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Evidence review summary: drug demand reduction, treatment and harm reduction

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Health and social responses to drug problems: a European guide

Authors

H. R. Sumnall, G. Bates and L. Jones

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H. R. Sumnall, G. Bates and L. Jones
Public Health Institute, Liverpool John Moores University, United Kingdom

Contact: h.sumnall@ljmu.ac.uk

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1. Introduction

1.1 About this report

This short report presents a brief overview of recent evidence for the most effective approaches in the fields of drug use prevention, drug use treatment and harm reduction. It discusses the strengths and limitations of the evidence and some challenges for the implementation of the approaches, and it summarises the principles underpinning the successful knowledge transfer that supports the use of evidence in the development and delivery of policy and practice.

Section 1 describes the range of illicit drug-related research that is currently being undertaken in the European Union (EU) and defines evidence-based policy and practice. Key findings from critical health policy research are presented to illustrate the complexities and challenges of developing evidence-based policy and practice.

Section 2 presents a series of evidence statements derived from two recent 'review of reviews' conducted by the authors on the effectiveness of interventions for prevention, treatment and harm reduction. This is accompanied by a short commentary on how this evidence might be interpreted and a discussion of the gaps between research findings and the implementation of effective approaches. Finally, Section 3 introduces knowledge transfer activities and describes research findings that have identified the core components of successful knowledge transfer activities.

1.2 Research into responses to illicit drugs in Europe

Drug-related research is included as a priority in the national drug strategies and action plans of most EU countries⁽¹⁾. There is no accepted definition of what constitutes drug-related research (research ranges from basic laboratory work to drug policy evaluation), but most policy documents emphasise the need for evidence-based actions as the foundation for responses to drug problems (EMCDDA, 2012a). The EU drugs strategy 2013-2020 includes research, information, monitoring and evaluation, which form one of its three cross-cutting themes. In the strategy's policy area of drug demand reduction, priorities include research into developing and increasing the uptake of effective interventions, particularly for high-risk groups and settings.

The European Research Area Network on Illicit Drugs (ERANID) project⁽²⁾ is a Commission-funded ERA-NET project taking place in Belgium, France, Italy, the Netherlands, Portugal and the United Kingdom. It is designed to enhance EU research capability and capacity in the illicit drugs field. As part of its activities, the project published a comparative analysis of European drug research conducted between 2006 and 2013 (Milhet et al., 2015). Most of the published work was in the fields of neuroscience and epidemiology; however, when research into responses to drug problems is considered, research into treatment predominated, followed by prevention. Little work was identified that addressed the effectiveness of harm reduction and law enforcement responses. Overall policy evaluations were largely absent.

Research has rarely been undertaken into strategies to promote the uptake and implementation of evidence-based drug-related policy and practice. This means that, when effective intervention approaches have been identified, there is a lack of knowledge about how best to introduce them into policy and practice for the benefit of drug users. Across most surveyed countries, there was no formal research priority-setting mechanism. The result was that the volume of drug-related research undertaken differed greatly between countries. It was carried out predominantly in areas where research was already being done to address perceived information gaps (such as refining treatment

⁽¹⁾ <http://www.emcdda.europa.eu/countries/research>

⁽²⁾ <http://www.eranid.eu/>

approaches or assessing different pharmacological treatment regimens). Most of the research considered responses to drug use at an individual level; broader socioecological responses to drugs were not studied as frequently. These findings supported earlier Commission-funded work highlighting that there was limited research on understanding the most important client- and service-level factors that improved drug-related outcomes in recipients and identified the mechanisms underlying effective interventions (Buhringer et al., 2009).

A recent analysis combined interviews with European drug treatment stakeholders (policymakers and other decision-makers, researchers, practitioners and drug users) with analyses of Cochrane systematic reviews. It identified a large number of drug treatment research gaps and priorities (Ferri et al., 2015). These included a better understanding of effective treatment modalities in key client groups, such as those with comorbid mental health disorders; the effects of treatment approaches on multiple substance use outcomes (polysubstance use); the matching of client characteristics with individually tailored treatments; the identification of factors responsible for improving retention in psychosocial and pharmacological therapies; and the impact of practitioner characteristics on client outcomes — see Table 1 in Ferri et al. (2015) for a complete list. Although systematic gap analyses in the fields of prevention and harm reduction have yet to be conducted, it is likely that similar issues would be identified. As suggested by the findings reported in Section 2 below, there is also a need for research that identifies effective intervention approaches in the harm reduction field.

1.3 Principles of evidence-based policy and practice

The evidence-based practice movement has been influential in shaping clinical practice and public health and social responses to drug use (Evidence-Based Medicine Working Group, 1992). The evidence-based approach emphasises the importance of consistent and cost-effective decision-making that moves away from policy based on anecdotal evidence or intuitive assumptions about effective practice and policy. It promotes the use of evidence derived from (but not limited to) high-quality research designs, such as randomised controlled trials (RCTs), collaborations with professional groups, the incorporation of target group preferences and the use of supportive practice tools, such as guidelines (Greenhalgh et al., 2014). The rise of the evidence-based approach has been accompanied by the development of important research infrastructure, such as international research collaborations, for example the Cochrane Group⁽³⁾, methodological standards⁽⁴⁾ and the emergence of disciplines such as implementation and prevention science. Evidence-based responses to drug use have supported the introduction of controversial policies, such as opioid substitution treatment (OST) and needle and syringe programmes for people who inject drugs (see, for example, Jones et al., 2010; Mattick et al., 2009; National Institute for Health and Care Excellence, 2007 and 2014; Platt et al., 2016).

Traditional evidence hierarchies (Greenhalgh, 1997) have emphasised the special value of the RCT in evidence-based policy and practice, because RCTs include design elements that are thought best able to minimise bias and give a better estimate of treatment effects. For example, successful randomisation of individuals or delivery settings to receive either the intervention/treatment of interest or normal practice/no intervention can create an equal distribution of factors (including unknown ones) that might otherwise have influenced treatment outcomes. The use of such research designs has led to the identification of intervention and treatment effects that are positive, negative and neutral for recipients. The majority of evidence summarised in Section 2 of this report is derived from RCTs.

Despite official commitments to and widespread disciplinary support for evidence-based approaches, many researchers have concluded that public health policies (and, by extension, drug policies (Wood et al., 2010) are not ‘evidence-based’ in the sense that would be understood by scientific researchers (e.g. Cairney, 2016; Oliver et al., 2014a). The evidence-based perspective assumes that the relationship between science and policy proceeds in a linear, unidirectional manner in which high-quality scientific evidence provides solutions to identifiable ‘policy problems’ such as minimising the

⁽³⁾ <http://www.cochrane.org/>

⁽⁴⁾ For example, the Society for Prevention Research’s standards of evidence (Flay et al., 2005).

harms of drug use (Smith, 2013; Stevens, 2011). This is arguably a misinterpretation of the evidence-based 'brand' (see (Greenhalgh et al., 2014) for an accessible overview). Classic conceptualisations of policymaking have emphasised linear or cyclical processes and have neglected the complex realities of how policy is made (Cairney, 2016; Oliver et al., 2014a). This does not mean that policymakers or those who deliver drug interventions make irrational decisions in ignorance of scientific evidence. Rather, scientific evidence is just one element of the decision-making process that must also take into account the tacit judgements of decision-makers and the feasibility, social and political acceptability, and context of the proposed responses (Greenhalgh et al., 2014; Greenhalgh and Russell, 2009; Oliver et al., 2014a; Oliver and de Vocht, 2015; Oliver et al., 2014b). The use and selection of 'evidence' in contested policy areas, such as illicit drugs, is rarely a neutral decision (Monaghan, 2014; Stevens, 2011; UK Drug Policy Commission, 2012). The policymaking process defines what is acceptable as evidence, what disciplines and outcomes are eligible for consideration and what research questions should be prioritised (Lin and Gibson, 2003).

Although RCTs are considered 'gold standard', not all RCTs are equivalent in value. They may vary in quality because of inherent study limitations, biases (such as participant preference for a particular treatment, reporting and conflict of interest biases), the inclusion of study outcomes with low relevance to the target population, inconsistencies in their findings and short follow-up times (Guyatt et al., 2008). The findings of an individual RCT do not mean that an intervention can be successfully replicated or that the findings will be the same in different social settings, in different places or at other times. Critics of RCTs (and other research designs) have argued that an assumption that observed trial effects will generalisable to all potential recipients ignores the influence of social contexts and social and system dynamics. This assumption fails to consider that outcomes may vary as a result of the interactions between the individual, socioeconomic and environmental characteristics of the context in which the intervention is delivered (Pawson and Tilley, 1997).

If RCTs focus only on intervention efficacy, then this may prevent us from understanding intervention characteristics that might support successful implementation, such as reach, effectiveness in routine practice, adoption, adaption and sustainability (Glasgow et al., 2006). The findings of RCTs must therefore be understood alongside the results of other research that seeks to understand what actions have been implemented and how they have been delivered. We also need theories about the mechanisms by which interventions result in change (if any), the reasons for different intervention effects in recipient subgroups and how the context of delivery might influence the outcomes achieved (Bonell et al., 2012; Moore et al., 2015). This broader approach may facilitate knowledge transfer and dissemination activities (see Section 3) but has rarely been undertaken in the drugs field.

2. Summary of evidence for health and social responses to high-risk drug use

2.1 Methodological note

This section adapts and summarised the findings from two recent ‘reviews of reviews’ undertaken by the authors on (1) prevention in young people (Bates et al., 2016) and (2) structured drug treatment, harm reduction, and recovery and social reintegration in adult drug users (Jones et al., 2016). This summary of evidence should be read alongside these full reports and EMCDDA Insights reports ⁽⁵⁾, which provide detail on specific approaches.

In summary, for prevention evidence, we identified high-quality systematic reviews published since 2010 through a comprehensive search of relevant electronic databases. These were screened for relevance using predefined inclusion and exclusion criteria based on age, target population characteristics and intervention type (i.e. universal, selective and indicated prevention; see below). The quality of identified reviews was determined using a bespoke tool described in the Joanna Briggs Institute methods 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 popular intervention approaches.

A similar approach was taken for evidence on structured drug treatment, harm reduction and social reintegration, although we included reviews published since 2006. Studies were included if they provided evidence on the effectiveness of interventions in adult drug users (aged >18 years).

The intervention approaches included in the reviews were dependent on the original review research questions. A diverse range of intervention types are reported here, although some approaches may be missing. For example, no evidence is presented on the use of complementary therapies in responding to drug use. In general, prevention interventions targeted any use of drugs (i.e. lifetime prevalence), particularly by young people, and most studies focused on cannabis, the most widely used illicit drug. Treatment approaches were aimed at individuals or groups with a substance use disorder or engaging in high-risk and problematic drug use. There was great variation between studies in how problem drug use was defined and assessed and this did not necessarily involve the use of diagnostic criteria in DSM-V or ICD-10. The EMCDDA does not present a precise definition of its ‘problem drug use’ key indicator. It refers instead to ‘high-risk’ drug use, defined as ‘recurrent drug use that is causing actual harms (negative consequences) to the person (including dependence, but also other health, psychological or social problems) or is placing the person at a high probability/risk of suffering such harms’ ⁽⁶⁾. This broad definition was in line with the majority of population descriptors and inclusion criteria used in the studies in the included reviews.

Intervention approaches studied included popular approaches such as education, skills training, information dissemination, harm reduction, pharmacological interventions, psychosocial interventions and services delivered outside ‘traditional’ drug treatment services, such as mutual aid and peer support. Social reintegration interventions included (but were not limited to) housing support, employment support and educational/vocational training. Relevant comparators were other interventions, treatment as usual and no intervention. Primary and secondary outcomes included those related to substance use behaviours, health harms, offending and social function and reintegration.

⁽⁵⁾ [http://www.emcdda.europa.eu/publications-database?f\[0\]=field_series_type%253Aname%3AInsights](http://www.emcdda.europa.eu/publications-database?f[0]=field_series_type%253Aname%3AInsights)

⁽⁶⁾ <http://www.emcdda.europa.eu/data/stats2015/methods-pdu>

For both reviews undertaken by the authors, after screening the search results, reviews were assessed using the AMSTAR tool (Shea et al., 2007) for assessing the quality of reviews and presented using an approach ⁽⁷⁾ that categorised evidence for particular actions as:

- **High-quality review-level evidence** — one or more up-to-date ⁽⁸⁾ systematic reviews of high quality according to AMSTAR 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 according to AMSTAR based on at least one high-quality primary study or at least two primary studies of moderate quality with consistent results.
- **Low-quality review-level evidence** — one or more systematic reviews of variable quality according to AMSTAR based on primary studies of moderate quality or inconsistent results in the reviews.
- **No evidence from systematic reviews** — no systematic review identified for the research question.

These evidence summary statements depend on the quality of primary studies reviewed. Therefore, for example, if a high-quality review (i.e. methodologically robust) included low-quality primary studies, this would affect the overall assessment of the quality of the reviewed evidence. Furthermore, because reviews typically included studies with diverse research characteristics (e.g. study geography, setting, population demographics, outcome assessments used and follow-up times), we present only summative statements on effectiveness. This highlights promising approaches or approaches where there is a body of evidence supporting effectiveness. It is important that further detailed scrutiny is made of study characteristics before generalising findings to diverse target groups.

2.3 Descriptions of approaches

Evidence from the two source reviews has been adapted and summarised for this briefing using the quality descriptors above. There is great international variation in drug policy and intervention taxonomies, and these differ by audience (Ritter and McDonald, 2008), so findings are presented in accordance with broad categories and definitions included in the EMCDDA Best Practice Portal ⁽⁹⁾ and use the World Health Organization (WHO) lexicon of drug and alcohol terms ⁽¹⁰⁾. As a consequence, some broad approaches have been grouped together, making it important to note distinctions in intervention components under a particular classification.

Prevention. Drug prevention may include any policy, programme or activity that is (at least partially) directly or indirectly aimed at preventing, delaying or reducing drug use and/or its negative consequences, such as health and social harm, or the development of problematic drug use (Brotherhood and Sumnall, 2011). Structural, policy and general approaches that might be expected to have a protective effect against drug harms (e.g. neighbourhood renewal, retention in education and training, treatment of mental ill health, delivery of community-based health and wellbeing services) are not included in this report. Prevention typically targets young people, but it is relevant for everyone. The form of prevention is often categorised into universal, indicated and selective approaches (Institute of Medicine, 1994):

- Universal approaches to drug prevention often take a whole-population approach and are delivered regardless of the level of risk or propensity to use drugs of the population. School-based activities are the most frequently delivered universal prevention approaches.
- Indicated drug prevention exclusively targets individuals who are identified (e.g. by screening) as having an increased vulnerability to drug use or harmful patterns of use based on individual assessment (see description of selective prevention below).

⁽⁷⁾ See https://medicine.exeter.ac.uk/media/universityofexeter/medicalschooll/events/docs/Oct_2013_GRADE.pdf

⁽⁸⁾ Searches conducted in 2010 or later.

⁽⁹⁾ <http://www.emcdda.europa.eu/best-practice>

⁽¹⁰⁾ http://www.who.int/substance_abuse/terminology/who_lexicon/en/

- Selective (targeted) prevention is delivered to individuals or groups (often, although not exclusively, to vulnerable groups) whose risk of drug use or associated harms is significantly higher than average because their biopsychological, behavioural or social risk factors are more pronounced than in the general population. Selective prevention may also be delivered to groups or individuals who already use drugs to prevent harm or to reduce the likelihood that they will progress to more harmful patterns of drug use.

In practice, study and review authors may report on prevention approaches across prevention forms and their settings. For example, a universal classroom programme could also identify higher-risk students and offer further family intervention in the community; a review of family prevention could include both universal and selective approaches.

Structured treatment. Drug treatment consists of packages of concurrent or sequential specialist interventions that address high-risk drug use that would not be expected to respond to, or has failed to respond to, unassisted self-help and less intensive non-specialist interventions (Strang et al., 2012). Treatment approaches included in this review are:

- Pharmacological interventions for illicit opioid use, including those based on opioid withdrawal/detoxification and OST.
- Behavioural and psychosocial interventions that address the psychological and social aspects of drug use behaviour and are not limited to users of particular drug classes (e.g. opioids). These include approaches such as brief interventions, structured psychological therapies, motivational interventions, contingency management and behavioural couples therapy.
- Residential rehabilitation programmes describe a diverse range of approaches that typically provide accommodation and a structured, care-planned programme of medical, therapeutic and other activities. They are suitable for clients with medium or high levels of drug-related needs. Stays can be either short or long in duration. Intensity of support is often determined by the length of residential stay and individual needs.
- Self-help and mutual aid groups that teach cognitive, behavioural and other techniques of self-management without formal professional therapy or guidance.

Harm reduction. Harm reduction interventions aim to change risk behaviour (including the risks of blood-borne viruses, overdoses and other harms associated with injecting drug use) without necessarily focusing on or requiring a reduction in drug use. Examples include needle and syringe programmes, psychosocial and behavioural interventions designed to reduce risk (e.g. to encourage users to smoke heroin rather than inject it) and supervised drug consumption facilities.

Recovery and social reintegration approaches. Interventions to support recovery and social reintegration are delivered alongside or after structured drug treatment. They are designed to address a broad range of needs, including housing, education, vocational training and employment. Examples of such approaches include continuing care programmes, specialised housing provision, peer support and coaching, and employment skills training.

Our 'reviews of reviews' did not include individual primary studies. Therefore, some promising approaches, particularly those that have been published recently, may not be included, as they did not constitute a sufficient body of evidence for review. Omission of a particular approach from this report and other reviews does not necessarily mean that it is ineffective. Overall, the evidence base, particularly for prevention and harm reduction approaches, is underdeveloped. It predominantly consists of relatively poor-quality primary studies. Additional studies with higher-quality research designs or that assess interventions that refine particular intervention approaches may lead to a reassessment of the quality of the evidence.

2.4 Interpreting the evidence presented

The evidence statements in Section 2.5 provide short summaries of key findings from the systematic review of reviews. Their purpose is to identify promising and effective responses to drug use, while highlighting those approaches for which there is less evidence or for which the available evidence suggests a lack of effect. Systematic reviews and meta-analyses provide structured and reproducible overviews of a large number of relevant primary studies (Greenhalgh, 1997). They are useful decision-making tools because, when conducted to a high standard, they can help to qualify the quality of available research evidence and to better understand and interpret conflicting research findings.

The reader should note that reported outcomes depend on a number of factors including (but not limited to) client group characteristics (e.g. severity of dependence, additional health needs and comorbidities); service and intervention characteristics (including practitioner competencies and characteristics); comparator conditions used in studies (e.g. 'treatment as usual', and the nature of that treatment?); intervention adaptations (to improve intervention 'fit' with local systems and structures); and wider contextual factors (e.g. routes into treatment; inequalities in access to general health and wellbeing services). Drug use and drug-related problems are not just a product of the pharmacological properties of drugs and the psychosocial and biological characteristics of users (Volkow et al., 2016). They also depend on how wider society defines and views drugs, drug users and drug problems, and the policy and social environment in which drug use occurs.

The research evidence presented was often derived from trials and evaluations of manualised interventions, which are highly structured, and often delivered by trained staff using implementation guidelines (e.g. licensed prevention programmes, clinical guidelines for OST). Effectiveness may therefore depend on whether or not an intervention adheres to the original approach. Informal modifications and differences in coverage or delivery, which occur frequently because interventions are delivered in real-world practice, may affect the effectiveness of that approach in unpredictable ways.

As a result of the methodology underpinning the reviews of reviews, the evidence presented may not reflect important and recently emerging findings from primary studies and other forms of review. Therefore, these summative statements are intended to guide further action and study. Implementation will rely on the expert interpretation of those working in policy and practice, and the careful use of tools such as the EMCDDA's best practice portal ⁽¹¹⁾ to identify more recent evidence.

2.5 Findings

2.5.1 Prevention

- There is moderate-quality evidence that some manualised school-based prevention programmes may be effective in preventing drug use (e.g. Unplugged, Climate, Good Behaviour Game). These develop social competences, refusal skills and healthy decision-making and coping, raise awareness of important social influences on drug use, and provide information about drug use. However, most research has been conducted with regards to cannabis use outcomes only (typically, lifetime use and frequency of use). Although some primary studies exist, there is a lack of review-level evidence on what works in preventing use of club drugs, new psychoactive substances (NPS), opioids and cocaine. There is low-quality review-level evidence that school-based programmes that focus only on increasing knowledge of the risks of drug use (using fear arousal) are ineffective in preventing drug use.
- There is moderate-quality evidence that brief interventions delivered in schools or healthcare settings are ineffective in preventing drug use. There is low-quality evidence that interventions

⁽¹¹⁾ <http://www.emcdda.europa.eu/best-practice>

based on motivational interviewing that target cannabis use may be effective when delivered in emergency department or primary care settings.

- There is moderate-quality evidence that some manualised universal family interventions that include both parents and children may be effective in preventing cannabis use, but evidence on their effects on other drug use is inconclusive (e.g. Familias Unidas, Focus on Kids, Strengthening Families 10-14). Programmes that are delivered across multiple settings and domains (e.g. in schools alongside family, or in mentoring or media settings) seem to be most effective in reducing cannabis use. There is mixed (i.e. including positive and negative findings) low-quality evidence on the effectiveness of selective prevention targeting the families of young people categorised as ‘at-risk’, so no conclusions can be drawn about the effectiveness of this approach.
- There is low-quality evidence to suggest that universal and selective stand-alone mass media campaigns (including TV, radio, print and the internet) based on social marketing principles or designed to disseminate information about drugs are ineffective in preventing drug use. However, there is low-quality review-level evidence that structured interventions delivered via computers and the internet may be effective in preventing cannabis use when delivered in schools or to family groups.
- There is low-quality evidence that selective mentoring interventions may be ineffective for preventing drug use among young people considered at high risk for drug use (including homeless young people). However, mentoring interventions include a diverse range of approaches, some of which may prove to be of indirect use by improving engagement in other types of skill-building.
- There is low-quality evidence that some interventions may be effective in reducing cannabis and other drug use in some groups of young people. These include motivational interviewing, cognitive-behavioural therapy (CBT) and multicomponent approaches, including parental and behavioural skills training for children and young people with mental health disorders (attention deficit hyperactivity disorder (ADHD) and disruptive behavioural disorders, including young people at risk from psychosis).

2.5.2 Harm reduction

- There is moderate-quality evidence that needle and syringe programmes reduce human immunodeficiency virus (HIV) transmission among people who inject drugs. The evidence is low quality with respect to outcomes related to [hepatitis C virus \(HCV\) infection](#), so it is not possible to draw conclusions on its effectiveness. However, if needle and syringe programmes are delivered at a sufficiently large scale, there is moderate-quality evidence that this approach can reduce population-level HIV and HCV infections. Furthermore, there is moderate-quality evidence that provision of non-needle and syringe drug-injecting equipment (e.g. sterile cookers, filters or solvents) reduces injection risk behaviours.
- There is moderate-quality evidence that full engagement in both OST and needle and syringe programmes reduces injection risk behaviours and reduces the incidence of HCV infection among people who inject drugs.
- There is low-quality evidence that prison-based distribution of injecting equipment through needle and syringe programmes reduces blood-borne virus incidence. However, the evidence comes from two uncontrolled studies and for this reason it is difficult to draw any conclusions about effectiveness.
- There is moderate-quality evidence that multisession psychosocial and behavioural intervention approaches may be ineffective in reducing high-risk injection behaviour, but are effective in reducing high-risk sexual behaviours among drug users. There is moderate-quality evidence that behavioural interventions do not affect HCV incidence among people who inject drugs when delivered alone.
- There is low-quality evidence that targeted case-finding in primary care increases the chances of practitioners offering and clients accepting a test for HCV among people who currently or used to inject drugs.

- There is low-quality evidence that the treatment options for blood-borne virus infections that are effective in people with HIV and HCV are also suitable for people who inject drugs. This includes highly active antiretroviral therapy and direct antiretroviral therapy for people infected with HIV and combination treatment with ribavirin plus recombinant or PEGylated interferon- α for chronic HCV infection.
- There is moderate-quality evidence that improving accessibility to HIV testing through offering on-site testing for those on probation and immediate next-day testing in prison is associated with increased uptake of HIV testing.
- There is low-quality evidence that supervised injection facilities increase safer injecting behaviours and reduce overdoses near the facilities. There is also low-quality evidence that these facilities are effective in attracting marginalised people who inject drugs, reducing their high-risk injection behaviours and reducing drug-related litter. However, there is insufficient review-level evidence to draw conclusions on whether or not such services are effective in reducing drug overdoses and drug-related mortality.
- There is low-quality evidence that provision of overdose training, including naloxone distribution, reduces rates of opioid-related deaths. There is also low-quality evidence that people who receive overdose prevention training are able to administer naloxone effectively and respond appropriately to an overdose.
- There is low-quality evidence that peer-based behavioural modification interventions are effective in preventing the initiation of injection in intranasal heroin users. They also appear to reduce the likelihood that recipients will inject in front of non-injectors or initiate another non-injector into injecting. There is insufficient evidence that other approaches such as social marketing, drug treatment and law enforcement are effective.
- There are moderate-quality reviews of the effectiveness of harm reduction approaches in nightlife, festival and other recreational settings for drug users (e.g. drug checking, staff training, brief interventions and information-based approaches designed to reduce use and harms). There is insufficient evidence, however, to draw conclusions about the effectiveness of these approaches.

2.5.3 Drug treatment

2.5.3.1 Pharmacological interventions

2.5.3.1.1 Community-based opioid substitution treatment

- There is high-quality evidence that methadone is more effective than non-pharmacological approaches for retaining opioid-dependent drug users in treatment and reducing the use of illicit opioids. Dosing regimens used in primary studies vary considerably, but higher doses of methadone (ranging from 60 mg to 109 mg in studies) are more effective in reducing illicit opioid use than lower doses. There is low-quality evidence that flexible dosing strategies based on individual need result in greater retention than fixed dosing strategies.
- There is moderate-quality evidence that there is no difference between methadone and buprenorphine in reducing illicit opioid use, but buprenorphine is less effective than methadone in retaining users in treatment. There is moderate-quality evidence that high-dose buprenorphine (≥ 16 mg) is more effective than placebo in reducing illicit opioid use.
- There is insufficient review-level evidence from controlled trials to conclude that methadone reduces mortality compared with non-pharmacological approaches. This is because follow-up times in RCTs are too short to detect rare outcomes such as death. However, there is moderate-quality evidence from reviews of prospective cohort studies that people with opioid dependence who are not in treatment have a risk of death that is twice that of those receiving opioid substitution therapy.
- There is insufficient evidence to conclude that methadone treatment reduces crime (general criminality and drug specific crimes); again, this is largely due to weaknesses in research design, as cohort and observational studies have found that it reduces crime.

- There is moderate-quality evidence that supervised use of injectable heroin in combination with flexible-dose oral methadone is more effective than methadone alone in retaining in treatment opioid-dependent users who have not responded to standard OST. There is also moderate-quality evidence that heroin-assisted OST is superior to methadone maintenance treatment alone in terms of its effect on criminal activity. There is insufficient evidence to draw conclusions about the effectiveness of slow-release oral morphine for OST.
- There is moderate-quality evidence that OST with methadone or buprenorphine reduces injecting drug use, sharing of injecting equipment and the risk of HIV infection.
- There is low-quality evidence that slow-release morphine may be more effective than methadone in reducing heroin use in pregnant women and that buprenorphine is equally as effective as methadone in the same population.

2.5.3.1.2 Opioid substitution treatment in combination with psychosocial interventions

- There is high-quality evidence that combining structured psychosocial or behavioural interventions with OST or contingency management with OST is not more effective than OST or standard psychosocial support alone in retaining people in treatment or achieving abstinence.

2.5.3.1.3 Prison- and criminal justice-based opioid substitution treatment

- There is moderate-quality evidence that the provision of OST in prison settings is more effective than no OST provision in reducing heroin use in prison and after release from prison, and in reducing injecting drug use. These effects are dose related. There is low-quality evidence that high-dose methadone (>50 mg) is better than low-dose methadone. There is low-quality evidence that there is no difference between the effects of maintenance treatment with methadone or buprenorphine in prison settings on heroin use after release. There is moderate-quality evidence on the effects of OST in prison settings on reduction in post-release crime, including criminal activity and re-incarceration, but the observed effects are inconsistent.
- There is low-quality evidence that there is no difference in rates of opioid abstinence in prison between detoxification with methadone or buprenorphine in prison settings.
- There is low-quality evidence that oral naltrexone is not more effective than treatment as usual in reducing heroin use, but rates of re-incarceration may be reduced. There is low-quality evidence that, among opioid-dependent drug users on probation or parole, naltrexone implants (with treatment initiated in the prison setting) are as effective as methadone in reducing re-incarceration and heroin use.

2.5.3.1.4 Community-based opioid detoxification

- There is high-quality evidence that there is no difference between methadone and other pharmacological agents, including buprenorphine, in terms of treatment completion or abstinence. Detoxification with placebo is associated with more severe withdrawal and more drop-outs from treatment than detoxification using methadone.
- There is moderate-quality evidence that alpha-2 (α_2)-adrenergic receptor agonists are less effective than reducing doses of methadone in ameliorating withdrawal symptoms. Low-quality evidence limits the conclusions that can be drawn about the overall effectiveness of combining opioid antagonists with α_2 -adrenergic receptor agonists during opioid detoxification.

2.5.3.1.5 Opioid detoxification in combination with psychosocial interventions

- There is moderate-quality evidence that psychosocial interventions offered in addition to opioid detoxification increase treatment completion, reduce the use of opioids and support abstinence.

2.5.3.1.6 Pharmacological treatments for stimulants and cannabis use

- There is low-quality evidence that pharmacological treatments, either alone or delivered alongside psychosocial interventions, may not be effective in the treatment of stimulant (cocaine and amphetamines) or cannabis use.

2.5.3.1.7 Community-based pharmacologically-supported relapse prevention

- There is low-quality evidence that oral naltrexone is not more effective than treatment with placebo or non-pharmacological treatment for retaining people in treatment or for sustaining abstinence. There is, however, low-quality evidence that naltrexone implants are more effective than placebo implants and oral naltrexone in reducing illicit opioid use.

2.5.3.2 Psychosocial approaches

2.5.3.2.1 Psychological interventions

- There is moderate-quality evidence that brief interventions are effective in supporting abstinence in people who are dependent on psychostimulants in general, cocaine and/or opioids.
- There is high-quality evidence that contingency management is effective in supporting abstinence among people who are dependent on cocaine and/or opioids. There is low-quality evidence that prize-based contingency management is not better than control. There is moderate-quality evidence that contingency management for people who are dependent on stimulants is more effective than CBT-based relapse prevention in achieving abstinence during active treatment, although these effects are not maintained over follow-up periods.
- There is moderate-quality evidence that behavioural couples therapy is effective in supporting abstinence in people with cocaine and/or opioid dependence who are in a relationship with a non-drug-using partner.
- There is moderate-quality evidence that CBT is effective in reducing cannabis use frequency, the severity of dependence and cannabis-related problems in regular users. Although there is moderate-quality evidence, it is uncertain whether or not brief motivational interviewing or CBT in combination with contingency management is effective in reducing cannabis use.
- There is low-quality evidence that some types of mindfulness-based intervention, acceptance and commitment therapy are effective in reducing drug use compared with CBT and other types of psychosocial treatments.
- There is moderate-quality evidence that multidimensional family therapy may be more effective in the treatment of young people's cannabis use than other types of psychosocial intervention.

2.5.3.2.2 Residential rehabilitation

- There is a lack of review-level evidence about the effectiveness of most forms of residential rehabilitation. There is, however, low-quality evidence that residential therapeutic communities are effective in improving employment outcomes among participants.
- There is low-quality evidence that therapeutic community work-release programmes in the criminal justice system reduce relapse to drug use. There is also moderate-quality evidence that therapeutic communities in the criminal justice system reduce re-incarceration, criminal activity and reoffending.

2.5.3.2.3 Self-help support groups and mutual aid

- There is moderate-quality evidence that attendance at 12-step self-help groups results in better substance use outcomes. No conclusions can be drawn about the effectiveness of self-help alone because the studies reviewed assessed attendance alongside other treatment

programmes. There were insufficient high-quality studies examining the impact of self-help groups outside intensive treatment programmes.

2.5.3.3 Case management strategies to improve the coordination of care

- There is moderate-quality evidence that case management is effective in engaging and retaining drug users in treatment, but does not improve drug use outcomes.

2.5.3.4 Recovery and social reintegration approaches

- There is moderate-quality evidence that continuing care may be effective in maintaining substance use outcomes at the end of treatment and at follow-up. The activities offered included group counselling, individual therapy, telephone counselling, brief check-ups and self-help meetings.
- There is low-quality evidence that recovery housing, which provides short-term housing for people in recovery from drug and/or alcohol dependence, is effective in improving substance use outcomes, such as level and frequency of use, abstinence and severity of dependence.
- Although there was moderate-quality evidence, the findings from studies of peer recovery coaching were inconsistent, so it was not possible to draw conclusions about its effectiveness.

Table 1. Summary of high- and moderate-quality review-level evidence included in this report

Prevention	
<i>High-quality evidence</i>	
None identified	
<i>Moderate-quality evidence</i>	
Universal school-based prevention	Some manualised school-based programmes that are based on developing social competences and combine the development of refusal skills, healthy decision-making and coping and raising awareness of important social influences on drug use, and provide information about drug use may be effective in preventing cannabis use
Universal family-based prevention	Some universal family intervention programmes that include both parents and children may be effective in preventing cannabis use
Brief interventions	Brief interventions delivered in schools or healthcare settings are ineffective in preventing drug use
Harm reduction	
<i>High-quality evidence</i>	
None identified	
<i>Moderate-quality evidence</i>	
Needle and syringe programmes	Exposure to these programmes is associated with a reduction in HIV transmission among people who inject drugs. If delivered to scale, these types of programmes can reduce population-level HIV and HCV infections
Needle and syringe programmes with OST	Full engagement in both OST and needle and syringe programmes is associated with reduced injection risk behaviours and reduced incidence of HCV infection in people who inject drugs
Psychosocial and behavioural interventions	These intervention approaches may be ineffective in reducing injection risk behaviour but may be effective in reducing sexual risk behaviours among drug users
Drug treatment	
<i>High-quality evidence</i>	
OST	Methadone is more effective than non-pharmacological approaches for retaining people in OST and reducing the use of illicit opioids
OST with psychosocial interventions	Combining OST with psychosocial or behaviour interventions is no more effective than delivering these approaches alone in retaining people in treatment or helping them achieve abstinence
Community-based opioid detoxification	There is no difference between the use of methadone and other pharmacological agents (including buprenorphine) for detoxification in improving treatment completion or abstinence
Contingency management	Contingency management is effective in supporting short-term abstinence among people who are dependent on cocaine and/or opioids Contingency management with OST is no more effective than OST or standard psychosocial support alone in retaining people in treatment or achieving abstinence.

Table 1 (continued)

Moderate-quality evidence	
OST	<p>There is no difference between methadone and buprenorphine in reducing illicit opioid use</p> <p>High-dose buprenorphine (≥ 16 mg) is effective in reducing illicit opioid use</p> <p>Buprenorphine is less effective than methadone in retaining people in treatment.</p> <p>In people who have not responded to methadone, supervised injectable heroin in combination with flexible-dose oral methadone is more effective in retaining people in treatment than methadone alone</p> <p>Heroin-assisted OST is more effective in reducing criminal activity than methadone maintenance treatment alone.</p> <p>Treatment with methadone or buprenorphine is associated with reductions in injecting drug use, sharing of injecting equipment and the risk of HIV infection</p> <p>OST in prison settings is more effective than no OST in terms of reducing heroin use in prison and after release from prison, and reducing injecting drug use.</p>
Community-based opioid detoxification	α_2 -Adrenergic receptor agonists are less effective than reducing doses of methadone in ameliorating withdrawal symptoms
Community-based opioid detoxification plus psychosocial interventions	This strategy is effective in increasing treatment completion, reducing use of opioids and supporting abstinence
Brief interventions	Brief interventions are effective in supporting abstinence in people who are dependent on psychostimulants in general, cocaine and/or opioids
Contingency management	For people who are dependent on stimulants, this is more effective than CBT-based relapse prevention for achieving abstinence during active treatment
Behavioural couples therapy	Effective in supporting abstinence in people with cocaine and/or opioid dependence who have a relationship with a non-drug-misusing partner
CBT	Effective in reducing cannabis use frequency, the severity of dependence and cannabis-related problems in regular users
Family therapy	Multidimensional family therapy may be more effective in the treatment of young people's cannabis use compared with other types of psychosocial interventions
Self-help and mutual aid	Attendance at 12-step self-help groups mediates better substance use outcomes (there is a lack of evidence on the effectiveness on this approach alone)
Case management	Case management is effective in engaging and retaining drug users in treatment but has no effect on improving drug use outcomes
Continuing care after leaving treatment	Activities such as group counselling, individual therapy, telephone counselling, brief check-ups and self-help meetings are effective in maintaining substance use outcomes after the end of treatment

3. Knowledge transfer activities to support implementation: guidelines and quality standards

Translating research findings into drug policy and practice remains a challenge. Despite the development of strategies and interventions to improve uptake, there is frequently a gap between the scientific evidence regarding what works and what is delivered (Strang et al., 2012). Failures to translate research knowledge into policy and practice waste resources and mean that high-risk populations are unable to receive the interventions and care that might benefit them most (World Health Organization, 2004). This may be partly due to the realities of the policymaking process, as mentioned in Section 1, or may be a product of the complexity and dynamics of the public health environments within which interventions will be delivered. The lack of well-developed treatment and prevention systems to support the integration of scientific evidence with relevant policy and with the delivery of services and actions also presents significant barriers (Babor et al., 2008). In recent years, producers of research evidence have been encouraged to move away from passive dissemination activities towards actions that acknowledge the importance of reciprocity between researchers, policy-makers and practitioners (Jacobson et al., 2003). As part of this transition, research-based guidelines and quality standards have been developed at local, regional and national levels for prevention, harm reduction and drug treatment to aid decision-makers and practitioners. These provide high-quality and up-to-date recommendations on the most effective responses to drug-related harm, and include World Health Organization (2009), UNODC (2013), Schaub and Uchtenhagen (2013), and National Institute for Health and Care Excellence (2007) ⁽¹²⁾.

Quality standards ⁽¹³⁾ are principles and rules set by recognised national or international bodies about what to do and what to aim for (Ferri and Griffiths, 2015). Typically, quality standards in the drugs field are aspirational. They make measurable statements related to intervention content, organisation and processes, and to structural (formal) aspects of quality assurance, such as environment and staffing composition and competencies.

Guidelines have similar aims but generally differ (although not always) from quality standards in supporting the implementation of evidence-based recommendations for practice that are based on appraisal, synthesis (usually through systematic review) and grading of the available evidence. In many European countries, guidelines represent an important mechanism for knowledge transfer of drugs evidence into policy and practice. Core features of the development of guidelines include the establishment of an expert group, the identification of questions or problems to be addressed by the guidelines, systematic reviews of research evidence, the drafting of recommendations and making clear links between them and the supporting scientific research findings, and consultation with others (professionals, target groups and other stakeholders) outside the guideline development group (Turner et al., 2008). Tools such as the Appraisal of Guidelines, Research and Evaluation (AGREE) have also been developed to assess the methodological quality of guideline development (Brouwers et al., 2016). Guidelines typically outline a plan of expected activity (which may be mandatory in some countries). They provide a guide to recommended practice and may operate alongside quality standards, setting a benchmark against which the quality of organisations delivering recommendations and their practice can be evaluated.

However, analyses of guideline development processes have frequently highlighted a gap between research findings and recommended guideline actions. This is particularly evident in areas where there is a lack of relevant research, which may lead to a reliance on expert opinion and the 'symbolic value' of evidence reviews (e.g. Mickenautsch, 2010; Oxman et al., 2007; Stewart and Smith, 2015). Where evidence is available, there may also be a disproportionate focus on the internal validity of the review process, rather than on the consideration of how review findings and associated recommendations might be applied to diverse target audiences and populations (Caird et al., 2015;

⁽¹²⁾ See also the overview of international quality standards systems in the prevention field provided by Burkhart (2015).

⁽¹³⁾ These definitions are taken from the EMCDDA Best Practice Portal (available at <http://www.emcdda.europa.eu/best-practice/guidelines>).

Nasser et al., 2012; Pearson and Coomber, 2010; Stewart and Smith, 2015). They may also ignore political decisions on what type of activities to fund will be made (Stone, 2016). Therefore, although the evidence underpinning guideline recommendations may be scientifically robust, it might be of limited use to users and target groups and exclude approaches that are not politically or publicly palatable (e.g. some forms of harm reduction intervention).

The likely costs of changing provider behaviour also have to be accounted for (EMCDDA, 2012b). For example, despite supportive research evidence, guideline recommendations that focus on the provision of family-based therapies will not be affordable if there is not already a workforce with the transferable skills required to deliver these new programmes. By embedding process evaluation in primary research and considering such work as part of the body of evidence underpinning guideline development, we may improve our understanding of intervention logic. We may also enable practitioners to better contextualise research findings, which may increase knowledge transfer (Alla, 2015; Cambon et al., 2012; Moore et al., 2015).

Many useful guidelines are infrequently implemented in routine practice, although some progress has been made in the drugs field (Ferri et al., 2016). Knowledge transfer theories have been developed and investigations undertaken of strategies and interventions to improve the use of research-based innovations and guidelines in health and social care practice (reviewed in Boaz et al., 2011; Bywood et al., 2008a, 2008b, 2008c; Grimshaw et al., 2004; Grimshaw et al., 2001; Ward et al., 2009; see the work of Bywood et al. for discussions related specifically to the substance use field).

In summary, theoretical perspectives have identified five main components of the knowledge transfer process: problem identification and communication; knowledge/research development and selection; analysis of context; knowledge transfer activities or interventions; and knowledge/research utilisation (Ward et al., 2009). It is beyond the scope of this report to provide a detailed examination of each of these. Nonetheless, knowledge transfer should not be seen as a linear process, but should include dynamic, interactive and multidirectional processes involving many different actors and activities (Greenhalgh et al., 2004). Activities should be developed that take into account the nature of the new knowledge or recommended action, the wider sociopolitical and professional climates, the characteristics of the system and the target audience to which it will be delivered, and the positive and negative consequences of successful implementation and uptake.

Reviews of interventions have concluded that passive approaches, such as publishing research evidence or guidelines, are useful in raising awareness of the desired change in professional behaviour. They are generally ineffective, however, in changing practice and are unlikely to improve outcomes for clients. Although guidelines that take into account local circumstances are considered more effective, there is little difference in uptake between those that have been developed (inter)nationally or locally by drug workers or local policymakers. In accordance with Rogers' diffusion of innovations model (Rogers, 1983, 2002), knowledge transfer is a social activity that depends on how different communities and actors interact. Professional belief systems may encourage or inhibit innovation in practice. According to this view, the uptake of guidelines is often related to the complexity of the recommendations, and their 'trialability' in particular contexts. Recommendations that are difficult to implement and cannot be tried out or evaluated at a local level are likely to be ignored. This poses challenges for the implementation of guidelines on complex health issues such as high-risk drug use that recommend a mix of specialised clinical and community activities because practitioners may have limited opportunities for 'experimentation' and 'trailing' and poorly implemented trials may affect recipients adversely.

The most effective ways to improve uptake of recommended practice are likely to be multifaceted. The effects of single interventions such as practice audits, reminders and feedback; educational outreach (the use of trained persons who meet with users of guidelines in their practice settings to give information with the intent of changing behaviour); the utilisation of influential (local) opinion leaders; and interactive learning technologies (e.g. online resources) are likely to be smaller than the sustained delivery of a coherent package of activities. However, there is a lack of evidence on the combinations of components that have the greatest impact. Evidence supports the use of a small

number of initiatives embedded in an organisational implementation strategy. This should clarify the purpose and likely impact of introducing the innovation, consider structural and professional cultural barriers, assess staff readiness to change and be clear about the effect of time and resource limitations on uptake. Bywood et al. (2008a) describe core features of an example implementation strategy:

- provides clear and succinct messages, with simple, focused objectives that require small practical changes;
- refers to reliable and credible sources, with accurate, evidence-based information;
- utilises an interactive format that is appealing and persuasive and encourages participation;
- tailors information so that it is personalised and can be modified to suit the local setting without disrupting the overall aims of the strategy;
- highlights the relevance of information (i.e. guidelines) to practitioners and their clients' needs;
- includes clear identification of roles and activities;
- supports systems or procedures that are accessible and easy to use, with little effort required for compliance;
- includes an assessment of and a focus on barriers to change;
- addresses changes at multiple levels, including individual practitioner behaviour, organisational structure and culture, and health system policy;
- identifies organisational changes that require practitioners to respond or take action (e.g. automatic prompts and obligatory responses);
- reinforces key messages with additional materials and support;
- provides for the sustainability of the strategy over a prolonged period.

Although embedded in the UK National Health Service, the work of NICE provides an example of activities designed to support implementation of its health and care guidance through a suite of tools and resources⁽¹⁴⁾. These include provision of learning opportunities such as interactive online presentation of guidelines and quality standards; the provision of summaries of likely implementation problems raised by local consultees during the guideline development process; audit tools and progress trackers; resource impact assessment tools to help users assess the costs of implementing guidelines; and the funding of implementation consultants who are tasked with supporting local organisations in implementing NICE quality standards. Internationally, the Universal Prevention Curriculum (UPC) and the International Training Curriculum (UTC)⁽¹⁵⁾ have developed evidence-based training for professionals working in the prevention and treatment fields. The European Commission has recently (2016) co-funded a European adaptation of the UPC under its DG Migration and Home Affairs' Drug Policy Programme. A strength of the UPC is that it is based on the UNODC's International Standards on Drug Use Prevention and the European Drug Prevention Quality Standards (EDPQS). There are examples of similar training and certification schemes at national levels, such as the certification of school-based prevention providers in the Czech Republic (see (Miovsky, 2013) for further details).

⁽¹⁴⁾ See <https://www.nice.org.uk/process/pmg20/chapter/resources-to-support-implementation> for an overview.

⁽¹⁵⁾ See <https://www.issup.net/training> for more details.

4. Guiding responses to drug problems in the absence of evidence

As seen in Section 2, there are uncertainties about the effectiveness of many popular drug intervention approaches on important outcomes. While further primary studies will help to resolve this, policymakers and commissioners are faced with responding to rapidly emerging drug problems without evidence regarding effective approaches. For example, in Europe, there has been a recent increase in the availability, use of, and harms associated with, NPS (Pirone et al., 2016). Where there is uncertainty about the effectiveness of a particular intervention or programme or how best to respond to an emerging drug problem, a precautionary approach should be taken. Innovative interventions or those adapted from current practice should be introduced where the balance of probability suggests that the activity is unlikely to be associated with harm and the costs and harms associated with a lack of action are considered high. An evidence-generating approach to delivery should be adopted, whereby an intervention is first implemented on a small scale and embedded within research and evaluation programmes to understand if the change led to improvement. Integrative knowledge transfer and exchange models that seek to facilitate co-production of knowledge through ongoing relationships between practitioners, researchers and decision-makers may be useful in this regard (Gagliardi et al., 2016). Delivery should be monitored to ensure that, if the approach is beneficial, it can be scaled up as part of a research evaluation. Data from monitoring systems should also be used to ensure that ineffective innovations do not become an enduring, and a possibly harmful, component of a prevention or treatment system.

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