 2)	Hedrich *et al.*, 2012; Perry *et al.*, 2015c	Criminal activity Outcome table 122
	Community	Opioid detoxification	1 (H 1)	Perry *et al.*, 2015c	Drug use Outcome table 123
	Community	Relapse prevention	1 (H 1)	Perry *et al.*, 2015c	Drug use Outcome table 124
			1 (H 1)	Perry *et al.*, 2015c	Criminal activity Outcome table 125
People who misuse drugs in contact with the criminal justice system	Community	Diversion interventions (including drug courts)	1 (H 1]	Hayhurst *et al.*, 2015	Drug use Outcome table 126
			1 (H 1)	Hayhurst *et al.*, 2015	Criminal activity Outcome table 127
	Prison	Therapeutic communities	2 (H 2)	Mitchell *et al.*, 2012; Perry *et al.*, 2009; National Collaborating Centre for Mental Health, 2008	Drug use Outcome table 128
			3 (H 3)	Mitchell *et al.*, 2012; National Collaborating Centre for Mental Health, 2008; Perry *et al.*, 2009	Criminal activity Outcome table 129
		Boot camps	2 (H 2)	Mitchell *et al.*, 2012; National Collaborating Centre for Mental Health, 2008	Drug use Outcome table 130
			2 (H 2)	Mitchell *et al.*, 2012; National Collaborating Centre for Mental Health, 2008	Criminal activity Outcome table 131
		Psychosocial interventions	3 (H 3)	Mitchell *et al.*, 2012; Perry *et al.*, 2015b; Shonin *et al.*, 2013	Drug use Outcome table 132
			2 (H 2)	Mitchell *et al.*, 2012; Perry *et al.*, 2015b	Criminal activity Outcome table 133

Table 26 (continued): Treatments delivered in the criminal justice system – summary

Population	Setting	Intervention	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Evidence table reference
People who misuse drugs with mental illness comorbidities in contact with the criminal justice system	Prison	Prison-based therapeutic communities	1 (H 1)	Perry *et al.*, 2015a	Drug use Outcome table 134
			1 (H 1)	Perry *et al.*, 2015a	Criminal activity Outcome table 135
		Motivational interview and skills	1 (H 1)	Perry *et al.*, 2015a	Drug use Outcome table 136
	Court	Case management (via drug court)	1 (1 H)	Perry *et al.*, 2015a	Criminal activity Outcome table 137

7.8.1 Opioid substitution treatment

Three systematic reviews rated high quality were identified that examined the effectiveness of OST provided in prisons (Hedrich *et al.*, 2012; Larney *et al.*, 2010; Perry *et al.*, 2015). The evidence indicates that compared with no OST, OST provided in prisons is more effective in reducing drug use in prison (Larney *et al.*, 2010; Hedrich *et al.*, 2012) and post release (Hedrich *et al.*, 2012). Evidence indicates that high-dose methadone treatment is more effective in reducing drug use than low-dose methadone (Hedrich *et al.*, 2012), and maintenance treatment is no more or less effective with methadone than with buprenorphine (Hedrich *et al.*, 2012; Perry *et al.*, 2015c). The effectiveness of maintenance treatments on criminal activity is less clear and is based on low-quality review-level evidence. Generally, from reviews of RCTs, it appeared that receiving maintenance treatment has no impact on reincarceration rate (Hedrich *et al.*, 2012; Perry *et al.*, 2015) or criminal activity (Hedrich *et al.*, 2012). Additionally, evidence indicates that the reincarceration rate does not differ when treatment is with methadone rather than buprenorphine (Hedrich *et al.*, 2012; Perry *et al.*, 2015c).

7.8.2 Relapse prevention

One high-quality review was identified that examined the effects of relapse prevention with naltrexone among people with opioid dependence on drug use and criminal activity (Perry *et al.*, 2015c). Low-quality review-level evidence on subsequent heroin use and criminal activity was limited by small sample sizes and suggests no differences between naltrexone implants and methadone maintenance approaches. Low-quality review-level evidence indicates that oral naltrexone may be effective in reducing reincarceration.

7.8.3 Therapeutic communities

Three reviews rated high quality were identified that examined the effectiveness of therapeutic communities provided in prison settings on drug and criminal activity outcomes (Mitchell *et al.*, 2012; National Collaborating Centre for Mental Health, 2008; Perry *et al.*, 2009). Primarily moderate-quality review-level evidence suggests that therapeutic communities are effective in reducing drug use relapse (Mitchell *et al.*, 2012; National Collaborating Centre for Mental Health, 2008; Perry *et al.*, 2009), recidivism (Mitchell *et al.*, 2012), reincarceration (National Collaborating Centre for Mental Health, 2008; Perry *et al.*, 2009) and criminal activity post-release (National Collaborating Centre for Mental Health, 2008; Perry *et al.*, 2009).

7.8.4 Boot camps

Two reviews rated high quality were identified that looked at the effectiveness of boot camps (Mitchell *et al.*, 2012; National Collaborating Centre for Mental Health, 2008). Low-quality review-level evidence from one study indicates that there are no impacts from prison-based boot camp participation on drug use (National Collaborating Centre for Mental Health, 2008) or recidivism (Mitchell *et al.*, 2012; National Collaborating Centre for Mental Health, 2008).

7.8.5 Psychosocial interventions

Three reviews rated high quality were identified that looked at the effectiveness of psychosocial interventions delivered in prison settings. One review looked at counselling interventions (Mitchell *et al.,* 2012) and one looked at the provision of CBT, behavioural management and case management interventions delivered to female offenders only (Perry *et al.,* 2015b). Moderate-quality review-level evidence indicates that counselling is no more or less effective than other treatments or no treatment for drug use relapse, but is associated with reduced recidivism (Mitchell *et al.,* 2012). Low-quality review-level evidence indicates that behavioural management is no more or less effective than treatment as usual for reducing drug use, and, alongside CBT and case management treatments, is no more or less effective than treatment as usual with regard to post-release criminal activity. Additionally, low-quality evidence from one review suggests that meditation-based intervention in prison settings may have positive impact on drug use (Shonin *et al.,* 2013).

7.8.6 Diversion interventions

One review rated high quality was identified that examined the provision of diversion interventions (Hayhurst *et al.,* 2015). A mixture of moderate- and low-quality review-level evidence suggests that diversion interventions do not affect drug use. Evidence on reoffending was limited in the design of studies and reporting of review-level evidence, but suggests that diversion interventions may have positive impacts on reoffending rates.

7.8.7 Interventions for people with drug use and mental illness comorbidities

One review rated high quality was identified that examined the provision of a range of treatments for people with both drug use and mental illness disorders in contact with the criminal justice system (Perry *et al.,* 2015a). Low-quality review-level evidence is inconclusive on the impact of therapeutic communities on drug use, but indicates reduced rates of reincarceration, compared with treatment as usual or no treatment. This evidence suggests no benefits of motivational interview with cognitive skills training on drug use, or of mental health courts alongside case management on criminal activity. For all comparisons, the evidence was limited by the small number of primary studies available for each outcome and the low quality of primary studies.

7.9 Individuals with drug use problems and co-occurring mental illness

The association between mental health disorders and drug misuse is complex, and suggests that individuals with mental illness may be more at risk of drug misuse, and that drug misuse may increase risk of, or accelerate progression of, mental illness (see Section 5.8).

Four reviews looked at the effectiveness of providing treatments for people with co-occurring mental health and drug use problems (Table 27). Two reviews looked at treatments for individuals with trauma, including integrated treatment programmes (Torchalla *et al.,* 2012) and CBT-focused interventions (Roberts *et al.,* 2015); one review looked at a range of psychosocial interventions and integrated models of care for individuals with severe mental illness (Hunt *et al.,* 2013) and one review looked at therapies for individuals with borderline personality disorders (Lee *et al.,* 2015).

7.9.1 Individuals with co-occurring trauma

CBT-based interventions

One review looked at the effectiveness of interventions based on CBT delivered to individuals with drug and/or alcohol use disorder and who had experienced significant abuse or trauma (Roberts *et al.,* 2015). Treatments included individual trauma and non-trauma-focused interventions and group trauma and non-trauma-focused interventions delivered alone or in combination with a psychosocial or pharmacological intervention for drug use.

Moderate-quality review-level evidence indicates that individual CBT trauma-focused interventions that were delivered in combination with drug use treatments can reduce drug use and post-traumatic stress disorder (PTSD), and increase treatment retention, compared with treatment as usual. Evidence indicates no benefits from non-trauma-focused individual and group treatments however.

Table 27: Treatments for people with drug use problems and co-occurring mental illness – summary

Population	Setting	Intervention/ treatment	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Evidence table reference
People with trauma and drug use problems	Community/ outpatient	Integrated treatment programmes	1 (H 1)	Torchalla *et al.*, 2012	PTSD symptoms Outcome table 142
					SUD symptoms Outcome table 141
People with trauma and drug use problems	Community/ outpatient	Individual CBT trauma-focused interventions plus substance use disorder intervention	1 (H 1)	Roberts *et al.*, 2015	Drug use Outcome table 138
					PTSD severity Outcome table 139
					Treatment retention Outcome table 140
People with trauma and drug use problems	Community/ outpatient	Group-based CBT non-trauma-focused interventions for PTSD and SUD	1 (H 1)	Roberts *et al.*, 2015	Drug use Outcome table 138
					PTSD severity Outcome table 139
					Treatment retention Outcome table 140
People with trauma and drug use problems	Community/ outpatient	Individual CBT non-trauma-focused intervention for PTSD and SUD	1 (H 1)	Roberts *et al.*, 2015	Drug use Outcome table 138
					PTSD severity Outcome table 139
People with trauma and drug use problems	Community/ outpatient	Individual CBT non-trauma-focused intervention for PTSD alone	1 (H 1)	Roberts *et al.*, 2015	Drug use Outcome table 138
					PTSD severity Outcome table 139
People with severe mental illness and drug use problems	Community/ outpatient	Integrated models of care	1 (H 1)	Hunt *et al.*, 2013	Drug use Outcome table 144
					Lost to treatment Outcome table 143
People with severe mental illness and drug use problems	Community/ outpatient	Non-integrated models of care	1 (H 1)	Hunt *et al.*, 2013	Lost to treatment Outcome table 143
					Number of drugs used in past month Outcome table 144
People with severe mental illness and drug use problems	Community/ outpatient	CBT	1 (H 1)	Hunt *et al.*, 2013	Lost to treatment Outcome table 143
					Cannabis use Outcome table 144

Table 27 (continued): Treatments for people with drug use problems and co-occurring mental illness – summary

Population	Setting	Intervention/ treatment	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Evidence table reference
People with severe mental illness and drug use problems	Community/ outpatient	Motivational interviewing alone	1 (H 1)	Hunt *et al.*, 2013	Lost to treatment Outcome table 143
					Alcohol dependence Outcome table 145
					Amphetamine dependence Outcome table 145
					Cannabis dependence Outcome table 145
					Cannabis use Outcome table 144
					Polydrug consumption Outcome table 144
					Abstinence from drugs Outcome table 144
People with severe mental illness and drug use problems	Community/ outpatient	Skills training	1 (H 1)	Hunt *et al.*, 2013	Lost to treatment Outcome table 143
People with severe mental illness and drug use problems	Community/ outpatient	Contingency management	1 (H 1)	Hunt *et al.*, 2013	Lost to treatment Outcome table 143
					Stimulant use Outcome table 144
					Cannabis use Outcome table 144
					Injection drug use Outcome table 144
People with borderline personality disorders and drug use disorders	Community/ outpatient	Dialectical behaviour therapy	1 (H 1)	Lee *et al.*, 2015	Range of outcomes relating to drug use and mental health Outcome table 146
		Dynamic deconstructive psychotherapy	1 (H 1)	Lee *et al.*, 2015	Range of outcomes relating to drug use and mental health Outcome table 146
		Dual-focused schema therapy	1 (H 1)	Lee *et al.*, 2015	Range of outcomes relating to drug use and mental health Outcome table 146

Integrated treatment programmes

One review looked at the effectiveness of integrated treatment programmes to treat drug use disorder and PTSD (Torchalla *et al.,* 2012). Moderate-quality review-level evidence indicates that these programmes are no more or less effective than non-integrated treatment programmes for reducing symptoms of drug use disorder, or PTSD.

7.9.2 Individuals with co-occurring severe mental illnesses

One review examined the effectiveness of psychosocial drug misuse treatments delivered to individuals with severe mental illness (Hunt *et al.,* 2015). Interventions included skills training, motivational interviewing, contingency management, integrated models of care and CBT, and were compared with standard care. Standard care was defined as the treatment an individual would receive if they had not participated in the study intervention and availed of a range of treatments.

This review examined a wide range of drug use and treatment outcomes, and low-quality review-level evidence indicates that psychosocial interventions are likely to be no more or less effective for treating drug use in individuals with co-morbid severe mental illness in comparison to treatment as usual. This evidence was limited by the low number of primary studies on any individual intervention for this population, and the low quality of these studies.

7.9.3 Individuals with co-occurring borderline personality disorders

One review rated high quality using the JBI tool examined evidence on the effectiveness of interventions to treat drug use and borderline personality disorders (Lee *et al.,* 2015). Interventions included dialectical behaviour therapy, dynamic deconstructive psychotherapy and dual-focus schema therapy. Moderate-quality review-level evidence indicates that dialectical behaviour therapy is the most effective of the three treatment approaches, with benefits for both drug use and borderline personality disorder treatment outcomes. It should be noted that the evidence is mainly from studies of the treatment of women. Dynamic deconstructive psychotherapy was also associated with positive treatment outcomes, but dual-focus schema therapy was noted to have limited impacts across outcomes.

7.10 Pregnant and parenting women

It is recognised that drug abuse during and following pregnancy has clear implications for the health of mothers and their children, and can have negative impacts on parenting skills and abilities. MMT is recommended for pregnant women in Ireland with opioid dependency (Institute of Obstetricians and Gynaecologists and HSE, 2015).

Five reviews were identified that looked at treatment provided to pregnant and parenting women (Table 28). One review assessed evidence on pharmacological treatment (MMT) for this population (Minozzi *et al.,* 2013) and one review included a range of interventions including motivational and psychosocial treatments (Terplan *et al.,* 2015). The remaining two reviews looked at the provision of integrated treatment programmes (Milligan *et al.,* 2011) and home visits (Turnbull and Osborn, 2012).

7.10.1 Pharmacological treatments

One review rated high quality using the JBI tool looked at the effectiveness of MMT (Minozzi *et al.,* 2013). Low-quality review-level evidence indicates that MMT is less effective than slow-release morphine for heroin use and no more or less effective than buprenorphine for reducing primary and other drug use. Outcomes for MMT in comparison to use of buprenorphine and slow-release morphine on birth and child outcomes were generally no different. The evidence was limited by the poor quality and small number of primary studies.

7.10.2 Psychosocial treatments

One review rated high quality using the JBI tool looked at the effectiveness of contingency management and interventions based on motivational interview (Terplan *et al.,* 2015). Interventions were compared to 'usual care', including a range of alternative pharmacological or psychosocial interventions. Primarily moderate-quality review-level evidence indicates that contingency management and motivational interview-based interventions are neither more nor less effective for drug use, birth or treatment outcomes in comparison to the provision of comprehensive usual care.

7.10.3 Home visits

One review rated high quality using the JBI tool looked at the effectiveness of home visits that commenced before or after childbirth targeting women who use drugs or alcohol (Turnbull and Osborn, 2012). Home visits were provided by health professionals, including doctors, nurses, social workers and counsellors. Moderate-quality review-level evidence suggests that for outcomes including drug use, infant mortality and engagement with drug treatment programmes there were no differences between women who did and those who did not receive visits.

7.10.4 Integrated treatment programmes

Two reviews which looked at the effectiveness of integrated treatment programmes (Milligan *et al.,* 2010; Milligan *et al.,* 2011), defined these as programmes that include on-site services related to pregnancy and parenting and therefore may reduce potential barriers to treatment engagement. Evidence was inconclusive on the effectiveness of integrated treatments in comparison to non-integrated treatments for drug use and treatment outcomes, and was partially based on low-quality review-level evidence.

Table 28: Treatments for pregnant and parenting women – summary

Population	Setting	Intervention/ treatment	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Evidence table reference
Opioid-dependent pregnant women	Community/ outpatient	Methadone maintenance treatment	1 (H 1)	Minozzi *et al.*, 2013	Drug use Outcome table 147
			1 (H 1)	Minozzi *et al.*, 2013	Heroin use Outcome table 147
			1 (H 1)	Minozzi *et al.*, 2013	Child birth weight Outcome table 148
			1 (H 1)	Minozzi *et al.*, 2013	Week of delivery Outcome table 148
			1 (H 1)	Minozzi *et al.*, 2013	Neonatal abstinence syndrome Outcome table 148
			1 (H 1)	Minozzi *et al.*, 2013	Prenatal and neonatal mortality Outcome table 148
Pregnant/ parenting women	Community/ outpatient	Integrated treatment programmes	1 (H 1)	Milligan *et al.*, 2011	Length of treatment stay Outcome table 151
			1 (H 1)	Milligan *et al.*, 2011	Treatment completion Outcome table 151
			1 (H 1)	Milligan *et al.*, 2010	Maternal drug use Outcome table 152
			1 (H 1)	Milligan *et al.*, 2010	Abstinence Outcome table 152
Pregnant/ parenting women	Community/ outpatient	Contingency management	1 (H 1)	Terplan *et al.*, 2015	Maternal drug use Outcome table 149
			1 (H 1)	Terplan *et al.*, 2015	Maternal drug use at delivery Outcome table 149
			1 (H 1)	Terplan *et al.*, 2015	Treatment completion Outcome table 150
Pregnant/ parenting women	Community/ outpatient	Motivational interviewing	1 (H 1)	Terplan *et al.*, 2015	Maternal drug use Outcome table 149
			1 (H 1)	Terplan *et al.*, 2015	Maternal drug use at delivery Outcome table 149
			1 (H 1)	Terplan *et al.*, 2015	Treatment completion Outcome table 150

Table 28 (continued): Treatments for pregnant and parenting women – summary

Population	Setting	Intervention/ treatment	Number of systematic reviews (high, medium, low quality)	Review(s)	Outcome Evidence table reference
Pregnant/ parenting women	Community/ outpatient	Home visit	1 (H 1)	Turnbull and Osborn, 2012	Maternal drug use Outcome table 153
			1 (H 1)	Turnbull and Osborn, 2012	Maternal alcohol use Outcome table 153
			1 (H 1)	Turnbull and Osborn, 2012	Treatment programme uptake Outcome table 155
			1 (H 1)	Turnbull and Osborn, 2012	Infant mortality Outcome table 154

7.11 Treatment interventions – key messages

Pharmacological treatments for opiate use

High-quality review-level evidence supports the use of methadone and buprenorphine for reducing use of illicit opioids, and as agents supporting abstinence through detoxification. Evidence suggests that better treatment retention may be achieved with methadone; in addition, for individuals who have not responded to maintenance treatment, there is moderate-quality evidence to support the use of injectable heroin prescription in combination with flexible-dose oral methadone. High-quality evidence suggests that detoxification treatments are enhanced when delivered in combination with structured psychosocial interventions. Review-level evidence on relapse prevention treatment with naltrexone was low in quality, but indicates that naltrexone implants (but not oral naltrexone) may effectively support continued abstinence among those highly motivated to remain abstinent.

Pharmacological treatments for stimulants and cannabis

Primarily low-moderate quality review-level evidence consistently suggests that pharmacological treatments alone or delivered alongside psychosocial interventions may not be effective for the treatment of stimulants, including cocaine and amphetamines, or cannabis. Evidence on cannabis is limited by the low number of studies included in reviews examining the effectiveness of these treatments.

Psychosocial treatments

Moderate-quality review-level evidence consistently supports the use of multidimensional family therapy (MDFT) for the treatment of young people's drug use over other psychosocial intervention types. This evidence supports the application of MDFT to cannabis use only however.

For adults, moderate-quality review-level evidence supports treatment with couples-based interventions over cognitive behavioural therapy (CBT) among people with cocaine dependence and a non-drug-dependent partner. Further moderate-quality review-level evidence supports the use of contingency management for people with cocaine or opioid dependence, although the long-term impact of contingency management on abstinence is unclear. Additionally, moderate-quality review-level evidence indicates that drug use treatments based on CBT or motivational interview may be effective in comparison to no treatment, but are no more or less effective than other psychosocial treatment approaches. The review-level evidence on mindfulness-based treatments is limited and of low quality, but suggests that mindfulness interventions may achieve reduced drug use.

Residential rehabilitation treatments

Review-level evidence on the effectiveness of residential programmes is limited and of low quality. There is no consistent evidence on the effectiveness of different therapeutic community models or 12-step group participation in residential settings and it is difficult to draw conclusions due to the limitations of the evidence base.

Treatments focusing on long-term recovery and reintegration

Review-level evidence on the effectiveness of interventions to support recovery and reintegration was limited. Evidence on peer-supported interventions was limited and was based on small numbers of primary studies with methodological issues, but low-quality review-level evidence indicates that peer coaching, recovery housing and mutual aid approaches may have benefits for drug use outcomes.

Review-level evidence on the effectiveness of continuing care programmes is mixed and is based on a small number of primary studies. Low-quality review-level evidence suggests that case management approaches for people in drug treatment/recovery may have beneficial outcomes.

Other treatment approaches

Evidence was identified on two further approaches for treating illicit drug use – treatments based on acupuncture and physical activity. Moderate-quality review-level evidence suggests that physical activity interventions as part of drug treatment may support abstinence from drug use, although this was based on a small number of primary studies. Additionally, low-quality review-level evidence suggests that acupuncture may enhance the effectiveness of pharmacological treatments for opioid craving, but it is not effective when delivered alone.

Treatments for individuals in contact with the criminal justice system

Moderate-quality review-level evidence supports the use of OST in prison and community settings to reduce drug use among people with opioid dependency who are in contact with the criminal justice system. There is low-quality review-level evidence suggesting that high-dose methadone may be more effective than low-dose methadone maintenance treatment (MMT), and that buprenorphine maintenance may be as effective as MMT. There is insufficient evidence to draw conclusions regarding detoxification and relapse prevention in criminal justice system settings.

There is moderate-quality review-level evidence to support treatment through prison-based therapeutic communities to reduce drug relapse and criminal activity among prisoners. Benefits were identified for therapeutic communities alone and with aftercare provision. Evidence on other treatment types for this population including drug courts, boot camps and psychosocial interventions is inconclusive and is based on small numbers of studies.

Treatments for individuals with co-occurring drug use and mental illness

Moderate-quality review-level evidence indicates that individuals with co-occurring drug use and trauma are likely to benefit from treatments that include CBT interventions focusing on drug use and PTSD. For people with severe mental illness and drug misuse, there is insufficient evidence to draw conclusions on the effectiveness of psychosocial interventions. For individuals, in particular women with borderline personality disorders and drug use disorders, moderate-quality evidence suggests there may be benefits from treatments based on dialectical behaviour therapy and dynamic deconstructive psychotherapy.

Treatments for pregnant women

Evidence on the effectiveness of pharmacological treatments for pregnant women with opiate use is limited, but low-quality review-level evidence suggests that slow-release morphine may be more beneficial than methadone for heroin use and buprenorphine may be as beneficial as methadone on drug use outcomes. Moderate-quality review-level evidence indicates that home visit programmes are no more effective than no treatment, and low-moderate quality review-level evidence on integrated treatment programmes is inconclusive. Low-moderate quality review-level evidence based on a small number of studies did not support the use of psychosocial interventions in place of comprehensive usual care for the treatment of drug use in this population.

8 Conclusion

This review was undertaken to examine the extent to which approaches relating to drug prevention, harm reduction, treatment and recovery are likely to be effective, as indicated by high-quality published evidence. With regard to the review research questions, our review highlighted a number of drug prevention, harm reduction and treatment interventions that are supported by evidence as having positive effects on drug-related outcomes, including:

- Some well-structured manualised school-based drug prevention programmes that combine the teaching of skills such as refusal, decision-making and coping with awareness raising regarding the social influences on drug use and information provision have a positive impact on cannabis use
- Universal family-based preventive interventions that include parents and children, with improved outcomes when interventions target multiple domains
- Peer-based interventions for reducing initiation of injecting behaviours
- Overdose prevention programmes with naloxone distribution
- Drug consumption rooms
- Needle and syringe programmes when combined with OST
- Prescribed methadone and buprenorphine to achieve abstinence among opiate users, including community and prison settings, and injectable heroin prescribing alongside oral methadone for those who do not respond to maintenance treatments
- Naltrexone implants to prevent relapse among opiate users who are highly motivated to remain abstinent.

The findings provide some answers to the primary research questions of this review, although it is clear that evidence is insufficient in some areas, particularly regarding approaches that promote or increase recovery from drug misuse following or alongside structured treatment.

The 'review of reviews' methodology was undertaken to allow the identification and synthesis of a large amount of evidence, and to identify broad approaches that that are likely to be effective, or not effective, relating to the fields of drug prevention, harm reduction, treatment, and recovery. Consequently, evidence from 97 systematic reviews was included within this review which included a wide range of intervention types and population groups within each field. This allows for the identification of broad intervention approaches and an indication of how likely they are to be effective. However, it is not possible within the scope of this review to examine the detail of individual primary research studies and therefore it can be difficult to determine which characteristics of the interventions identified (for example, who delivers the intervention, which age group the intervention should be targeted at, the intervention intensity and duration) may be particularly important and likely to affect the impact of the intervention. Consequently, broad approaches have been grouped together (e.g. skills-based prevention; CBT) but, where reported within the included review articles, these variables have been considered in this review. It is important to consider that there are likely to be distinctions within these broad approaches at a primary research level that may not always have

been possible to identify in this review (or in the reviewed reviews). Therefore, where reviews have derived evidence from trials and evaluations of highly structured intervention approaches (e.g. life skills, prevention training, multidimensional family therapy), effectiveness may be dependent on a high level of fidelity to the original approach, and informal modifications and differences in coverage or delivery which frequently occur as interventions are delivered in real-world practice, and may fundamentally affect the likelihood of effectiveness of that approach in unpredictable ways.

Finally, there are a number of limitations within the evidence at a primary level that must be considered. For example, for many intervention types there is a lack of consistency at primary research level in terms of which outcomes have been measured and the comparisons made (i.e. what happened to control groups), and many reviews described, including poor-quality primary-level evidence. Interventions of interest are tested in research trials against comparator interventions (i.e. control group interventions). In many primary studies this might be practice as normal, or no intervention at all. Therefore, to a large extent, the effectiveness of reviewed interventions is dependent on what they were compared against, and the size and direction of observed effect will be dependent on the effectiveness of the comparator. Similarly, we were unable to distinguish the characteristics of 'treatment as usual' where interventions were compared against this condition, and consequently we cannot assess whether this was similar or not to current standard treatment content and quality in Ireland. Additionally, as an outcomes-focused review, there is a gap in our understanding about the wider complexities of the interventions reviewed here: in particular, when, why, how, and in what circumstances these interventions work best.

The overall applicability of the reviewed evidence to an Irish context must be considered, and relies on the expert interpretation of those working in policy and practice. Much of the evidence behind this review is from North America and, although many reviews included evidence from the UK and Europe, only five reviews included here examined primary research that was carried out in Ireland. When applying the findings of this review to the situation in Ireland, the cultural and practical differences between study setting and Ireland must be considered. To support the development of policies to tackle drug misuse in Ireland it is important that where interventions are implemented in Ireland, these are evaluated and findings are published in peer-reviewed journals. Evaluation should also be embedded into existing and new drug interventions to develop understanding regarding the effectiveness of these approaches in Ireland.

Finally, for a range of interventions included in this review the evidence appears inconclusive on their effectiveness. In many cases, this reflects that at a primary research level, findings of studies have been mixed with different individual studies reporting outcomes in different directions of effectiveness. Inconclusive evidence may also reflect the lack of availability of review-level evidence in a particular area. For example, emerging or under-researched intervention approaches are unlikely to be the subject of a systematic review or, if included, may be based on a small amount of primary-level research only, which limits the conclusions that can be drawn regarding effectiveness. Where the evidence regarding an intervention approach appears inconclusive, this is not to say that it will not be effective, and further investigation of the published primary-level research may be required. In particular, in this review, a lack of evidence was identified relating to interventions promoting recovery and reintegration among people who formerly used drugs. The lack of review-level evidence is likely to reflect a lack of high-quality studies carried out in areas such as peer support groups, recovery housing and recovery communities.

9 Evidence outcomes tables

A summary of evidence relating to outcomes relevant to this review is presented here by intervention type. The evidence table number matches the 'Evidence table reference' positioned next to each outcome in the summary tables presented under each treatment type in this review.

Results are colour coded using a 'traffic light' system (Joanna Briggs Institute, 2014) to indicate the direction of evidence on the effectiveness of the treatment in comparison to the control group:

	Evidence indicates effectiveness, i.e. outcome for the treatment group is significantly different than the control group in the desired direction (intervention performs significantly better)
	Evidence indicates that there are no significant differences between the interventions and the control group, or evidence is mixed across studies
	Evidence indicates ineffectiveness, i.e. outcome for the treatment group is significantly different from the control group in the unwanted direction (control performs significantly better)

9.1 Prevention review outcome tables

9.1.1 School-based universal prevention programmes

Population: Children and young people
Setting: School
Intervention: School-based universal prevention programmes

Outcome Table 1: Cannabis use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Social competence approaches vs. usual curricula *Cannabis use <12 months*	Faggiano *et al.*, 2014 [H]	9,456 (4 RCTs)	Moderate	RR 0.90 (0.81, 1.01)	No statistically significant differences between social competence programmes and usual curricula for cannabis use at <12 months FU
Social competence approaches vs. usual curricula *Cannabis use <12 months (continuous outcomes)*	Faggiano *et al.*, 2014 [H]	3,417 (1 RCT)	Low	One study only	Reduced cannabis use at <12 months FU in one study among social competence participants compared to usual curricula
Social influence approaches vs. usual curricula *Cannabis use <12 months*	Faggiano *et al.*, 2014 [H]	10,716 (3 RCTs)	Low	RR 0.88 (0.72, 1.07)	No statistically significant differences between social influence approaches and usual curricula for cannabis use at <12 months FU
Social influence approaches vs. usual curricula *Cannabis use <12 months (continuous data)*	Faggiano *et al.*, 2014 [H]	764 (1 RCT)	Low	One study only	Reduced cannabis use at <12 months FU in one study among social influence participants compared to usual curricula
Combined social influence and competence approaches vs. usual curricula *Cannabis use <12 months*	Faggiano *et al.*, 2014 [H]	8,701 (3 RCTs)	Moderate	RR 0.79 (0.59, 1.05)	No statistically significant differences for cannabis use between combined social influence/competence approaches and usual curricula at <12 months FU
Combined social influence and competence approaches vs. usual curricula *Cannabis use <12 months (continuous data)*	Faggiano *et al.*, 2014 [H]	693 (1 RCT)	Low	One study only	No statistically significant difference for cannabis use between a combined social influence/competence approach and usual curricula at <12 months FU
Knowledge-based approaches vs. usual curricula or no intervention *Cannabis use <12 months*	Faggiano *et al.*, 2014 [H]	1,575 (1 RCT)	Low	One study only	No statistically significant differences for cannabis use between knowledge-based approach and usual curricula
Social competence approaches vs. usual curricula *Cannabis use >12 months*	Faggiano *et al.*, 2014 [H]	3,753 (2 RCTs)	Moderate	Two studies only	Mixed results: no statistically significant differences between social competence programmes and usual curricula in one study for cannabis use at >12 months FU, and reduced cannabis use among social competence participants in study

Outcome Table 1 (continued): Cannabis use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Social influence approaches vs. usual curricula *Cannabis use >12 months*	Faggiano *et al.*, 2014 [H]	6,626 (2 RCTs)	Low	Two studies only	No statistically significant differences between social influence approaches and usual curricula for cannabis use at >12 months FU in either study
Combined social influence and competence approaches vs. usual curricula *Cannabis use >12 months*	Faggiano *et al.*, 2014 [H]	26,910 (6 RCTs)	Moderate	RR 0.83 (0.69, 0.99)	Significantly reduced cannabis use among combined social influence and competence approaches compared with usual curricula at >12 months FU
Combined social influence and competence approaches vs. usual curricula *Cannabis use >12 months, continuous*	Faggiano *et al.*, 2014 [H]	690 (1 RCT)	Low	One study only	No statistically significant difference for cannabis use between a combined social influence/competence approach and usual curricula at >12 months FU
Social competence approaches vs. usual curricula *Cannabis use at any follow-up (additional studies not included in MA)*	Faggiano *et al.*, 2014 [H]	NR (9 RCTs)	Moderate	Not calculated	Mixed results: findings in three studies favoured the social competence approaches, in three studies favoured the usual curricula and in three studies there were no statistically significant differences between groups for cannabis use
Social influence approaches vs. usual curricula *Cannabis use at any FU (studies not included in MA)*	Faggiano *et al.*, 2014 [H]	NR (5 RCTs)	Moderate	Not calculated	Mixed results: in four studies, there were no significant differences between social influence approaches and usual curricula, and one study favoured usual curricula for cannabis use
Combined social influence and competence approaches vs. usual curricula *Cannabis use >12 months (not included in MA)*	Faggiano *et al.*, 2014 [H]	NR (1 RCT)	Low	One study only	No statistically significant difference for cannabis use between a combined social influence/competence approach and usual curricula at >12 months FU

MA – meta-analysis. RCT – randomised controlled trial. RR – risk ratio. FU – follow-up.

Outcome Table 2: Hard drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Social competence approaches vs. usual curricula *Hard drug use <12 months*	Faggiano *et al.*, 2014 [H]	2,090 (1 RCT)	Low	One study only	No statistically significant differences between social competence programmes and usual curricula for hard drug use at <12 months FU
Combined social influence and competence approaches vs. usual curricula *Hard drug use <12 months*	Faggiano *et al.*, 2014 [H]	693 (1 RCT)	Low	One study only	No statistically significant difference for 'hard drug use' between a combined social influence/competence approach and usual curricula at <12 months FU
Knowledge-based approaches vs. usual curricula or no intervention *Hard drug use <12 months*	Faggiano *et al.*, 2014 [H]	1,575 (1 RCT)	Low	One study only	No statistically significant differences for cannabis use between knowledge-based approach and usual curricula
Social competence approaches vs. usual curricula *Hard drug use >12 months*	Faggiano *et al.*, 2014 [H]	1,075 (1 RCT)	Low	One study only	No statistically significant differences between social competence programmes and usual curricula for hard drug use at >12 months FU
Combined social influence and competence approaches vs. usual curricula *Hard drug use >12 months*	Faggiano *et al.*, 2014 [H]	1,066 (2 RCTs)	Low	Two studies only	No statistically significant differences for 'hard drug use' between a combined social influence/competence approach and usual curricula in either study at >12 months FU
Social competence approaches vs. usual curricula *Hard drug use at any follow-up (additional studies not included in MA)*	Faggiano *et al.*, 2014 [H]	NR (3 RCTs)	Low	Not calculated	No statistically significant differences for hard drug use between social competence approaches and usual curricula in any study
Social influence approaches vs. usual curricula *Hard drug use at any FU (additional studies not included in MA)*	Faggiano *et al.*, 2014 [H]	NR (1 RCT)	Low	Not calculated	Findings favoured the social influence approach over usual curricula for 'hard drug' use in one study
Combined social influence and competence approaches vs. usual curricula *Hard drug use >12 months (not included in MA)*	Faggiano *et al.*, 2014 [H]	NR (2 RCTs)	Low	Not calculated	Reduced hard drug use among the combined social influence/competence approach participants compared to usual curricula

MA – meta-analysis. RCT – randomised controlled trial. FU – follow-up.

Outcome Table 3: Other drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Social competence approaches vs. usual curricula *Other drug use <12 months*	Faggiano *et al.,* 2014 [H]	4,704 (2 RCTs)	Moderate	Two studies only	Mixed results: in one study, findings for other drug use favoured the social competence approach over usual curricula and in one study there was no statistically significant difference between groups at <12 months FU.
Social influence approaches vs. usual curricula *Other drug use <12 months*	Faggiano *et al.,* 2014 [H]	5,862 (1 RCT)	Low	One study only	No statistically significant difference between social influence approaches and usual curricula for 'other drug use' at <12 months FU
Knowledge-based approaches vs. usual curricula or no intervention *Other drug use <12 months*	Faggiano *et al.,* 2014 [H]	1,575 (1 RCT)	Low	One study only	No statistically significant differences for cannabis use between combined knowledge-based approach and usual curricula
Social influence approaches vs. usual curricula *Other drug use >12 months*	Faggiano *et al.,* 2014 [H]	5,862 (1 RCT)	Low	One study only	Findings for 'other drug use' favoured usual curricula over social influence approach at >12 months FU
Social competence approaches vs. usual curricula *Other drug use at any follow-up (additional studies not included in MA)*	Faggiano *et al.,* 2014 [H]	NR (4 RCTs)	Moderate	Not calculated	Mixed results: no statistically significant differences for hard drug use between social competence approaches and usual curricula in three studies and results favoured the social competence approach in one study

MA – meta-analysis. RCT – randomised controlled trial. FU – follow-up

Outcome Table 4: Any drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Social competence approaches vs. usual curricula *Any drug use <12 months*	Faggiano *et al.*, 2014 [H]	4,708 (3 RCTs)	Moderate	Not calculated	Mixed results: in one study findings for any drug use favoured the social competence approach over usual curricula and in two studies there were no statistically significant differences between groups at <12 months FU.
Combined social influence and competence approaches vs. usual curricula *Any drug use <12 months*	Faggiano *et al.*, 2014 [H]	6,362 (1 RCT)	High	One study only	Reduced use of any drugs among combined social influence/competence approach participants and usual curricula
Social competence approaches vs. usual curricula *Any drug use at any follow-up (additional studies not included in MA)*	Faggiano *et al.*, 2014 [H]	NR (4 RCTs)	Moderate	Not calculated	Mixed results: no statistically significant differences for any drug use between social competence approaches and usual curricula in two studies; and in two groups.
MA – meta-analysis. RCT – randomised controlled trial. FU – follow-up					

Intervention: School-based drug and sexual health prevention programmes

Outcome Table 5: Drug use and sexual health

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Curriculum intervention vs. control	Jackson *et al.*, 2012	NR (3 RCTs)	Low	Not calculated	In three studies, no significant differences were identified between intervention and control participants' drug use. Findings for sexual risk behaviours and alcohol use were mixed, although more promising.
Curriculum intervention plus parent information plus student-led committee vs. control	Jackson *et al.*, 2012	NR (1 RCT)	Low	Not calculated	In one study, there was no significant intervention effect on drug use reported. The only sexual health measure, condom use, was improved among males only.
Whole school environment intervention vs. controls	Jackson *et al.*, 2012	NR (4 RCTs)	Low	Not calculated	Mixed results: across studies, drug use outcomes were generally not significantly different in intervention compared to control groups. More promising but still mixed results were reported for alcohol use and sexual risk behaviours.
MA – meta-analysis. RCT – randomised controlled trial. FU – follow-up					

9.1.2 Family-based interventions

Population: Children and young people
Setting: Not reported
Intervention: Universal family intervention

Outcome Table 6: Frequency of drug use (universal interventions)

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Universal family intervention vs. controls *Cannabis use*	Jackson *et al.*, 2012 [H]; Patnode *et al.*, 2014 [H] Vermeulen-Smit *et al.*, 2015 [M]	NR (4 RCTs)	Moderate	Not calculated	In all three studies, there were significant reductions in cannabis use among universal family intervention participants in comparison with controls.
Universal family intervention vs. controls *Other drug use*	Patnode *et al.*, 2014 [H]; Vermeulen-Smit *et al.*, 2015 [M]	NR (4 RCTs)	Moderate	Not calculated	Mixed findings between universal family intervention and control participants on use of drug use other than cannabis (including non-medical use of prescription drugs)
RCT – randomised controlled trial					

Population: Adolescents already using illicit drugs recreationally
Setting: Not reported
Intervention: Targeted family intervention

Outcome Table 7: Frequency of drug use (targeted interventions)

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Targeted parent intervention vs.no intervention.	Vermeulen-Smit *et al.*, 2015 [M]	22 (1 RCT)	Low	Not calculated	No statistically significant differences in cannabis use between adolescents whose parents received the intervention and controls
Targeted family intervention vs. adolescent only intervention	Vermeulen-Smit *et al.*, 2015 [M]	315 (2 RCTs)	Low	Not calculated	Mixed results: in one study, cannabis use frequency was reduced among adolescents in the adolescent plus parent interventions groups; and in one study there was no difference between participants and controls.
Targeted family intervention vs. assessment only group	Vermeulen-Smit *et al.*, 2015 [M]	232 (2 RCTs)	Low	Not calculated	In both studies cannabis use frequency was reduced among adolescents in the adolescent plus parent interventions groups.
RCT – randomised controlled trial					

Population: High-risk adolescents
Setting: Not reported
Intervention: Targeted family-based intervention

Outcome Table 8: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Targeted family interventions vs. controls *Any illicit drug use*	Vermeulen-Smit *et al.*, 2015 [M]	NR (6 RCTs)	Low	Not calculated	In five studies there were no statistically significant effects of targeted family interventions when high-risk populations were compared to controls.
Targeted family interventions vs. controls *Frequency of cannabis use*	Vermeulen-Smit *et al.*, 2015 [M]	NR (7 RCTs)	Low	Not calculated	Mixed results: in four studies cannabis use frequency decreased among family intervention participants in comparison with controls, but in two studies frequency increased in comparison with controls and in one study there was no statistically significant difference.
Targeted family interventions vs. controls *Frequency of hard drug use*	Vermeulen-Smit *et al.*, 2015 [M]	NR (3 RCTs)	Low	Not calculated	Reductions in hard drug use in high-risk adolescents targeted by family interventions in comparison to controls in all three studies
RCT – randomised controlled trial					

Population: At-risk populations
Setting: Not reported
Intervention: Targeted family interventions

Outcome Table 9: Drug dependence or disorder

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Targeted family interventions vs. control *Cannabis dependence*	Vermeulen-Smit *et al.*, 2015 [M]	519 (2 RCTs)	Low	Not calculated	Mixed results: one study reported a reduced risk of cannabis disorder among boys in the family intervention group, but for girls and in the remaining studies there were no statistically significant differences between groups on cannabis disorder/dependence.
Targeted family intervention vs. limited intervention control *Illicit drug abuse or dependence*	Vermeulen-Smit *et al.*, 2015 [M]	240 (1 RCT)	Low	One study only	No statistically significant difference between family-based intervention and reduced intervention control participants at long-term follow-up
RCT– randomised controlled trial					

9.1.3 Brief and/or motivational interventions

Population: Children and young people
Setting: Emergency department
Intervention: Motivational interview

Outcome Table 10: Cannabis use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Motivational interview vs. handout *Cannabis abstinence*	Newton *et al.*, 2013 [H]	1,063 (2 RCTs)	Low	Two studies only	Findings favoured MI participants compared with handout-only control.
Motivational interview vs. handout *Cannabis use*	Newton *et al.*, 2013 [H]	210 (1 RCT)	Low	One study only	No statistically significant differences between MI and handout-only groups
MI – motivational interview. RCT – randomised controlled trial					

Outcome Table 11: Alcohol use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Motivational interview vs. handout	Newton *et al.*, 2013 [H]	210 (1 RCT)	Low	One study only	On a range of outcomes relating to alcohol consumption including, drinking days per month, quantity, drinks per week and maximum drinks per day, there were no statistically significant differences between MI and handout-only groups.
MI – motivational interview. RCT – randomised controlled trial					

Setting: Primary care
Intervention: Motivational interview

Outcome Table 12: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Motivational interview vs. usual care *Cannabis use*	VanBuskirk and Wetherell, 2014	64 (1 RCT)	Low	One study only	Reduced cannabis use in the MI group in comparison to usual care
Motivational interview vs. control *Drug use*	VanBuskirk and Wetherell, 2014	28 (1 RCT)	Low	One study only	No statistically significant difference between groups on frequency or amount of drug use
Motivational interview vs. control *Drug use before sexual activity*	VanBuskirk and Wetherell, 2014	28 (1 RCT)	Low	One study only	Reduced drug use prior to sexual activity in MI participants in comparison to controls
MI – motivational interview. RCT – randomised controlled trial					

Outcome Table 13: Trouble due to alcohol use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Motivational interview vs. control	VanBuskirk and Wetherell, 2014	28 (1 RCT)	Low	One study only	Reduced trouble due to alcohol use in MI participants in comparison to controls
MI – motivational interview. RCT – randomised controlled trial					

Intervention: Brief intervention

Outcome Table 14: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Brief intervention vs. control *Cannabis initiation*	Patnode *et al.*, 2014	2,695 (1 quasi-RCT)	Low	One study only	Mixed results: in one arm of the study, cannabis initiation was lower among BI participants and in one arm of the study there was no BI effect in comparison to controls.
Brief intervention vs. control *Cannabis use*	Patnode *et al.*, 2014	3,023 (1 RCT, 1 quasi-RCT)	Low	Two studies only	Mixed results: in one study, cannabis use was reduced among BI participants in comparison to controls in one arm of the study, but not in a second, and in one study there was no BI effect on cannabis use.
Brief intervention vs. control *Cannabis cessation*	Patnode *et al.*, 2014	2,695 (1 quasi-RCT)	Low	One study only	Mixed results: in one arm of the study, cannabis cessation was greatest amongt BI participants and in one arm of the study there was no BI effect in comparison to controls.
Brief intervention vs. control *Illicit drug use*	Patnode *et al.*, 2014	369 (2 RCTs)	Low	Two studies only	Mixed results: in one study the BI had no impact when compared to the control, and in one study there was no impact of a therapist-led BI had no impact but participants who received a computer BI had reduced drug use in comparison to controls.

BI – brief intervention. RCT – randomised controlled trial

Setting: School
Intervention: Brief interventions

Outcome Table 15: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Brief intervention vs. information provision *Any drug use*	Carney *et al.*, 2014 [H]	732 (3 RCTs)	Moderate	SMD -0.06 (-0.20, 0.09)	No statistically significant difference between BI and information only participants
Brief intervention vs. assessment only *Any drug use*	Carney *et al.*, 2014 [H]	424 (3 RCTs)	Moderate	Not calculated	Mixed results: findings favoured the BI group over the assessment only control in two studies and there were no significant differences between groups in one study.
Brief intervention vs. information provision *Cannabis quantity*	Carney *et al.*, 2014 [H]	326 (1 RCT)	Moderate	One study only	No statistically significant differences between BI and information only participants
Brief intervention vs. assessment only *Cannabis quantity*	Carney *et al.*, 2014 [H]	179 (1 RCT)	Low	One study only	Findings favoured BI participants over assessment only controls
BI vs. information provision *Cannabis frequency*	Carney *et al.*, 2014 [H]	531 (2 RCTs)	Moderate	Two studies only	No statistically significant differences between BI and information only participants in either study
BI vs. assessment only *Cannabis frequency*	Carney *et al.*, 2014 [H]	407 (3 RCTs)	Moderate	SMD -0.22 (-0.43, -0.02)	Findings for cannabis frequency favoured BI over assessment only participants
Brief intervention vs. information provision *Cannabis dependence*	Carney *et al.*, 2014 [H]	531 (2 RCTs)	Moderate	Two studies only	No statistically significant differences between BI and information only participants for cannabis dependence in either study
Brief intervention vs. assessment only *Cannabis dependence*	Carney *et al.*, 2014 [H]	189 (1 RCT)	Low	One study only	No statistically significant differences between BI and assessment only participants for cannabis dependence

BI – brief intervention. RCT – randomised controlled trial. SMD – standardised mean difference

Outcome Table 16: Alcohol use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Brief intervention vs. information provision *Alcohol frequency*	Carney *et al.*, 2014 [H]	527 (2 RCTs)	Moderate	Two studies only	No statistically significant difference between BI and information only participants in either study for alcohol frequency
Brief intervention vs. assessment only *Alcohol frequency*	Carney *et al.*, 2014 [H]	424 (3 RCTs)	Moderate	Not calculated	Mixed results: findings favoured the BI group over the assessment only control in two studies and there were no significant differences between groups in one study for alcohol frequency.
Brief intervention vs. information provision *Alcohol quantity*	Carney *et al.*, 2014 [H]	527 (2 RCTs)	Moderate	Two studies only	No statistically significant difference between BI and information only participants in either study for alcohol quantity
Brief intervention vs. assessment only *Alcohol quantity*	Carney *et al.*, 2014 [H]	179 (1 RCT)	Low	One study only	No statistically significant differences between BI and assessment only participants for alcohol quantity
BI – brief intervention. RCT – randomised controlled trial					

Outcome Table 17: Combined behavioural outcomes

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Brief intervention vs. information provision	Carney *et al.*, 2014 [H]	531 (2 RCTs)	Moderate	Two studies only	No statistically significant differences between BI and information only participants on behavioural outcomes in either study
Brief intervention vs. assessment only	Carney *et al.*, 2014 [H]	421 (3 RCTs)	Low	Not calculated	Mixed results: in two studies, findings favoured BI and in one study there was no statistically significant difference between groups.
BI – brief intervention. RCT – randomised controlled trial					

9.1.4 Media campaigns including computer/Internet interventions

Population: Children and young people
Setting: Community
Intervention: Multicomponent media campaign

Outcome Table 18: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Multicomponent intervention and school-wide campus intervention vs. no intervention *Drug use*	Ferri *et al.*, 2013 [H]	825 (1 CBA)	Low	One study only	No statistically significant difference in drug use following the multicomponent campaign compared to the control school campus
TV/radio advertisement vs. no intervention *Drug use*	Ferri *et al.*, 2013 [H]	(1 ITS)	Low	One study only	Reduced downward trend in cannabis after exposure to the campaign
Multicomponent intervention vs. no intervention *Methamphetamine use*	Ferri *et al.*, 2013 [H]	26,405 (4 ITS, 1 CBA)	Low	Not calculated	Mixed results across studies
Multicomponent intervention (TV/radio/ printed advert and Internet) vs. no intervention *Methamphetamine use*	Ferri *et al.*, 2013 [H]	26,405 (4 ITS, 1 CBA)	Low	Not calculated	Mixed results across studies
Multicomponent intervention (TV/radio/ printed advert) vs. no intervention *Methamphetamine use*	Ferri *et al.*, 2013 [H]	26,405 (4 ITS, 1 CBA)	Low	Not calculated	Mixed results across studies
Multicomponent intervention (TV/radio/ printed advert and Internet) vs. control *Cannabis use*	Ferri *et al.*, 2013 [H]	(1 ITS, 2 cohort)	Low	Not calculated	Mixed results: one study reported reduced cannabis use for younger girls only and in one study cannabis use was reported to increase following campaign exposure. Additionally, in one study there was no statistically significant change in cannabis use following a campaign.
Multicomponent intervention vs. control *Cannabis use*	Ferri *et al.*, 2013 [H]	(1 ITS, 2 cohort)	Low	Not calculated	Mixed results: one study reported reduced cannabis use for younger girls only and in one study cannabis use was reported to increase following campaign exposure. Additionally, in one study there was no statistically significant change in cannabis use following a campaign.

Outcome Table 18 (continued): Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Multicomponent intervention vs. control *Cannabis use*	Ferri *et al.*, 2013 [H]	Not reported (1 ITS, 2 cohort, 1 RCT)	Low	Not calculated	Mixed results: one study reported reduced cannabis use following a community-level campaign compared with no intervention and one study reported reduced cannabis use for younger girls only. In one study, cannabis use was reported to increase following campaign exposure and in one study, there was no statistically significant change in cannabis use following a campaign.
CBA – controlled before and after study. ITS – interrupted time series. RCT – randomised controlled trial					

Intervention: TV/radio standalone commercial

Outcome Table 19: Any drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
TV/radio advertisement vs. no intervention	Ferri *et al.*, 2013 [H]	(1 ITS)	Low	One study only	Reduced downward trend in cannabis use after exposure to the campaign
ITS – Interrupted time series					

Population: Children and young people
Setting: School and community
Intervention: Internet and computer-based interventions

Outcome Table 20: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Universal Internet and computer-based intervention vs. no intervention or alternative intervention *Cannabis use, post-intervention follow-up*	Ferri *et al.*, 2013 [H]; Wood *et al.*, 2014 [H]	1,272 (3 RCTs)	Low	Not calculated	No statistically significant differences between Internet-based intervention and control participants on cannabis use immediately following the intervention in any study
Universal Internet and computer-based intervention vs. no intervention or alternative intervention *Cannabis use, medium-term follow-up*	Ferri *et al.*, 2013 [H]; Wood *et al.*, 2014 [H]	1,000 (2 RCTs)	Low	Two studies only	By medium-term follow-up, cannabis use was reduced in the Internet-based intervention groups in comparison to control groups in both studies.
Universal Internet and computer-based intervention vs. no intervention or alternative intervention	Tait *et al.*, 2013 [H]	4,125 (10 RCTs)	High	ES 0.16 (0.09, 0.22)	Cannabis use reduced in the Internet-based intervention groups in comparison to controls
Universal Internet and computer-based intervention vs. no intervention or alternative intervention *Polydrug use, post-intervention follow-up*	Wood *et al.*, 2014 [H]	236 (1 RCT)	Low	One study only	No statistically significant differences between Internet-intervention and no intervention participants for any drug use in one study immediately following the intervention.
Universal Internet and computer-based intervention vs. no intervention or alternative intervention *Polydrug use, medium-term follow-up*	Wood *et al.*, 2014 [H]	236 (1 RCT)	Low	One study only	By medium-term follow-up, cannabis use was reduced in the Internet-based intervention groups in comparison to control groups in one study.
Universal Internet and computer-based intervention vs. no intervention or alternative intervention *Any drug use, post-intervention follow-up*	Wood *et al.*, 2014 [H]	230 (1 RCT)	Low	One study only	No statistically significant differences between Internet-intervention and no intervention participants for any drug use in one study

RCT– randomised controlled trial. CBA – controlled before and after study. ES – effect size

Population: Targeted at recreational drug users
Setting: College; Internet
Intervention: Internet and computer-based interventions

Outcome Table 21: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Internet and computer-based interventions targeting recreational drug users vs. no intervention	Ferri *et al.*, 2013; Wood *et al.*, 2014 [H]	1,633 (2 RCTs)	Low	Two studies only	Mixed results: one study reported a reduction in recreational drug use following an Internet-based intervention, and one study reported no statistically significant differences.
RCT – randomised controlled trial					

9.1.5 Mentoring interventions

Population: Children and young people who are high risk
Setting: Community
Intervention: Mentoring

Outcome Table 22: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Mentoring intervention vs. no intervention *Cannabis use*	Thomas *et al.*, 2013 [M]	358 (1 RCT)	Low	One study only	Cannabis use reduced in the mentoring participants compared to no intervention
Mentoring intervention vs. no or limited intervention control *Illegal drug use*	Thomas *et al.*, 2013 [M]	285 (2 RCTs)	Low	Two studies only	No statistically significant differences relating to illicit drug use between either of the mentoring intervention groups in comparison to controls
Mentoring intervention vs. no intervention *Initiation of illicit drug use*	Thomas *et al.*, 2013 [M]	1,138 (1 RCT)	Low	One study only	No statistically significant difference in illicit drug use initiation between mentoring and no intervention groups.
Mentoring intervention vs. no or limited intervention control *Any drug use including alcohol, tobacco and illegal drugs*	Thomas *et al.*, 2013 [M]	719 (2 RCTs)	Low	Two studies only	Mixed results: in one study mentoring was associated with less use of any drugs among those who attended mentoring sessions only in comparison with controls, and in one study there were no significant differences between mentoring and control groups for any drug use.
RCT – randomised controlled trial					

Outcome Table 23: Alcohol use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Mentoring intervention vs. no or limited intervention *Alcohol use*	Thomas *et al.*, 2013 [M]	486 (2 RCTs)	Low	Two studies only	There were no statistically significant differences for alcohol use between mentoring and control groups in either study.
Mentoring intervention vs. no intervention *Initiation of alcohol use*	Thomas *et al.*, 2013 [M]	1,138 (1 RCT)	Low	One study only	There was no statistically significant difference for initiation of alcohol use between mentoring and control groups in one study.
RCT – randomised controlled trial					

Population: Adolescents who are homeless
Setting: Community
Intervention: Mentoring and drug use treatment

Outcome Table 24: Drug use

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review Eeidence	Effect size (95% CI)	Overall results (combined)
Mentoring intervention with drug use treatment vs. treatment only or no intervention control.	Thomas *et al.*, 2013 [M]	90 (1 RCT)	Low	One study only	There were no statistically significant differences for drug use between the combined mentoring and treatment and control groups.
RCT – randomised controlled trial					

Outcome Table 25: Alcohol use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Mentoring intervention with drug use treatment vs. treatment only or no intervention control	Thomas *et al.*, 2013 [M]	90 (1 RCT)	Low	One study only	There were no statistically significant differences for alcohol use between the combined mentoring and treatment and control groups.
RCT – randomised controlled trial					

9.1.6 Interventions for people with mental health disorders

Population: Children with disruptive behavioural disorder
Setting: Psychiatric clinics and mental health centres
Intervention: Mentoring and drug use treatment

Outcome Table 26: Cannabis use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Multicomponent intervention including coping and social skills training, parent intervention and CBT vs. usual care and healthy control groups	Salvo *et al.*, 2012 [H]	77 (1 RCT)	Low	One study only	Children who received the multicomponent intervention had lower cannabis use than those who received usual care, and their cannabis use was not significantly different to healthy controls.
CBT – cognitive behavioural therapy. RCT – randomised controlled trial					

Population: Adolescents with ADHD
Setting: Psychiatric and non-psychiatric settings
Intervention: ADHD medication

Outcome Table 27: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
ADHD medication vs. non-medicated controls *Drug disorders*	Salvo *et al.*, 2012 [H]	260 (1 cohort)	Low	One study only	There were no statistically significant differences between those who received medication and those who did not for any drug disorders, including cannabis, cocaine or hallucinogens.
ADHD medication vs. non-medicated controls *Drug use*	Salvo *et al.*, 2012 [H]	260 (1 cohort)	Low	One study only	Mixed results: lower alcohol use in males but not females
ADHD – attention deficit hyperactivity disorder					

Population: Adolescents and young adults at high risk of developing psychosis
Setting: Not reported
Intervention: MI and CBT (cannabis users) or brief advice (non-users)

Outcome Table 28: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MI and CBT (cannabis users) or brief advice with or without reinforcement (non-users)	Salvo *et al.*, 2012 [H]	58 (1 UBA)	Low	One study only	Reductions in cannabis use and polydrug use following the intervention
MI – motivational interview. CBT – cognitive behavioural therapy. UBA – uncontrolled before and after study					

9.2 Harm reduction review outcome tables

9.2.1 Needle and syringe programmes

Population: People who use drugs
Setting: Community
Intervention: Needle and syringe programmes

Outcome Table 29: Blood-borne viruses

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
NSP exposure *Risk of HIV transmission*	Aspinall *et al.*, 2013 [H]	Not reported (12: 10 cohort; 1 case-control; 1 cross-sectional)	Moderate	ES 0.66 (0.43, 1.01)	NSP exposure associated with a reduction in HIV transmission, although findings were not statistically significant
Coverage of at least 10 needles/syringes per PWID and at least 50% coverage of PWID population by NSP vs. controls *HIV/HCV prevalence*	Abdul-Quader *et al.*, 2013 [H]	Not reported (15 studies)	Low	Not calculated	Mixed results across individual studies, with the majority of studies suggesting significant reductions in HIV and/or HCV prevalence at the population level
Full harm reduction vs. partial or no harm reduction *HCV incidence*	Hagan *et al.*, 2011 [H]	Not reported (7: 6 cohort, 1 case-control)	Low	ES 1.62 (1.04, 2.52)	Statistically significant increased risk of HCV among people who used NSP
Provision of non-needle/syringe injecting paraphernalia *HCV prevalence*	Gillies *et al.*, 2010 [H]	275 (1 cross-sectional study)	Low	One study only	Access to paraphernalia including sterile cookers and water was associated with reduced prevalence of HCV
NSP – Needle and syringe programme. ES – effect size					

Outcome Table 30: Injection risk behaviours

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Provision of non-needle/syringe injecting paraphernalia	Gillies *et al.*, 2010 [H]	(8 cross-sectional)	Low	Not calculated	Individual effect sizes suggested a reduction in the odds of sharing injecting paraphernalia other than needles and syringes
NSP vs. control	Jones *et al.*, 2010 [H]	(3 cross-sectional)	Low	Not calculated	Mixed results: one study reported significant decrease in using pre-used syringes and two studies reported no significant difference in receptive sharing.
NSP – Needle and syringe programme					

Intervention: Needle and syringe programmes and OST

Outcome Table 31: Blood-borne viruses

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of auality of review evidence	Effect size (95% CI)	Overall results (combined)
Full harm reduction (OST plus NSP coverage where needles per injection ≥100%) vs. minimal harm reduction (no OST plus <100% NSP coverage) *New HCV infection*	Turner *et al.*, 2011 [not applicable]	533 (6 studies)	Not applicable	AOR 0.21 (0.08, 0.52)	Full harm reduction (OST plus NSP coverage where needles per injection ≥100%) was associated with an 80% lower risk of new HCV infection, compared to minimal harm reduction
Full participation in harm reduction (NSP plus OST) vs. incomplete harm reduction. *HIV incidence*	Jones *et al.*, 2010 [H]	952 (1 cohort)	Low	One study only	Full participation in harm reduction was associated with a reduction in HIV incidence.
Full participation in harm reduction (NSP plus OST) vs. incomplete harm reduction. *HCV incidence*	Jones *et al.*, 2010 [H]	952 (1 cohort)	Low	One study only	Full participation in harm reduction was associated with a reduction in HCV incidence.

OST – opioid substitution therapy. NSP – needle and syringe programme. AOR – adjusted odds ratio

Outcome Table 32: Injection risk behaviours

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review rvidence	Effect size (95% CI)	Overall results (combined)
Full harm reduction (OST plus NSP coverage where needles per injection ≥100%) vs. minimal harm reduction (no OST plus <100% NSP coverage) *Needle sharing*	Turner *et al.*, 2011 [not applicable]	1,335 (6 studies)	Not applicable	AOR 0.52 (0.32, 0.83)	Reduced sharing of needles among those receiving full harm reduction (OST plus NSP) compared to minimal engagement with harm reduction
Full harm reduction (OST plus NSP coverage where needles per injection ≥100%) vs. minimal harm reduction (no OST plus <100% NSP coverage) *Mean number of injections*	Turner *et al.*, 2011 [not applicable]	1,335 (6 studies)	Not applicable	MD -20.8 (-27.3, -14.4)	Reduced injection frequency among those receiving full harm reduction (OST plus NSP) compared to minimal engagement with harm reduction

OST – opioid substitution therapy. NSP – needle and syringe programme. AOR – adjusted odds ratio

Intervention: Psychosocial and behavioural interventions

Outcome Table 33: Blood-borne viruses

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Peer education training vs. control *HCV infection*	Hagan *et al.*, 2011 [H]; Sacks-Davis *et al.*, 2012 [H]	854 (1 RCT)	Low	One study only	No significant difference following peer education training compared to controls for HCV infection
Motivational interview vs. control *HCV infection*	Hagan *et al.*, 2011 [H]	89 (1 RCT)	Low	One study only	No significant difference between motivational interview and control groups for HCV infection
Counselling vs. control *HCV infection*	Sacks-Davis *et al.*, 2012 [H]	187 (2 RCTs)	Low	Two studies only	No significant difference between counselling and control groups for HCV infection
RCT – randomised controlled trial					

Outcome Table 34: Injection risk behaviours

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Multisession psychosocial intervention vs. standard education *Injection risk behaviours: 3–6 months*	Meader *et al.*, 2010 [H]	1,044 (6: 5 RCTs; 1 quasi-RCT)	Moderate	SMD 0.04 (-0.31, 0.23)	No significant differences in injection risk behaviours between multisession psychosocial and standard education interventions
Multisession psychosocial intervention vs. standard education *Injection risk behaviours: >6 months*	Meader *et al.*, 2010 [H]	73 (1 RCT)	Low	One study only	In one study, injection risk behaviours were significantly reduced in multisession psychosocial intervention participants in comparison to standard education controls at greater than six month follow-up.
Multisession psychosocial intervention vs. minimum control *Injection risk behaviours: 3–6 months*	Meader *et al.*, 2010 [H]	262 (3 RCTs)	Moderate	SMD -0.06 (-0.30, 0.19)	No significant differences in injection risk behaviours between multisession psychosocial and minimum control interventions
Multisession psychosocial intervention vs. standard education *Safer injection behaviours: 3–6 months*	Meader *et al.*, 2010 [H]	6,562 (13: 4 RCTs, 9 quasi-RCTs)	Moderate	RR 1.03 (0.95, 1.11)	No significant differences in safer injection behaviours between multisession psychosocial and standard education interventions
Multisession psychosocial intervention vs. minimum control *Safer injection behaviours: 3–6 months*	Meader *et al.*, 2010 [H]	510 (4 RCTs)	Moderate	RR 1.10 (0.92, 1.31)	No significant differences in safer injection behaviours between multisession psychosocial and minimal control interventions

Outcome Table 34 (continued): Injection risk behaviours

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Peer education training vs. control *Injection risk behaviours*	Sacks-Davis *et al.*, 2012 [H]	1,272 (2 RCTs)	Moderate	Two studies only	In both studies, injection risk behaviours were reduced following peer education training in comparison to controls
Counselling vs. control *Injection risk behaviours*	Sacks-Davis *et al.*, 2012 [H]	1,200 (4 RCTs)	Moderate	Not calculated	No statistically significant differences between injection risk behaviours following peer education training in comparison to controls
Peer education training vs. control *Refraining from injecting*	Sacks-Davis *et al.*, 2012 [H]	418 (1 RCT)	Low	One study only	Injecting frequency was significantly reduced at three-month and six-month follow-up following peer education training, compared with controls
Counselling vs. control *Refraining from injecting*	Sacks-Davis *et al.*, 2012 [H]	78 (1 RCT)	Low	One study only	No statistically significant differences between counselling and control groups on either measure of injection frequency
Counselling vs. control *Mean number of days injected*	Sacks-Davis *et al.*, 2012 [H]	109 (1 RCT)	Low	One study only	
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 35: Sexual risk behaviours

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Multisession psychosocial intervention vs. standard education	Meader *et al.*, 2013 [H]	16,504 (46: 26 RCTs; 20 quasi-RCTs)	Moderate	OR 0.86 (0.77, 0.96)	Significantly greater reduction in sexual risk behaviours among multisession psychosocial intervention participants in comparison to those receiving standard education
Multisession psychosocial intervention vs. minimal control	Meader *et al.*, 2013 [H]	3,208 (7: 6 RCTs; 1 quasi-RCT)	Moderate	OR 0.60 (0.46, 0.78)	Significantly greater reduction in sexual risk behaviours among multisession psychosocial intervention participants in comparison to those receiving minimal control
RCT – randomised controlled trial. OR – Odds ratio					

Intervention: Overdose prevention interventions

Outcome Table 36: Overdose-related outcomes

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Community OOPPs with naloxone *Opioid overdose mortality*	Clark *et al.*, 2014 [M]	Not reported (1 cohort)	Low	One study only	Lower rates of opioid-related deaths in areas with higher administration of OOPPs
Community OOPPs with naloxone *Response to overdose*	Clark *et al.*, 2014 [M]	66 (3 cohort)	Low	Not calculated	Improved correct responses to overdose and reduced inappropriate response to victims
Community OOPPs *Naloxone administration*	Clark *et al.*, 2014 [M]	Not reported (18: 14 cohort, 3 descriptive, 2 qualitative)	Low	Not calculated	Naloxone was administered successfully in all but one programme on a total of 1,949 occasions and unsuccessfully on a total of 12 occasions.
OOPP – opioid overdose prevention programme					

Intervention: Drug consumption rooms

Outcome Table 37: Overdose

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
SIF implementation	Potier *et al.*, 2014 [M]	Not reported (7 studies)	Moderate	Not calculated	SIFs were associated across studies with reductions in the number of lethal overdoses in local areas.
SIF – safer injection facilities					

Outcome Table 38: Injection risk behaviours

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
SIF attendance *Sharing and reuse of syringes*	Potier *et al.*, 2014 [M]	9,384 (7 studies)	Moderate	Not calculated	SIFs were associated with improved outcomes including syringe sharing and reuse, use of sterile equipment and requests for education.
SIF implementation *Injection drug use*	Potier *et al.*, 2014 [M]	1,936 (2 studies)	Low	Not calculated	No change in the number of people who inject drugs following SIF opening
SIF – safer injection facilities					

Outcome Table 39: Drug-related litter

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
SIF implementation *Drug-related litter*	Potier *et al.*, 2014 [M]	Not reported (1 before and after study)	Low	One study only	In one study, there was a significant reduction in drug-related litter after SIF opening.
SIF attendance *Number of syringes dropped in public*	Potier *et al.*, 2014 [M]	Not reported (1 before and after study)	Low	One study only	In one study, there was a significant reduction in the number of syringes dropped in public after SIF opening.
SIF attendance *Injection in public spaces*	Potier *et al.*, 2014 [M]	760 (1 observational study)	Low	One study only	In one study, regular use of SIF was associated with reduced injection in public areas.
SIF – safer injection facilities					

Intervention: Route transition interventions

Outcome Table 40: Injecting drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Peer-based behaviour modification (before and after study) *Peer injection behaviours*	Werb *et al.*, 2013 [H]	Not reported (2 cross-sectional studies)	Low	Not calculated	Significantly lower likelihood of injecting in front of a non-injector and willingness to initiate a non-injector following the intervention
Peer-based behaviour modification vs. control *Injection initiation*	Werb *et al.*, 2013 [H]	Not reported (1 RCT)	Low	Not calculated	Significantly lower rate of injecting drugs among peer-based behaviour modification participants than among controls
Law enforcement *Injection initiation*	Werb *et al.*, 2013 [H]	Not reported (2 before and after studies)	Low	Two studies only	No significant association between increased police deterrence and injection initiation
RCT – randomised controlled trial					

Intervention: Blood-borne virus testing

Outcome Table 41: Uptake of blood-borne virus testing

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Targeted case finding in primary care vs. no intervention control *People who inject drugs*	Jones *et al.*, 2013 [H]	2,079 (1 quasi-RCT)	Low	One study only	Positive intervention impact on uptake of HCV testing in primary care with targeted case management compared to control
Targeted case finding in primary care vs. no intervention control *People who formerly injected drugs*	Jones *et al.*, 2013 [H]	27,226 (1 quasi-RCT)	Low	One study only	Positive intervention impact on uptake of HCV testing in primary care with targeted case management compared to control.
DBST vs. venepuncture only testing	Jones *et al.*, 2013 [H]	12,250 (1 RCT)	Low	One study only	Greater uptake of HCV testing in services offering DBST compared to those offering venepuncture testing only

DBST – dry blood spot test. RCT – randomised controlled trial. HCV – hepatitis C virus

Population: People who use drugs who are living with HIV
Setting: Community
Intervention: HIV treatment approaches

Outcome Table 42: HIV treatment outcomes

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
HAART *Adherence to treatment*	Malta *et al.*, 2010 [M]	14,960 (38: study design not reported)	Low	Proportion maintaining adherence: 0.60 (0.52-0.68)	Adherence among drug users comparable[1] to among non-drug users
HAART plus OST vs. HAART alone *Adherence to treatment*	Malta *et al.*, 2010 [M]	Not reported (5: study design not reported)	Low	Not calculated	Drug users engaged in OST had increased adherence to HAART and better treatment outcomes
DAART *Treatment and virological outcomes*	Camp Binford *et al.*, 2012 [H]	Not reported (45: study design not reported)	Low	Not calculated	Evidence supporting DAART alone and integrated in medication-assisted therapy to improve treatment and virological outcomes
Contingency management *Treatment and virological outcomes*	Camp Binford *et al.*, 2012 [H]		Low	Not calculated	Findings are inconsistent but suggested to be promising in favour of contingency management
Nurse-delivered interventions *Treatment and virological outcomes*	Camp Binford *et al.*, 2012 [H]		Low	Not calculated	Findings are inconsistent but suggested to be promising in favour of nurse-delivered interventions

HAART – highly active antiretroviral therapy. DAART – directly administered antiretroviral therapy. RCT – randomised controlled trial

1 – Indicates that the intervention appears suitable for people who use drugs

Intervention: 'Risk reduction' interventions

Outcome Table 43: Risky behaviours

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Harm reduction interventions vs. controls *Drug use*	Wang *et al.*, 2013 [H]	1,246 (3 RCTs)	Moderate	ES -0.26 (-0.51, 0.01)	Individuals who received harm reduction were significantly more likely to reduce drug use.
Harm reduction interventions vs. controls *Needle sharing*	Wang *et al.*, 2013 [H]	1,246 (3 RCTs)	Moderate	ES -0.15 (0.43, 0.13)	No significant differences in needle sharing between individuals who received harm reduction and controls
RCT – randomised controlled trial. ES – effect size					

Population: People who use drugs who are living with HCV
Setting: Community
Intervention: Combination treatment of HCV

Outcome Table 44: HCV treatment outcomes

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Prevalence (95% CI)	Overall results (combined)
Combination treatment with ribavirin plus recombinant, or pegylated interferon-α, for chronic hepatitis C among IDUs vs. non-IDUs *Sustained virological response*	Zanini *et al.*, 2010 [H]	953 (16 prospective cohort studies)	High	0.52 (0.44, 0.60)	No significant differences[1] in BBV treatment drop out between IDUs and non-IDUs who received combination treatment for hepatitis C
Combination treatment with ribavirin plus recombinant, or pegylated interferon-α, for chronic hepatitis C among IDUs vs. non-IDUs *BBV treatment drop out*	Zanini *et al.*, 2010 [H]	953 (16 prospective cohort studies)	High	0.26 (0.18, 0.35)	No significant differences[1] in BBV treatment drop out between IDUs and non-IDUs who received combination treatment for hepatitis C
IDU – injecting drug user. BBV – blood-borne virus 1 – Indicates that the intervention appears suitable for people who use drugs					

Population: People who use drugs who are in contact with the criminal justice system
Setting: Prison
Intervention: Needle and syringe programmes

Outcome Table 45: Blood-borne viruses

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Distribution of injecting equipment *BBV infection*	Jones *et al.*, 2008 [H]	Not reported (2 uncontrolled before and after)	Low	Not calculated	There were no new cases of HIV, HBV or HCV observed at follow-up in any of the uncontrolled studies included in the reviews.
BBV – blood-borne virus. HBV – hepatitis B virus. HCV – hepatitis C virus					

Setting: Prison and community
Intervention: HIV risk reduction interventions

Outcome Table 46: Blood-borne viruses

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
HIV risk reduction interventions *BBV incidence*	Underhill *et al.*, 2014 [H]	694 (5 RCTs)	High	Not calculated	No statistically significant differences in BBV infection between groups in any study
RCT – randomised controlled trial					

Outcome Table 47: Injection risk behaviours

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
HIV risk reduction intervention vs. control	Underhill *et al.*, 2014 [H]	Not reported	Moderate	Not calculated	In the majority of studies, there were no significant differences between risk reduction and control groups on injection risk behaviours.

Outcome Table 48: Sexual risk behaviours

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
HIV risk reduction intervention vs. control	Underhill *et al.*, 2014 [H]	Not reported	Low	Not calculated	In the majority of studies, there were no significant differences or mixed results between risk reduction and control groups on sexual risk behaviours.

Intervention: BBV testing

Outcome Table 49: BBV testing uptake

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Offer of on-site HIV testing compared to referral off-site	Underhill *et al.*, 2014 [H]	697 (1 RCT)	Moderate	Not calculated	Significant increase in uptake of HIV testing in favour of on-site testing prevention in probation compared to off-site referral
Offer of immediate HIV testing compared to delayed referral	Underhill *et al.*, 2014[H]	621 (2 quasi-RCTs)	Moderate	Not calculated	Significant increase in uptake of HIV testing in favour of offering immediate rather than delayed referral in both studies
RCT – randomised controlled trial. ES – effect size					

Population: Sex workers who use drugs
Setting: Community
Intervention: Harm reduction interventions

Outcome Table 50: Risk behaviours

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Harm reduction interventions *Sexual risk behaviours*	Abad *et al.*, 2015 [H]	Not reported (10 studies)	Low	Not calculated	Mixed results across studies
Harm reduction interventions *Sex work*	Abad *et al.*, 2015 [H]	Not reported (5 studies)	Low	Not calculated	Mixed results across studies
Harm reduction interventions *Drug risk behaviours*	Abad *et al.*, 2015 [H]	Not reported (10 studies)	Low	Not calculated	Mixed results across studies

9.3 Treatment interventions

9.3.1 Pharmacological treatments - opiates

Population: People with opioid dependence
Setting: Community
Intervention: Opioid substitution therapy

Outcome Table 51: Retention in treatment

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MMT vs. no MMT	Mattick *et al.*, 2009 [H]	750 (4 RCTs)	High	RR 4.44 (3.26, 6.04)	Methadone more effective than non-pharmacological approaches
Low-dose BMT (2–6 mg) vs. placebo	Mattick *et al.*, 2014 [H]	1,131 (5 RCTs)	Moderate	RR 1.50 (1.19, 1.88)	Low doses of buprenorphine more effective than placebo
Medium-dose BMT (7–15 mg) vs. placebo	Mattick *et al.*, 2014 [H]	887 (4 RCTs)	Moderate	RR 1.74 (1.06, 2.87)	Medium doses of buprenorphine more effective than placebo
High-dose BMT (16 mg) vs. placebo	Mattick *et al.*, 2014 [H]	1,001 (5 RCTs)	Moderate	RR 1.82 (1.15, 2.90)	High doses of buprenorphine more effective than placebo
Flexible-dose BMT vs. flexible-dose MMT	Mattick *et al.*, 2014 [H]	1,391 (11 RCTs)	High	RR 0.83 (0.73, 0.95)	Flexible-dose BMT less effective than flexible-dose MMT
Supervised injected heroin plus methadone vs. oral methadone	Ferri *et al.*, 2011 [H]	1,388 (4 RCTs)	Moderate	RR 1.44 (1.19, 1.75)	Injected heroin with methadone more effective than oral methadone alone among individuals who had not responded to previous treatment

MMT – methadone maintenance therapy. BMT – buprenorphine maintenance therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Outcome Table 52: Opioid use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review rvidence	Effect size (95% CI)	Overall results (combined)
MMT vs. no MMT *Morphine-positive urinalysis*	Mattick *et al.*, 2009 [H]	1,129 (6 RCTs)	High	RR 0.66 (0.56, 0.78)	Methadone more effective than non-pharmacological approaches
MMT vs. no MMT *Self-reported heroin use*	Mattick *et al.*, 2009 [H]	Not reported (6 RCTs)	Moderate	Not reported	
Low-dose BMT vs. placebo *Morphine-positive urinalysis*	Mattick *et al.*, 2014 [H]	487 (2 RCTs)	Moderate	SMD 0.10 (-0.80, 1.01)	No statistically significant difference between low-dose buprenorphine compared to placebo
Medium-dose BMT vs. placebo *Morphine-positive urinalysis*	Mattick *et al.*, 2014 [H]	463 (2 RCTs)	Moderate	SMD -0.08 (-0.78, 0.62)	No statistically significant difference between medium-dose buprenorphine compared to placebo
High-dose BMT vs. placebo *Morphine-positive urinalysis*	Mattick *et al.*, 2014 [H]	729 (3 RCTs)	Moderate	SMD -1.17 (-1.85, -0.49)	High-dose buprenorphine more effective than placebo
Flexible-dose BMT vs. flexible-dose MMT *Morphine-positive urinalysis*	Mattick *et al.*, 2014 [H]	1,027 (8 RCTs)	High	SMD -0.11 (-0.23, 0.02)	No statistically significant difference between flexible-dose BMT compared to flexible-dose MMT
Flexible-dose BMT vs. flexible-dose MMT *Self-reported heroin use*	Mattick *et al.*, 2014 [H]	501 (4 RCTs)	High	SMD -0.11 (-0.28, 0.07)	
Supervised injectable heroin with methadone vs. oral methadone only	Ferri *et al.*, 2011 [H]	Not reported (5 RCTs)	Moderate	Not calculated	Supervised injectable heroin with methadone more effective for illicit heroin use than oral methadone only in each of the five studies

MMT – methadone maintenance therapy. BMT – buprenorphine maintenance therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Outcome Table 53: Non-opioid drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Flexible-dose BMT vs. flexible-dose MMT *Cocaine positive urinalysis*	Mattick *et al.*, 2014 [H]	919 (6 RCTs)	High	SMD 0.10 (-0.05, 0.25)	No statistically significant difference between flexible-dose BMT compared to flexible-dose MMT
Flexible-dose BMT vs. flexible-dose MMT *Benzodiazepine positive urinalysis*	Mattick *et al.*, 2014 [H]	859 (6 RCTs)	High	SMD 0.05 (-0.12, 0.22)	No statistically significant difference between flexible-dose BMT compared to flexible-dose MMT

MMT – methadone maintenance therapy. BMT – buprenorphine maintenance therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Outcome Table 54: Criminal activity

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MMT vs. no MMT	Mattick *et al.*, 2009 [H]	363 (3 RCTs)	Moderate	RR 0.39 (0.12, 1.25)	No statistically significant difference between methadone compared to non-pharmacological approaches
Flexible-dose BMT vs. flexible-dose MMT	Mattick *et al.*, 2014 [H]	328 (2 RCTs)	Moderate	SMD -0.10 (-0.31, 0.12)	No statistically significant difference between flexible-dose BMT compared to flexible-dose MMT
Supervised injectable heroin with methadone vs oral methadone only *Criminal offence*	Ferri *et al.*, 2011 [H]	NR (3 RCTs)	Moderate	Not calculated	Mixed results between studies. Findings favoured supervised injectable heroin with methadone over oral methadone in two studies, and there was no significant difference between treatments for criminal activity in one study.
Supervised injectable heroin with methadone vs oral methadone only *Incarceration*	Ferri *et al.*, 2011 [H]	NR (1 RCT)	Moderate	Not calculated	Reduced incarceration among individuals receiving heroin with methadone compared to those receiving methadone alone, in one study

MMT – methadone maintenance therapy. BMT – buprenorphine maintenance therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Outcome Table 55: Mortality

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MMT vs. no MMT	Mattick *et al.*, 2009 [H]	576 (4: RCTs)	Moderate	RR 0.48 (0.10, 2.39)	No statistically significant difference between methadone compared to non-pharmacological approaches
Supervised injected heroin with methadone vs oral methadone only	Ferri *et al.*, 2011 [H]	1,477 (4 RCTs)	Moderate	RR 0.65 (0.25, 1.69)	No statistically significant difference between heroin and other treatment approaches among individuals who had not responded to treatment previously

MMT – methadone maintenance therapy. BMT – buprenorphine maintenance therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Outcome Table 56: Adverse effects

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Injectable heroin plus methadone vs. oral methadone	Ferri *et al.*, 2011 [H]	373 (3 RCTs)	Moderate	RR 1.44 (1.19, 1.75)	Greater adverse events among individuals receiving injectable heroin and methadone in comparison to those receiving oral methadone only

MMT – methadone maintenance therapy. BMT – buprenorphine maintenance therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Intervention: Opioid detoxification and psychosocial interventions

Outcome Table 57: Retention in treatment

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Any psychosocial intervention plus OST vs. OST alone	Amato *et al.*, 2011b [H]	3,124 (27: 27 RCTs)	High	RR 1.03 (0.98, 1.07)	No statistically significant difference between psychosocial interventions plus OST and OST alone
Any behavioural intervention plus OST vs. OST alone	Amato *et al.*, 2011b [H]	2,065 (19: 19 RCTs)	High	RR 1.01 (0.95, 1.06)	No statistically significant difference between behavioural interventions plus OST and OST alone
Contingency management plus OST vs. OST alone	Amato *et al.*, 2011b [H]	1,616 (14: 14 RCTs)	High	RR 1.02 (0.96, 1.08)	No statistically significant difference between contingency management plus OST and OST alone
Psychoanalytic-oriented intervention plus OST vs. OST alone	Amato *et al.*, 2011b [H]	212 (3: 3 RCTs)	Moderate	RR 0.90 (0.75, 1.07)	No statistically significant difference between psychoanalytic-oriented interventions plus OST and OST alone
Counselling plus OST vs. OST alone	Amato *et al.*, 2011b [H]	769 (4: 4 RCTs)	High	RR 1.07 (0.98, 1.15)	No statistically significant difference between counselling plus OST and OST alone

CBT – cognitive behavioural therapy. OST – opioid substitution therapy. RCT – randomised controlled trial. RR – risk ratio

Outcome Table 58: Abstinence

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Any psychosocial interventions plus OST vs. OST alone *Opioid abstinent for at least three weeks*	Amato *et al.*, 2011b [H]	1,002 (8 RCTs)	High	RR 1.12 (0.92, 1.37)	No statistically significant difference between psychosocial interventions plus OST and OST alone
Any psychosocial interventions plus OST vs. OST alone *Opioid abstinent at the end of follow-up*	Amato *et al.*, 2011b [H]	181 (3 RCTs)	High	RR 1.15 (0.98, 1.36)	No statistically significant difference between psychosocial interventions plus OST and OST alone
Any behavioural intervention plus OST vs. OST alone *Opioid abstinent for at least three weeks*	Amato *et al.*, 2011b [H]	448 (4 RCTs)	Moderate	RR 1.04 (0.89, 1.21)	No statistically significant difference between behavioural interventions plus OST and OST alone
Any behavioural interventions plus OST vs. OST alone *Opioid abstinent at the end of follow-up*	Amato *et al.*, 2011b [H]	123 (3 RCTs)	Moderate	RR 1.18 (0.98, 1.41)	No statistically significant difference between behavioural interventions plus OST and OST alone
Psychoanalytic-oriented intervention plus OST vs. OST alone *Opioid abstinent for at least three weeks*	Amato *et al.*, 2011b [H]	127 (2 RCTs)	Moderate	RR 1.21 (0.82, 1.78)	No statistically significant difference between psychoanalytic-oriented interventions plus OST and OST alone
Counselling plus OST vs. OST alone *Opioid abstinent for at least three weeks*	Amato *et al.*, 2011b [H]	335 (1 RCT)	Low	One study only	No statistically significant difference between counselling plus OST and OST alone

CBT – cognitive behavioural therapy. OST – opioid substitution therapy. RCT – randomised controlled trial. RR – risk ratio

Intervention: Opioid detoxification

Outcome Table 59: Treatment completion

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Tapered methadone vs. any other treatment	Amato *et al.*, 2013 [H]	1,381 (16 RCTs)	High	RR 1.08 (0.97, 1.21)	No statistically significant difference between methadone compared to other pharmacological treatments aimed at detoxification
Buprenorphine vs. methadone	Gowing *et al.*, 2009a [H]	168 (4 RCTs)	Low	RR 1.18 (0.93, 1.49)	No statistically significant difference between buprenorphine compared to methadone
Alpha2-adrenergic agonist vs. placebo	Gowing *et al.*, 2014 [H]	148 (3 RCTs)	Moderate	RR 1.95 (1.34, 2.84)	Alpha2-adrenergic agonists significantly more effective than placebo
Alpha2-adrenergic agonist vs. methadone	Gowing *et al.*, 2014 [H]	659 (9 RCTs)	Moderate	RR 0.85 (0.69, 1.05)	No statistically significant difference between alpha2-adrenergic agonists compared to reducing doses of methadone
Naltrexone regime vs. adrenergic agonist	Gowing *et al.*, 2009b [H]	Not calculated (4 studies; 2 RCTs, 2 cohort)	Low	Not calculated	Naltrexone-induced withdrawal associated with significantly higher rates of completion of treatment than withdrawal managed with an adrenergic agonist alone, but not consistently across studies
Naloxone regime vs. adrenergic agonist	Gowing *et al.*, 2009b [H]	Not calculated (5 studies; 4 RCTs, 1 cohort)	Low	Not calculated	
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 60: Abstinence

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Tapered methadone versus any other treatment *Abstinence at follow-up (up to six months)*	Amato *et al.*, 2013 [H]	386 (3 RCTs)	High	RR 0.98 (0.70, 1.37)	No statistically significant difference between methadone compared to other pharmacological treatments aimed at detoxification
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 61: Withdrawal severity

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Alpha2-adrenergic agonist vs. placebo *Peak withdrawal severity*	Gowing *et al.*, 2014 [H]	Not reported (2 RCTs)	Low	Not calculated	Alpha2-adrenergic agonists more effective than placebo in ameliorating withdrawal
Alpha2-adrenergic agonist vs. placebo *Severe withdrawal*	Gowing *et al.*, 2014 [H]	148 (3 RCTs)	Low	SMD 0.32 (0.18, 0.57)	
Alpha2-adrenergic agonist vs. methadone *Peak withdrawal severity*	Gowing *et al.*, 2014 [H]	263 (2 RCTs)	Moderate	SMD 0.22 (-0.02, 0.46)	Alpha2-adrenergic agonists less effective than reducing doses of methadone
Alpha2-adrenergic agonist vs. methadone *Severe withdrawal*	Gowing *et al.*, 2014 [H]	340 (5 RCTs)	Low	RR 1.18 (0.81, 1.73)	
Alpha2-adrenergic agonist vs. methadone *Overall withdrawal severity*	Gowing *et al.*, 2014 [H]	119 (3 RCTs)	Moderate	SMD 0.13 (-0.24, 0.49)	
Naltrexone regime vs. adrenergic agonist *Peak withdrawal severity*	Gowing *et al.*, 2009 [H]	Not reported (2 RCTs)	Low	Not calculated	Withdrawal induced by opioid antagonists (naltrexone or naloxone) in combination with an adrenergic agonist is more intense than withdrawal managed with an adrenergic agonist alone, but the overall severity is less.
Naltrexone regime vs. adrenergic agonist *Overall withdrawal severity*	Gowing *et al.*, 2009 [H]	Not reported (3 RCTs)	Low	Not calculated	
Naloxone regime vs. adrenergic agonist *Peak withdrawal severity*	Gowing *et al.*, 2009 [H]	Not reported (1 RCT)	Low	Not calculated	
Naloxone regime vs. adrenergic agonist *Overall withdrawal severity*	Gowing *et al.*, 2009 [H]	Not reported (1 RCT)	Low	Not calculated	

RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Intervention: Opioid detoxification delivered with psychosocial intervention

Outcome Table 62: Drop out from treatment

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Detoxification plus psychosocial intervention vs. pharmacological treatment alone	Amato *et al.*, 2011a [H]	426 (6 RCTs)	High	RR 0.71 (0.59, 0.85)	Detoxification with psychosocial intervention more effective in reducing drop out than with pharmacological treatment alone
Detoxification plus contingency management vs. pharmacological treatment alone	Amato *et al.*, 2011a [H]	134 (4 RCTs)	High	RR 0.69 (0.50, 0.93)	Detoxification with contingency management more effective in reducing drop out than with pharmacological treatment alone.
Detoxification plus psychotherapeutic counselling vs. pharmacological treatment alone	Amato *et al.*, 2011a [H]	290 (2 RCTs)	High	Two studies only	Detoxification with psychotherapeutic counsellling more effective in reducing drop out than with pharmacological treatment alone.
RCT – randomised controlled trial. RR – risk ratio. RR – risk ratio					

Outcome Table 63: Opioid use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Detoxification plus psychosocial intervention vs. pharmacological treatment alone *During treatment*	Amato *et al.*, 2011a [H]	320 (4 RCTs)	Moderate	RR 0.82 (0.71, 0.93)	Detoxification with psychosocial intervention more effective in reducing drop out than with pharmacological treatment alone
Detoxification plus psychosocial intervention vs. pharmacological treatment alone *At follow-up*	Amato *et al.*, 2011a [H]	208 (3 RCTs)	Low	RR 0.0.66 (0.53, 0.82)	Mixed results
Detoxification plus contingency management vs. pharmacological treatment alone *During treatment*	Amato *et al.*, 2011a [H]	270 (3 RCTs)	Moderate	RR 0.82 (0.70, 0.97)	Detoxification with psychotherapeutic counsellling more effective in reducing drop out than with pharmacological treatment alone
RCT – randomised controlled trial. RR – risk ratio. RR – risk ratio					

Intervention: Relapse prevention with naltrexone

Outcome Table 64: Treatment retention

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Oral naltrexone vs. placebo or no pharmacological treatment	Minozzi *et al.*, 2011 [H]	393 (6 RCTs)	Moderate	RR 1.43 (0.72, 2.82)	No statistically significant difference between naltrexone compared to placebo or no treatment
Oral naltrexone plus psychotherapy vs. benzodiazepines plus psychosocial therapy	Minozzi *et al.*, 2011 [H]	140 (1 RCT)	Low	*Single study*	No statistically significant difference between naltrexone and psychotherapy compared to benzodiazepines and psychosocial therapy
Oral naltrexone plus psychotherapy vs. buprenorphine plus psychotherapy	Minozzi *et al.*, 2011 [H]	87 (1 RCT)	Low	*Single study*	No statistically significant difference between naltrexone and psychotherapy compared to buprenorphine and psychotherapy
Naltrexone implants vs. placebo	Larney *et al.*, 2014 [H]	Not reported (2 RCTs)	Low	RR 3.20 (2.17, 4.72)	Naltrexone implants more effective than placebo
Naltrexone implants vs. oral naltrexone	Larney *et al.*, 2014 [H]	Not reported (1 RCT)	Low	*Single study*	Naltrexone implants more effective than oral naltrexone
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 65: Abstinence

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Oral naltrexone vs. placebo or no pharmacological treatments *Abstinence at end of treatment*	Minozzi *et al.*, 2011 [H]	143 (4 RCTs)	Low	RR 1.39 (0.61, 3.17)	No statistically significant difference between naltrexone compared to placebo or no treatment
Oral naltrexone vs. placebo or no pharmacological treatments *Abstinence at follow-up (up to 12 months)*	Minozzi *et al.*, 2011 [H]	116 (3 RCTs)	Low	RR 1.28 (0.80, 2.05)	No statistically significant difference between naltrexone compared to placebo or no treatment
Oral naltrexone vs. psychotherapy *Abstinence at follow-up (up to 12 months)*	Minozzi *et al.*, 2011 [H]	38 (1 RCT)	Low	Not calculated	No statistically significant difference between naltrexone compared to psychotherapy
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 66: Opioid use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Naltrexone implants vs. placebo	Larney *et al.*, 2014 [H]	Not reported (2 RCTs)	Low	RR 0.57 (0.48, 0.68)	Naltrexone implants more effective than placebo
Naltrexone implants vs. oral naltrexone	Larney *et al.*, 2014 [H]	Not reported (2 RCTs)	Low	RR 0.57 (0.47, 0.70)	Naltrexone implants more effective than oral naltrexone
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 67: Reincarceration

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Oral naltrexone vs. placebo or no pharmacological treatments	Minozzi *et al.*, 2011 [H]	86 (2 RCTs)	Low	RR 0.47 (0.26, 0.84)	Naltrexone more effective than placebo or no treatment
Oral naltrexone vs. psychotherapy	Minozzi *et al.*, 2011 [H]	38 (1 RCT)	Low	Not calculated	No statistically significant difference between naltrexone compared to psychotherapy
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Population: People with opioid dependence and recent history of IDU
Setting: Community/outpatient
Intervention: Opioid maintenance

Outcome Table 68: Opioid use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
OST	Gowing *et al.*, 2011 [H]	Not reported (11 studies; all observational, prospective)	Moderate	Not calculated	All studies showed statistically significant decreases in opioid use following a period of substitution treatment.
OST – opioid substitution therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 69: Injecting behaviours

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
OST *Injecting drug use*	Gowing *et al.*, 2011 [H]	Not reported (11 studies; all observational, prospective)	Moderate	Not calculated	All studies showed statistically significant decreases in injecting following a period of substitution therapy.
OST *Injecting risk behaviours*	Gowing *et al.*, 2011 [H]	Not reported (12 studies; observational, prospective)	Moderate	Not calculated	All studies showed a reduction in sharing of injection equipment following a period of substitution therapy (11/12 studies statistically significant).
OST – opioid substitution therapy. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 70: HIV risk

Comparison	Reference(s) (JBI rating)	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
OST	MacArthur *et al.*, 2012 [H]	23,608 PYFU (9 studies; 8 cohort, 1 nested case-control)	Moderate	RR 0.46 (0.32, 0.67)	Opioid substitution therapy associated with a statistically significant reduction in the risk of HIV infection
OST – opioid substitution therapy. PYFU – person years of follow-up. RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

9.3.2 Pharmacological treatments – stimulants

Population: People with cocaine dependence
Setting: Community
Intervention: Pharmacological treatments

Outcome Table 71: Cocaine abstinence

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Dopamine agonist vs. placebo/alternative medication *End of treatment*	Minozzi *et al.*, 2015a [H]	731 (11 RCTs)	Moderate	RR 1.12 (0.85, 1.47)	No statistically significant difference between approaches
Dopamine agonist vs. placebo/alternative medication *Follow-up (mean four months)*		136 (4 RCTs)	High	RR 1.10 (0.61, 1.98)	No statistically significant difference between approaches
Psychostimulants vs. placebo	Castells *et al.*, 2010 [H]	801 (8 RCTs)	Moderate	RR 1.41 (0.98, 2.02)	No statistically significant difference between approaches
Disulfiram vs. placebo	Pani *et al.*, 2010 [H]	20 (1 RCTs)	Low	One study only	Placebo was more effective than disulfiram
Disulfiram vs. no pharmacological treatment	Pani *et al.*, 2010 [H]	90 (2 RCTs)	Low	Not calculated	Mixed findings between two studies
Indirect dopamine agonists plus psychotherapy vs. placebo	Perez-Mana *et al.*, 2011 [H]	NR (19 RCTs)	Low	SMD 0.21 (0.06, 0.37)	Indirect dopamine agonists and psychotherapy more effective for abstinence
Antidepressants vs. placebo *Abstinence for three consecutive weeks*	Pani *et al.*, 2011 [H]	942 (8 RCTs)	High	RR 1.22 (0.99, 1.51)	No statistically significant difference between approaches
Antidepressants vs. placebo *Number of weeks abstinent*		1,062 (7 RCTs)	High	SMD 0.00 (0.21, 0.22)	

RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Outcome Table 72: Cocaine use

Comparison	Reference(s) (JBI rating)	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Anticonvulsant vs. placebo	Minozzi *et al.*, 2015b [H]	426 (11 RCTs)	Moderate	RR 0.92 (0.84, 1.02)	No statistically significant difference between approaches
Psychostimulants vs. placebo *Verified through urine analysis*	Castells *et al.*, 2010 [H]	469 (7 RCTs)	Moderate	SMD 0.11 (-0.07, -0.29)	No statistically significant difference between approaches
Antipsychotic vs. placebo *Verified through urine analysis*	Alvarez *et al.*, 2013 [H]	525 (7 RCTs)	Moderate	MD 0.01 (-0.12, 0.13)	No statistically significant difference between approaches
Antipsychotic vs. placebo *Self-report*		133 (5 RCTs)	Moderate	MD 0.17 (-0.03, 0.38)	No statistically significant difference between approaches
Antidepressants plus vs. placebo	Pani *et al.*, 2011 [H]	251 (4 RCTs)	Moderate	RR 1.05 (0.91, 1.21)	No statistically significant difference between approaches
Disulfiram vs. placebo *Frequency*	Pani *et al.*, 2010 [H]	53 (1 RCT)	Low	Not calculated	No statistically significant difference between approaches
Disulfiram vs. placebo *Amount in grams/week*		43 (1 RCT)	Low	Not calculated	No statistically significant difference between approaches

RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference

Outcome Table 73: Cocaine craving

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Antidepressants vs. placebo	Pani *et al.*, 2011 [H]	636 (9 RCTs)	Moderate	SMD 0.02 (-0.13, 0.18)	No statistically significant difference between approaches
Psychostimulants vs. placebo	Castells *et al.*, 2010 [H]	340 (3 RCTs)	Moderate	SMD 0.06 (-0.15, 0.27)	No statistically significant difference between approaches
Antipsychotic vs. placebo	Alvarez *et al.*, 2013 [H]	255 (7 RCTs)	Moderate	SMD 0.12 (0.02, 0.22)	Craving reduction greater in placebo treatment
Dopamine agonist vs. placebo/alternative medication	Minozzi *et al.*, 2015a [H]	151 (3 RCTs)	Low	SMD 0.20 (-0.35, 0.74)	No statistically significant difference between approaches
Anti-convulsant vs. placebo	Minozzi *et al.*, 2015b [H]	428 (7 RCTs)	Moderate	SMD -0.25 (-0.59, 0.09)	No statistically significant difference between approaches

RCT – randomised controlled trial. SMD – standardised mean difference

Outcome Table 74: Treatment retention

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Antidepressants vs. placebo	Pani *et al.*, 2011 [H]	705 (8 RCTs)	High	SMD 0.34 (0.22, 0.47)	Greater treatment retention through antidepressant compared to placebo approaches
Indirect dopamine agonists vs. placebo	Perez-Mana *et al.*, 2011 [H]	NR (24 RCTs)	Low	RR 0.99 (0.92, 1.05)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio. SMD –mean difference					

Outcome Table 75: Drop out during treatment

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Dopamine agonists vs. placebo	Minozzi *et al.*, 2015a [H]	1,656 (20 RCTs)	Moderate	RR 1.04 (0.94, 1.14)	No statistically significant difference between approaches
Anticonvulsant vs. placebo	Minozzi *et al.*, 2015b [H]	1,695 (20 RCTs)	Moderate	RR 0.95 (0.86, 1.05)	No statistically significant difference between approaches
Antipsychotic vs. placebo	Alvarez *et al.*, 2013 [H]	804 (12 RCTs)	Moderate	RR 0.91 (0.82, 1.02)	No statistically significant difference between approaches
Antidepressants vs. placebo *All drop-outs*	Pani *et al.*, 2011 [H]	1,588 (31 RCTs)	High	RR 1.03 (0.93, 1.14)	No statistically significant difference between approaches
Antidepressants vs. placebo *Due to adverse effects*	Pani *et al.*, 2011 [H]	1,396 (13 RCTs)	High	RR 1.39 (0.91, 2.12)	No statistically significant difference between approaches
Disulfiram vs. placebo	Pani *et al.*, 2010 [H]	194 (3 RCTs)	Low	RR 0.64 (0.35, 1.20)	No statistically significant difference between approaches
Disulfiram vs. naltrexone	Pani *et al.*, 2010 [H]	131 (3 RCTs)	Low	RR 0.67 (0.45, 1.01)	No statistically significant difference between approaches
Psychostimulants vs. placebo	Castells *et al.*, 2010 [H]	964 (11 RCTs)	Low	RR 0.01 (-0.02, 0.03)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio					

Outcome Table 76: Treatment completion

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Psychostimulant vs. placebo	Castells *et al.*, 2010 [H]	1,345 (16 RCTs)	Moderate	RR 0.97 (0.89, 1.07)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio					

Outcome Table 77: Treatment compliance

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Anticonvulsant vs. placebo *Dichotomous measures*	Minozzi *et al.*, 2015b [H]	343 (6 RCTs)	Low	RR 1.01 (0.93, 1.08)	No statistically significant difference between approaches
Anticonvulsant vs. placebo *Continuous measures*	Minozzi *et al.*, 2015b [H]	426 (5 RCTs)	Moderate	SMD 1.42 (-4.80, 7.64)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio. SMD – standardised mean difference					

Outcome Table 78: Adverse effects during treatment

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Dopamine agonists vs. placebo	Minozzi *et al.*, 2015a [H]	252 (7 RCTs)	Low	RR 1.27 (0.66, 2.44)	No statistically significant difference between approaches
Anticonvulsant vs. placebo	Minozzi *et al.*, 2015b [H]	775 (8 RCTs)	Moderate	RR 1.39 (1.01, 1.9)	Adverse effects reduced in placebo treatment
RCT – randomised controlled trial. RR – risk ratio					

Outcome Table 79: Anxiety

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Anticonvulsant vs. placebo	Minozzi *et al.*, 2015b [H]	78 (3 RCTs)	Low	MD 1.79 (-1.02, 4.60)	No statistically significant difference between approaches
RCT – randomised controlled trial. MD – mean difference					

Outcome Table 80: Depression

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Anticonvulsant vs. placebo	Minozzi *et al.*, 2015b [H]	80 (3 RCTs)	Low	MD 1.80 (-0.59, 4.19)	No statistically significant difference between approaches
Antidepressants vs. placebo *Beck*	Pani *et al.*, 2011 [H]	98 (2 RCTs)	Low	Two studies only	No statistically significant difference between approaches
Antidepressants vs. placebo	Pani *et al.*, 2011 [H]	420 (6 RCTs) *Hamilton depression scale*	Moderate	MD -1.41 (-2.44, -0.37)	No statistically significant difference between approaches
Antidepressants vs. placebo	Pani *et al.*, 2011 [H]	390 (4 RCTs) *2 CGI depression severity score*	High	MD -0.08 (-0.35, 0.18)	No statistically significant difference between approaches
Antidepressants vs. placebo	Pani *et al.*, 2011 [H]	98 (2 RCTs) *4 Brief Psychiatric Rating Scale*	Low	Two studies only	Results favoured treatment with antidepressants.
Psychostimulant vs. placebo	Castells *et al.*, 2010 [H]	90 (2 RCTs)	Low	Two studies only	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio. MD – mean difference					

Population: People with amphetamine dependence
Setting: Community
Intervention: Pharmacological treatment for amphetamine use

Outcome Table 81: Psychostimulant abstinence

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Psychostimulant medication and psychosocial intervention *Verified through urine analysis*	Perez-Mana *et al.*, 2013 (H)	559 (6 RCTs)	Moderate	RR 1.12 (0.84, 1.49)	No statistically significant difference between approaches
Indirect dopamine agonists plus psychotherapy vs. placebo	Perez-Mana *et al.*, 2011 [H]	NR (3 RCTs)	Low	MD 0.17 (-0.25, 0.59)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio. MD – mean difference					

Outcome Table 82: Amphetamine use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Psychostimulant medication and psychosocial intervention *Verified through urine analysis*	Perez-Mana *et al.*, 2013 (H)	463 (7 RCTs)	Moderate	MD -0.26 (-0.85, 0.33)	No statistically significant difference between approaches
Psychostimulant medication and psychosocial intervention *Verified through hair analysis*	Perez-Mana *et al.*, 2013 (H)	22 (1 RCT)	Low	One study only	No statistically significant difference between approaches
Psychostimulant medication and psychosocial intervention *Self-report*	Perez-Mana *et al.*, 2013 (H)	463 (3 RCTs)	Low	MD -0.81 (-6.16, 4.54)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio. MD – mean difference					

Outcome Table 83: Amphetamine craving

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Psychostimulant vs. placebo	Perez-Mana *et al.*, 2013 [H]	Not reported (2 RCTs)	Low	Two studies only	No statistically significant difference between approaches
RCT – randomised controlled trial					

Outcome Table 84: Drop out during treatment

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Psychostimulant vs. placebo *Drop outs due to adverse events*	Perez-Mana *et al.*, 2013 [H]	640 (10 RCTs)	Moderate	RR 0.01 (-0.03, 0.04)	No statistically significant difference between approaches
Psychostimulant vs. placebo *Drop outs due to cardiovascular events*	Perez-Mana *et al.*, 2013 [H]	370 (8 RCTs)	Moderate	RR 0.01 (-0.03, 0.04)	No statistically significant difference between approaches
Psychostimulant vs. placebo *Drop outs due to psychiatric events*	Perez-Mana *et al.*, 2013 [H]	290 (7 RCTs)	Moderate	RR -0.02 (-0.06, 0.02)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio					

Outcome Table 85: Treatment retention

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Psychostimulant medication and psychosocial intervention	Perez-Mana *et al.*, 2013 [H]	592 (11 RCTs)	Moderate	RR 1.01 (0.90-1.14)	No statistically significant difference between approaches
Indirect dopamine agonists and psychotherapy vs. placebo	Perez-Mana *et al.*, 2011 [H]	NR (4 RCTs)	Low	RR 0.95 (0.74, 1.21)	No statistically significant difference between approaches
RCT – randomised controlled trial. RR – risk ratio					

9.3.3 Pharmacological treatments – cannabis

Population: People with cannabis dependence
Setting: Community
Intervention: Pharmacological treatment for cannabis use

Outcome Table 86: Abstinence

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
THC preparations vs. placebo	Marshall *et al.*, 2014 [H]	156 (1 RCT)	Moderate	One study only	No statistically significant differences between approaches
Mixed action antidepressants vs. placebo	Marshall *et al.*, 2014 [H]	179 (2 RCTs)	Low	Two studies only	Mixed results
SSRI antidepressants vs. placebo	Marshall *et al.*, 2014 [H]	52 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
Anticonvulsant and mood stabiliser vs. placebo	Marshall *et al.*, 2014 [H]	19 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
THC – tetrahydrocannabinol. RCT – randomised controlled trial.					

Outcome Table 87: Treatment completion

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
THC preparations vs. placebo	Marshall *et al.*, 2014 [H]	207 (1 RCT)	Moderate	One study only	THC preparations more effective than placebo
Mixed-action antidepressants vs. placebo	Marshall *et al.*, 2014 [H]	169 (2 RCTs)	Low	Two studies only	No statistically significant difference between approaches
SSRI antidepressants vs. placebo	Marshall *et al.*, 2014 [H]	122 (2 RCTs)	Moderate	Two studies only	No statistically significant difference between approaches
Anticonvulsant and mood stabiliser vs. placebo	Marshall *et al.*, 2014 [H]	75 (2 RCTs)	Moderate	Two studies only	No statistically significant difference between approaches
Buspirone vs. placebo	Marshall *et al.*, 2014 [H]	50 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
Atomoxetine vs. placebo	Marshall *et al.*, 2014 [H]	38 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
N-acetylcysteine vs. placebo	Marshall *et al.*, 2014 [H]	116 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches

THC – tetrahydrocannabinol. RCT – randomised controlled trial.

Outcome Table 88: Adverse effects during treatment

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
THC preparations vs. placebo	Marshall *et al.*, 2014 [H]	156 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
Mixed action antidepressants vs. placebo	Marshall *et al.*, 2014 [H]	179 (2 RCTs)	Low	Two studies only	No statistically significant difference between approaches
Buspirone vs. placebo	Marshall *et al.*, 2014 [H]	50 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
Atomoxetine vs. placebo	Marshall *et al.*, 2014 [H]	38 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
N-acetylcysteine vs. placebo	Marshall *et al.*, 2014 [H]	116 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches

THC – tetrahydrocannabinol. RCT – randomised controlled trial

Outcome Table 89: Withdrawal due to adverse effects

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
THC preparations vs. placebo	Marshall *et al.*, 2014 [H]	156 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
Mixed-action antidepressants vs. placebo	Marshall *et al.*, 2014 [H]	179 (2 RCTs)	Low	Two studies only	No statistically significant difference between approaches
Anticonvulsant and mood stabiliser vs. placebo	Marshall *et al.*, 2014 [H]	50 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
Buspirone vs. placebo	Marshall *et al.*, 2014 [H]	50 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
Atomoxetine vs. placebo	Marshall *et al.*, 2014 [H]	38 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches
N-acetylcysteine vs. placebo	Marshall *et al.*, 2014 [H]	116 (1 RCT)	Moderate	One study only	No statistically significant difference between approaches

THC – tetrahydrocannabinol. RCT – randomised controlled trial.

9.3.4 Psychosocial treatments

Population: Young people in recovery from drug and/or alcohol dependence
Intervention: Psychosocial interventions
Setting: Community

Outcome Table 90: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MDFT vs. other interventions[1] or TAU *Drug problem severity: six months follow-up*	Filges *et al.*, 2015a [H]	830 (5 RCTs)	Moderate	SMD -0.35 (-0.59, -0.11)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[2] or TAU *Drug problem severity: six months follow-up*	Filges *et al.*, 2015a [H]	831 (5 RCTs)	Moderate	SMD -0.33 (-0.59, -0.08)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[3] or TAU *Drug problem severity: six months follow-up*	Filges *et al.*, 2015a [H]	836 (5 RCTs)	Moderate	SMD -0.31 (-0.53, -0.10)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[4] or TAU *Drug problem severity: six months follow-up*	Filges *et al.*, 2015a [H]	837 (5 RCTs)	Moderate	SMD -0.30 (-0.53, -0.07)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[1] or TAU *Drug problem severity: 12 months follow-up*	Filges *et al.*, 2015a [H]	826 (5 RCTs)	Moderate	SMD -0.25 (-0.39, -0.04)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[2] or TAU *Drug problem severity: 12 months follow-up*	Filges *et al.*, 2015a [H]	827 (5 RCTs)	Moderate	SMD -0.23 (-0.39, -0.06)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[3] or TAU *Drug problem severity: 12 months follow-up*	Filges *et al.*, 2015a [H]	832 (5 RCTs)	Moderate	SMD -0.27 (-0.43, -0.11)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[4] or TAU *Drug problem severity: 12 months follow-up*	Filges *et al.*, 2015a [H]	833 (5 RCTs)	Moderate	SMD -0.25 (-0.43, -0.07)	Drug problem severity significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[5] *Drug abuse frequency: six months follow-up*	Filges *et al.*, 2015a [H]	769 (4 RCTs)	Moderate	SMD -0.24 (-0.43, -0.06)	Drug abuse frequency significantly reduced with MDFT compared with other interventions or TAU
MDFT vs. other interventions[6] or TAU *Drug abuse frequency: six months follow-up*	Filges *et al.*, 2015a [H]	770 (4 RCTs)	Moderate	SMD -0.25 (-0.40, -0.11)	Drug abuse frequency significantly reduced with MDFT compared with other interventions or TAU

Outcome Table 90 (continued): Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MDFT vs. other interventions[5] or TAU *Drug abuse frequency: 12 months follow-up*	Filges *et al.*, 2015a [H]	765 (4 RCTs)	Moderate	SMD -0.28 (-0.63, 0.07)	No statistically significant differences between treatments
MDFT vs. other interventions[6] or TAU *Drug abuse frequency: 12 months follow-up*	Filges *et al.*, 2015a [H]	766 (4 RCTs)	Moderate	SMD -0.28 (-0.63, 0.07)	No statistically significant differences between treatments
FBT vs. counselling *Drug use reduction: end of treatment*	Lindstrom *et al.*, 2015	77 (2 RCTs)	Low	Two studies only	Mixed results between studies
FBT vs. counselling *Drug use reduction: 12 months follow-up*	Lindstrom *et al.*, 2015	50 (1 RCT)	Moderate	One study only	No statistically significant differences between treatments

MDFT – multi-dimensional Family Therapy. TAU – treatment as usual. FBT – family behaviour therapy. RCT – randomised controlled trial

1 – adolescent group therapy, cognitive behavioural therapy, peer group therapy.

2 – adolescent community reinforcement approach, adolescent group therapy, cognitive behavioural therapy, peer group therapy

3 – cognitive behavioural therapy, multifamily educational therapy, peer group therapy

4 – adolescent community reinforcement approach, cognitive behavioural therapy, multifamily educational therapy, peer group therapy

5 – cognitive behavioural therapy, peer group therapy

6 – adolescent community reinforcement approach, cognitive behavioural therapy, peer group therapy

Outcome Table 91: Criminal activity

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
FBT vs. counselling *Arrests at end of treatment*	Lindstrom *et al.*, 2015 [H]	77 (2 RCTs)	Low	Two studies only	Mixed results between studies
FBT vs. counselling *Arrests at 12 months follow-up*	Lindstrom *et al.*, 2015 [H]	50 (1 RCT)	Low	One study only	Arrests significantly reduced following FBT in comparison to counselling
CBT vs. alternative treatment: *end of treatment – six months follow-up*	Filges *et al.*, 2015b [H]	NR (2 RCTs)	Low	Two studies only	No statistically significant difference between treatments
CBT vs. alternative treatment: *6–12 months follow-up*	Filges *et al.*, 2015b [H]	NR (3 RCTs)	Low	SMD -0.02 (-0.28, 0.25)	No statistically significant difference between treatments
CBT vs. alternative treatment: *end of treatment – 12 months plus follow-up*	Filges *et al.*, 2015b [H]	121 (2 RCTs)	Low	Two studies only	No statistically significant difference between treatments
CBT with add-on component vs. alternative treatment: *end of treatment – six months follow-up*	Filges *et al.*, 2015b [H]	61 (1 RCT)	Low	One study only	Crime significantly reduced in alternative treatment compared with CBT with add-on
CBT with add-on component vs. alternative treatment: *6–12 months follow-up*	Filges *et al.*, 2015b [H]	61 (1 RCT)	Low	One study only	No statistically significant difference between treatments

FBT – family behaviour therapy. CBT – cognitive behavioural therapy. RCT – randomised controlled trial. OR – odds ratio

Outcome Table 92: Treatment retention

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MDFT vs. other interventions[1] or TAU *Grade point average: six months follow-up*	Filges *et al.*, 2015a [H]	1,077 (5 RCTs)	Moderate	OR 0.44 (0.21, 0.94)	Retention significantly greater in MDFT compared to other interventions
MDFT vs. other interventions[2] or TAU *Grade point average: six months follow-up*	Filges *et al.*, 2015a [H]	1,077 (5 RCTs)	Moderate	OR 0.45 (0.21, 0.95)	Retention significantly greater in MDFT compared to other interventions
MDFT vs. other interventions[3] or TAU *Grade point average: six months follow-up*	Filges *et al.*, 2015a [H]	1,076 (5 RCTs)	Moderate	OR 0.48 (0.22, 1.05)	No statistically significant difference between treatments
MDFT vs. other interventions[4] or TAU *Grade point average: six months follow-up*	Filges *et al.*, 2015a [H]	1,076 (5 RCTs)	Moderate	OR 0.49 (0.22, 1.07)	No statistically significant difference between treatments

MDFT – multidimensional family behaviour therapy. RCT – randomised controlled trial.

1 – adolescent group therapy, cognitive behavioural therapy, peer group therapy

2 – adolescent community reinforcement approach, adolescent group therapy, cognitive behavioural therapy, peer group therapy

3 – CBT, multifamily educational therapy, peer group therapy

4 – adolescent community reinforecement approach, CBT, multifamily educational therapy, peer group therapy

Outcome Table 93: Education

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MDFT vs. AGT or PGT *Grade point average: six months follow-up*	Filges *et al.*, 2015a [H]	144 (2 RCTs)	Low	Two studies only	Mixed results between studies
MDFT vs. MEI or PGT *Grade point average: six months follow-up*	Filges *et al.*, 2015a [H]	150 (2 RCTs)	Moderate	Two studies only	Grade point significantly greater in MDFT compared to other interventions

MDFT – multidimensional family therapy. PGT – peer group therapy. MEI – multifamily educational therapy. RCT – randomised controlled trial

Population: Adults who are regular users of cannabis
Intervention: CBT
Setting: Community or outpatient

Outcome Table 94: Cannabis use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
CBT vs. wait list control	Cooper *et al.*, 2015 [H]	3,831 (12 RCTs)	Moderate	Not calculated	CBT generally more effective than wait list control
CBT vs. other interventions			Moderate	Not calculated	Mixed results or no statistical difference between treatments when CBT compared to other interventions
CBT plus contingency management vs. other interventions	Cooper *et al.*, 2015 [H]	680 (5 RCTs)	Low	Not calculated	Mixed results
CBT – cognitive behavioural therapy. MI – motivational interviewing. RCT – randomised controlled trial. ES – effect size					

Outcome Table 95: Cannabis dependence severity

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
CBT vs. wait list control	Cooper *et al.*, 2015 [H]	2,327 (10 RCTs)	Moderate	Not calculated	CBT (including telephone-based or Internet-based) generally more effective than wait list control over short term
CBT vs. other interventions			Moderate	Not calculated	CBT more effective than brief MI in one study but no statistically significant difference in three studies. No statistically significant difference between CBT and case management
CBT plus contingency management vs. other interventions	Cooper *et al.*, 2015 [H]	300 (2 RCTs)	Low	Two studies only	Mixed results
CBT – cognitive behavioural therapy. MI – motivational interviewing. RCT – randomised controlled trial					

Outcome Table 96: Cannabis-related problems

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
CBT vs. wait list control or other intervention	Cooper *et al.*, 2015 [H]	2,187 (9 RCTs)	Moderate	Not calculated	CBT (including telephone-based or Internet-based) generally more effective than wait list control over short to medium term (up to nine months in one study)
CBT vs. other interventons				Not calculated	Mixed results. CBT more effective than brief MI in one study but no statistically significant difference in three studies. No statistically significant difference between CBT and social support or case management
CBT plus contingency management vs. other interventions	Cooper *et al.*, 2015 [H]	575 (4 RCTs)	Low	Not calculated	Mixed results
CBT – cognitive behavioural therapy. MI – motivational interviewing. RCT – randomised controlled trial					

Population: People with cocaine misuse or dependence
Intervention: CBT
Setting: Community or outpatient

Outcome Table 97: Abstinence

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Relapse-prevention CBT vs. standard care *Cocaine abstinent at endpoint*	National Collaborating Centre for Mental Health, 2008 [H]	469 (4 RCTs) USA	Moderate	RR 1.13 (0.95, 1.34)	No statistically significant difference between relapse-prevention CBT and standard care
Standard CBT vs. standard care *Cocaine abstinent at endpoint*	National Collaborating Centre for Mental Health, 2008 [H]	370 (2 RCTs) USA	Moderate	RR 1.00 (0.78, 1.30)	No statistically significant difference between standard CBT and standard care
CBT – cognitive behavioural therapy. RCT – randomised controlled trial. RR – risk ratio. ES – effect size					

Intervention: Couples-based interventions

Outcome Table 98: Abstinence

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Couples-based interventions vs. relapse-prevention CBT *Days abstinent from all drugs in past three months at study endpoint*	National Collaborating Centre for Mental Health, 2008 [H]	198 (3 RCTs) USA	Moderate	SMD -0.38 (-0.66, -0.09)	Couples-based interventions more effective than relapse-prevention CBT
Couples-based interventions vs. relapse-prevention CBT *Days abstinent from all drugs in past three months at six months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]	198 (3 RCTs) USA	Moderate	SMD -0.52 (-0.81, -0.24)	Couples-based interventions more effective than relapse-prevention CBT
Couples-based interventions vs. relapse-prevention CBT *Days abstinent from all drugs in past three months at 12 months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]	198 (3 RCTs) USA	Moderate	SMD -0.34 (-0.62, -0.06)	Couples-based interventions more effective than relapse-prevention CBT

CBT – cognitive behavioural therapy. RCT – randomised controlled trial. RR – risk ratio. ES – effect size

Population: People with stimulant, cocaine and/or opioid misuse or dependence
Intervention: Contingency management
Setting: Community or outpatient

Outcome Table 99: Abstinence

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Contingency management vs. control *Continuous abstinence at 12 weeks*	National Collaborating Centre for Mental Health, 2008 [H]	173 (2 RCTs)	Moderate	RR 5.61 (2.31, 13.62)	Abstinence increased with contingency management
Contingency management vs. control *Cocaine continuous abstinence for at least 12 weeks*	National Collaborating Centre for Mental Health, 2008 [H]	568 (4 RCTs)	High	RR 4.24 (2.52, 7.15)	Abstinence increased with contingency management
Contingency management vs. relapse-prevention CBT *Continuous abstinence at three weeks*	National Collaborating Centre for Mental Health, 2008 [H]	82 (1 RCT)	Moderate	RR 1.66 (1.11, 2.47)	Abstinence increased with contingency management
Contingency management vs. relapse-prevention CBT *Point abstinence at 12 months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]	82 (1 RCT)	Moderate	RR 0.89 (0.71, 1.13)	No statistically significant difference between contingency management and relapse-prevention CBT
Prize-based contingency management vs. TAU *Abstinence at end of treatment*	Benishek *et al.*, 2014 [H]	Not reported (19 RCTs)	High	d=0.46 (0.37, 0.54)	Abstinence increased with contingency management
Prize-based contingency management vs. TAU *Abstinence at three months*	Benishek *et al.*, 2014 [H]	Not reported (19 RCTs)	High	d=0.33 (0.12, 0.54)	Abstinence increased with contingency management
Prize-based contingency management vs. TAU *Abstinence at six months*	Benishek *et al.*, 2014 [H]	Not reported (5 RCTs)	Low	ES −0.09 (−0.28, 0.10)	No statistically significant difference between treatments

CBT – cognitive behavioural therapy. TAU – treatment as usual. RCT – randomised controlled trial. RR – risk ratio. ES – effect size. SMD – standardised mean difference.

Intervention: Mindfulness-based treatments

Outcome Table 100: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Mindfulness-based intervention vs. treatment as usual or other intervention	Chiesa and Serretti, 2014 [H]; Zgierska *et al.*, 2009 [H]	1,697 (16: 12 RCTs; 4 non-RCTs)	Low	Not calculated	Mixed results

RCT – randomised controlled trial

Population: People with drug abuse or dependence
Intervention: Motivational interview
Setting: Community or outpatient

Outcome Table 101: Drug use

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Motivational interview vs. no intervention *Short term*	Smedslund *et al.*, 2011 [H]	2,327 (15 RCTs)	Moderate	SMD 0.17 (0.09, 0.26)	Reduced drug use with motivational interview compared to no intervention at short- and medium-term follow-up
Motivational interview vs. no intervention *Medium-term follow up*	Smedslund *et al.*, 2011 [H]	2,326 (12 RCTs)	Moderate	SMD 0.15 (0.04, 0.25)	
Motivational interview vs. no intervention *Long-term follow-up*	Smedslund *et al.*, 2011 [H]	363 (1 RCT)	Low	One study only	No significant differences on drug use between motivational interview and no intervention group at long-term follow-up in one study
Motivational interview vs. treatment as usual *Short term*	Smedslund *et al.*, 2011 [H]	2,102 (10 RCTs)	Moderate	SMD 0.01 (-0.08, 0.10)	No significant differences on drug use between motivational interview and treatment as usual at short- or medium-term follow-up
Motivational interview vs. treatment as usual *Medium-term follow-up*	Smedslund *et al.*, 2011 [H]	890 (5 RCTs)	Moderate	SMD 0.08 (-0.05, 0.21)	
Motivational interview vs. assessment and feedback *Short-term follow-up*	Smedslund *et al.*, 2011 [H]	986 (7 RCTs)	Moderate	SMD 0.12 (-0.01, 0.24)	No significant differences between motivational interview and assessment and feedback treatment groups on drug use at short-term follow-up and there were mixed results at medium-term follow-up
Motivational interview vs. assessment and feedback *Medium-term follow-up*	Smedslund *et al.*, 2011 [H]	265 (2 RCTs)	Moderate	Two studies only	
Motivational interview vs. other active intervention *Short-term*	Smedslund *et al.*, 2011 [H]	2,137 (12 RCTs)	Moderate	SMD 0.02 (-0.07, 0.12)	No significant differences for drug use between motivational interview and other active intervention groups at any follow-up time.
Motivational interview vs. other active intervention *Medium-term follow-up*	Smedslund *et al.*, 2011 [H]	1,586 (6 RCTs)	Moderate	SMD -0.02 (-0.16, 0.13)	
Motivational interview vs. other active intervention *Long-term follow-up*	Smedslund *et al.*, 2011 [H]	437 (2 RCTs)	Moderate	Two studies only	
Video doctor based on motivational interview plus booster phone session vs. treatment as usual *Medium-term follow-up*	Watson *et al.*, 2013 [H]	476 (1 CCT)	Low	One study only	Reduced 'any' drug use among motivational interview treatment individuals compared to treatment as usual, but no significant differences between groups for past month drug use or risky alcohol use
Motivational interview, handout and booster phone call vs. handout only *Medium-term follow-up: Cocaine*	Watson *et al.*, 2013 [H]	1,175 (1 CCT)	Low	One study only	Reduced cocaine use among individuals who received the motivational interview, with handout treatment compared to handout-only controls

Outcome Table 101 (continued): Drug use

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Motivational interview, handout and booster phone call vs. handout only *Medium-term follow-up: Opiates*	Watson *et al.*, 2013 [H]	1,175 (1 CCT)	Low	One study only	No statistically significant differences for opiate use between motivational interview with handout treatment and handout-only control groups
RCT – randomised controlled trial. CCT – controlled clinical trial. SMD – standardised mean difference					

Outcome Table 102: Treatment retention

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Motivational interview vs. no intervention *Short term*	Smedslund *et al.*, 2011 [H]	427 (2 RCTs)	Moderate	Two studies only	Mixed results: retention favoured the motivational group in one study and in one study there were no significant differences between motivational interview and no intervention treatment groups
Motivational interview vs. treatment as usual *Medium-term follow-up*	Smedslund *et al.*, 2011 [H]	1,354 (4 RCTs)	Moderate	SMD -0.11 (-0.41, 0.19)	No significant differences for retention between motivational interview and treatment as usual groups
Motivational interview vs. other active intervention *Short term*	Smedslund *et al.*, 2011 [H]	447 (5 RCTs)	Moderate	SMD 0.01 (-0.45, 0.47)	No significant differences for retention between motivational interview and other active intervention treatment groups
RCT – randomised controlled trial. SMD – standardised mean difference					

9.3.5 Residential rehabilitation

Population: People with drug misuse or dependence
Intervention: Residential rehabilitation
Setting: Residential

Outcome Table 103: Treatment completion

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Residential TC vs. day treatment TC	Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	Not reported (1 RCT)	Low	Not calculated	No statistically significant difference in the number of clients completing treatment at 6, 12 and 18-month follow-ups. Time to drop out was not statistically significant between groups
Standard TC vs. enhanced abbreviated TC	Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	Not reported (1 RCT)	Low	RR 1.15 (0.89, 1.50)	No statistically significant difference between standard TC and enhanced abbreviated TC
Modified TC: planned duration three months vs. planned duration six months	Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	Not reported (1 RCT)	Low	RR 1.83 (1.45, 2.31)	Significantly more clients completed treatment in the three-month TC compared with the six-month TC
Traditional TC: planned duration six months vs. planned duration 12 months	Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	Not reported (1 RCT)	Low	RR 1.59 (0.97, 2.63)	No statistically significant difference between six-month TC compared with the 12-month TC

TC – therapeutic community. RCT – randomised controlled trial. RR – relative risk

Outcome Table 104: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Residential TC vs. day treatment TC *Point abstinence at 12 months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]; Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	261 (1 RCT)	Low	RR 0.90 (0.67, 1.22)	Significantly more clients were abstinent at six months follow-up in residential treatment compared with day treatment but differences were no longer statistically significant at 12 and 18- month follow-up.
Standard TC vs. enhanced abbreviated TC *Point abstinence from crack/cocaine at 12 months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]; Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	412 (1 RCT)	Low	RR 1.10 (0.90, 1.35)	No statistically significant difference between standard TC and enhanced abbreviated TC.
Modified TC: planned duration three months vs. planned duration 6 months *Time to first drug use (days from admission)*	Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	Not reported (1 RCT)	Low	HR 0.81 (0.65, 1.01)	No statistically significant difference between three-month and six-month groups.
Traditional TC: planned duration six months vs. planned duration 12 months *Time to first drug use (days from admission)*	Malivert *et al.*, 2012 [L]; Vanderplasschen *et al.*, 2013 [M]	Not reported (1 RCT)	Low	HR 0.91 (0.66, 1.27)	No statistically significant difference between 6-month and 12-month groups.
Residential 12-step vs. residential relapse prevention CBT *Point abstinence at 12 months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]	3,018 (1 cohort)	Low	RR 1.25 (1.13, 1.39)	Significantly more clients were abstinent at 12-month follow-up, in the residential 12-step-based treatment compared with relapse prevention CBT.
Residential 12-step vs. eclectic residential *Point abstinence at 12 months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]	3,018 (1 cohort)	Low	RR 1.13 (1.01, 1.25)	Significantly more clients were abstinent at 12-month follow-up in the residential 12-step-based treatment compared with eclectic programmes.

CBT – cognitive behavioural therapy. TC – therapeutic community. HR – hazard ratio. RR – relative risk

Outcome Table 105: Employment

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Residential TC vs. other type of TC *Employment at 12 months follow-up*	Vanderplasschen *et al.*, 2013 [M]	Not reported (2 RCTs)	Low	Not calculated	Significantly better employment rates among residential TC participants compared to other types of TC.
Residential TC vs. treatment as usual *Employment at 12 months follow-up*	Vanderplasschen *et al.*, 2013 [M]	Not reported (2 prospective controlled)	Low	Not calculated	Significantly better employment rates among residential TC participants compared to treatment as usual.
TC – therapeutic community. RCT – randomised controlled trial					

9.3.6 Treatments focusing on long-term recovery

Population: People in recovery from drug and/or alcohol dependence
Setting: Community
Intervention: Continuing care

Outcome Table 106: Drug use

Comparison	Reference(s)	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Continuing care vs. no or minimal treatment *Drug use at follow-up*	Blodgett *et al.*, 2014 [M]	Not reported (13)	Moderate	ES 0.27 (Not reported)	Continuing care more effective than control.
CBT-based continuing care vs. non-CBT continuing care *Drug use at end of treatment*	Blodgett *et al.*, 2014 [M]	Not reported (13)	Moderate	ES 0.12 (Not reported)	CBT-based continuing care more effective than non-CBT continuing care.
ACC vs. treatment as usual *Cannabis use at three-month follow-up*	Bender *et al.*, 2011 [H]	290 (2 RCTs)	High	Two studies only	No statistically significant difference between treatments
ACC vs. treatment as usual *Cannabis use at nine-month follow-up*	Bender *et al.*, 2011 [H]	132 (1 RCT)	High	One study only	No statistically significant difference between treatments
CBT – cognitive behavioural therapy. ACC – assertive continuing care. ES – effect size					

Intervention: Case management

Outcome Table 107: Treatment retention

Comparison	Reference(s)	No of participants (studies: design)	Level of quality fo review evidence	Effect size (95% CI)	Overall results (combined)
Case management vs. standard care *Drug use at follow-up*	Rapp *et al.*, 2014 [H]	Not reported (unclear)	Low	SMD 0.36 (Not reported)	Case management more effective than standard care
SMD – standardised mean difference					

Outcome Table 108: Drug use

Comparison	Reference(s)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Continuing care vs. no or minimal treatment *Drug use at follow-up*	Rapp *et al.*, 2014 [H]	Not reported (unclear)	Low	SMD 0.08 (Not reported)	Case management more effective than standard care
SMD – standardised mean difference					

Intervention: Recovery housing

Outcome Table 109: Drug use

Comparison	Reference(s)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Recovery housing vs. usual care	Reif *et al.*, 2014b [M]	Not reported (3: 2 RCTs; 1 quasi-experimental)	Moderate	Not calculated	Recovery housing more effective than usual care
RCT – randomised controlled trial					

Outcome Table 110: Reincarceration

Comparison	Reference(s)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Oxford House recovery housing vs. usual aftercare	Reif *et al.*, 2014b [M]	Not reported (1 RCT)	Low	Not calculated	Reincarceration rates lower in Oxford House group than in usual aftercare
RCT – randomised controlled trial					

Outcome Table 111: Employment

Comparison	Reference(s)	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Oxford House recovery housing vs. usual aftercare	Reif *et al.*, 2014b [M]	Not reported (1 RCT)	Low	Not calculated	Employment rates higher in Oxford House group than in usual aftercare
RCT – randomised controlled trial					

Intervention: Peer recovery coaching

Outcome Table 112: Drug use

Comparison	Reference(s)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Peer recovery coaching	Reif *et al.*, 2014a [H]	Not reported (4 studies; 1 RCT; 3 pre and post)	Low	Not calculated	Improved drug use outcomes related to the peer recovery support intervention
RCT – randomised controlled trial					

Intervention: Mutual aid and self-help support

Outcome Table 113: Drug use

Comparison	Reference(s)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
12-step-based self-help groups	National Collaborating Centre for Mental Health, 2008 [H]	Not reported (6 studies; 1 RCT; 2 cohorts; 1 longitudinal; 1 case series, 1 RCT sub-group analysis)	Low	Not calculated	Active participation in self-help groups improved drug outcomes at follow-up
RCT – randomised controlled trial					

9.3.7 Other treatment approaches

Population: People addicted to opioids
Setting: Community/outpatient
Intervention: Acupuncture

Outcome Table 114: Opioid craving

Comparison	Reference(s) (JBI rating)	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Acupuncture vs. placebo	Boyuan *et al.*, 2014 [H]	172 (3 RCTs)	Moderate	SMD -0.04 (-0.40, 0.33)	No statistically significant differences between approaches
Acupuncture vs. no treatment	Boyuan *et al.*, 2014 [H]	95 (2 RCTs)	Low	Two studies only	Mixed findings between studies
Acupuncture vs. pharmacological treatment	Boyuan *et al.*, 2014 [H]	280 (2 RCTs)	Low	Two studies only	No statistically significant differences between approaches
Acupuncture with pharmacological treatment vs. pharmacological treatment alone	Boyuan *et al.*, 2014 [H]	256 (4 RCTs)	Low	SMD 0.24 (-0.03, 0.52)	Acupuncture with drug therapy more effective than pharmacological treatment alone
TENS vs. sham TENS	Boyuan *et al.*, 2014 [H]	229 (2 RCTs)	Low	Two studies only	Mixed findings between studies

TENS – transcutaneous electrical nerve stimulation. RCT – randomised controlled trial. SMD – standardised mean difference.

Outcome Table 115: Depression

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Acupuncture vs. placebo	Boyuan *et al.*, 2014 [H]	60 (1 RCT)	Low	Not calculated	Acupuncture more effective than placebo
Acupuncture vs. no treatment	Boyuan *et al.*, 2014 [H]	120 (2 RCTs)	Low	Not calculated	Acupuncture more effective than no treatment

RCT – randomised controlled trial

Outcome Table 116: Anxiety

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Acupuncture vs. placebo	Boyuan *et al.*, 2014[H]	241 (2 RCTs)	Low	Not calculated	Acupuncture more effective than placebo
Acupuncture vs. no treatment	Boyuan *et al.*, 2014 [H]	122 (2 RCTs)	Low	Not calculated	Mixed findings between studies
Acupuncture vs. pharmacological treatment	Boyuan *et al.*, 2014 [H]	281 (2 RCTs)	Low	Not calculated	No statistically significant differences between approaches
Acupuncture with pharmacological treatment vs. pharmacological treatment alone	Boyuan *et al.*, 2014 [H]	185 (2 RCTs)	Low	Not calculated	Mixed findings between studies
RCT – randomised controlled trial					

Intervention: Physical activity

Outcome Table 117: Abstinence

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Physical activity vs. psychosocial treatments or no treatment	Wang *et al.*, 2014 [H]	315 (3 RCTs)	Moderate	OR 4.13 (2.39, 7.14)	Physical activity treatments more effective than other or no treatments
RCT – randomised controlled trial. OR – odds ratio					

Outcome Table 118: Depression

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Physical activity vs. psychosocial treatments or no treatments	Wang *et al.*, 2014 [H]	176 (3 RCTs)	Moderate	SMD -0.77 (-1.73, 0.19)	No statistically significant differences between approaches
RCT – randomised controlled trial. SMD – standardised mean difference					

Outcome Table 119: Anxiety

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Physical activity vs. psychosocial treatments or no treatments	Wang *et al.*, 2014 [H]	271 (3 RCTs)	Moderate	SMD -0.40 (-0.64, -0.16)	No statistically significant differences between approaches
RCT – randomised controlled trial. SMD – standardised mean difference					

9.3.8 Treatments delivered within the criminal justice system

Population: People with opioid dependency in contact with the criminal justice system
Setting: Prison
Intervention: Opioid maintenance

Outcome Table 120: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
OST vs. no OST *Heroin use in prison (biological and/or self-report)*	Larney, 2010 [H]; Hedrich *et al.*, 2012 [H]	545 (3: 1 RCT; 1 quasi-RCT; 1 retrospective cohort)	Moderate	Not calculated	OST more effective than no OST.
OST vs. no OST *Heroin use post-release (biological and/or self-report)*	Hedrich *et al.*, 2012 [H]	566 (5: 3 RCTs; 2 prospective cohorts)	Moderate	Not calculated	Mixed results but four of five studies found OST associated with significantly greater reductions.
High-dose MMT (>50mg) vs. low-dose MMT *Heroin use in prison (biological and/or self-report)*	Hedrich *et al.*, 2012 [H]	294 (2 prospective cohorts)	Low	Not calculated	High-dose MMT more effective than low-dose MMT
Buprenorphine maintenance treatment vs. MMT *Heroin use post-release (self-report)*	Hedrich *et al.*, 2012 [H]; Perry *et al.*, 2015 [H]	133 (1 RCT)	Low	RR 1.23 (0.86, 1.76)	No statistically significant difference between buprenorphine maintenance treatment and MMT

RCT – randomised controlled trial. OST – opioid substitution therapy. MMT – methadone maintenance treatment. MD – mean difference

Outcome Table 121: Injecting drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
OST vs. no OST *Injecting drug use in prison (self-report)*	Larney, 2010 [H]; Hedrich *et al.*, 2012 [H]	687 (3: 1 RCT; 1 quasi-RCT; 1 retrospective cross-sectional)	Moderate	Not calculated	OST more effective than no OST.

RCT – randomised controlled trial. OST – opioid substitution therapy

Outcome Table 122: Criminal activity

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of evidence	Effect size (95% CI)	Overall results (combined)
OST vs. no OST *Criminal activity (self-report)*	Hedrich *et al.*, 2012 [H]	356 (2 RCTs)	Low	Two studies only	Mixed results: generally no statistically significant difference between OST and no OST
OST vs. no OST *Reincarceration*	Hedrich *et al.*, 2012 [M]	Not reported (9: 3 RCTs; 1 case-control; 5 retrospective cohort)	Low	Two studies only	Mixed results: four studies report OST more effective than no OST and five studies report no differences
OMT vs. no OMT *Reincarceration*	Perry *et al.*, 2015 [H]	472 (3 RCTs)	Low	RR 0.77 (0.36, 1.64)	No statistically significant difference between OMT and no OMT
Buprenorphine vs. methadone *Reincarceration*	Hedrich *et al.*, 2012 [H]; Perry *et al.*, 2015 [H]	133 (1 RCT)	Low	RR 1.25 (0.83, 1.88)	No statistically significant difference between buprenorphine and methadone
RCT – randomised controlled trial. OMT – opioid maintenance treatment					

Intervention: Opioid detoxification

Outcome Table 123: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of evidence	Effect size (95% CI)	Overall results (combined)
Buprenorphine detoxification treatment vs. methadone detoxification treatment *Abstinence at three months (biological)*	Perry *et al.*, 2015c [H]	289 (1 RCT)	Moderate	RR 0.83 (0.52, 1.32)	No statistically significant difference between buprenorphine detoxification treatment and methadone detoxification treatment
RCT – randomised controlled trial. OMT – opioid maintenance treatment. MMT – methadone maintenance treatment. MD – mean difference					

Intervention: Relapse prevention

Outcome Table 124: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Oral naltrexone vs. treatment as usual *Heroin use at six months (self-report)*	Perry *et al.*, 2015c [H]	63 (1 RCT)	Low	RR 0.69 (0.28, 1.70)	No difference between oral naltrexone and treatment as usual
Naltrexone implants vs. MMT *Heroin use post-prison release (self-report)*	Perry *et al.*, 2015c [H]	46 (1 RCT)	Low	MD 4.60 (-3.54, 12.74)	No statistically significant difference between naltrexone implants and MMT.
RR – risk difference. MD – mean difference					

Outcome Table 125: Criminal activity

Comparison	Reference(s) [JBI rating]	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Oral naltrexone vs. treatment as usual *Reincarceration at six months follow-up*	Perry *et al.*, 2015c [H]	114 (2 RCTs)	Moderate	RR 0.40 (0.21, 0.74)	Oral naltrexone more effective than treatment as usual
Naltrexone implants vs. methadone *Criminal activity (self-report)*	Perry *et al.*, 2015c [H]	46 (1 RCT)	Low	MD -0.50 (-8.04, 7.04)	No statistically significant difference between naltrexone implants and methadone
Naltrexone implants vs. methadone *Reincarceration*	Perry *et al.*, 2015c [H]	46 (1 RCT)	Low	RR 1.10 (0.37, 3.26)	No statistically significant difference between naltrexone implants and methadone
RR – risk difference. MD – mean difference. RCT – randomised controlled trial					

Population: People who use drugs and are in contact with the criminal justice system
Setting: Community
Intervention: Diversion (including drug courts)

Outcome Table 126: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Diversion intervention vs. no intervention *Primary drug use (biological and/or self-report)*	Hayhurst *et al.*, 2015 [H]	Not reported (3 studies: 2 concurrent group comparisons; 1 case series)	Moderate	OR 1.68 (1.12, 2.53)	Diversion intervention more effective than no intervention
Diversion intervention vs. no intervention *Other drug use (biological and/or self-report)*	Hayhurst *et al.*, 2015 [H]	Not reported (3 concurrent group comparisons)	Low	OR 2.60 (1.70, 3.98)	Diversion intervention more effective than no intervention
OR – odds ratio. RCT – randomised controlled trial					

Outcome Table 127: Criminal activity

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Diversion intervention vs. other intervention *General reoffending*	Hayhurst *et al.*, 2015 [H]	Not reported (1 longitudinal follow-up; 1 concurrent group comparison; 1 correlational)	Low	OR 4.06 (not reported)	Evidence of a fairly substantive decrease in general reoffending following treatment
OR – odds ratio. RCT – randomised controlled trial					

Setting: Prison
Intervention: Therapeutic communities

Outcome Table 128: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Therapeutic community work-release programme vs. standard aftercare *Relapse six-month follow-up*	National Collaborating Centre for Mental Health, 2008 [H]; Perry *et al.*, 2009 [H]	688 (1 RCT)	Low	One study only	Therapeutic communities associated with reductions in relapse
Therapeutic community vs. no treatment or other intervention *Relapse*	Mitchell *et al.*, 2012 [H]	Not reported (13 studies: not reported)	Moderate	1.33 (0.92, 1.93)	Therapeutic communities associated with reductions in relapse
RCT – randomised controlled trial					

Outcome Table 129: Criminal activity

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Therapeutic communities vs. no treatment or other intervention *General recidivism*	Mitchell *et al.*, 2012 [H]	Not reported (35 studies: Not reported)	Moderate	OR 1.40 (1.14, 1.71)	Therapeutic communities associated with reductions in recidivism
Therapeutic community and aftercare vs. treatment as usual *Reincarceration at 12 months follow-up*	National Collaborating Centre for Mental Health, 2008 [H]; Perry *et al.*, 2009 [H]	854 (2 RCTs)	Moderate	RR 0.48 (0.20, 1.12)	Therapeutic communities associated with reductions in reincarceration, criminal activity and recidivism
Therapeutic community and aftercare vs. treatment as usual *Reincarceration at five years follow-up*	National Collaborating Centre for Mental Health, 2008 [H]; Perry *et al.*, 2009 [H]	715 (1 RCT)	Moderate	RR 0.93 (0.87, 0.99)	
Therapeutic community and aftercare vs. treatment as usual *Criminal activity*	National Collaborating Centre for Mental Health, 2008 [H]; Perry *et al.*, 2009 [H]	139 (1 RCT)	Moderate	RR 0.69 (0.52, 0.93)	

OR – odds ratio. RR – relative risk. RCT – randomised controlled trial

Intervention: Boot camps

Outcome Table 130: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Boot camps vs. traditional juvenile camp *Illicit drug use 12-month follow-up*	National Collaborating Centre for Mental Health, 2008 [H]	200 (1 retrospective cohort)	Low	One study only	No statistically significant difference between treatments

Outcome Table 131: Criminal activity

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Boot camps vs. traditional juvenile camp *General recidivism*	Mitchell *et al.*, 2012 [H]; National Collaborating Centre for Mental Health, 2008 [H]	854 (1 retrospective cohort)	Low	OR 1.10 (0.48, 2.50)	No statistically significant difference between treatments

OR – odds ratio

Intervention: Psychosocial interventions

Outcome Table 132: Drug use

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Behavioural management vs. TAU *Drug use at nine-month follow-up*	Perry *et al.*, 2015b [H]	77 (11 RCTs)	Low	One study only	No statistically significant differences between treatments
Counselling vs. no treatment or other intervention *Drug relapse*	Mitchell *et al.*, 2012 [H]	Not reported (3 studies: not reported)	Moderate	OR 0.77 (0.35, 1.70) (1.20, 1.94)	No statistically significant differences between treatments
Vipassana meditation vs. TAU *Drug use*	Shonin *et al.*, 2013 [H]	305 (1 quasi-experimental)	Low	One study only	Meditation associated with reduced drug use

TAU – treatment as usual. RCT – randomised controlled trial. OR – odds ratio

Outcome Table 133: Criminal activity

Comparison	Reference(s) [JBI rating]	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Counselling vs. no treatment or other intervention *General recidivism*	Mitchell *et al.*, 2012 [H]	Not reported (26 studies: Not reported)	Moderate	OR 1.53 (1.20, 1.94)	Counselling generally associated with statistically significant reductions in recidivism
CBT vs. TAU *General recidivism*	Perry *et al.*, 2015b [H]	44 (1 RCT)	Low	One study only	No statistically significant differences between treatments
Behavioural management vs. TAU *General recidivism*	Perry *et al.*, 2015b [H]	19 (1 RCT)	Low	One study only	No statistically significant differences between treatments
Case management vs. TAU *Arrests*	Perry *et al.*, 2015b [H]	183 (1 RCT)	Low	One study only	No statistically significant differences between treatments

CBT – cognitive behavioural therapy. TAU – treatment as usual. RCT – randomised controlled trial. OR – odds ratio

Population: People with drug use and mental illness in contact with the criminal justice system
Setting: Prison
Intervention: Therapeutic communities

Outcome Table 134: Drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Therapeutic community vs. no treatment or treatment as usual *Self-reported use*	Perry *et al.*, 2015a [H]	715 (2 RCTs)	Low	Two studies only	Mixed results between studies
CBT – cognitive behavioural therapy. RCT – randomised controlled trial. SMD – standardised mean difference					

Outcome Table 135: Criminal activity

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
TC vs. TAU *Re-arrest*	Perry *et al.*, 2015a [H]	428 (1 RCT)	Low	One study only	No statistically significant difference between treatments
TC vs. TAU *Reincarceration: Dichotomous*	Perry *et al.*, 2015a [H]	266 (2 RCTs)	Low	Two studies only	Reduced reincarceration associated with TC participation
TC vs. TAU or no treatment *Reincarceration: Continuous*	Perry *et al.*, 2015a [H]	361 (2 RCTs)	Low	Two studies only	Reduced reincarceration associated with TC participation
TC – therapeutic community. TAU – treatment as usual. RCT – randomised controlled trial					

Intervention: Motivational interview and cognitive skills

Outcome Table 136: Drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MI plus cognitive skills vs. relaxation therapy	Perry *et al.*, 2015a [H]	162 (1 RCT)	Low	One study only	No statistically significant difference between treatments
MI – motivational interview. RCT – randomised controlled trial					

Intervention: Mental health and court management

Outcome Table 137: Criminal activity

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MHC and case management vs. TAU	Perry *et al.*, 2015a [H]	235 (1 RCT)	Low	One study only	No statistically significant difference between treatments

MHC – mental health court. TAU – treatment as usual. RCT – randomised controlled trial

9.3.9 Treatments for people with drug use and mental health disorders

Population: People with trauma and drug use problems
Setting: Community/outpatient
Intervention: CBT-based interventions

Outcome Table 138: Drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Individual CBT trauma-focused interventions plus SUD intervention vs. TAU	Roberts *et al.*, 2015 [H]	388 (3 RCTs)	Moderate	SMD -0.28 (-0.48, -0.07)	CBT trauma-focused interventions better than treatment as usual
Group-based CBT non-trauma-focused interventions vs. TAU	Roberts *et al.*, 2015 [H]	572 (4 RCTs)	Moderate	SMD -0.006 (-0.23, 0.11)	No statistically significant differences between treatment approaches
Individual CBT non-trauma-focused intervention for PTSD and SUD vs. psychosocial treatments for SUD only	Roberts *et al.*, 2015 [H]	128 (2 RCTs)	Low	Not calculated	No statistically significant differences between treatment approaches

CBT – cognitive behavioural therapy. TAU – treatment as usual. PTSD – post-traumatic stress disorder. RCT – randomised controlled trial. SMD – standardised mean difference

Outcome Table 139: Post-traumatic stress disorder severity

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of evidence	Effect size (95% CI)	Overall results (combined)
Individual CBT trauma-focused interventions plus SUD intervention vs. TAU	Roberts *et al.*, 2015 [H]	388 (4 RCTs)	Moderate	SMD -0.33 (-0.58, -0.10)	CBT trauma-focused interventions better than treatment as usual
Group-based CBT non-trauma-focused interventions vs. TAU	Roberts *et al.*, 2015 [H]	566 (4 RCTs)	Moderate	SMD -0.14 (0.31, 0.03)	No statistically significant differences between treatment approaches
Individual CBT non-trauma-focused intervention for PTSD and SUD vs. psychosocial treatments for SUD only	Roberts *et al.*, 2015 [H]	128 (2 RCTs)	Low	Two studies only	No statistically significant differences between treatment approaches
Individual CBT non-trauma-focused intervention for PTSD only vs. treatment as usual	Roberts *et al.*, 2015 [H]	44 (1 RCT)	Moderate	One study only	No statistically significant differences between treatment approaches

CBT – cognitive behavioural therapy. TAU – treatment as usual. PTSD – post-traumatic stress disorder. RCT – randomised controlled trial. SMD – standardised mean difference

Outcome Table 140: Treatment retention

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Individual CBT trauma-focused interventions plus SUD intervention vs. TAU.	Roberts *et al.*, 2015 [H]	316 (3 RCTs)	Moderate	RR 0.78 (0.64, 0.96)	CBT trauma-focused interventions better than treatment as usual
Group-based CBT non-trauma-focused interventions vs. TAU	Roberts *et al.*, 2015 [H]	381 (2 RCTs)	Low	Two studies only	No statistically significant differences between treatment approaches

CBT – cognitive behavioural therapy. TAU – treatment as usual. RCT – randomised controlled trial. SMD – standardised mean difference

Intervention: Integrated treatment programmes

Outcome Table 141: Drug use disorder symptoms

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
IT programmes vs. non-IT programmes	Torchalla *et al.*, 2012 [H]	NR (9 controlled trials)	High	d=0.10 (0.01, 0.21)	No statistically significant difference between approaches

IT – Integrated treatment

Outcome Table 142: PTSD symptoms

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
IT programmes vs. non-IT programmes	Torchalla *et al.*, 2012 [H]	NR (9 controlled studies)	High	d=0.08 (-0.03, 0.19)	No statistically significant difference between approaches
IT – Integrated treatment					

Population: People with severe mental illnesses
Intervention: Psychosocial interventions

Outcome Table 143: Lost to treatment

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Integrated models of care vs. TAU *36 months*	Hunt *et al.*, 2013 [H]	603 (3 RCTs)	Moderate	RR 1.09 (0.82, 1.45)	No statistically significant differences between treatment approaches
Non-integrated models of care vs. TAU *6 months*	Hunt *et al.*, 2013 [H]	134 (3 RCTs)	Moderate	Not calculated	No statistically significant differences between treatment approaches
Non-integrated models of care vs. TAU *12 months*	Hunt *et al.*, 2013 [H]	134 (3 RCTs)	Moderate	Not calculated	No statistically significant differences between treatment approaches
Non-integrated models of care vs. TAU *18 months*	Hunt *et al.*, 2013 [H]	134 (3 RCTs)	Moderate	RR 1.35 (0.83, 2.19)	No statistically significant differences between treatment approaches
CBT plus motivational interview vs. TAU *6 months*	Hunt *et al.*, 2013 [H]	605 (3 RCTs)	Moderate	RR 1.02 (0.68, 1.54)	No statistically significant differences between treatment approaches
CBT plus motivational interview vs. TAU *12 months*	Hunt *et al.*, 2013 [H]	327 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
CBT alone vs. treatment as usual	Hunt *et al.*, 2013 [H]	152 (2 RCTs)	Low	Two studies only	No statistically significant differences between treatment approaches
Motivational interview alone vs. TAU	Hunt *et al.*, 2013 [H]	62 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
Skills training vs. TAU	Hunt *et al.*, 2013 [H]	47 (1 RCT)	Low	One study only	Treatment as usual better than skills training
Contingency management vs. TAU	Hunt *et al.*, 2013 [H]	206 (2 RCTs)	Low	Two studies only	Mixed results between studies
CBT – cognitive behavioural therapy. TAU – treatment as usual. RCT – randomised controlled trial. RR – risk ratio					

Outcome Table 144: Drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
CBT plus motivational interview vs. TAU *Cannabis use*	Hunt *et al.*, 2013 [H]	42 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
CBT alone vs. TAU *Cannabis use*	Hunt *et al.*, 2013 [H]	47 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
Motivational interview alone vs. TAU *Cannabis use*	Hunt *et al.*, 2013 [H]	62 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
Contingency management vs. TAU *Cannabis use*	Hunt *et al.*, 2013 [H]	176 (1 RCT)	Low	One study only	Treatment as usual better than contingency management
Integrated models of care vs. TAU *Not in remission – 36 months*	Hunt *et al.*, 2013 [H]	143 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
CBT plus motivational interview vs. TAU *Number of drugs used in past month*	Hunt *et al.*, 2013 [H]	119 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
Motivational interview alone vs. TAU *Polydrug use*	Hunt *et al.*, 2013 [H]	89 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
Motivational interview alone vs. TAU *Abstinence from drugs*	Hunt *et al.*, 2013 [H]	25 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
Contingency management vs. TAU *Injection drug use: during treatment*	Hunt *et al.*, 2013 [H]	176 (1 RCT)	Low	One study only	Reduced injecting in contingency management treatment compared to treatment as usual
Contingency management vs. TAU *Injection drug use: follow-up*	Hunt *et al.*, 2013 [H]	176 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches
Contingency management vs. TAU *Stimulant use*	Hunt *et al.*, 2013 [H]	176 (1 RCT)	Low	One study only	No statistically significant differences between treatment approaches

CBT – cognitive behavioural therapy. TAU – treatment as usual. RCT – randomised controlled trial

Outcome Table 145: Drug dependence

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality ot review evidence	Effect size (95% CI)	Overall results (combined)
MI alone vs. TAU *Amphetamine dependence*	Hunt *et al.*, 2013 [H]	19 (1 RCT)	Low	Not calculated	No statistically significant differences between treatment approaches
MI alone vs. TAU *Cannabis dependence*	Hunt *et al.*, 2013 [H]	62 (1 RCT)	Low	Not calculated	No statistically significant differences between treatment approaches
MI alone vs. TAU *Alcohol dependence*	Hunt *et al.*, 2013 [H]	52 (1 RCT)	Low	Not calculated	No statistically significant differences between treatment approaches
MI – motivational interview. TAU – treatment as usual. RCT – randomised controlled trial. RR – risk ratio					

Population: People with borderline personality disorder
Setting: Community/outpatient
Intervention: Range of therapies

Outcome Table 146: Range of outcomes

Comparison	Reference(s) (JBI rating)	No of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Dialectical behaviour therapy vs. control	Lee *et al.*, 2015 [H]	NR (4 RCTs)	Moderate	Not calculated	Reductions in drug use, suicidal and self-harm behaviours and improvements in treatment retention, global functioning and social functioning were associated with dialectical behaviour therapy compared with control conditions
Dual focus schema therapy vs. control	Lee *et al.*, 2015 [H]	NR (3 RCTs)	Moderate	Not calculated	Few differences reported on any outcomes among those receiving dual focus schema therapy compared to control conditions
Dynamic deconstructive psychotherapy vs. control	Lee *et al.*, 2015 [H]	NR (3 RCTs)	Moderate	Not calculated	Reductions in drug use, suicidal behaviour and personality disorders associated with dynamic deconstructive psychotherapy compared with control conditions
RCT – randomised controlled trial					

9.3.10 Treatments delivered to pregnant and parenting women

Population: Pregnant women who are opioid dependent
Setting: Community/outpatient
Intervention: Methadone maintenance treatment

Outcome Table 147: Maternal drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MMT vs. slow-release morphine *Heroin use*	Minozzi *et al.*, 2013 [H]	48 (1 RCT)	Low	One study only	Slow-release morphine was more effective than MMT
MMT vs. buprenorphine *Use of primary drug of abuse*	Minozzi *et al.*, 2013 [H]	151 (2 RCTs)	Low	Two studies only	No statistically significant differences between approaches
MMT vs. buprenorphine *Use of other drug*	Minozzi *et al.*, 2013 [H]	(2 RCTs)	Low	Two studies only	No statistically significant differences between approaches
MMT – methadone maintenance treatment. RCT – randomised controlled trial					

Outcome Table 148: Birth outcomes

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
MMT vs. buprenorphine *Neonatal abstinence syndrome*	Minozzi *et al.*, 2013 [H]	166 (3 RCTs)	Low	RR 1.22 (0.89, 1.67)	No statistically significant differences between approaches
MMT vs. buprenorphine *Birth weight*	Minozzi *et al.*, 2013 [H]	150 (2 RCTs)	Low	Two studies only	Buprenorphine was more effective than MMT
MMT vs. slow-release morphine *Birth weight*	Minozzi *et al.*, 2013 [H]	48 (1 RCT)	Low	One study only	No statistically significant differences between approaches
MMT vs. slow-release morphine *Week of delivery*	Minozzi *et al.*, 2013 [H]	48 (1 RCT)	Low	Two studies only	No statistically significant differences between approaches
MMT vs. slow-release morphine *Pre- and neonatal mortality*	Minozzi *et al.*, 2013 [H]	48 (1 RCT)	Low	One study only	No statistically significant differences between approaches
MMT – methadone maintenance treatment. RCT – randomised controlled trial. RR – risk ratio					

Population: Pregnant or parenting women
Setting: Community/outpatient
Intervention: Pyschosocial interventions

Outcome Table 149: Maternal drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Contingency management vs. usual care *Drug use*	Terplan *et al.*, 2015 [H]	89 (1 RCT)	Moderate	One study only	No statistically significant differences between approaches
Motivational interview-based intervention vs. treatment as usual *Drug use*	Terplan *et al.*, 2015 [H]	159 (1 RCT)	Low	One study only	No statistically significant differences between approaches
Contingency management vs. usual care *Drug use at delivery*	Terplan *et al.*, 2015 [H]	89 (1 RCT)	Moderate	One study only	No statistically significant differences between approaches
Motivational interview-based intervention vs. treatment as usual *Drug use at delivery*	Terplan *et al.*, 2015 [H]	128 (1 RCT)	Moderate	One study only	No statistically significant differences between approaches
RCT – randomised controlled trial					

Outcome Table 150: Treatment completion

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Contingency management vs. usual care	Terplan *et al.*, 2015 [H]	388 (6 RCTs)	Moderate	RR 1.03 (0.92, 1.16)	No statistically significant differences between approaches
Motivational interview-based intervention vs. treatment as usual	Terplan *et al.*, 2015 [H]	355 (3 RCTs)	Low	RR 0.97 (0.89, 1.06)	No statistically significant differences between approaches
RCT – randomised controlled trial. RR – risk ratio					

Intervention: Integrated treatment programmes

Outcome Table 151: Treatment outcomes

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality fo review evidence	Effect size (95% CI)	Overall results (combined)
Integrated vs. non-integrated treatment *Treatment length*	Milligan *et al.*, 2011 [H]	1,910 (3: 2 RCTs, 1 quasi-experimental)	Low	d=0.35 (0.28, 0.47)	Integrated treatment more effective than non-integrated treatment
Integrated vs. non-integrated treatment *Treatment completion*	Milligan *et al.*, 2011 [H]	2,504 (6: 2 RCTs, 4 quasi-experimental)	Moderate	d=0.38 (-0.05, 0.80)	No statistically significant differences between approaches
RCT – randomised controlled trial					

Outcome Table 152: Maternal drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Integrated vs. no treatment *Drug use*	Milligan *et al.*, 2010 [H]	1,487 (2 quasi experimental)	Moderate	Two studies only	Integrated treatment more effective than no treatment
Integrated vs. non-integrated treatment *Drug use*	Milligan *et al.*, 2010 [H]	278 (4: 2 RCTs, 2 quasi experimental)	Low	d=-0.09 (0.41, 0.23)	No statistically significant differences between approaches
Integrated vs. non-integrated treatment *Abstinence*	Milligan *et al.*, 2010 [H]	89 (2 quasi-experimental)	Low	Two studies only	No statistically significant differences between approaches
RCT – randomised controlled trial					

Intervention: Home visits

Outcome Table 153: Maternal drug use

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Home visits before or after birth vs. no home visits *Illicit drug use*	Turnbull and Osborn, 2012 [H]	384 (3 RCTs)	Moderate	RR 1.05 (0.89-1.24)	No statistically significant differences between approaches
Home visits before or after birth vs. no home visits *Alcohol use*	Turnbull and Osborn, 2012 [H]	379 (3 RCTs)	Moderate	RR 1.18 (0.96-1.46)	No statistically significant differences between approaches
RCT – randomised controlled trial. RR – risk ratio					

Outcome Table 154: Infant mortality

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Home visits before or after birth vs. no home visits	Turnbull and Osborn, 2012 [H]	288 (2 RCTs)	High	Two studies only	No statistically significant differences between approaches
RCT – randomised controlled trial					

Outcome Table 155: Treatment programme uptake

Comparison	Reference(s) (JBI rating)	No. of participants (studies: design)	Level of quality of review evidence	Effect size (95% CI)	Overall results (combined)
Home visits before or after birth vs. no home visits	Turnbull and Osborn, 2012 [H]	211 (2 RCTs)	Moderate	Not calculated	No statistically significant differences between approaches
RCT – randomised controlled trial					

10 References

10.1 General references

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10.3.4 Foreign language article (n=3)

Beaudoin I and Bouchard S (2014) Efficacité de l'approche "logement d'abord" pour les personnes en situation d'itinérance vivant avec des troubles mentaux ou des troubles liés aux substances psychoactives. [Efficiency of the "housing first" approach for people who are homeless and living with mental illness or with disorders associated to psychoactive substances] Quebec: Institut national d'excellence en sante et en services sociaux (INESSS). ETMIS; 10(1).

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10.3.5 The review had been withdrawn (n=2)

Dalsbø TK, Hammerstrøm KT, Vist Gunn E, Gjermo H, Smedslund G, Steiro A *et al.* (2010) Psychosocial interventions for retention in drug abuse treatment. *Cochrane Database of Systematic Reviews*, 2010, (1): CD009269.

Mayet S, Farrell MF, Ferri M, Amato L and Davoli M (2014) Psychosocial treatment for opiate abuse and dependence. *Cochrane Database of Systematic Reviews*, 2014, (4): CD004330.

10.3.6 The review search was carried out in 2007 (n=2)

Lemstra M, Bennett N, Nannapaneni U, Neudorf C, Warren L, Kershaw T *et al.* (2010) A systematic review of school-based marijuana and alcohol prevention programs targeting adolescents aged 10–15. *Addiction Research & Theory*, 18(1):84-96.

Turner W and Macdonald G (2011) Treatment foster care for improving outcomes in children and young people: A systematic review. *Research on Social Work Practice* 21(5): 501-527.

10.3.7 Updated review available (n=1)

Thomas RE, Lorenzetti DL and Spragins W (2011) Mentoring adolescents to prevent drug and alcohol use. *Cochrane Database of Systematic Reviews*, 2011, (11): CD007381.

11 Appendices

11.1 Appendix 1 – Review protocol

Systematic review of evidence on the effectiveness of responses to problem drug use

A review of high-quality systematic reviews, with evidence presented across four strands:

Treatment

Which interventions are effective in treating drug misuse among people who misuse drugs?

Social reintegration

What interventions are effective in supporting people who use drugs to become better reintegrated into the community following/ alongside treatment?

3. Prevention

Which interventions are effective in preventing drug use among children and young people aged 25 years and under?

4. Harm reduction

Which interventions are effective in reducing the harms related to drug use?

Across all strands of the review, drugs included were illegal drugs and new psychoactive substances. Drugs such as alcohol, tobacco, human enhancement drugs, and prescription medicines were not included in the review unless these outcomes were reported alongside illegal drug use as part of polydrug use behaviours.

Search strategy

The initial search for literature took place in August 2015 in the following databases:

- Cochrane Library of Systematic Reviews
- Joanna Briggs Institute Database of Systematic Reviews
- DARE (Database of Abstracts of Reviews of Effects)
- Campbell Collaboration Library of Systematic Reviews
- EPPI-Centre Library
- PsycINFO

Database searching was supplemented by website searching, including the following websites:

- World Health Organization
- UNODC
- NDC
- EMCDDA
- Australian National Drug and Alcohol Research Centre

Within each article identified, reference lists were screened to identify any further articles to include in the review.

A search strategy was developed to enable searching within the identified electronic databases. A single strategy was developed to identify evidence across all four strands of the review. During the screening stage of the review, articles identified for inclusion were categorised into the four review strands according to the inclusion criteria presented below.

Inclusion criteria

High-quality systematic reviews published since 2010 were considered for inclusion. Where gaps in the evidence were identified, reviews published before 2010 and high-quality primary studies including RCTs, cohort studies, cross-sectional studies and before and after studies were considered. Both quantitative and qualitative evidence were considered.

Studies were eligible for inclusion for each strand of the review if they met the criteria outlined below.

Treatment strand

Primary research question: Which interventions are effective in treating drug misuse among people who misuse drugs?

Population

In particular, the review sought to identify 'high-risk' groups including individuals who are homeless or live in temporary accommodation, are members of the LGBT community, are members of the Travelling community, are in contact with the criminal justice system, are children of drug misusers, are looked after children, have mental health problems, are not in employment, education or training and who are involved in commercial sex work.

Interventions

Interventions that aimed to bring about cessation or reduction of drug use were eligible for inclusion. These included substitute prescribing, psychosocial interventions (for example, brief interventions and contingency management interventions), residential treatment programmes, recovery communities and mutual aid interventions (for example, peer support networks, 12-step programmes).

Comparison

Interventions were compared with other interventions, treatment as usual and no intervention. Additionally, the review only included before and after studies.

Outcomes

Outcomes of interest were:

- Successful completion of treatment (according to the reviewed study, but including length of time of drug abstention, amount of drugs used per day, money spent per day, withdrawal symptoms)
- Retention in treatment (time participants spend in treatment, retention rate at a given time)
- Prevalence of drug use (opioids and cocaine)
- Relapse
- Criminal activity

Outcomes could be self-reported or verified e.g. through blood or urine analysis, police records, treatment records.

The review did not consider outcomes such as knowledge and attitudes towards drug use, or intentions towards future drug use.

Social reintegration strand

Primary research question: What interventions are effective in supporting people who use drugs to become better reintegrated into the community following/alongside treatment?

Population

Studies including individuals who are currently in drug treatment, or who have completed drug treatment.

In particular, the review sought to identify 'high-risk' groups including individuals who were homeless or lived in temporary accommodation, were members of the LGBT community, were members of the Travelling community, were in contact with the criminal justice system, were children of drug misusers, were looked after children, have mental health problems, were not in employment, education or training and who were involved in commercial sex work.

Interventions

Interventions that aim to bring about social reintegration, including vocational rehabilitation; housing, education and vocational training; employment strategies; and advocacy and stigma reduction.

Comparison

Interventions were compared with other interventions, normal conditions and no intervention. Additionally, the review only included before and after studies.

Outcomes

Outcomes of interest were:

» Housing status

» Employment status and quality of employment (including job satisfaction and numbers of hours worked)

» Education status (including statutory and vocational qualifications)

Prevention strand

Primary research question: Which interventions are effective in preventing drug use among children and young people aged 25 years and under?

Population

To be eligible for inclusion in this strand of the review, study participants must be children and young people aged 25 years and under.

In particular, the review sought to identify 'high-risk' groups including individuals who are homeless or live in temporary accommodation, are members of the LGBT community, are members of the Travelling community, are in contact with the criminal justice system, are children of drug misusers, are looked after children, have mental health problems, are not in employment, education or training and who are involved in commercial sex work.

Studies involving young people receiving structured drug treatment were not be eligible for inclusion.

Interventions

Any intervention designed to prevent or reduce the use of drugs including indicated, selective, and universal interventions such as school-based and educational programmes, mass-media, and online interventions.

Comparison

Interventions were compared with other interventions, normal conditions (for example regular curriculum) and no intervention. Additionally, the review only includes before and after studies.

Outcomes

Outcomes of interest were:

» Age of drug use initiation

» Prevalence of drug use

» Frequency of drug use

» Cessation of drug use

Outcomes could be self-reported or verified, e.g. through blood or urine analysis, hospital records.

The review did not consider outcomes such as knowledge and attitudes towards drug use or intentions of future drug use.

Harm reduction strand

Primary research question: Which interventions are effective to reduce the harms related to drug use?

Population

The review included studies that focused on individuals who are current drug users.

In particular, the review sought to identify 'high-risk' groups including individuals who are homeless or live in temporary accommodation, are members of the LGBT community, are members of the Travelling community, are in contact with the criminal justice system, are children of drug misusers, are looked after children, have mental health problems, are not in employment, education or training and who are involved in commercial sex work.

Interventions

Interventions were activities or programmes that aimed to reduce the harms and risks that individuals are exposed to relating to their drug use. Examples of activities include needle and syringe programmes, supervised drug consumption facilities, blood-borne virus testing services, outreach services and peer support services.

Interventions with the primary aim of preventing drug use or use disorders were excluded from this strand of the review.

Comparison

Interventions were compared with other interventions, normal conditions (for example, harm reduction practice as normal in the case of studies into new innovations) and no intervention. Additionally, the review only included before and after studies.

Outcomes

Outcomes of interest included:

- Drug-related morbidity and mortality
- Prevalence and transmission of blood-borne viruses including hepatitis B, hepatitis C and HIV
- Uptake of testing and treatment for blood-borne viruses, and uptake of hepatitis B vaccination
- Prevalence of high-risk behaviours associated with drug use; injection equipment sharing and risky injection behaviours, drug driving
- Injecting-related injuries
- Overdose
- Use of needle and syringe programmes and uptake of drug treatment and use of health services
- Disposal of used needles and equipment
- Risky sexual behaviours

Outcomes could be self-reported or verified, e.g. through blood or urine analysis, medical records.

Reference screening

References from the database searches were downloaded, deduplicated and screened on title and abstract against the criteria above. All references were screened by two reviewers independently, with any disagreements resolved through discussion between reviewers and consultation with a third reviewer if necessary.

Where abstracts met all the inclusion criteria, or if it was unclear from the study abstract whether it does, the full text was retrieved and re-screened. Full-text screening was carried out by two reviewers independently and any differences resolved by discussion between reviewers and consultation with a third reviewer if necessary.

Studies that were excluded at the full paper stage were recorded along with the reason for their exclusion.

Data extraction and quality assessment

Quality assessment and data extraction for all included reviews was conducted in line with guidelines produced by the Joanna Briggs Institute.[10] All reviews were quality assessed and data extracted by one reviewer, with all data checked in detail by a second reviewer. Details of all extracted data were entered into comprehensive evidence tables.

Data to be extracted included bibliographic details, population details, setting details, intervention details and outcomes.

10 http://joannabriggs.org/assets/docs/sumari/ReviewersManual-Methodology-JBI_Umbrella%20Reviews-2014.pdf

11.2 Appendix 2 – Sample search strategy

For searching within Cochrane Library of Systematic Reviews, DARE and HTA libraries

#1 (Drug* or drug* or polydrug or "poly-drug" or "legal high*" or psychoactive* or "psychoactive*" or psychotropic*):ti,ab

#2 (ketamine or speed or spice or cocaine or crack or mushroom* or solvent* or inhalant or "nitrous oxide" or "laughing gas" or benzodiazepine* or tranquiliser* or tranquilizer* or opioid* or hallucinogen* or "anabolic steroid*"):ti,ab

#3 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment*):ti,ab

#4 (#1 or #2) near/4 #3

#5 (Cannab* or marijuana or skunk or ecstasy or MDMA or LSD or "lysergic acid diethylamide" or amphetamine* or amfetamin* or mephedrone or mkat or "meow meow" or meth or methamphetamine or methamfetamin* or psychedelic* or pcp or phencyclidine or "anabolic steroid*" or ped or peds or pied or pieds or "performance enhancing" or "image enhancing" or heroin or poppers or "amyl nitrate" or "butyl nitrate" or "new psychoactive drug*" or "novel psychoactive drug*" or NPS):ti,ab

#6 MeSH descriptor: [Street Drugs] explode all trees

#7 MeSH descriptor: [Designer Drugs] explode all trees

#8 MeSH descriptor: [Marijuana Abuse] explode all trees

#9 MeSH descriptor: [Drug-Seeking Behavior] explode all trees

#10 MeSH descriptor: [Performance-Enhancing Drugs] explode all trees

#11 #6 or #7 or #8 or #9 or #10

#12 #4 or #5

#13 MeSH descriptor: [Drug-Related Disorders] explode all trees

#14 MeSH descriptor: [Amphetamine-Related Disorders] explode all trees

#15 MeSH descriptor: [Cocaine-Related Disorders] explode all trees

#16 MeSH descriptor: [Inhalant Abuse] explode all trees

#17 MeSH descriptor: [Marijuana Abuse] explode all trees

#18 MeSH descriptor: [Opioid-Related Disorders] explode all trees

#19 MeSH descriptor: [Phencyclidine Abuse] explode all trees

#20 MeSH descriptor: [Drug Abuse, Intravenous] explode all trees

#21 MeSH descriptor: [Marijuana Smoking] explode all trees

#22 {or #13-#21}

#23 #11 or #12 or #22 Publication Year from 2010 to 2015

11.3 Appendix 3 – Quality assessment tool

The Joanna Briggs Institute critical appraisal checklist was used to assess the methodological quality of systematic reviews identified for this review. The form is available at www.joannabriggs.org/assets/docs/jbc/operations/criticalAppraisalForms/JBC_Form_CritAp_SRsRs.pdf.

JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses

Reviewer_____Date_____

Author _____Year_____Record Number_____

		Yes	No	Unclear	Not applicable
1.	Is the review question clearly and explicitly stated?	☐	☐	☐	☐
2.	Were the inclusion criteria appropriate for the review question?	☐	☐	☐	☐
3.	Was the search strategy appropriate?	☐	☐	☐	☐
4.	Were the sources and resources used to search for studies adequate?	☐	☐	☐	☐
5.	Were the criteria for appraising studies appropriate?	☐	☐	☐	☐
6.	Was critical appraisal conducted by two or more reviewers independently?	☐	☐	☐	☐
7.	Were there methods to minimize errors in data extraction?	☐	☐	☐	☐
8.	Were the methods used to combine studies appropriate?	☐	☐	☐	☐
9.	Was the likelihood of publication bias assessed?	☐	☐	☐	☐
10.	Were recommendations for policy and/or practice supported by the reported data?	☐	☐	☐	☐
11.	Were the specific directives for new research appropriate?	☐	☐	☐	☐

Overall appraisal: Include ☐ Exclude ☐ Seek further info ☐

11.4 Appendix 4 – Quality assessment of included reviews

Each included review was assessed against the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses (Appendix 11.3). The results of this process are reported here. The questions 1–11 are provided in full in Appendix 11.3.

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Rating
Abad *et al.*, 2015	Y	Y	Y	Y	Y	U	Y	Y	NA	Y	N	High
Abdul-Quader *et al.*, 2013	Y	Y	Y	Y	Y	U	Y	Y	NA	Y	Y	High
Akbar *et al.*, 2011	Y	Y	Y	N	N	N	Y	Y	NA	N	Y	Medium
Alvarez *et al.*, 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	High
Amato *et al.*, 2011a	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Amato *et al.*, 2011b	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Amato *et al.*, 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Aspinall *et al.*, 2013	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Bender *et al.*, 2011	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	High
Benishek *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Blodgett *et al.*, 2014	Y	Y	N	N	N	Y	Y	Y	Y	Y	N	Medium
Boyuan *et al.*, 2014	Y	Y	N	Y	Y	Y	Y	Y	N	Y	N	High
Bolier *et al.*, 2011	Y	Y	N	Y	N	Y	N	Y	NA	Y	Y	Medium
Camp Binford *et al.*, 2012	Y	Y	Y	Y	U	U	Y	Y	Y	Y	Y	High
Carney *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Castells *et al.*, 2010	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Chiesa *et al.*, 2014	Y	Y	Y	N	Y	Y	Y	Y	NA	Y	N	High
Clark *et al.*, 2014	Y	Y	N	Y	Y	Y	N	N	NA	Y	Y	Medium
Cooper *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Faggiano *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Ferri *et al.*, 2011	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Ferri *et al.*, 2013a	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Ferri *et al.*, 2013b	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Filges *et al.*, 2015a	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Filges *et al.*, 2015b	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Gillies *et al.*, 2010	Y	Y	Y	Y	Y	Y	U	Y	NA	Y	Y	High
Gowing *et al.*, 2009a	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Gowing *et al.*, 2009b	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Gowing *et al.*, 2011	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	High
Gowing *et al.*, 2014	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Hagan *et al.*, 2011	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Hayhurst *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Hedrich *et al.*, 2012	Y	Y	N	Y	Y	U	Y	Y	NA	Y	N	High
Hunt *et al.*, 2013	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Jackson *et al.*, 2012	Y	Y	N	Y	Y	Y	U	Y	NA	Y	Y	High

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Rating
Jegu *et al.*, 2011	Y	Y	Y	Y	Y	Y	U	Y	NA	Y	Y	High
Jones *et al.*, 2008	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Jones *et al.*, 2010	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Jones *et al.*, 2013	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Larney *et al.*, 2010	Y	Y	Y	Y	Y	N	N	Y	NA	Y	Y	High
Larney *et al.*, 2014	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Lee *et al.*, 2015	Y	Y	Y	N	Y	Y	Y	Y	NA	Y	Y	High
Lindstrom *et al.*, 2015	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
MacArthur *et al.*, 2012	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Malivert *et al.*, 2012	Y	Y	N	N	N	NA	U	Y	NA	Y	Y	Low
Malta *et al.*, 2010	Y	Y	N	Y	N	N	Y	Y	Y	Y	Y	Medium
Marshall *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Mattick *et al.*, 2009	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Mattick *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Meader *et al.*, 2010	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Meader *et al.*, 2013	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Milligan *et al.*, 2010	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	High
Milligan *et al.*, 2011	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	High
Minozzi *et al.*, 2011	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Minozzi *et al.*, 2013	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	High
Minozzi *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Minozzi *et al.*, 2015a	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Minozzi *et al.*, 2015b	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Mitchell *et al.*, 2012	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
National Collaborating Centre for Mental Health, 2008	Y	Y	Y	Y	Y	U	U	Y	NA	Y	Y	High
Newton *et al.*, 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Norberg *et al.*, 2013	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Pani *et al.*, 2010	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Pani *et al.*, 2011	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Patnode *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Perez-Mana *et al.*, 2011	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	High
Perez-Mana *et al.*, 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Perry *et al.*, 2009	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Perry *et al.*, 2015a	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Perry *et al.*, 2015b	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Perry *et al.*, 2015c	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Potier *et al.*, 2014	Y	Y	N	N	Y	N	U	Y	NA	Y	Y	Medium
Rapp *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Reif *et al.*, 2014a	Y	Y	N	N	Y	Y	N	Y	NA	Y	Y	High

Citation	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Rating
Reif *et al.*, 2014b	Y	Y	U	Y	Y	Y	Y	Y	NA	N	Y	Medium
Roberts *et al.*, 2015	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Sacks-Davis *et al.*, 2012	Y	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	High
Salvo *et al.*, 2012	Y	Y	U	Y	Y	U	Y	Y	NA	Y	Y	High
Shonin *et al.*, 2013	N	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Smedslund *et al.*, 2011	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Tait *et al.*, 2013	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Terplan *et al.*, 2015	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	High
Thomas *et al.*, 2013	Y	Y	N	N	Y	U	U	Y	NA	Y	Y	Medium
Torchalla *et al.*, 2012	Y	Y	Y	N	Y	U	Y	U	Y	Y	Y	High
Turnbull *et al.*, 2012	Y	Y	Y	Y	Y	U	Y	Y	N	Y	Y	High
Underhill *et al.*, 2014	Y	Y	Y	Y	Y	U	Y	Y	NA	Y	Y	High
VanBuskirk *et al.*, 2014	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	High
Vanderplasschen *et al.*, 2013	Y	Y	N	Y	N	N	Y	Y	NA	Y	Y	Medium
Vermeulen-Smith *et al.*, 2015	Y	Y	Y	Y	N	N	N	Y	Y	Y	Y	Medium
Wang *et al.*, 2013	Y	Y	Y	N	Y	U	Y	Y	Y	Y	Y	High
Wang *et al.*, 2014	Y	Y	N	N	Y	Y	Y	Y	Y	Y	N	High
Watson *et al.*, 2013	Y	Y	N	N	Y	Y	Y	Y	NA	Y	N	High
Werb *et al.*, 2013	Y	Y	Y	Y	Y	U	Y	Y	NA	Y	Y	High
Wood *et al.*, 2014	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y	Y	High
Zanini *et al.*, 2010	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	Y	High
Zgierska *et al.*, 2009	Y	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	High
Y = Yes; N = No; U = Unclear, NA= Not applicable												

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