HRB drug and alcohol evidence reviews

Evidence review of drug treatment services for people who are homeless and use drugs

Evidence review of drug treatment services for people who are homeless and use drugs

Joanna Miler, Hannah Carver, Wendy Masterton, Tessa Parkes
(Salvation Army Centre for Addiction Services and Research (SACASR), University of Stirling)

Lisa Jones, Michelle Maden, Harry Sumnall
(Public Health Institute at Liverpool John Moores University)

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HRB drug and alcohol evidence reviews

The HRB Drug and Alcohol Review series supports drug and alcohol task forces, service providers and policy-makers in using research-based knowledge in their decision-making, particularly in regard to their assigned actions in the National Drugs Strategy. Topics for review are selected following consultation with stakeholders to identify particular information gaps and to establish how the review will contribute to the selection and implementation of effective responses. Each study examines a topic relevant to the work of responding to the situation in Ireland.

HRB National Drugs Library

The HRB National Drugs Library commissions the reviews in this series. The library's website and online repository (www.drugsandalcohol.ie) and our library information services provide access to Irish and international research literature in the area of drug and alcohol use and misuse, policy, treatment, prevention, rehabilitation, crime, and other drug- and alcohol-related topics. It is a significant information resource for researchers, policy-makers, and people working in the areas of drug or alcohol use and addiction. The National Drugs Strategy assigns the HRB the task of promoting and enabling research-informed policy and practice for stakeholders through the dissemination of evidence. This review series is part of the library's work in this area.

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 the responses to it, and promotes best practice and an evidence-based approach to work in this area.

Acknowledgements

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List of acronyms

ACE	adverse childhood events
ACMD	Advisory Council on the Misuse of Drugs
ACT	Assertive Community Treatment
AIDS	acquired immunodeficiency syndrome
BBV	blood-borne virus
CBT	cognitive behavioural therapy
CD	concurrent disorder
CI	confidence interval
CM	contingency management
CoC	continuum of care
COSMHAD	co-occurring serious mental health problems and alcohol/drug use
CRA	community reinforcement approach
CRAFT	Community Reinforcement and Family Training
CRD	Centre for Reviews and Dissemination
CTI	critical time intervention
DAART	directly administered antiretroviral therapy
DAH	Direct Access to Housing
DT	day treatment
ED	emergency department
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
ETHOS	European Typology of Homelessness and Housing Exclusion
GP	general practitioner
HAART	highly active antiretroviral therapy
HAIL	Housing Association for Integrated Living
HBV	hepatitis B virus
HCV	hepatitis C virus
HF	Housing First
HIV	human immunodeficiency virus
HRB	Health Research Board
HSE	Health Service Executive
HTA	*Health Technology Assessment*
IACT	integrated assertive community treatment
ICM	intensive case management
INESSS	National Institute of Excellence in Health and Social Services (*Institut national d'excellence en santé et en services sociaux*)
IPS	intentional peer support
JBI	Joanna Briggs Institute
MDMA	3,4-Methylenedioxymethamphetamine
MET	Motivational Enhancement Therapy
MI	Motivational Interviewing
MTC	modified therapeutic community

NA	Narcotics Anonymous
NACDA	National Advisory Committee on Drugs and Alcohol
NDARC	National Drug and Alcohol Research Centre (Australia)
NDTRS	National Drug Treatment Reporting System
NIHR	National Institute for Health Research
NSP	needle and syringe programme
NPS	novel psychoactive substances
OECD	Organisation for Economic Co-operation and Development
OST	opioid substitution therapy
PICOS	population, interventions, comparators, outcomes, and study design
PIEs	psychologically informed environments
PWID	people who inject drugs
QoL	quality of life
QRCT	quasi-randomised controlled trial
RADE	Recovery through Arts, Drama and Education
RCT	randomised controlled trial
REA	rapid evidence assessment
SACASR	Salvation Army Centre for Addiction Services and Research
SASSY	Substance Abuse Service Specific to Youth
ScHARR	School for Health and Related Research
SCM	standard case management
SDOH	social determinants of health
SUD	substance use disorder
TAU	treatment as usual
TIC	trauma-informed care
TB	tuberculosis
TF	treatment first
UK	United Kingdom
UNODC	The United Nations Office on Drugs and Crime
USA	United States of America
YoDA	Youth Drug and Alcohol Service

Glossary of terms

Blood-borne viruses (BBVs): viruses that some people carry in their blood and that can be spread from one person to another. Those infected with a BBV may show little or no symptoms of serious disease, but other infected people may be severely ill. An infected person can transmit a BBV to another person by various routes and over a prolonged time period. These viruses can be found in, and transmitted through, other body fluids besides blood. The most prevalent BBVs in people who use drugs are:

» *human immunodeficiency virus (HIV)* – a virus which causes acquired immunodeficiency syndrome (AIDS), a disease affecting the body's immune system, and

» *hepatitis B virus (HBV) and hepatitis C virus (HCV)* – BBVs causing hepatitis, a disease affecting the liver.

Co-occurring serious mental health problems and alcohol/drug use (COSMHAD): having co-occurring severe mental health problems and problem substance use. This term replaces the terms 'dual diagnosis' and 'co-occurring disorders', which have historically been used in practice and in the literature around substance use and mental health.

Health Service Executive (HSE): the Government agency that provides all of Ireland's public health services in hospitals and communities across the country.

Homelessness: the state of being without stable, suitable, permanent housing; this includes rough sleeping, as well as residing in hostels, the homes of others, or any other insecure/unsuitable housing.

Housing First: an approach to ending homelessness that focuses on providing immediate, permanent, low-barrier, non-abstinence-based supportive housing for individuals with lived experience of homelessness.

Illicit drugs: drugs that are controlled/prohibited under national (e.g. Misuse of Drugs Act, 1977) or international (e.g. United Nations Conventions) legislation; such drugs include non-medical cannabis products, amphetamine-type stimulants, illicit opioids (such as heroin), and formerly new psychoactive substances (e.g. synthetic cannabinoids).

Inclusion health initiatives: the concept of inclusion health is founded on the premise that not all citizens have access to the highest standards of healthcare, and that there are challenges to meeting the healthcare needs of socially excluded individuals and their communities. This population has poorer predicted health outcomes and a shorter life expectancy than the majority of the population. The aim of inclusion health initiatives is to increase the understanding and visibility of the healthcare needs and health outcomes of socially excluded groups (Davis & Lovegrove, 2016).

Low-threshold services: services (often outreach) for anyone who takes substances, and because of this finds themselves getting into difficulties either with their substance use or with other areas of their life. 'Low threshold' just means that anyone can get help, even if they do not want to drink less or stop taking drugs. Help can include, for example, debt, accommodation, or harm reduction services, including overdose prevention (Public Health Agency, 2018).

Opioid substitution therapy: a type of harm reduction initiative that offers people who are dependent on opioids (such as heroin) an alternative, prescribed medicine – typically methadone or buprenorphine – which is swallowed rather than injected. This approach is also sometimes called opioid agonist therapy.

Polysubstance use: the use of multiple substances within a specified period of time. Substances may be used at the same time, or within the same use episode. This includes the use of substances and medicines to ameliorate adverse drug effects.

Problem drug use: high-risk drug use, which refers to the long-term use of drugs and to behaviours, such as injecting drugs, which place a person at a higher risk of health, psychological, or social problems. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) defines problem drug use as "injecting drug use or long duration/regular use of opioids, cocaine and/or amphetamines" (EMCDDA, 2020a), but this definition specifically excludes the use of other drugs – such as prescription medicines, ecstasy, or cannabis – which may also be associated with poor health and social outcomes.

Problem substance use: a pattern of harmful use of any substance, such as alcohol and other drugs (whether illegal or not), as well as some substances that are not drugs at all.

Psychologically informed environments: an approach within the field of homelessness research to understanding people's behaviours as a result of their emotional and psychological needs, which often stem from trauma.

Seroconversion rate: the time period during which a specific antibody develops and becomes detectable in the blood.

Successful completion of treatment: there is no normalised definition of 'successful treatment' in the literature, thus the research team was guided by the outcomes used by authors in the included reviews, rather than using an existing definition of successful treatment. For example, 'successfully improved housing stability' was defined as spending more days housed and being more likely to be housed at 18–24 months after intervention (Baxter *et al.*, 2019).

Supportive housing: a service model which provides independent housing with additional community supports for people experiencing homelessness and other complex needs (Henwood *et al.*, 2013). The terms 'supportive' and 'supported' are used interchangeably in the literature, but for the purpose of this review, we will use the term 'supportive'.

Systematic review: a review that typically involves a detailed and comprehensive plan and search strategy developed prior to the review, with the goal of reducing bias by identifying, appraising, and synthesising all relevant studies on a particular topic. This report is a review of reviews, which is a type of systematic review, but focuses on analysing other reviews, including, but not limited to, other systematic reviews.

Trauma-informed care: an approach to working with people which takes into account people's experiences of trauma and aims to ensure that the services provide effective support and do not re-traumatise people.

Treatment entry/engagement and retention: refers to engaging the population of interest to enter treatment/engage with a service, and to those who complete treatment activities as planned. 'Treatment' was deemed to be any treatment or service provision for people who are homeless and use substances, which reports on substance use outcomes (and potentially other outcomes).

Treatment outcomes: the results of a treatment, which may include measures such as use of the primary drug of concern, use of illicit substances alongside prescribed opioid substitution therapy, or drug injecting, as well as criminal justice system outcomes.

Vocational services: services that offer support to people who wish to overcome personal and social barriers which they feel are holding them back from education, training, or employment. Vocational services can also support people in their recovery through a wide range of rehabilitation resources.

Executive summary

Introduction

People who are homeless have complex and challenging lives. They tend to have worse physical and mental health, and are more likely to report problem substance use, than the general population. Substance use is more prevalent among people who are homeless than in the general population, and providing support services and drug treatment in a holistic way for this population should be a priority (St Mungo's, 2020). Increasing the provision of evidence-based support may lead to improvements in health, well-being, and quality of life (QoL), and to a reduction in costs to healthcare and wider public services. The Irish National Drugs Strategy aims to improve access to treatment services for people who are homeless who use drugs and have complex needs.

On behalf of the Department of Health, the Health Research Board commissioned this report to systematically review and synthesise the international evidence on the efficacy of interventions designed to serve this population. This synthesis will inform the development of policies regarding the provision of services to people who are homeless. This report comprises two parts: the first part presents a description of the current trends relating to drug use and of the current services in Ireland in primary care, mental health, and drug treatment settings for people who are homeless who use drugs; the second part is an integrative review of the international research evidence regarding interventions aiming to address the needs of this population.

Trend analysis

Recent data show that illicit drug use in the general population in Ireland increased between 2010 and 2020. Substance use is more commonly reported among people who experience homelessness than it is in the general population. Polysubstance use is also high within this population, particularly the concurrent use of illicit drugs and alcohol. There are currently gaps in the data available for this group which makes it difficult to establish service and treatment need. For example, there are no data on drug-related deaths for people who are homeless. The number of people who are homeless and have accessed drug treatment services has increased since the mid-2010s, which could indicate either improvements in service provision and greater reach, or an increase in the number of people who are homeless who use drugs in Ireland.

Overview of services in Ireland for people who are homeless who use drugs

There appears to be a wide range of services in Ireland for people who are homeless and use drugs. These include health and social care services specific to substance use, such as counselling; drop-in centres; assessment and intervention advice; information and education; ongoing support; follow-up care; and a drug screening facility. Outreach clinics are also available across Ireland. Specific programmes relevant for people who are homeless include the Health Service Executive Social Inclusion programme, which is designed specifically for marginalised groups to help enable and improve

their access to mainstream services (HSE, 2020). For example, the Inclusion Health Service at St James's Hospital attends to the complex needs of marginalised groups, such as people who are homeless and people who use drugs (HSE, 2017). Other existing services include abstinence-based drug treatment services, such as residential rehabilitation, as well as harm reduction drug services, such as prescribing services (including opioid substitution therapy (OST)); and static, pharmacy, and outreach needle and syringe programmes (NSPs). There are also housing support services across Ireland, such as transitional housing and emergency accommodation provision. It is important to note that many services across Ireland take a holistic approach to treatment and support and it is therefore not possible to categorise them neatly by service type. In particular, many third sector organisations offer a range of services in order to best meet people's needs. These can include drug treatment services, other harm reduction services, housing support services, and more general health and social care services, among others.

Evidence review on effective interventions for people who are homeless and use drugs

This systematic review of reviews aimed to synthesise international evidence on effective interventions for this population. Twenty-two publications (18 published papers and 4 grey literature reports) published between 2004 and 2020 were included. Thirteen out of the 18 included academic reviews were deemed to be systematic (with 2 of these also including a meta-analysis), and 5 were deemed to be non-systematic. Twelve of the reviews included quantitative studies only, eight included different study types/mixed designs (including one realist synthesis), one presented a meta-ethnography and included qualitative studies only, and one was a review of reviews. Ten of the reviews were undertaken in the United Kingdom (UK), four in the United States of America (USA), four in Canada, three in Europe (Spain, Ireland, and a Dutch/Belgian collaboration), and one was an international collaboration by researchers from Switzerland, the UK, and Canada. Despite this, nearly all the reviews (n=19) were international in focus, although two reviews focused on the USA only and one focused on the UK only. Even though the focus of most of the reviews was international, the

majority of the authors were based in the UK, and the majority of primary studies were undertaken in the USA. This may affect the generalisability of the findings to non-USA contexts.

The focus of the included reviews varied, and a large number of interventions were investigated. The largest number of reviews (n=6) focused on housing interventions, including Housing First (HF) initiatives. Of the remaining reviews, four focused on interventions for people with co-occurring serious mental health problems and alcohol/drug use (COSMHAD); three focused on substance use treatment specifically; two investigated healthcare treatments and interventions in general; two focused specifically on case management interventions; one focused solely on Assertive Community Treatment (ACT); one focused on sexual health promotion interventions; one investigated the impact of harm reduction interventions on the incidence of hepatitis C virus (HCV); one examined the effectiveness of intentional peer support (IPS) for people who are homeless; and one examined emergency department (ED) based interventions. The primary outcomes of interest were treatment engagement and retention, and successful treatment completion. We also synthesised information relating to substance use outcomes, housing outcomes, and 'other' outcomes (primarily health and well-being outcomes).

Treatment engagement and retention

Treatment engagement and retention for the homeless population can be problematic regardless of intervention type. ACT can lead to increased engagement rates for people who experience homelessness and use drugs. In contrast, treatment engagement with intensive case management (ICM) can be low, with more than two-thirds of participants experiencing both substance use problems and homelessness who enrol in shelter-based ICM services dropping out of these programmes. There is some evidence to suggest that Motivational Interviewing and Motivational Enhancement Therapy can increase treatment engagement during the short term for those experiencing homelessness and COSMHAD. Adherence to highly active antiretroviral therapy (HAART) among people who use drugs is comparable to that among people who do not use drugs, but the addition of OST to HAART treatment for those who use drugs increases treatment adherence and leads to better treatment outcomes. Data from studies of HF interventions suggest that engagement can be difficult, and this was suggested to be due to the fact that, while supported and encouraged through a harm reduction approach,

treatment engagement within HF is ultimately self-determined. Finally, there is evidence suggesting that the way that interventions are delivered can play a crucial role in treatment engagement and retention, with compassion, warmth, and a lack of judgement and stigma from the staff supporting individuals being paramount.

Successful treatment completion

There is a lack of studies reporting on successful treatment completion, and (limited) data were only presented in two of the included reviews. One low-quality review presented evidence from four randomised controlled trials (RCTs) and one meta-analysis of a linear, rigorous abstinence-contingent housing approach (called the Birmingham model), which suggests that treatment completion rates in such an approach (65% in the most recent trial) can be higher than the approximate 50% for social interventions (such as case management, congregate living, and vocational training), and comparable to those of modified therapeutic communities. There is some evidence that integrated approaches in short-term residential programmes (lasting 6 months or less) for people with COSMHAD were associated with higher rates of programme completion. Moreover, there was evidence that monetary and non-monetary incentives can increase completion rates of directly observed preventive therapy in young people with latent tuberculosis who are homeless; however, it was not specified whether they were also experiencing problem substance use. Lastly, there was some evidence that for people experiencing homelessness who also inject drugs, an accelerated hepatitis B virus (HBV) immunisation schedule (with doses administered at 0, 7, and 21 days, and a booster at 12 months) can result in superior completion rates, compared with traditional schedules that have similar seroconversion rates.

Treatment outcomes: substance use

All the included reviews reported on some element of substance use outcomes and, overall, the results were mixed. Firstly, there is a large number of intervention types available for people experiencing homelessness with concurrent substance use problems. In general, the greater the level of integration and partnership working there is between programmes and agencies dealing with people who are homeless and have co-occurring substance use problems, the better the outcomes. Evidence suggests that harm reduction interventions can lead to decreases in drug-related risk behaviour (e.g. needle sharing) in this population in the same way as

they do for other groups. Co-locating a number of harm reduction approaches together (termed 'full harm reduction') creates additional opportunities for clients that can lead to better outcomes than single (partial) harm reduction interventions. The reviews suggested that HF does not seem to impact either positively or negatively on substance use outcomes.

Treatment outcomes: housing

Reviews which reported on housing outcomes largely support the HF approach in terms of its effectiveness in increasing housing stability and retention, and indicate the HF approach as a preferred option due to the flexibility and harm reduction ethos associated with it. However, the reviews identified some issues relating to programme fidelity and type of HF housing (scattered versus single site). There is also some evidence that supportive housing can have a positive effect on housing stability. Other non-housing-specific interventions can also have a positive effect on housing outcomes. Most notably, peer support interventions, with IPS specifically being assessed, can lead to a decrease in the number of homeless days and a reduction in relapse to homelessness. Evidence regarding case management interventions and their impact on housing outcomes is mixed and varies between intervention types.

Treatment outcomes: other

Some treatment outcomes that were not related to housing or substance use were reported. These related primarily to mental health and well-being outcomes, with mixed evidence regarding the effectiveness of the different interventions studied. There is some evidence from interventions delivered in the USA that permanent supportive housing for people experiencing homelessness and who have additional mental health problems can lead to a reduction in mental health symptoms, compared with a control condition. There is strong evidence that HF can improve measures of physical health in the short term for 'housing-vulnerable' adults. This included moderate-strength evidence for positive effects on personal well-being, mental health, and locality-related well-being (i.e. well-being related directly to one's living situation and conditions), with no effects on personal finance or community well-being being reported. There is some evidence that the HF congregate model (where all residents live in one apartment block) can lead to greater improvements in mental health and QoL than the scattered HF model (where residents live in various

individual locations). Lastly, there is evidence that integration of services and holistic treatment for people with comorbidities and COSMHAD leads to better psychosocial and substance use outcomes.

Policy and research recommendations

People who experience homelessness and problem substance use are a population with complex needs. However, it is important to note that they are not a homogenous group. Individuals will be dealing with severe challenges imposed by being homeless, but may also be facing concurrent issues relating to substance use. There are gaps in monitoring and other routinely reported data that would provide better insights into the needs of this population, and the harms associated with substance use. This includes regular prevalence surveys; data on drug-related deaths in people who are homeless; and infectious disease and blood-borne virus prevalence monitoring in people who inject drugs (PWID), including data on housing needs. A substantial evidence base exists regarding effective interventions for people who experience homelessness, and for people with problem substance use, but not enough research has been conducted that focuses on the unique needs of people who experience both, despite these issues commonly co-occurring. In order to ensure that the needs of this population are well met, targeted provision can be helpful. There are also specific subgroups within this wider population whose needs can be even more complex – for example, people who experience homelessness and COSMHAD. Other identity characteristics, such as gender, age, ethnic background, and experiences of physical disability/physical health problems, will also have an impact on a person's needs, preferences, and overall treatment experience. Unfortunately, there are few studies that focus on making sure that people with these very complex and challenging experiences are well heard. It is also important to note that people who experience homelessness and problem substance use experience different circumstances and have different needs, wants, and preferences, and these are also likely to change over time, making listening to individuals and providing choice critically important. A balance is therefore needed between providing an approach that is tailored specifically to each individual, and delivering key components of evidence-based services and interventions. Currently, there is a lack of standardisation of measures and outcomes, which can make meaningful comparisons between different types of service models, and, subsequently, any distillation of key elements of success, challenging.

Regarding specific intervention types, the evidence suggests that the HF model supports a flexible harm reduction approach that enables referral to other services needed by the residents. The evidence base strongly suggests consistent positive housing outcomes and the absence of negative effects on substance use, alongside some evidence for positive effects regarding physical health and well-being. We found that case management-type interventions can be effective, both when applied on their own and when combined with other interventions such as contingency management, positive reinforcement or incentives, art therapy, and health prevention and promotion programmes. ACT has consistently produced positive effects on housing stability and has been found to be cost-effective, but this model seems to be suitable mainly for those experiencing homelessness and COSMHAD. Finally, the evidence suggests that formal IPS can lead to positive housing, substance use, and well-being outcomes, and that it has the potential to have a positive impact on the peers who provide the support. For this reason, we recommend the development of peer support interventions for people who experience both homelessness and problem substance use. However, due care must be given to planning for the embedding of peers in services in order to ensure that they are respected, valued, and offer meaningful support and training opportunities.

1
Introduction

1.1 Chapter overview

This chapter starts with the scope and aims of the review and then outlines the main types or models of treatment provided to people who use drugs, and those that might be most appropriate for people who are also experiencing homelessness. These service models are then discussed throughout the report. It then discusses a range of issues that should be kept in mind when thinking about meeting the needs of people with complex and very difficult lives. The chapter ends with a section exploring the relevance of COVID-19 for this group and for those providing services for them.

1.2 Scope and aims of the review

People who are homeless can be described as being without stable, suitable, permanent housing (Fountain *et al.*, 2003). This includes those who are rough sleeping, as well as those who are residing in hostels, the homes of others, or any other insecure/unsuitable housing. This is the definition used for both parts of this report. The route into homelessness is complex and is generally a result of many contributing factors. Poverty is a key factor in the likelihood of someone becoming homeless (Bramley & Fitzpatrick, 2017), but many other factors – for example, childhood trauma, mental health problems, substance use, previous imprisonment, and a myriad of other issues - can increase the likelihood of someone becoming homeless (Fitzpatrick, Bramley, & Johnsen, 2013). Homelessness is a growing issue worldwide and, in Ireland, the Department of Housing, Planning and Local Government reported that there were approximately 6,262 adults who were homeless at the end of April 2020, or 9,335 people who were homeless when young people aged under 18 years

were included (Department of Housing, Planning and Local Government, 2020). This has increased from approximately 3,800 adults who were homeless in Ireland in 2011 (Keogh *et al.*, 2015).

The Irish National Drugs Strategy aims to improve access to treatment services for people who are homeless who use drugs and have complex needs. On behalf of the Department of Health, the Health Research Board commissioned this report to systematically review and synthesise the international evidence on the efficacy of interventions designed to serve this population. This synthesis will inform policies that are currently under review regarding the provision of services to people who are homeless. This report comprises two parts: the first part presents a description of the current trends relating to drug use and of the services in Ireland in primary care, mental health, and drug treatment settings for people who experience homelessness who use drugs; the second part is an integrative review of the international research literature providing a systematic evaluation of the evidence regarding interventions aiming to address the needs of this population.

1.3 Models of drug treatment for people who are homeless

If the needs of people who are homeless and use drugs are to be met, it is essential that a range of treatments, services, and supports are available. Research shows that a range of support services exist for this group, and that treatment ranges from high-threshold, abstinence-based approaches to lower-threshold, harm reduction approaches. Internationally, examples of existing support services for people who are experiencing homelessness and use substances include, but are not limited to: joint working and case management services; fixed-

site detoxification services; transitional housing services; HF services; permanent supportive housing; preventive services; peer-mentoring interventions; and medical services (Bates *et al.,* 2017; Pleace, 2008). One of the main challenges of abstinence-based approaches for people who are homeless and use drugs is that it can be hard for individuals to adhere to what is expected of them, particularly when their lives are chaotic. They are exposed to more harm but are less able to protect themselves from that harm (Advisory Council on the Misuse of Drugs (ACMD), 2019; Pleace & Quilgars, 2013). Harm reduction approaches place fewer expectations on service users and aim to minimise harms related to substance use without the requirement of abstinence (International Harm Reduction Association, 2009; Pleace & Quilgars, 2013). Harm reduction may include services supporting safer drug use, such as needle and syringe programmes (NSPs); take-home naloxone to counter the effects of an opioid overdose; medically supervised safer injection facilities to reduce risky injection behaviours; outreach services; education; psychological interventions; and health promotion (ACMD, 2019; Groundswell, 2012).

In Chapter 3 we cover the wide range of services that are currently available in Ireland. A brief, high-level summary is provided here to indicate how these broad treatment categories relate to service provision on the ground. In Ireland, the Health Service Executive (HSE) provides public health and social care services. Health and social care services specific to substance use include counselling; a drop-in centre; assessment and intervention advice; information and education; ongoing support; follow-up care; and a drug screening facility. Outreach clinics are also available across Ireland. Specific programmes relevant for people who are homeless include the HSE Social Inclusion programme, which is designed specifically for marginalised groups to help enable and improve their access to mainstream services (HSE, 2020). For example, the Inclusion Health Service at St James's Hospital attends to the complex needs of marginalised groups, such as people who are homeless and people who use drugs (HSE, 2017). Other existing services include abstinence-based drug treatment services, such as residential rehabilitation, as well as harm reduction drug services, such as prescribing services (including opioid substitution therapy (OST)); and static, pharmacy, and outreach NSP services. The passing of the Misuse of Drugs (Supervised Injecting Facilities) Act 2017 enabled the establishment of a medically supervised injecting facility in Merchants Quay Ireland in Dublin, which would provide services for people who are homeless, although at the time

of writing this it has yet to be opened (Merchants Quay Ireland, 2020). There are also housing support services across Ireland, such as transitional housing and emergency accommodation provision.

In summary, it is important to highlight that many services across Ireland take a holistic approach to treatment and support and it is therefore not possible to categorise them neatly by service type. In particular, many third sector organisations offer a range of services incorporating those already mentioned in order to best meet people's needs. These can include drug treatment services, other harm reduction services, housing support services, and more general health and social care services, among others. We will return to the service mapping in Chapter 3.

1.4 People with complex and challenging lives

This report focuses specifically on treatment services for people who use drugs and experience homelessness. It is crucial, however, to pay attention to the complexity of wider intersecting health and social challenges that often co-occur in the lives of individuals. This section aims to cover some of the most important of such considerations: physical health problems, criminal justice contact, and inclusion health approaches; co-occurring severe mental health problems and alcohol/drug use (COSMHAD); trauma-informed and psychologically informed environments (PIEs), and the importance of taking a life course approach to supporting people.

1.4.1 Physical health, criminal justice involvement, and inclusion health approaches

People experiencing homelessness are vulnerable to 'tri-morbidity', with poor mental and physical health and problem substance use (Hewett & Halligan, 2010). The use of alcohol and drugs is often a factor contributing to someone becoming homeless, and can increase as a way of coping with homelessness (Crisis, 2011). People who are homeless often report significantly worse physical and mental health than the general population (Hwang *et al.*, 2005; Wright & Tompkins, 2006; Ijaz *et al.*, 2017; Aldridge *et al.*, 2018). They are four times more likely to die prematurely, and seven times more likely to die as a result of drug use, than the general population (Morrison, 2009), and the longer a person is homeless, the higher

their risk of ill health and premature death (Hewett & Halligan, 2010). Health problems can include a range of issues, many of which can be co-occurring. For example, diabetes, skin conditions, and respiratory diseases such as asthma, bronchitis, and pneumonia, among others, are often seen in people who are homeless (Edidin *et al*., 2012). The majority of physical health problems experienced by the homeless population are also seen within the general population, but people who are homeless usually experience them at a higher frequency or severity (Baggett *et al*., 2010; Fazel, Geddes & Kushel, 2014; Herndon *et al*., 2003). People who are homeless also have a higher risk of developing diseases that are rare within the general population, such as blood-borne viruses (BBVs) including hepatitis and human immunodeficiency virus (HIV) (Hwang *et al*., 2009; O'Reilly *et al*., 2015).

Many people who are homeless do not typically access healthcare services until reaching a crisis point, utilising accident and emergency services rather than primary care (Hewett & Halligan, 2010; Anderson & Ytrehus, 2012; Wise & Phillips, 2013; Queen *et al*., 2017), which is costly to healthcare funders (Hewett & Halligan, 2010; Zaretzky *et al*., 2017). Furthermore, when they do access mainstream healthcare or substance use services, their needs are not generally well met. They often experience stigma and negative attitudes from staff, and encounter inflexible services that do not meet their needs (Anderson & Ytrehus, 2012; Wise & Phillips, 2013; Mills, Burton & Matheson, 2015; Pauly *et al*., 2015).

However, despite higher rates of physical and mental ill health, people who are homeless attend primary care and preventive services less often than the general population (Keogh *et al*., 2015), and access to treatment and services can be particularly challenging (Drake, Osher & Wallach, 1991; The Shaw Mind Foundation, 2020). Barriers to accessing appropriate care can include perceived prejudice, negative previous experiences, lack of coordination between healthcare services, cost of medication, lack of continuity of care, other priorities such as shelter and food, challenges with strict appointment times, and complex administrative forms (ACMD, 2019; Keogh *et al*., 2015). These barriers can lead to delayed or no treatment, which in turn can increase the risks of more serious health problems. Indeed, globally, the rate of hospital admissions for people who are homeless has been shown to be between two and five times higher than for the general population (Chambers *et al*., 2013). In Ireland, it is estimated that up to 45% of people who are homeless are not registered with a general practitioner (GP) (O'Reilly *et al*., 2015). As documented in international research,

emergency hospital admissions are higher for people who are homeless than for those in the general population, but people who are homeless are also more likely to leave hospital early without having accessed appropriate treatment (Ní Cheallaigh *et al*., 2017).

There are also strong links between involvement in the criminal justice system and homelessness. The relationship is complex and often cyclical in nature (Hickey, 2002). The report *Hard Edges: Mapping Severe and Multiple Disadvantage in England* found that in a population of more than 580,000 people experiencing severe and multiple disadvantage in England, approximately 112,000 had a history of offending, and around 31,000 had experienced homelessness and offending (Bramley *et al*., 2015). A range of structural inequalities influence homelessness following release from prison, including a lack of adequate and affordable housing, a lack of substance use treatment, and a lack of family support services (Hickey, 2002). Recommendations for service providers to reduce the rates of homelessness for those in the criminal justice system include: changes to custodial sentences for minor offences; providing access to training, education, and support in prison; needs assessment immediately prior to release from prison; family-friendly facilities in prison; family mediation and support services; greater partnership working; substance use treatment and support in prison and on release; and provision of suitable accommodation upon release from prison (Hickey, 2002; Homeless Link, 2011).

Inclusion health aims to prevent and reduce social and health inequalities for marginalised populations, including those experiencing homelessness and drug use, criminalisation, among other issues (Luchenski *et al*., 2018). In their systematic review, Luchenski and colleagues identified a range of inclusion health interventions. These included pharmacological interventions for people with problem substance use and mental health problems, including BBV treatments; psychosocial interventions, including integrated mental health and drug treatments; case management; harm reduction schemes, including BBV screening; and provision of housing (Luchenski *et al*., 2018). Several systematic reviews have indicated that tailoring primary care services to those experiencing homelessness (Hwang & Burns, 2014), providing case management (Hwang *et al*., 2005; Fitzpatrick-Lewis *et al*., 2011; de Vet *et al*., 2013), and providing housing (Fitzpatrick-Lewis *et al*., 2011) can be effective in improving mental and physical health, and in assisting with addressing problem substance use, among people who are homeless.

1.4.2 Co-occurring serious mental health problems and alcohol/drug use (COSMHAD)

As with physical health, people who are homeless are also much more likely than the general population to experience mental health problems (Arnold *et al*., 2020; Duke & Searby, 2019; O'Reilly *et al*., 2015), with COSMHAD affecting around 10-20% of those experiencing homelessness (Rees, 2009). People experiencing homelessness and COSMHAD are more likely to report more severe symptoms and more ill health than those without COSMHAD (Rees, 2009; Megnin-Viggars *et al*., 2015; Schutz *et al*., 2019). Systematic reviews have found that a range of psychosocial treatments can be effective for those experiencing COSMHAD, including Motivational Interviewing, cognitive behavioural therapy, case management, and skills training (Horsfall *et al*., 2009). Additionally, there are a range of factors which should be included in all treatment approaches. These include having multidisciplinary team approaches, long-term follow-up, being well coordinated, having highly trained specialist staff, and involving a range of programme types (Horsfall *et al*., 2009). There is also evidence that those accessing these treatments are highly satisfied (Schulte, Meier & Stirling, 2011). The most consistent finding is that treatment should be integrated and delivered by multidisciplinary teams (Drake *et al*., 2004; Horsfall *et al*., 2009). However, in practice, such services continue to be provided separately (Bjørkquist & Hansen, 2018; Foley, 2018). In Ireland, there has been increasing awareness of COSMHAD in recent years, but this does not appear to have resulted in service or policy changes (MacGabhann, Moore & Moore, 2010). National guidelines, national policy responses, estimates of its prevalence, and the involvement of those with lived experience of COSMHAD in education and practice developments have been recommended (MacGabhann *et al*., 2010).

1.4.3 Trauma-informed and psychologically informed approaches

Pathways into homelessness are often explained as being a result of childhood trauma. Fitzpatrick and colleagues (2013) conducted a multistage quantitative survey with 452 people in seven cities in the United Kingdom (UK). Childhood trauma and deprivation were significant predictors of future homelessness. Other studies have identified being care experienced and childhood poverty as predictors (Piat *et al*., 2015; Bramley & Fitzpatrick, 2017). Trauma-informed and psychologically informed care have grown in recognition in the homelessness and problem drug

use fields in recent years for this reason. They come from an understanding that people who are homeless are likely to have experienced trauma in their early years, adolescence, and adulthood, and that this may be a contributing factor to their becoming homeless (Johnson & Haigh, 2010; Breedvelt, 2016). Drug use can also be a way of coping with trauma (Homeless Link, 2017).

Trauma-informed care (TIC) is an approach that can be adopted by services working with people who are homeless who use drugs in order to ensure that the services provide effective support and do not re-traumatise people (Homeless Link, 2017). Such approaches involve trauma awareness (helping service providers understand trauma and change organisational practices accordingly); an emphasis on safety (building physical and emotional safety for people by being aware of power dynamics, boundaries, privacy, and mutual respect, as well as cultural differences); opportunities to rebuild control (by providing choice to people and having predictable environments to enable self-efficacy and control); and a strengths-based approach (focusing on strengths to develop coping skills and resilience) (Hopper, Bassuk, & Olivet, 2010; Homeless Link, 2017). There is evidence that TIC approaches support better outcomes than non-TIC approaches, in terms of functioning, trauma symptoms, drug/alcohol use, mental health symptoms, housing stability, and less use of crisis-based services (Hopper *et al*., 2010). There is also evidence that service users report greater self-efficacy, increased sense of safety, and better collaboration with staff (Hopper *et al*., 2010). Staff also report greater collaboration with service users, improved staff morale, greater empathy for colleagues, awareness of their own traumatic stress, and more effective services (Hopper *et al*., 2010; Damian *et al*., 2017). In their systematic review of trauma-informed organisational interventions, Purtle (2020) found that, despite some positive outcomes for clients, the strength of the evidence is limited due to the research design of the studies. Many published studies regarding TIC conclude that further research is required to assess the effectiveness of such approaches.

PIEs are a related approach to TIC and are informed by the emotional and psychological needs of the client group. PIEs have low-threshold engagement (informal engagement sessions in an open environment; Keats *et al*., 2012); place an emphasis on the physical environment and social spaces (having a welcoming, well-decorated, and well-lit service; Keats *et al*., 2012; Breedvelt, 2016); develop an organisational culture of reflexivity, learning,

and discussion centred around the psychological needs of the clients (Johnson & Haigh, 2010); value relationships with clients (Johnson & Haigh, 2010); and foster a sense of shared ownership in the service (Westaway, Nolte & Brown, 2017). PIEs have been shown to improve client outcomes in terms of mental health and well-being; housing; behavioural issues; involvement with criminal justice and emergency services; and engagement with health and other care services (Williamson & Taylor, 2015; Cockersell, 2016; Phipps, 2016). Despite these positive outcomes, the evidence base regarding PIEs is somewhat limited, with data from only small-scale studies. More rigorous research is required to examine the effectiveness of PIEs.

1.4.4 Life course approaches

There are also links between the life course and substance use, with most substance use beginning during adolescence (Bonomo & Proimos, 2005; Mirza & Mirza, 2008). The earlier a young person uses substances, the more likely they are to use them more frequently and develop substance use problems (Bonomo & Proimos, 2005; Mirza & Mirza, 2008; Bremner *et al*., 2011; Feinstein, Richter & Foster, 2012). Those at higher risk of drug use typically experience a range of negative experiences during childhood, including parental substance use, life stress, environmental factors and low social attachment (Hser, Longshore & Anglin, 2007). This also links with the evidence regarding adverse childhood events (ACEs), whereby those who have experienced negative events in childhood (such as abuse, neglect, or parental substance use or imprisonment) are more likely to experience a range of physical and mental health problems, including problem drug use. In a study by Dube *et al*. (2003), there were strong links between ACEs and early initiation of drug use. Compared with people who had not experienced any ACEs, people with five or more ACEs were 7–10 times more likely to report illicit drug use and problem drug use (Dube *et al*., 2003). Thus, the factors that increase the likelihood of someone using drugs are also those that affect whether or not they may become homeless.

Adulthood experiences are also a key factor in the pathways into homelessness. Housing and labour markets; social security policies; income inequality and poverty; education; relationships; long-term illness/disability; and involvement in the criminal justice system influence the likelihood of someone experiencing homelessness (Fitzpatrick, Johnsen & White, 2011; Fitzpatrick *et al*., 2013; Bramley & Fitzpatrick, 2017). In their quantitative study in

seven UK cities, Fitzpatrick and colleagues (2013) examined the temporal sequencing of homelessness experiences. Certain adverse events tended to occur at different times in the lives of people experiencing homelessness, with leaving home or care and substance use occurring in the mid to late teens; prison, anxiety, and depression and injecting drug use in the early 20s; being hospitalised for a mental health problem, redundancy, and bankruptcy in the late 20s; and divorce or death of a partner occurring in the 30s or 40s (Fitzpatrick *et al*., 2013). Thus, there are a range of factors across the life course that influence the likelihood of someone becoming homeless.

1.5 Implications of COVID-19

While this study began before the COVID-19 pandemic, it is important to pay brief attention to how this has impacted the study topic. In March 2020, the World Health Organization declared a worldwide pandemic relating to the novel coronavirus disease 2019 (COVID-19). COVID-19 is a disease of the respiratory system (World Health Organization, 2020) which has spread to over 150 countries worldwide (Wei & Shah, 2020). While everybody is at risk of infection, some individuals are more at risk of ill health from COVID-19 compared with the general population, either due to underlying health conditions or to public health measures introduced to try to contain the virus, which have a detrimental effect on already challenging life situations (European Centre for Disease Prevention and Control, 2020). While some underlying health conditions increase the risks associated with COVID-19, the social determinants of health (SDOH) also make people from marginalised communities more vulnerable even when they have no underlying conditions, with people who are homeless being one such group (Bambra *et al*., 2020).

Services have responded in several ways to support people who are homeless who use substances during the pandemic, including ensuring that people who use drugs have access to COVID-19 screening and testing (Dunlop *et al*., 2020); increasing the use of telehealth for consultations and prescriptions (Barney *et al*., 2020; Conway, Truong & Wuerth, 2020; Jemberie *et al*., 2020); changing to daily pick-up of methadone and buprenorphine prescriptions to weekly or monthly, where appropriate (European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), (2020b); decreasing the use of medication supervision regimes (Dunlop *et al*., 2020); improving access to naloxone (Dunlop *et al*., 2020; O'Carroll,

Duffin and Collins, 2020); delivering medication to family members (American Society of Addiction Medicine, 2020); home delivery of medications such as methadone and buprenorphine (EMCDDA, 2020b; NHS Substance Misuse Alliance, 2020; O'Carroll, Duffin & Collins, 2020); increasing the availability of benzodiazepine maintenance therapy (O'Carroll *et al.*, 2020); increasing the supply of clean injecting equipment (Dunlop *et al.*, 2020); and releasing general guidance about reducing COVID-19 spread in recovery and treatment services (Cooksey *et al.*, 2020; Dong *et al.*, 2020) and reducing harm for people who use drugs in shelter settings (Hyshka *et al.*, 2020). In Ireland specifically, a range of services were introduced in response to the COVID-19 pandemic, particularly in relation to homelessness, harm reduction, and drug use (O'Carroll *et al.*, 2020). These included improved access to methadone treatment; improved access to naloxone; shifting the management of high-dose benzodiazepine dependency towards maintenance therapy; home delivery of prescription medication; rapid rehousing of people who were homeless who were at increased risk of illness; redeployment of staff; and offering new services (O'Carroll *et al.*, 2020).

Chapter 2 provides a project overview, the study research questions, and the outcomes of interest, and states how the methods for conducting the two parts of the review were chosen and executed. Chapter 3 presents the contextual background to the project and should be viewed as a standalone piece, presenting the trend analysis of the current drug situation in Ireland and the mapping of existing drug services for people who are homeless and use drugs in Ireland. Chapter 4 concerns the systematic review of reviews of the international evidence regarding treatment and intervention for people who are homeless and use drugs. Finally, Chapter 5 presents a discussion of the report's main themes and conclusions, particularly relating to the review of reviews presented in Chapter 4. It includes strengths and limitations of the study, identifies research and evidence gaps, and ends with a set of recommendations for policy and practice.

1.6 Chapter summary

In this chapter we have presented the scope and aims of the review and outlined the main types or models of treatment provided to people who use drugs, and those that might be most appropriate for people who are also experiencing homelessness. It is essential that a range of treatments, services, and supports are available to ensure that the needs of people who are homeless and use drugs are met. A range of support services exist for this group, with treatment ranging from high-threshold, abstinence-based approaches to lower-threshold, harm reduction approaches. We discussed a range of issues that should be kept in mind when thinking about meeting the needs of people with complex and very difficult lives, such as: physical health problems and inclusion health approaches; co-occurring severe mental health problems; trauma-informed and psychologically informed environments; and the importance of taking a life course approach to supporting people. The chapter ended with a section exploring the relevance of COVID-19 for people experiencing homelessness and for those providing services for them.

2
Methods

2.1 Chapter overview

This chapter provides information about both sections of the study (trends and service mapping, and the review of reviews), and is supported by appendices with further detail. A systematic review of reviews approach is appropriate where a large body of evidence already exists (sufficient numbers of primary studies and, subsequently, a body of existing reviews) on the topic under consideration, and is considered a "logical and appropriate next step...allowing the findings of separate reviews to be compared and contrasted, thereby providing decision-makers with the evidence they need" (Smith *et al*., 2011, p. 2). The primary research question for this review of reviews developed by the team in collaboration with the Health Research Board (HRB) and its stakeholders, is: What interventions are effective in engaging homeless people who use drugs in drug treatment services and in facilitating retention in treatment? The PICOS framework (population, interventions, comparators, outcomes, and study design) (Methley *et al*., 2014) was used to identify appropriate literature search terms (see Appendix 1). The research team extracted information regarding population parameters included in the search results but did not search separately for specific subpopulations (e.g. women, families). Although the search focused on controlled drugs, the team also extracted data about alcohol and prescription drugs if the selected reviews included such details.

The main outcomes of interest in this review were: i) treatment entry/engagement and retention; and ii) treatment outcome and successful completion of treatment. Treatment entry/engagement refers to engaging the population of interest to enter treatment/engage with a service, and treatment retention refers to attrition rates throughout the treatment duration. 'Treatment outcomes' have been defined by primary study researchers as including, for example, use of the primary drug of concern, use of illicit substances alongside prescribed OST, or drug injecting, or connected to criminal justice involvement/offending behaviour. 'Successful treatment' was more difficult to define, as this was also defined by primary study authors based on different follow-up times, and so the research team was guided by these definitions rather than using an existing definition of 'success'. For example, Penzenstadler *et al*. (2019) measured success in terms of treatment engagement levels and reductions in substance use, and Turner *et al*. (2011) looked at success from the point of view of the incidence of new hepatitis C virus (HCV) infections. Looking at other interventions, Baxter *et al*. (2019) concluded that HF approaches successfully improved housing stability, which was defined as intervention participants spending more days housed and being more likely to be housed at 18–24 months after intervention. Similarly, Kertesz *et al*. (2009) identified HF success as better housing stability and housing retention after 5 years. Differences with regard to outcome measures and a lack of homogeneity across various psychosocial intervention studies are common and make pooling and generalisation of results difficult (Hunt *et al*., 2019).

2.2 Trend analysis and mapping of service provision in Ireland

Chapter 3 of this report contains a trend analysis using key epidemiological indicators included in the Irish national report for the EMCDDA, which includes data on prevalence, treatment demand, drug-related deaths, and health consequences, as well as social indicators used to monitor the situation and report information to the EMCDDA. For the review of the existing drugs situation in Ireland, the focus was on synthesising evidence from between 2010 and 2020 (as per the systematic review), primarily through data

submitted to the EMCDDA (EMCDDA, 2019b), but also drawing upon secondary analysis of the sources listed in Appendix 2. Sources included reports, journal articles, and other relevant data. We also approached the HRB National Drugs Library to help identify further data from relevant primary studies undertaken in Ireland. It is important to note that the data provided to the EMCDDA on drug prevalence does not specifically include data on people who are homeless. However, prevalence estimates for the homeless population can be made using other data, such as reports from homelessness services, surveys of people who use drugs, and other secondary sources. The National Drug Treatment Reporting System (NDTRS) and the National Drug-Related Deaths Index include information on the housing status of each case recorded in these databases. An estimate of the proportion of people who use drugs presenting with communicable diseases or who are using NSP services was also available from the providers of these services, from the Health Protection Surveillance Centre, or from individual research studies.

Chapter 3 also includes a description of existing services that are provided to meet the needs of people who are homeless who use drugs, including low-threshold services, inclusion health initiatives, mobile health services, and public health services provided by the HSE. Methods focused on retrieving relevant information from the HRB's monitoring work, and from the data sources listed in Appendix 3. The review team worked closely with the HRB to define this search. We identified evidence/service information published since 2010 in order to capture the most up-to-date and relevant information through Google/Google Scholar searches. Additional searching to supplement these data was discussed with the HRB and drew upon additional resources and expertise, such as that provided through the HRB National Drugs Library. Information about services was also identified through contacting several key contacts working in third sector homelessness services in Ireland, who provided details about those services that were not identified through other searching.

2.3 Review of reviews

The second part of the evidence review provides a synthesis of international evidence regarding interventions in primary care, mental health, and drug treatment settings for people who are homeless and who use drugs. As there was a large body of

existing evidence available on the topic, a systematic review of reviews was agreed to be an appropriate approach to the work. A review of reviews approach was also previously adopted by team members in *The effectiveness of interventions related to the use of illicit drugs: prevention, harm reduction, treatment and recovery. A 'review of reviews',* commissioned by the HRB (Bates *et al.,* 2017). It should be noted that, while the body of evidence is large, it is also quite disparate and relates most specifically to homeless services, with different outcomes to our own study's primary outcomes of interest. The review methodology proceeded in accordance with guidelines from the Joanna Briggs Institute (JBI, 2014).

2.3.1 Search strategy

An information specialist (MM) led the development and application of the search strategies, supported by the review team, all of whom have extensive experience in conducting systematic searches of the literature. The search strategy (see Appendix 4) was designed for the main research question based on team discussion and consultation with the HRB, and was finalised in December 2019. All searches were run on 30 December 2019.

The searches were conducted across 10 electronic databases (Table 1): MEDLINE (Ovid), CINAHL (EBSCOhost), Embase (Ovid), PsycINFO (Ovid), PROSPERO, Epistemonikos, Cochrane Database of Systematic Reviews, JBI Database of Systematic Reviews, Health Technology Assessment (HTA) (National Institute for Health Research (NIHR) Journals), and Campbell Collaboration. Articles unavailable from the research team's university libraries were acquired through the interlibrary loan system. Reference details identified through the literature search were collated and managed using the bibliographic software EndNote. In order to optimise data retrieval, the team screened the reference lists of included articles for additional relevant publications (reviews rather than primary studies) which may otherwise have been missed in the original search strategy.

One reviewer (JM) screened all titles and abstracts of the 511 reviews (stage one) as well as the full-text articles of any titles/abstracts that were considered relevant. A second reviewer (WM) independently assessed 20% of all titles and abstracts to ensure inter-rater reliability, as deemed to be good practice in rapid systematic review methodology (Taylor-Phillips, Geppert, & Stinton, 2017). Following the completion of title/abstract/full-text screening by reviewer one, a new EndNote library was created

containing the top 20% of the original, unfiled EndNote library. As the original EndNote library contained records that were unfiled and unsorted (i.e. were not sorted alphabetically or by year but were instead added as they were imported from the various databases), this ensured that the selected 20% were chosen at random. The new EndNote library was shared with reviewer two. The relevance of each article was assessed according to the criteria set out in Appendix 5. Any discrepancies were resolved by consensus or, if necessary, by consulting a third reviewer (HC). Subsequently, four papers were reviewed by the third reviewer. Upon completion of the screening process by both reviewers, a team meeting was scheduled to discuss the included papers for a second reliability check.

Several members of the team (TP, HC, WM, and JM) discussed 28 papers in which not all of the primary studies included in the review met this review's inclusion criteria (for example, a review may have only included one study focusing on homelessness among other studies focusing on substance use), as detailed in Appendix 5. By consensus it was agreed to only include those reviews where at least 40% of their included papers were relevant to substance use and homelessness. Adopting a cut-off point or minimum percentage in this context has also been used in other systematic reviews (Barker & Maguire, 2017). These criteria were selected in order to ensure that the included reviews maintained a focus on both homelessness and substance use, as some reviews explored other issues within other contexts and did not specifically include participants experiencing homelessness or problem drug use in their sample. Papers which reported pooled data or meta-analyses without an accompanying systematic review were also rejected. Subsequently, adopting these extra steps resulted in the decision to include 16 out of these 28 reviews in our final synthesis. Appendix 6 illustrates the final decisions made regarding inclusion and exclusion. The team also discussed potentially excluding papers based on quality appraisal scores; however, it was decided that it was important to keep all the available evidence but comment on the evidence quality, in accordance with the recommendations proposed by the Centre for Reviews and Dissemination (CRD, 2008). This commentary is reported in our quality appraisal in Section 4.2 and in Chapter 5.

Table 1 presents the databases searched and the number of potentially relevant reviews identified in each (pre-deduplication). As the Campbell Collaboration database and HTA are web-based and do not allow for complicated search strings (and

truncation), the searches of these two sources were performed on the homelessness terms only. These terms can be found in Appendix 4. The systematic search identified 665 results; 205 duplicates were removed, leaving a total of 460 reviews to screen against the inclusion criteria.

Table 1: Databases searched and results captured

Database/source	Total results
MEDLINE (Ovid)	101
CINAHL (EBSCOhost)	97
Embase (Ovid)	156
PsycINFO (Ovid)	50
PROSPERO	120
Epistemonikos	77
Cochrane Database of Systematic Reviews	11
JBI Database of Systematic Reviews	16
HTA (via NIHR Journals)	32
Campbell Collaboration	5

During stage one (title and abstract screening), we identified 15 potentially relevant reviews via the PROSPERO database, and a search was conducted to identify if these papers had yet been published. Due to their potential relevance to the review, it was decided that prior to data extraction of the final included papers, the search for these 15 papers would be re-run to identify whether any had been subsequently published. This search was conducted on 26 February 2020 and resulted in 2 of the 15 studies being identified for inclusion in the final synthesis, thus bringing the final total number of included reviews to 18. Of the remaining 13 potentially relevant studies identified via the PROSPERO database, 8 have not yet been published, 3 have been published but did not meet our inclusion criteria, and 2 were identified in the main search as full texts (1 was included and 1 was excluded at stage one).

During the quality appraisal stage, it transpired that one of the systematic reviews previously identified for inclusion (Formosa *et al.*, 2019) only presented an abstract from a conference, but the full review was not available/had not been published. Full data extraction was therefore not available for this paper. The literature searching and screening process are shown using a PRISMA flow diagram (Figure 1).

The search strategy did not include any language restrictions in order to minimise bias and ensure that all relevant reviews could be captured. Two of the included papers were written in languages other than English (Canadian French and Spanish). They were translated via Google Translate and deemed of acceptable quality by the research team for the purposes of data extraction.

In order to ensure that we identified good-quality evidence reviews in the grey literature, we searched a range of relevant websites between December 2019 and January 2020 for any reviews published since 2010 (Appendix 7).

PRISMA 2009 flow diagram
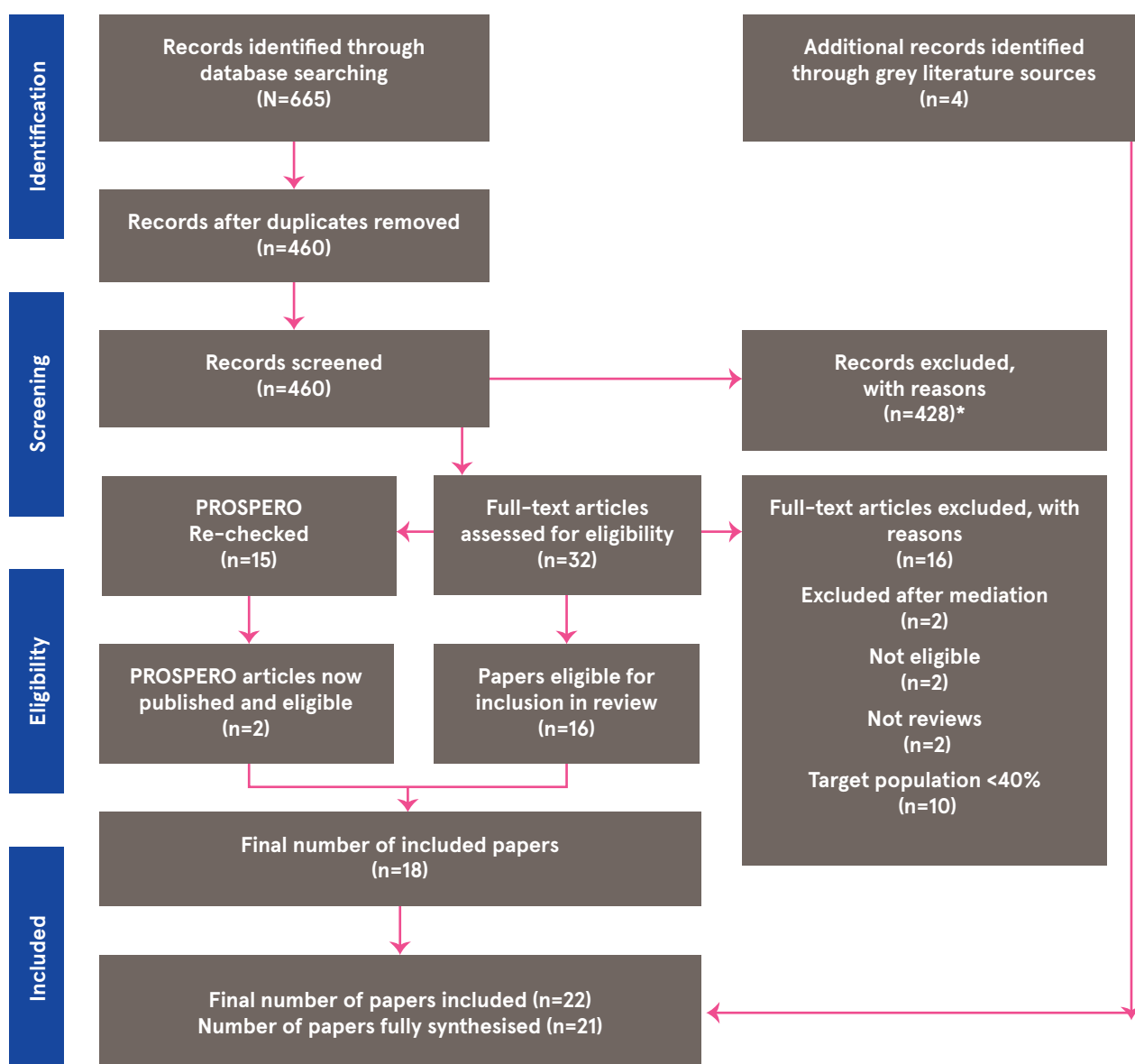
Figure 1: PRISMA diagram

*   Not eligible (n=413); PROSPERO only (n=15)

From: Moher *et al.*, 2009. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

2.3.2 Inclusion criteria

A full set of inclusion and exclusion criteria (Appendix 5) were developed by the research team in consultation with the HRB. Criteria included study type, types of participants, types of interventions, and outcomes. Due to the time available to undertake the work, the review primarily sought to identify systematic reviews of studies reporting on interventions in the areas identified in the tender; specifically, interventions that:

1.   Were designed to engage and retain people who are homeless in problem substance use (drug)[1] treatment, and/or

2.   Improved problem substance use treatment and harm reduction outcomes for people who are homeless.

Inclusion criteria relating to population, comparators, and outcomes were developed in consultation with the HRB. Non-systematic reviews were also included; however, these reviews received lower quality appraisal scores. Reviews of both quantitative and qualitative studies were included in this systematic review.

2.3.3 Data extraction/quality assessment and synthesis

Data relating to study design and key characteristics, including populations, interventions, outcomes, and implications for policy, were extracted by one reviewer (JM) into an Excel spreadsheet. Data from the reports identified through the grey literature search were extracted into the same spreadsheet by a second reviewer (WM). The data extraction table was shared with other team members (HC, TP, HS) for comment in order to ensure accuracy of data extraction. Two reviewers (JM and HC) independently assessed the quality of the included reviews using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses (Appendix 8), which considers the validity of evidence reviews and the applicability of findings to local populations (JBI, 2014). Each review received a score based on this quality assessment, and scores were tabulated into a Word document independently by both reviewers. The scores and tabulation are presented in Appendix 9. Any disagreement in scores was resolved through consensus and, if necessary, a third reviewer (WM) was consulted (Appendix 10).

Data extracted from the included reviews have been reported in Appendix 11, including study descriptions and information about the populations, methods, and results reported in included reviews. Scores relating to study quality are presented in Appendix 9. Findings relating to the review research questions are summarised and discussed in a narrative synthesis in Sections 4.3–4.5 to supplement tabulated data in Appendix 11.

2.4 Chapter summary

This chapter has provided detail on all elements of this study: the trends and mapping components and the review of reviews. We now move on to presenting the trends and mapping components in a standalone section, Chapter 3.

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1   Alcohol was also included if it was addressed alongside controlled drugs, but not if it was addressed independently.

3

Contextual background

3.1 Chapter overview

This chapter provides the contextual background for the review of reviews. Firstly, a trend analysis of the drug situation in Ireland from 2010 to 2020 is presented, primarily using data submitted to the EMCDDA, but also drawing upon secondary analysis of sources listed in Appendix 2. Secondly, a mapping of existing drug services in Ireland for people who are homeless is provided.

3.2 Trend analysis

The current drug situation in Ireland is analysed using the most recently available data on the EMCDDA's five key epidemiological indicators: prevalence and patterns of drug use; problem drug use (this includes high-risk drug use, which refers to long-term use of drugs and to behaviours, such as injecting drugs, which place a person at a higher risk of health, psychological, or social problems); drug-related deaths and mortality; drug-related infectious diseases; and treatment demand (EMCDDA, 2020a). Data gathered from the general population, as well as from specific groups such as people who are homeless, are presented to provide an overview of drug use in Ireland since 2010.

3.2.1 Prevalence and patterns of drug use

This indicator refers to the patterns of use, risk perceptions, social and health correlates, and consequences of drug use. These are measured through general and school population drug surveys, targeted surveys, and through new technology, such as wastewater-based drug epidemiology (EMCDDA, 2019c). Bates (2017) reports data from the National

Advisory Committee on Drugs and Alcohol (NACDA, 2016), which uses a representative sample to estimate lifetime use, use in the past year, and use in the past month in people aged 15 years and over in Ireland. Data show that the number of people using any drug increased to 8.9% in 2014/2015 from 7.0% in 2010/2011. Drug use continues to be more common among men (38.8%) than among women (22.6%) (NACDA, 2016). Illicit drug use is also reported to be more common in younger people aged 15–34 years compared with older age groups (NACDA, 2016). Cannabis continues to be the most commonly used illicit drug, and use has increased since the 2010/2011 survey. In 2010/2011, the cannabis dependence rate in the general population was estimated to be 0.6%, and by 2014/2015, it was estimated to have increased to 1.5% (Bates, 2017). Estimates in the *EMCDDA Ireland Country Drug Report 2019* (EMCDDA, 2019b) show that 13.8% of young adults (aged 15–34 years) used cannabis in 2015.

MDMA (3,4-Methylenedioxymethamphetamine) use among young adults increased sharply from approximately 1.0% in 2010/2011 to 4.4% in 2014/2015. Cocaine use has remained stable since 2010/2011, with approximately 2.9% of young people reporting using it in 2014/2015. Amphetamine use decreased slightly by around 0.2% since 2010/2011, with approximately 0.6% reporting use in 2014/2015. Although exact figures are unknown, experts taking part in a recent study on the non-medical use of pharmaceuticals (otherwise known as street tablet use) in Ireland reported that there has been a noticeable increase in the use of street tablets since the mid-2010s (Duffin, Keane & Miller, 2020). According to this report, the increase in pregabalin use is an emerging issue. A 2014 survey of more than 13,000 people aged 15–24 years (TNS Political & Social, 2014) indicated that around 22% of the participants from Ireland had ever used novel psychoactive substances (NPS), newly synthesised

substances which are designed to mimic existing established recreational drugs; however, only 9% had done so in the year prior to the survey. In the *Ireland Country Drug Report 2019*, prevalence of NPS use in young adults (aged 15–34 years) was reported to have decreased to 1.6% from 6.7% in 2010/2011 (EMCDDA, 2019b). Bates (2017) highlights that differences in such figures around drug use could reflect the changing legal status of NPS, as well as differences in survey design and recruitment of participants.

In some specific populations, the prevalence of drug use appears to be higher than in the general population. For example, in a recent systematic review and meta-analysis, Gulati and colleagues (2019) reported that the pooled percentage across studies of people in prison who reported problem substance use was 50.9%. Data on the prevalence and patterns of drug use specifically among subgroups of people who are homeless are presented in Bates (2017). These include a health needs assessment in Cork with 115 women who were living in temporary or emergency accommodation (Good Shepherd Services & Simon Community, 2011); an interview study with 60 Irish women who were living in temporary or emergency accommodation, although almost half had slept rough at some point in their lives (Mayock & Sheridan, 2012); a survey with 601 people who were living in emergency accommodation or rough sleeping in Dublin and Limerick in 2013 (O'Reilly *et al*., 2015); and a study of the health needs of 105 people who were accessing Safetynet primary health clinics and who had no fixed abode or who were at high risk of homelessness in Dublin (Keogh *et al*., 2015).

Data from the Good Shepherd Services and Simon Community health needs assessment of women in Cork (2011) showed that 40% of respondents indicated problem alcohol use and 20% of respondents reported current drug use, with heroin (10%) and cannabis (9%) being the most commonly used drugs reported. Heroin use was more common in people aged 26 years and over, whereas cannabis use was more common in people under the age of 26 years. These data show a lower prevalence rate of drug use compared with that reported in other studies, which Bates (2017) suggests may be due to respondents already accessing drug support services. For example, in Mayock and Sheridan's study (2012), 53% of women reported problem substance use, with the most common drug being heroin. In Keogh *et al*.'s study (2015), 60% of participants had ever used illicit drugs, and 33% had used drugs in the past 3 months. O'Reilly *et al*. (2015) reported that 78% of survey participants had ever used illicit

drugs, and 55% had used drugs in the past 3 months. In relation to the previous 3 months, 45% of people reported having used cannabis, 34% had used benzodiazepines, 29% had used heroin, 13% had used cocaine, 11% had used crack cocaine, and 7% had used MDMA. Opioids were reported to be 41% of respondents' primary drug. The same percentage of respondents reported that alcohol was their main problem substance. It is worth highlighting that, from the data in this study, prevalence of past and current drug use in Dublin was higher than in Limerick (80% and 60%, respectively), and problem opioid use was also higher in Dublin than in Limerick (44% and 16%, respectively).

In summary, the number of people using illicit drugs in Ireland has increased since 2010. Since NACDA only commissions a survey on the prevalence of drug use every 4 years, the statistics for the prevalence of current drug use in Ireland will not be known until after 2020. However, existing data suggest that men continue to use illicit drugs more than women do, and that people aged 15–34 years are more likely to use drugs than any other age group (NACDA, 2016). This profile is similar to all European comparator countries (EMCDDA, 2019b). Cannabis continues to be the most commonly used illicit drug, and use has increased. In terms of prevalence of drug use among people who are homeless, data indicate that substance use is more commonly reported in this population than in the general population, and that alcohol, cannabis, heroin, and benzodiazepines are the most commonly reported substances (Good Shepherd Services & Simon Community, 2011; Keogh *et al*., 2015; Mayock & Sheridan, 2012; O'Reilly *et al*., 2015). However, differences in substance use prevalence were reported in each study, possibly due to differing study methodologies, cities, demographics (e.g. two studies only included data from women), and study years.

3.2.2 Problem drug use

The purpose of this indicator is to provide data on the prevalence and patterns of more harmful forms of drug use, which includes high-risk drug use. This includes long-term use of drugs, as well as behaviours, such as injecting drugs, which place a person at a higher risk of harm, as well as other health, psychological, or social problems (Bates, 2017). The *Ireland Country Drug Report 2019* (EMCDDA, 2019b) estimates that there were approximately 19,000 people who used opioids in Ireland in 2014, with more than one-half being over the age of 35 years. This equates to 6.18 per 1,000 of the population aged 15–64 years. In comparison,

statistics reported from other European Union member states range from 0.48 per 1,000 population to 8.42 per 1,000 population aged 15–64 years. The prevalence rate for Dublin in 2017 was higher than any other area in Ireland at 15.15 per 1,000 population (Hay *et al*., 2017). The prevalence rate in 2017 for Cork was 5.67 per 1,000 population; for Galway it was 1.93 per 1,000 population; for Limerick it was 8.82 per 1,000 population; and for Waterford it was 6.72 per 1,000 population (Hay *et al*., 2017). Estimates suggest that two-thirds of people who use opioids in Ireland live in Dublin (EMCDDA, 2019b). Data from the NDTRS show that the percentage of people injecting drugs as their route of administration was 29.9% in 2019 (HRB, 2020). This has gradually decreased from 35.6% in 2012 (HRB, 2019b).

Opioids, and predominantly heroin, remain the most common primary drug overall for all clients accessing drug services in Ireland, and the mean age at first treatment entry is 32 years. However, in 2011, cannabis became the most frequently reported primary drug for first-time service users, and the mean age at first treatment entry that year was 23 years. Data indicate that cannabis was still the most frequently reported primary drug for first-time service users in 2019 (HRB, 2020). The number of first-time service users who report any form of cocaine as their primary problem drug has been increasing since 2012, with 30 being the mean age for treatment entry among this group (HRB, 2020). In 2019, crack cocaine was reported as the main drug for 14.3% of cases where cocaine was the main problem drug (HRB, 2020). MDMA and amphetamines continue to be infrequently reported as primary problem drugs, and this has remained stable since 2010 (EMCDDA, 2019b). Data from the NDTRS show that the number of cases entering treatment in Ireland for benzodiazepines as their main problem drug remained relatively stable between 2014 and 2019, with 1,082 people entering treatment in 2019 compared with 953 in 2014 (HRB, 2020). However, as reported in the EMCDDA *Ireland Country Drug Report 2019* (EMCDDA, 2019b), treatment entry for hypnotics and sedatives, mainly benzodiazepines, appears to be increasing.

Concerns about rising trends of non-medical use of benzodiazepines and other prescription drugs have been flagged by harm reduction services in Ireland, which are reporting increasing levels of street tablet use (Duffin *et al*., 2020). In 2017, benzodiazepines were the second most common primary drug reported for treatment entrants in prison (Duffin *et al*., 2020). Drug-related death statistics show an overall increase in the number of deaths involving

alprazolam, zopiclone, and pregabalin. In particular, pregabalin-related deaths increased by 221% between 2013 and 2017, from 14 deaths in 2013 to 45 deaths in 2017 (HRB, 2019a).

Rates of simultaneous illicit drug use and alcohol use are very high (NACDA, 2016). Data from 2014/2015 show that 87.4% of people who had used cannabis had also used alcohol; 97.1% of those who had used amphetamine-type stimulants such as MDMA and amphetamines had also used alcohol; 100% of those who had used cocaine had also used alcohol; and 54.8% of those who had used sedatives or tranquillisers had also used alcohol (NACDA, 2016). According to the NDTRS report, the proportion of people reporting polysubstance use has decreased from 62.9% in 2012 to 55.0% in 2018 (HRB, 2020).

Just over one-quarter of people entering treatment for problem drug use in 2019 were female (26.2%) (HRB, 2020), which is an increase from 18% in 2012 (HRB, 2019b). However, demographics vary according to primary drug and treatment programme (EMCDDA, 2019b). For cannabis use, 79% of people entering treatment services were male, compared with 21% who were female. For cocaine use, 81% of people entering treatment services were male, compared with 19% who were female. For heroin use, 70% of people entering treatment services were male, compared with 30% who were female. And for amphetamine use, 63% of people entering treatment services were male, compared with 37% who were female (EMCDDA, 2019b).

Data on problem drug use among people who are homeless have been reported by O'Reilly *et al*. (2015) and Keogh *et al*. (2015). O'Reilly *et al*. (2015) report that 24% of their 601 survey respondents who were in emergency or temporary accommodation, or who were rough sleeping at the time of the study, had injected drugs in the previous year. Nearly every person who reported intravenous drug use used heroin, and one-third reported injecting cocaine. Keogh *et al*. (2015) reported that 22% of the 105 participants in their study had injected drugs in the previous 3 months. In this study, 56% of participants reported having either reused their own injecting equipment or having shared injecting equipment with others. Regarding polysubstance use, 71% of 323 respondents in O'Reilly *et al*.'s (2015) survey reported that they had used a number of different drugs over the previous 3 months, with 28% having used four or more different drugs. Of those who had reported use of illicit drugs, simultaneous alcohol use was very high. Furthermore, 46% reported simultaneous use of prescribed methadone, 40% reported use

of prescribed sedatives, and 19% reported use of prescribed antipsychotics. Almost one-half of those using illicit benzodiazepines were also using prescribed benzodiazepines.

In summary, the data suggest that there were approximately 19,000 people who used opioids in Ireland in 2014 (EMCDDA, 2019b). Heroin remains the most common primary drug overall for those accessing drug services, although cannabis is the most common primary drug for first-time service users (HRB, 2020). The number of people reporting cocaine as their primary problem drug is also increasing (EMCDDA, 2019b; HRB, 2020). Although the rates of polysubstance use have decreased, they remain very high (HRB, 2020). The number of men in drug treatment services is almost three times higher than the number of women (HRB, 2020). In terms of problem drug use among people who are homeless, around one-quarter of people who reside in emergency accommodation or who are rough sleeping have injected drugs within the past year (O'Reilly *et al.*, 2015). Polysubstance use is high among this population, particularly with illicit drug use and alcohol. Variations in data could be due to different demographics, study methodologies, cities, and study years.

3.2.3 Drug-related deaths and mortality

This indicator comprises two components. The first is drug-induced deaths, which are deaths directly caused by drugs by way of poisoning (this includes overdoses as well as other poisonings). The second component is non-poisoning deaths, which include deaths among people with a history of problem drug use or dependency, regardless of whether the drug was implicated in the cause of death. Non-poisoning deaths are reported as either traumatic deaths or medical deaths. Traumatic deaths refer to deaths due to trauma such as suicide, whereas medical deaths refer to death by a medical cause, such as a cardiac event (HRB, 2019a). The HRB reported that the combined number of poisoning and non-poisoning deaths has been rising each year since 2010, from 607 deaths in 2010 to 786 deaths in 2017 (HRB, 2019a). The total number of poisoning deaths rose from 339 in 2010 to 376 in 2017, and non-poisoning deaths rose from 268 to 410 over the same time period (HRB, 2019a). The annual number of poisoning deaths increased by 2% between 2016 and 2017, from 368 to 376.

In 2017, 67% of poisoning deaths involved drugs that can be prescribed, with methadone implicated in 95 deaths, diazepam implicated in 90 deaths, and alprazolam implicated in 63 deaths (HRB, 2019a). Injecting-related incidents represented 4% of all drug deaths in 2017, a 1% decrease since 2016 (HRB, 2019a). Of these deaths, 79% were male, 41% occurred in Dublin City, and 94% (32 out of 33) involved opioids. Of those who had been injecting opioids, 16% were injecting in a public space, and 41% were not alone at the time of the incident (HRB, 2019a). The HRB reported that, in 2017, more than one-half of poisoning deaths were linked to polysubstance use. The number of deaths due to polysubstance poisonings rose from 192 in 2008 to 218 in 2017 (HRB, 2019a). Benzodiazepines were the most commonly implicated drug in polysubstance deaths. In deaths where methadone was implicated, 89% involved other drugs, mainly benzodiazepines. In deaths where heroin was implicated, 86% involved other drugs, again mainly benzodiazepines. All deaths where diazepam was implicated involved other drugs. The median age for a person dying from poisoning was 43 years in 2017; this has stayed relatively consistent since 2010 (HRB, 2019a). Men continue to be more likely to die from illicit drug use compared with women, with 263 men dying from poisonings in 2017 compared with 113 women. In terms of non-poisoning deaths, 312 men and 98 women died in 2017 (HRB, 2019a).

Medical causes of death, such as cardiac problems, were more common than traumatic deaths in older people (median age of 49 years), with 214 medical-attributable deaths in 2017 (HRB, 2019a). Cardiac events were the most common cause of medical death, with 56 overall, accounting for 14% of non-poisoning deaths in 2017 (HRB, 2019a). The number of liver disease deaths rose from 12 in 2008 to 33 in 2017 (HRB, 2019a). Traumatic deaths, as described earlier, are more commonly reported in younger people (median age of 35 years). Drug-related hanging deaths were the most common traumatic drug-related deaths in 2017, accounting for 114 of 196 traumatic non-poisoning deaths in 2017 and making up 28% of non-poisoning drug-related deaths overall (HRB, 2019a). In these incidents, 78% of people were male and 63% had a history of mental health problems. Cannabis was the drug most commonly implicated in hanging deaths, followed by cocaine.

In summary, drug-related deaths have been rising each year since 2010, reaching 786 deaths in 2017 (HRB, 2019a). These deaths consist of poisoning deaths and non-poisoning deaths, both of which

have increased in number. The number of poisoning deaths increased to 376 in 2017, and 67% of these deaths involved drugs that can be prescribed. Men continue to be more likely than women to die from both poisoning and non-poisoning drug deaths (HRB, 2019a). There are no data for drug-related death rates specifically among people who are homeless. However, given that high-risk behaviours (such as injecting) are more prevalent among this population, the risk of drug-related death is likely to be higher than in the general population.

3.2.4 Drug-related infectious diseases

This indicator refers to rates of infectious diseases among people who inject drugs (PWID). The data collected are primarily for the BBVs HIV, HCV, and hepatitis B virus (HBV), and are obtained through serological testing, monitoring of routine diagnostic tests, and data reported through the National Drug-Related Deaths Index (EMCDDA, 2019a). There are no research programmes specifically designed to routinely assess BBVs in PWID (e.g. the Unlinked Anonymous Monitoring survey in England; Needle Exchange Surveillance Initiative in Scotland). Fourteen PWID were diagnosed with HIV in 2017, a decrease from 50 people in 2015 (EMCDDA, 2019b). The increased number of HIV diagnoses in 2015 was linked to the increased injecting of psychostimulatory synthetic cathinones among people who were homeless, with the most common of these drugs being mephedrone and methylone (EMCDDA, 2019b). Between 2010 and 2014, males accounted for a greater proportion of PWID with HIV, but this percentage declined from 81% in 2011 to 52% in 2015 (Bates, 2017). Data for HCV prevalence attributable to drug use in 2016 are difficult to determine, since the route of transmission was not gathered for more than 50% of reported HCV cases (EMCDDA, 2019b). However, estimates from 2016 suggest that around 33% of cases are attributable to injecting drug use (EMCDDA, 2019b). The number of people being diagnosed with HBV has stabilised since 2014, with less than 5% of cases in 2017 being attributable to injecting drug use (EMCDDA, 2019b).

There are limited data available on the homeless population. O'Reilly *et al.*'s survey study (2015) provides some limited data on the prevalence of drug-related infectious diseases among people who are homeless, with approximately 27% of survey respondents reporting that they had a BBV diagnosis. The most common of these was HCV (29%), followed by HBV (5%) and HIV (4%). Further data collected in this study show that BBV prevalence was reported to be most common among people who were currently

using drugs, or who had used drugs throughout their lives. All of the people diagnosed with HIV were in treatment, and approximately 50% of those with HBV or HCV were in treatment (O'Reilly *et al.*, 2015).

In summary, the data suggest that the number of people who use drugs and who have been diagnosed with HIV is decreasing, and that the number of males and females being diagnosed is now roughly equal. The transmission route of HCV is not consistently gathered, but estimates suggest that 33% of diagnoses are attributable to injecting drug use, whereas less than 5% of HBV cases are attributable to injecting drug use (EMCDDA, 2019b). HCV is reported to be the most common BBV among people who are homeless, followed by HBV and then HIV (O'Reilly *et al.*, 2015). However, as noted, data are very limited for this population.

3.2.5 Treatment demand

This indicator refers to the number of people accessing treatment services for problem drug use in a particular area. This allows an insight into trends in problem drug use as well as into the availability of relevant organisations and their treatment facilities. Ireland's current drug strategy, *Reducing Harm, Supporting Recovery: A health-led response to drug and alcohol use in Ireland 2017-2025* (Department of Health, 2017, aims to minimise harm caused by drugs, and to promote rehabilitation and recovery. The HSE provides many drug treatment services and also funds a number of non-statutory services. The majority of treatment is provided through publicly funded outpatient services, and there are several types of treatment and services offered depending on need, as discussed at the beginning of this chapter.

The report *National Drug Treatment Reporting System 2013-2019 Drug Data* (HRB, 2020) recorded 67,875 treatment cases in total from 2013 to 2019, with the total number of annual cases increasing from 9,006 in 2013 to 10,664 in 2019. The proportion of new treatment cases has decreased slightly from 38.6% in 2013 to 37.3% in 2019. Of all the treatment cases in 2019, 65.1% were in outpatient services. The percentage of cases treated in inpatient settings was 14.7%, which is a slight increase from 13.7% in 2013, but a decrease from 19.7% in 2017 (HRB, 2020). The NDTRS report indicates that in 2019, 351 people accessed services provided by a GP; 948 people accessed low-threshold services; 6,946 people accessed outpatient services; 1,571 people accessed inpatient services such as residential detox settings, therapeutic communities, or respite; and 848 people accessed services in prisons (HRB, 2020).

In 2019, opioids remained the most common primary drug overall for those accessing drug services, although, as a proportion of all cases treated, opioids decreased year on year from 51.4% in 2013 to 38.8% in 2019. However, the percentage of service users aged 45 years or over presenting with problem opioid use is reported to be steadily rising compared to other age groups (EMCDDA, 2019b). Cannabis continues to be the most common problem drug in new cases (37.8%) (HRB, 2020), but cocaine became the second most common main problem drug across all cases in 2019, overtaking cannabis for the first time (24.0% compared with 23.5%) (HRB, 2020). The number of people with problem cocaine use entering services is continuing to rise, and, in 2019, crack cocaine was reported as the main drug for 14.3% of cases where cocaine was the main problem drug, compared with 11.3% in 2018 (HRB, 2020). The number of people entering treatment for problem use of other classified drugs, such as benzodiazepines, is also slowly rising (EMCDDA, 2019b). Harm reduction services in Ireland have also expressed concern about the rising number of people reporting use of prescribed medication for non-medical use (Duffin *et al*., 2020). In 2017, benzodiazepines were the second most common drug reported for treatment entrants in prison (Duffin *et al*., 2020).

Available data on treatment demand for people who are homeless are limited; however, the NDTRS report (HRB, 2020) indicates that the number of people who were homeless and accessed drug treatment services rose from 581 in 2013 to 1,173 in 2019. Of the 1,173 cases, 263 were new cases, 810 had received previous treatment, and there were no treatment status data for the remaining cases. O'Reilly *et al*.'s study (2015) also provides a very brief overview of the situation, although it must be noted that many of the respondents in this study were in emergency or temporary accommodation, meaning that they may be more likely to be in touch with services. The majority (89%) of respondents in their survey who had reported problem opioid use said that they had used a drug treatment service in the 6 months prior to the survey. Three-quarters of participants who had reported injecting drugs in the 6 months prior to the survey had used a needle exchange service, and around 68% of those who either had previously used or currently used heroin had methadone prescriptions. Around 11% of respondents who previously had methadone prescriptions reported that they no longer did.

3.3 Mapping of existing drug services provided to meet the needs of people experiencing homelessness and who use drugs

The trend analysis above has highlighted that data on treatment demand for people who are homeless and use drugs in Ireland are limited. There are limited data about what treatment types are available across Ireland and about referral pathways. There are 10 regional and 14 local drugs task forces that operate in Ireland (Drugs.ie, n.d.). These task forces receive funding from the Department of Health each year to fund delivery of substance use services, and their aim is to provide effective, targeted responses to problem drug use through a partnership approach between statutory, voluntary, and community sectors. Local and regional drug and alcohol task forces are required to work together to develop cross-task force initiatives, and to share information about best practice. Existing services in Ireland for people who are homeless and use drugs are summarised below. Services have been categorised based on their primary focus. However, it is must be noted that many services across Ireland provide a holistic approach to treatment and support and it is therefore not possible to categorise them neatly by service type. In particular, many third sector organisations offer a range of services which can include drug treatment services, other harm reduction services, housing support services, and other more general health and social care services, among others.

3.3.1 Wider health and social care services

The HSE provides public health and social care services to everyone living in Ireland, and specific services are listed on the HSE website. Most of the services specific to substance use are not specifically for people who are homeless but can be accessed by anyone. These include counselling; a drop-in centre in Monaghan (open Monday to Friday, 9.30 am to 5.00 pm); assessment and intervention advice; information and education; ongoing support; follow-up care; and a drug screening facility. Outreach clinics are also available in Monaghan Town, Castleblayney, Carrickmacross, Ballybay, Cavan Town, Kingscourt, Cootehill, and Virginia. The HSE also has a freephone confidential drug and alcohol hotline which is open Monday to Friday from 9.30 am to 5.00 pm. For people who are homeless, and other marginalised

groups, the HSE Social Inclusion programme is designed specifically to help enable and improve access to mainstream services. For example, the Inclusion Health Service at St James's Hospital attends to the complex needs of marginalised groups, such as people who are homeless and people who use drugs (HSE, 2017). Specialised staff work with people who have complex needs in order to ensure the best level of aftercare once they leave hospital.

3.3.2 Drug treatment services

3.3.2.1 HSE addiction services

The HSE's Dublin North Addiction Service covers Dublin North City and County (HSE, 2018). The primary role of this service is to assess opioid dependence and to provide a recovery-oriented care plan for service users. Methadone is dispensed at the Drug Treatment Centres where this service is run (HSE, 2018), and other services are also provided here, such as nursing interventions and counselling. The HSE Addiction Service's multidisciplinary team includes psychiatrists, doctors, nurses, counsellors, rehabilitation workers, outreach workers, and general staff. Mid-West Addiction Services (four locations listed) (HSE, 2018) and Midlands Community Alcohol and Drug Service (five locations listed) (HSE, 2018) cover other areas of Ireland outside of Dublin.

The HSE's Addiction Rehabilitation Service, Soilse, is based in Dublin City Centre (HSE, 2018). Soilse runs two programmes: Henrietta Place, which helps prepare service users for detox and treatment, and Green Street, which supports service users through the early stages of their recovery. The HSE's Adolescent Addiction Service and the Substance Abuse Service Specific to Youth (SASSY) provide advice, support, assessment, counselling, family therapy, professional consultation, and medication for young people aged under 18 years in Ballyfermot, Clondalkin, Palmerstown, Lucan, Inchicore, and Dublin North City and County (HSE, 2018). The Youth Drug and Alcohol Service (YoDA), based in Tallaght, provides support, assistance, and treatment to people aged under 18 years who are from Dublin South West and Dublin South City (HSE, 2018). YoDA provides assistance, support, and treatment for those with problem alcohol and/or drug use.

Additional HSE addiction services that we were made aware of through relevant stakeholders in Ireland include the Cuan Dara Inpatient Therapeutic Detoxification Centre and the Keltoi Residential Treatment Centre. The Cuan Dara Inpatient

Therapeutic Detoxification Centre provides 6-week detoxification and 3-week stabilisation programmes, and the Keltoi Residential Treatment Centre provides an 8-week treatment programme (HSE, 2018).

3.3.2.2 Abstinence-focused third sector services

A number of services were identified that require a service user to be abstinent or commit to abstinence in order to access services. An example of this is Daisyhouse (n.d.), a charity that supports women who are homeless. Service users are referred to Daisyhouse through the HSE and are required to be in recovery and drug- and alcohol-free for 6 months. It does not specify if this also includes medications such as methadone. Another example is a Depaul service called Suaimhneas (Depaul, 2018), a residential service for women who have previously completed a residential drug treatment programme and have been abstinent for a minimum of 8–10 weeks. Another abstinence-based programme available across Ireland is Narcotics Anonymous (NA), a non-profit, community-based organisation which follows a 12-step programme. Currently, there are approximately 97 groups in the eastern counties of Ireland, 20 groups in the western counties, 27 in the northern counties, and 68 in the southern counties (Narcotics Anonymous, n.d.). Although service users commit to working towards complete abstinence, there is no requirement of abstinence when joining. NA is not specifically for people who are homeless, so it is unclear how accessible these services are for this population.

Cuan Mhuire, Ireland's largest voluntary sector provider of substance use services and residential rehabilitation, follows an abstinence-based 12- or 20-week programme (Cuan Mhuire, 2017). Like NA, it has no requirement of abstinence when joining, but requires a desire to work towards abstinence. While not specifically for people who are homeless, according to the Cuan Mhuire website, around 40% of all people who have accessed treatment in Cuan Mhuire centres were homeless at the time of admission. Support is given to people completing programmes, and transition houses are available until the person feels ready for independent living and has secured accommodation. The Rutland Centre (2020) is the largest private drug rehabilitation facility in Ireland. Services include residential care, an outpatient programme, continuing care, family support, and workshops. While there are no explicit exclusions for people accessing these programmes, the centre charges clients for treatment. The

treatment costs are high; for example, a 5-week residential programme costs €11,500, and so it is unlikely that this is a feasible treatment option for people who are homeless (The Rutland Centre, 2020).

3.3.2.3 Lower-threshold third sector services

Other services for people who are homeless are lower threshold, which means there are fewer constraints or contingencies placed on service users with regard to existing substance use. For example, The Society of St. Vincent de Paul (n.d.) is the largest voluntary charitable organisation in Ireland, providing services each night to more than 300 people who are homeless. Service users are assigned a designated key worker who will aid the person in accessing services (such as substance use services) and provide ongoing support.

The Ana Liffey Drug Project (2007) is a national problem substance use service with a low-threshold and harm reduction ethos. The Ana Liffey Drug Project's services include open access hours, where people can attend without an appointment, as well as an assertive outreach programme in Dublin that provides advice and support on the street, in cafes, in community centres, or anywhere else that suits the service user. Outreach services include the provision of NSPs, advocacy, referrals, medical services (such as BBV testing and wound care), and brief interventions. The Ana Liffey Drug Project also provides the National Community Detox Initiative, which could be chosen as an alternative to residential treatment or as a step towards necessary entry requirements for residential treatment. Funding for the Ana Liffey Drug Project is provided by a number of sources, including the HSE (Addiction Services and National Office of Social Inclusion), the Department of Health, local and regional drug and alcohol task forces, Dublin City Council, Dublin Regional Homeless Executive, and the Department of Justice and Equality.

Merchants Quay Ireland (2020) is a national voluntary organisation that helps people who are homeless and those who use drugs. Its main building in Dublin provides a drop-in breakfast and lunch service; an extended day service which offers evening meals, support, advice, and assistance; and a night café providing showers, clean clothes, information, brief counselling, drug treatment options, assistance with accommodation, and a place to sleep if there are no other suitable options. Merchants Quay Ireland offers advice and information about the risks associated with drug use and how to minimise these risks, and also offers pathways into treatment for

substance use. An example of this is the stabilisation programme which is run as part of the Community Employment Scheme. This service not only supports people who use drugs on their recovery journey, but also incorporates an education and employment programme which enables service users to learn new life skills (Merchants Quay Ireland, 2020).

The Peter McVerry Trust (2019) is a charity that works predominantly with younger people and adults with complex needs, including housing and substance use, and in 2018 it worked with more than 5,800 people across 14 local authorities in Ireland. It provides housing services and substance use services, including a low-threshold entry drug stabilisation and recovery service, a Residential Community Detox service, and a residential aftercare service for those exiting the programmes. All services are based in Dublin; however, the Residential Community Detox is a national centre and works with people from across Ireland. This service operates with full clinical governance from the HSE (Peter McVerry Trust, 2019). While the Peter McVerry Trust provides services for people who are homeless and for people who use drugs, it is not clear how integrated these services are.

Safetynet (n.d.) is a medical charity that delivers care to marginalised groups who face challenges in accessing typical healthcare services. Safetynet's services for people who are homeless include GP and nurse services situated in emergency accommodation across Dublin, and a mobile health and screening unit that operates across Dublin 3 nights a week in conjunction with the Dublin Simon Community. Both of these services are provided in partnership with the HSE's National Social Inclusion Office. The Simon Communities (n.d.) support more than 13,000 people each year across Ireland. A large number of different services are provided by the Simon Communities, including emergency accommodation, pathways out of homelessness, outreach services such as needle exchange, and substance use treatment and recovery services. The Simon Communities services cover Cork, Dublin, Dundalk, Galway, Midlands, the Mid West, the North West, and the South East (Simon Communities, n.d.).

Clondalkin Tus Nua (2014) is a community-based support service for problem substance use, providing holistic and therapeutic services. It provides a number of services specifically for people who are homeless, such as a drop-in service with food, shower, and laundry facilities. An outreach service is also provided for people who are homeless in Clondalkin. The main aim of this service is to build non-judgemental relationships with people who

are homeless and use drugs. Support is provided by the outreach service, including help accessing shelters/accommodation; hygiene packs; harm reduction supplies and information; education materials; general health promotion; and referrals. Clondalkin Tus Nua also provides confidential support sessions consisting of relapse prevention, crisis intervention, harm reduction, Motivational Interviewing, care plan development, referrals, pre-assessments, and community reintegration. As part of the holistic approach, service users are also offered complementary therapies, such as massage, reflexology, acupuncture, and meditation (Clondalkin Tus Nua, 2014).

3.3.2.4 Needle and syringe programmes

There are three models of NSP in Ireland: static, outreach, and pharmacy-based. According to the *Review of Needle Exchange Provision in Ireland* (HSE, 2015), Dublin Mid-Leinster has 14 static needle exchange services, the highest number in the country. Pharmacy-based NSP services are based outside Dublin, Kildare, and Wicklow. There are a small number of outreach/mobile NSP services, with the Dublin Mid-Leinster area having the most, with six. There are no static or outreach NSP services in Co Cork or Co Kerry, with very limited static and outreach NSP services in Co Louth, Co Meath, Co Cavan, and Co Monaghan (HSE, 2015). The majority of static services are open for between 1 and 6 hours a week, with some services only being open once a week. No static or outreach services operate at weekends, according to the *Review of Needle Exchange Provision in Ireland* (HSE, 2015). Pharmacies are reportedly open for around 8 hours a day, Monday to Saturday, and some pharmacies also open on Sundays for limited hours. The review indicates that this provides a potential total of 3,408 hours a week of pharmacy-based NSP delivered by 63 pharmacies. However, according to pharmacy records, only 33 out of the 63 pharmacy NSPs reported any transactions in 2012 (HSE, 2015). A 2-year take-home naloxone programme was also initiated in 2015 and, by 2017, 800 people had received naloxone training and 1,200 naloxone kits had been distributed (EMCDDA, 2019b).

3.3.2.5 Supervised injecting facility

A medically supervised injecting facility was due to open in 2019 at Merchants Quay Ireland in Dublin in response to the rising number of drug-related deaths in this area, ambulance call-out rates for overdose, and people injecting drugs in public areas. Plans were delayed by Dublin City Council, as there was a

concern from some business groups that the location of the proposed service, in the main retail area of the city, could negatively impact tourism and future regeneration of the area. However, An Bord Pleanála (the Irish Planning Appeals Board) approved the plans on 24 December 2019, concluding that negative effects have not been seen in other countries where supervised injecting facilities exist, and that refusal to approve the plans would lead to preventable deaths, as well as antisocial behaviour associated with drug use in the area. A Judicial Review was lodged in relation to the planning approval in February 2020, so progress with this facility has halted until the outcome of this Judicial Review.

3.3.3 Housing

Third sector housing services that we were made aware of through relevant stakeholders in Ireland include Sophia Housing (2020), HAIL (Housing Association for Integrated Living) (n.d.), and Novas (n.d.). Sophia Housing is an organisation that provides housing and other support for marginalised populations across Ireland. It also works in partnership with the HSE and acts as a referral agency and intermediator for people who are homeless, linking them to HSE services such as Addiction Services (Sophia Housing, 2020). HAIL provides housing and support for those on local authority housing waiting lists, primarily those with mental health problems. Although it does not specify on HAIL's website whether it provides services for problem substance use, it does state that it provides a range of support, including help accessing necessary community and statutory services (HAIL, n.d.). Novas provides temporary and long-term housing for people who are homeless in Ireland, as well as other support such as drug services. This includes the Mid-West Community Detox Programme and a respite house for the families of people who use drugs (Novas, n.d.). While not specifically a housing organisation, Tus Nua is a Depaul service for women leaving prison and provides effective transitional support (Depaul, 2018). This is particularly important for women who are homeless or at risk of homelessness upon release. Tus Nua provides accommodation for up to 6 months and provides a support plan covering harm reduction, access to detoxification services, and physical and mental health support (Depaul, 2018).

3.3.4 Other services

A number of services exist across Ireland that provide support for people who are homeless, but some explicitly do not support people who use drugs, and others do not specify whether they support people who use drugs (HSE, 2018). O'Connell Court (n.d.) supports people aged over 50 years who are homeless, as well as people aged over 50 years with poor mental health. However, it does not support people who use drugs or with problem alcohol use at its hostels. YMCA Ireland (2019), Threshold (2019), The Iveagh Trust (2020), and Crosscare (2019) all provide support for people who are homeless, but do not mention substance use support on their websites. Depaul provides a number of managed alcohol programmes based around harm reduction and alcohol use; however, it is unclear if it also provides support with illicit drug use. These services include Sundial House, Rendu apartments, Orchid House, and Back Lane Hostel (Depaul, 2018). Focus Ireland is a charity that helps families, young people, and children at risk of homelessness (Focus Ireland, 2019). It does state that it provides support for people who are homeless and use drugs but does not explicitly list the services it provides. The Salvation Army (2019) is a Christian church and charity that offers support and services worldwide. In Dublin, there are four Lifehouses (residential hostels) that provide accommodation for people who are homeless. Substance use support, as well as outreach and community services, are available within each Lifehouse. However, further information on services specifically for people who are homeless and have problem substance use in Ireland is not listed on the Salvation Army website. Finally, RADE (Recovery through Arts, Drama and Education) (2020) does not provide services specifically for people who are homeless, but its vision is that creativity is open to everyone. Its mission is to work with people who use drugs and introduce them to the arts and other therapeutic supports, and to provide a platform for artistic expression (RADE, 2020).

3.4 Chapter summary

In summary, the most recent data show that illicit drug use in the general population has increased in Ireland since 2010. The number of drug-related deaths in Ireland rose each year between 2010 and 2017, from 607 to 786, respectively. Data for the prevalence and patterns of drug use indicate that substance use is more commonly reported among people who are homeless than among the general population. A key message from this chapter is that the lack of data for people who are homeless makes treatment and service needs for this group difficult to ascertain. For example, there are no data for drug-related death rates specifically for people who are homeless; however, given that high-risk behaviours, such as injecting, are greater among this population, the risk of drug death is likely to be higher than in other groups. Future research must address this gap, for example through a retrospective review of coroner records, or through establishing a confidential enquiry system, or through a prospective cohort study.

The total number of drug treatment cases in Ireland increased to 10,664 in 2019. This is the highest number of recorded cases in the 10-year period between 2010 and 2020. The number of people who are homeless and have accessed drug treatment services rose from 581 in 2012 to 1,173 in 2019. This chapter has synthesised the wide range of services that exist in order to meet the needs of people who are homeless and use drugs in Ireland. However, it is currently unclear by what pathways people who are homeless and use drugs are referred to services, and information on partnership working is limited. This possibly makes service provision appear more fragmented than it is. There is also limited information about specific outcomes relating to services, and limited evidence of what works best for this population. To address this gap in knowledge, the next part of the review aims to explore the international evidence on effective interventions in the areas of engagement, retention, and treatment outcomes for people who are homeless and use drugs.

4

Review of international evidence

4.1 Chapter overview

The aim of this chapter is to present the findings from the systematic review of reviews that examined which interventions are effective in engaging people who are homeless and who use drugs in drug treatment services and in facilitating their retention in treatment. This section begins with a presentation of the quality appraisal outcomes, followed by an overview of the included reviews and a discussion of findings on treatment outcomes, engagement, and completion.

4.2 Quality appraisal of included reviews

Two reviewers (JM and HC) independently assessed the quality of the included reviews (n=18)[2] using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses. Each review received a score based on this quality assessment, and any disagreement in scores was resolved through a third reviewer (WM) and further discussions. The third reviewer was involved in resolving differences in appraisal for 6 of the 18 papers (Beaudoin, 2016; Brunette, Mueser, & Drake, 2004; Carver *et al.*, 2020; Chambers *et al.*, 2017; Penzenstadler *et al.*, 2019; Wright & Tompkins, 2006). Four of the disagreements were resolved outright by the third reviewer (Beaudoin, 2016; Brunette *et al.*, 2004; Chambers

et al., 2017; Penzenstadler *et al.*, 2019), and the other two papers were discussed until a consensus was reached. The differences in scores and their resolution are presented in Appendix 10.

Overall, the quality of the included reviews was moderate. Two of the included papers achieved the highest possible score of 11, whereas 6 of the appraised papers received a score of 6 or lower. The inclusion of individual reviews in this document was not based on quality appraisal thresholds; however, we have noted each review's quality when presenting evidence and making recommendations. The most common questions/concerns identified were whether the reviews included appropriate criteria for appraisal; whether the appraisal was conducted independently by two or more reviewers; whether there were methods used to minimise data extraction errors; and whether publication bias was assessed. Only four papers explicitly assessed publication bias. Similarly, only four papers reported having the quality appraisal performed independently by at least two reviewers. The final quality appraisal scores and tabulation are presented in Appendix 9.

4.3 An overview of the included reviews

Data relating to study design and key characteristics were extracted into an Excel spreadsheet. The final data extraction is presented in Appendix 11. Included papers were published between 2004 and 2020. The 22 included studies consisted of 4 grey literature reports (Bates *et al.*, 2017; Minyard *et al.*, 2019; Pleace, 2008; Pleace & Quilgars, 2013); 13 systematic reviews (Barker & Maguire, 2017; Baxter

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2   Only academic reviews identified via the systematic database search were quality appraised. Grey literature reports underwent data extraction and are presented in the final synthesis.

et al., 2019; Beaudoin, 2016; Benston, 2015; Carver *et al*., 2020; Chambers *et al*., 2017; de Vet *et al*., 2013; Formosa *et al*., 2019; Hwang *et al*., 2005; O'Campo *et al*., 2009; Torres Del Estal & Álvarez, 2018; Turner *et al*., 2011; Wright & Walker, 2006), 2 of which also included a meta-analysis (Baxter *et al*., 2019; Turner *et al*., 2011); and 5 reviews which were deemed to be non-systematic[3] (Brunette *et al*., 2004; Kertesz *et al*., 2009; Penzenstadler *et al*., 2019; Sun, 2012; Wright & Tompkins, 2006). The majority of the papers included only quantitative studies (12/22); eight included any study type/mixed designs, including one realist synthesis (O'Campo *et al.,* 2009); one review of only qualitative studies presented a meta-ethnography (Carver *et al*., 2020); and one grey literature report was a review of reviews (Bates *et al*., 2017). The number of included studies per review ranged from 4 (Baxter *et al*., 2019) to 151 (Minyard *et al*., 2019), and 5 papers did not report how many studies were included in the final synthesis (Kertesz *et al*., 2009; Pleace, 2008; Pleace & Quilgars, 2013; Sun, 2012; Wright & Tompkins, 2006).

Most of the reviews (10/22) were undertaken in the UK, four in the United States of America (USA), four in Canada, three in Europe (Spain, Ireland, and a Dutch/Belgian collaboration), and one was an international collaboration by researchers from Switzerland, the UK, and Canada. Despite this, nearly all the reviews (n=19) were international in focus, with two reviews focusing on the USA only and one focusing on the UK only. Even though the focus of the reviews was international, the majority of the authors were based in the UK, and the majority of primary studies were undertaken in the USA. This may affect the generalisability of the findings to non-USA contexts. For example, Barker and Maguire (2017) included 11 studies, of which 9 were undertaken in the USA, 1 was undertaken in Canada, and 1 was undertaken in the Netherlands. Similarly, de Vet *et al*. (2013) included 21 studies, of which 20 were undertaken in the USA and 1 was undertaken in the UK.

The papers included in the review were diverse in terms of their primary focus (Table 2), ranging from interventions targeting specific populations – for example, those with COSMHAD (Brunette *et al*., 2004; Minyard *et al*., 2019; O'Campo *et al*., 2009; Sun, 2012) – to focusing on specific harm reduction interventions or practices, such as OST or NSPs specifically in terms of HCV prevention (Turner *et al*., 2011).

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3   The classification of reviews as being either systematic or non-systematic was performed using the JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses, with the criteria of the first three items of the tool needing to be met for the review to be classified as 'systematic'.

Table 2: Focus of the included papers

Theme	Description of intervention	Number of papers	Papers
Housing interventions (including HF initiatives)	HF focuses on providing immediate, permanent, low-barrier, non-abstinence-based supportive housing for individuals with lived experience of homelessness.	6	Baxter *et al.* (2019); Beaudoin (2016); Benston (2015); Chambers *et al.* (2017); Kertesz *et al.* (2009); Pleace and Quilgars (2013)
COSMHAD	Residential programmes and community-based treatment. Residential programmes can integrate mental health treatment, substance use interventions, housing, and other types of support. Community-based treatment can also include integrated treatment (integrated mental health and substance use treatment) with counselling and housing support; or integrated assertive community treatment (IACT).	4	Brunette *et al.* (2004); Minyard *et al.* (2019); O'Campo *et al.* (2009); Sun (2012)
Treatment for problem substance use	Treatment approaches for problem substance use are wide-ranging and can be placed on a continuum, ranging from harm reduction to abstinence-based approaches.	3	Bates *et al.* (2017); Carver *et al.* (2020); Pleace (2008)
Any type of healthcare/ treatment/ intervention	These included: adequate oral opioid maintenance therapy; tetanus and hepatitis A, B, and C immunisations; safer injecting advice and access to needle exchange programmes; supervised injecting rooms; peer distribution of take-home naloxone; assertive outreach programmes; supportive programmes for substance dependence; and sexual health promotion programmes.	2	Hwang *et al.* (2005); Wright and Tompkins (2006)
Case management	Case management is a strategy to support rapid rehousing, especially for those with complex needs. It provides outreach, assessment, planning, linkage, monitoring, and advocacy services. This strategy typically provides support in developing independent living skills, acute care in crisis situations, support with medical and psychiatric treatment, and assistance with contacts between clients and people in their social and professional support systems (de Vet *et al.*, 2013).	2	de Vet *et al.* (2013); Torres Del Estal and Álvarez (2018)
Assertive community treatment (ACT)	A subtype of case management, ACT is typically targeted at individuals with the greatest service needs and prescribes more intensive services, more frequent client contact, and smaller individual caseloads than standard case management, and the responsibility for providing services to clients is shared by a multidisciplinary team that is accessible 24 hours a day, 7 days a week (de Vet *et al.*, 2013).	1	Penzenstadler *et al.* (2019)
Emergency department (ED) interventions	These are interventions provided/initiated at the ED, aiming to improve health and/or access to the social determinants of health (SDOH). These include case management, HF, substance use interventions, and ED-based resource desks and ED compassionate care.	1	Formosa *et al.* (2019)
Sexual health promotion	This includes programmes combining HIV education; alcohol and drug counselling; benefits and housing assistance; acquired immunodeficiency syndrome (AIDS) videotapes and group sessions on AIDS education; HIV testing; condom use; use of bleach to sterilise injecting equipment; signposting to community resources; and more tailored individual sessions with extra support for coping skills and self-esteem improvement.	1	Wright and Walker (2006)
Peer support	Peers with experience of homelessness offer support to those currently experiencing homelessness. Intentional peer support (IPS) is fostered and developed by professional organisations, formalising this process.	1	Barker and Maguire (2017)
Harm reduction (OST, NSP, BBV)	Two important harm reduction interventions for injecting drug users are OST (to reduce drug dependence and injecting frequency) and the provision of clean injecting equipment through NSPs (to reduce unsafe injecting, i.e. sharing used syringes).	1	Turner *et al.* (2011)

The included papers varied in terms of their inclusion of populations of interest (people who used drugs and who were homeless). Some of the reviews focused specifically on this population (e.g. Carver *et al.*, 2020; Kertesz *et al.*, 2009; Torres Del Estal & Álvarez, 2018). Others focused on people who were homeless and had COSMHAD (e.g. Brunette *et al.*, 2004; O'Campo *et al.*, 2009), or on people who were homeless with mental health problems only, which either could include substance use disorder as a type of mental health problem, or include a large proportion of people with problem substance use due to the high comorbidity of substance use and mental health problems (e.g. Benston, 2015). Still others focused on people who were homeless as the primary population of interest, where substance use was secondary (e.g. Hwang *et al.*, 2005), due to the high overlap of those two issues.

It is important to note that even in some of the reviews which focus on a specific population, such as those who were homeless, there were differences between the studies included in those reviews in the proportion of participants who were homeless. For this reason, some of the reviews adopted minimum percentages for inclusion. For example, Barker and Maguire (2017) only included studies which had a minimum of 30% of people who were homeless in their samples. Definitions of homelessness also varied between the reviews and between the individual studies they included. For example, Wright and Tompkins (2006) describe homelessness as a complex concept, embracing many types of insecure housing status, including 'rooflessness', which covers "rough sleepers, newly arrived immigrants, and victims of fire, floods, or violence" (Wright & Tompkins, 2006, p. 286) and 'being houseless', whereby people may be "living in emergency and temporary accommodation, including hostels; and those released from psychiatric hospitals, custodial establishments, or foster homes with nowhere to go" (Wright & Tompkins, 2006, p. 286). This definition of homelessness also includes people living in insecure, inadequate, overcrowded, or substandard accommodation, such as those staying with friends or relatives on a temporary basis, tenants under notice to quit, those whose security is threatened by violence, and 'squatters'. This is a very broad definition of homelessness, in contrast with Hwang *et al.* (2005), for example, who defined 'homeless persons' as "individuals who lack a fixed, regular, and adequate night-time residence, including people living in supervised shelters or places not intended for human habitation" (Hwang *et al.*, 2005, p. 311), which would exclude those in overcrowded accommodation or those who are 'couch-surfing'. Notably, Wright and Walker (2006), who included six

studies in their review, commented that only one of their included studies explicitly defined homelessness, with the other studies using sampling frames of those residing in homeless hostels and shelters.

The largest number of reviews (n=6) focused on housing interventions, including HF initiatives (Baxter *et al.*, 2019; Beaudoin, 2016; Benston, 2015; Chambers *et al.*, 2017; Kertesz *et al.*, 2009; Pleace & Quilgars, 2013). Of these, four focused on HF initiatives – an approach to ending homelessness that focuses on providing immediate, permanent, low-barrier, non-abstinence-based supportive housing for individuals with lived experience of homelessness. Baxter *et al.* (2019) investigated the effects of HF approaches on the health and well-being of adults who were homeless, or were at risk of homelessness, by performing a systematic review and a meta-analysis of randomised controlled trials (RCTs). Beaudoin (2016) aimed to investigate the effectiveness of HF in response to the needs of people who are homeless and who have mental health or substance use problems by undertaking a systematic review of Canadian and international literature. Kertesz *et al.* (2009) reviewed studies of HF and of more traditional rehabilitative recovery interventions (which they termed 'linear'),[4] focusing on the outcomes obtained by both approaches specifically for people who are homeless and who have problem substance use. Pleace and Quilgars (2013) conducted a rapid evidence assessment (REA) of the international evidence regarding the success of HF services in promoting the healthcare integration and the social and economic integration among people who were formerly homeless and using HF services. The remaining two housing reviews examined permanent supportive housing (Benston, 2015), and supportive housing and recovery housing (Chambers *et al.*, 2017). Benston (2015) evaluated the best available research in the USA on permanent supportive housing programmes for people who were homeless and had mental health problems, and the effect of these programmes on housing status and mental health. Chambers *et al.* (2017) conducted a systematic review of the evidence on housing interventions for 'housing-vulnerable' adults and their relationship to well-being; populations of interest included (but were not limited to) those who were homeless or

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4   Kertesz *et al.* (2009) define linear programmes as "programmes that move stepwise from rehabilitation settings to permanent domiciles" (Kertesz *et al.*, 2009, p. 500). Linear approaches have different designs, but most assume that a return to long-term, stable housing requires the restoration of behavioural self-regulation and the capacity to interact in a constructive social environment, and that tangible resource needs must be addressed in order to ensure the person's engagement and attendance (Zerger, 2002).

had a history of homelessness, people with a history of mental health problems, people with a learning disability, refugees and recent immigrants, young people leaving care, and ex-prisoners.

Four of the remaining reviews focused on interventions for people with COSMHAD (Brunette *et al.*, 2004; Minyard *et al.*, 2019; O'Campo *et al.*, 2009; Sun, 2012). Brunette *et al.* (2004) conducted a review of research on residential programmes for people with mental health problems and problem substance use, with 5 of the 10 included studies focusing on people who are homeless. O'Campo *et al.* (2009) focused on community-based services for adults who are homeless and experiencing COSMHAD using a realist approach to synthesising evidence. Sun (2012) discussed strategies for helping people with COSMHAD based on a (non-systematic) literature review. Lastly, Minyard *et al.* (2019) performed a rapid realist synthesis regarding treatment services for people with COSMHAD. The participants were people who currently or had previously used drugs and who were homeless or at risk of homelessness.

Three of the papers focused on substance use treatment specifically (Bates *et al.*, 2017; Carver *et al.*, 2020; Pleace, 2008). These papers included a meta-ethnography conducted to synthesise research reporting views on substance use treatment by people experiencing homelessness (Carver *et al.*, 2020); an REA of international literature on effective substance use services for people who are homeless, reviewing best practice in other countries in order to determine if there were any lessons for Scotland (Pleace, 2008); and a review of reviews on the effectiveness of interventions related to the use of illicit drugs – including prevention, harm reduction, treatment, and recovery – which was not specific to people who are homeless, but did seek to highlight evidence on interventions for 'high-risk' groups, including people who are homeless and use drugs (Bates *et al.*, 2017).

Two papers investigated healthcare treatments and interventions in general (Wright & Tompkins, 2006; Hwang *et al.*, 2005), and one focused on ED interventions (Formosa *et al.*, 2019). Wright and Tompkins (2006) aimed to examine how healthcare services can effectively meet the healthcare needs of people who are homeless. They critically examined the international literature pertaining to the healthcare of people who are homeless and discussed the effectiveness of the identified treatment interventions. Those interventions included primary prevention interventions; management of drug/alcohol dependence;

medically supervised injecting centres; and sexual health promotion. Hwang *et al.* (2005) conducted a systematic review of interventions to improve the health of people who were homeless. These included interventions for people with mental health problems (15 studies), problem substance use (13 studies), and COSMHAD (7 studies). Formosa *et al.* (2019) focused specifically on ED interventions. The authors performed a systematic review which included studies of homeless patients (or studies where the majority of participants were homeless patients) recruited at the ED level. They aggregated and reviewed the literature on ED interventions that improved health and/or access to the SDOH for homeless patients. These interventions included case management, HF initiatives, substance use interventions, ED-based resource desks, and ED compassionate care.

Two reviews focused specifically on case management interventions. de Vet *et al.* (2013) reviewed the literature on standard case management (SCM), intensive case management (ICM), ACT (which is also a subgroup of case management), and critical time intervention (CTI) for homeless adults. Their seven outcome domains included service use, housing, health (physical and mental), substance use (alcohol and drugs), societal participation, quality of life (QoL), and intervention cost (service expenses and cost-effectiveness). Torres Del Estal and Álvarez (2018) focused on interventions for the management of substance use in people who were homeless that were delivered by the community/nurses, categorising the interventions as 'case management' and 'other'. The authors noted that, in many of the studies reviewed, nurse-led interventions were not detailed; they described the nursing role within the programme in general terms only, but not specifically the interventions. However, some of the identified 'other' nurse-led interventions were, for example, described as multidisciplinary teams performing street outreach. The review identified the existence of specific interventions aimed at specific subpopulations of the homeless population (such as women); for example, structured group sessions and community therapy, as well as mobile outreach units and administration of NSPs or injection supervision.

Penzenstadler *et al.* (2019) focused on ACT. Their review aimed to assess the effectiveness of ACT for patients with problem substance use on several measures, including substance use, treatment engagement, hospitalisation rates, QoL, housing status, medication compliance, and legal problems. Wright and Walker (2006) focused on sexual health

promotion and examined the effectiveness of sexual health promotion interventions in homeless drug-using populations. A significant proportion of the included studies compared 'traditional' and 'specialised' multicomponent AIDS-focused programmes that involved group educational and practical elements. Other studies included counselling, as well as benefits/housing assistance. Turner et al. (2011) investigated the impact of harm reduction interventions on the incidence of HCV, specifically whether OST and NSPs can reduce HCV transmission among people who inject drugs. The primary outcome was new HCV infections. The secondary outcomes were based on self-reported injecting risk behaviour (namely needle sharing) in the last month and the mean number of injections in the last month. Lastly, Barker and Maguire (2017) investigated the effectiveness of IPS for people who are homeless (including people who were rough sleepers and those within services). IPS is termed 'intentional' because it is fostered and developed by professional organisations and can include either mentorship support or mutual support. Therefore, interventions that are using IPS may be using peers as client mentors or an adjunct to to the services provided, such as combining peers and professionals in the delivery of services. Barker and Maguire (2017) acknowledge that IPS models are quite diverse, with the main common element being that peers share personal experiences with their clients and are viewed as distinct from professionals.

4.4 Outcomes: treatment entry, engagement, and retention

Eleven of the included reviews mentioned treatment engagement and/or retention. However, overall, there is very little evidence on these outcomes. Reviews identify challenges to treatment completion among people experiencing homelessness where their other health and social needs have not been met (Pleace, 2008). In the USA, provision of support for this population can also run into difficulties because of the strict programme rules governing abstinence and other aspects of behaviour. Services may either fail to engage people at all, or there is a high level of attrition before treatment completion. Furthermore, in Pleace's (2008) review, there was little evidence of some types of interventions, such as fixed-site detoxification, delivered outside of the USA. While success is often claimed by service providers, models such as fixed-site detoxification typically show high levels of attrition between programme stages, often because of requirements

for abstinence and the intervention's focus on substance use rather than on broader client needs (Pleace, 2008).

Regarding housing interventions, Pleace and Quilgars (2013) identify that one of the criticisms of HF services is a lack of engagement with services among people who have very high levels of problem substance use, and conclude that, generally, HF studies indicate varying levels of community engagement of service users within any one project. They state that engagement with treatment – either provided directly by those HF services that have an ACT team and/or via ICM by all forms of HF service – is a goal of HF, but that while supported and encouraged through a harm reduction approach with a recovery orientation within HF, treatment engagement is ultimately self-determined. The authors also report that some of the studies in their review suggest that alternative approaches, such as linear residential treatment or staircase models, could achieve better results for outcomes such as substance use, since they actively pursue abstinence from drugs and alcohol. However, as noted above, staircase service models achieve only relatively low rates of success, often losing between 40% and 70% of participants due to strict regimes, participants becoming 'stuck', or participants being evicted from the services because they do not meet the criteria.

Abstinence-based or detoxification services without any housing elements that attempt to treat drug and alcohol use while someone is still homeless are generally less successful than staircase services. Kertesz et al. (2009) report higher completion rates for a linear approach called the Birmingham model, a rigorous abstinence-contingent housing intervention lasting 6 months, with between 6 and 8 hours a day spent on behavioural treatment and employment training, including relapse prevention and rewards for achieving objectively defined recovery goals as determined by peers and a counsellor. Completion of the treatment is followed by a referral to housing. At the time of Kertesz et al.'s (2009) review, four RCTs and one meta-analysis of this model had been published and each trial varied aspects of the treatment (for example, treatment intensity) in order to attempt to identify which elements contributed to abstinence. In the most recent of those trials, 65% of the participants completed a programme lasting 24 weeks (Milby et al., 2008), a figure somewhat comparable to the 12-month retention rate of 34–56% in modified therapeutic communities (De Leon et al., 2000) which, in contrast to more traditional therapeutic communities, have lowered their social demands, reduced direct confrontation, enhanced

personal freedom, and provided greater social assistance, specifically to accommodate people who are homeless and experiencing COSMHAD.

Similar to criticisms of HF raised by Pleace and Quilgars (2013) in terms of engagement, Chambers *et al*. (2017) also report that all three of their included UK evaluations of HF identified that some service users had not benefited from the programme. Social isolation for service users living alone in self-contained accommodation was identified as one possible explanation for this. There was some evidence of increased engagement with medical treatment and mental health services, and also some reductions in drug and alcohol use among people who were using one HF service, although this was not the case for all people. Barriers included boredom and isolation, which were highlighted as problematic predominantly by the service users themselves, but also by some of the interviewed staff in the included studies. Evidence from qualitative studies also suggested engagement issues related to the fact that being in interim housing, and the consequent effects of this situation on therapeutic relationships and engagement with services, can be experienced as an unpredictable and volatile situation. Moreover, there was evidence of frustration among participants as a result of their situation, resulting in inconsistent attention to recovery goals. HF service providers experienced increased difficulty in integrating housing support with case management. On the other hand, in terms of facilitators, there was some evidence that structural aspects of the programme promoted engagement by enabling service users and case managers to create a shared narrative of their common experiences. The quality of social interactions between clients and providers was also vital for engagement and was influenced by how the case managers perceived the service users, as well as how the service users understood themselves to be perceived. Compared with 'treatment first' (TF) participants, HF participants in one study were found to have higher rates of retention in a methadone treatment programme.

Regarding people with COSMHAD, Brunette *et al*. (2004) reported potential advantages of integrated residential programmes that were modified to meet the needs of those with mental health problems. However, study quality was generally weak, including significant participant crossover between interventions; skewed entry to the programmes due to differences in waiting periods or administrative requirements between programmes; small sample sizes; and high rates of dropout. Few studies provided evidence on which clients responded

to residential programmes. Studies have included different groups – for example, people who have not been able to engage in or benefit from outpatient treatment, people who are homeless, and those just released from prison or from hospitals. Besides homelessness, the personal characteristics of people with COSMHAD who benefited from residential programmes were uncertain. There is limited research that has tried to identify which client factors might predict treatment retention, and it has not been possible to draw conclusions from the existing research. Only one study included in Brunette *et al*.'s (2004) review reported on this issue and showed that clients in the earlier stages of treatment (with lower levels of motivation) were more likely to drop out of the programme due to problem substance use. The authors concluded that greater levels of integration between mental health and problem substance use treatment seem to be associated with better engagement and retention in treatment.

Looking at case management approaches, de Vet *et al*. (2013) reported mostly non-significant findings regarding ICM but suggested that these results could have been attenuated by treatment non-adherence and lack of differential service utilisation between groups. They reported that, for example, 71% of participants assigned to shelter-based ICM services for men experiencing both substance use and homelessness did not complete the programme. On the other hand, Penzenstadler *et al*. (2019) highlight higher rates of treatment engagement and retention for ACT, as well as evidence of greater medication compliance. One reviewed study did not provide any information on treatment engagement but stated that contacts with patients were significantly higher in the ACT and IACT groups compared with controls. Higher fidelity to the ACT model appeared to improve outcomes. Overall, the authors concluded that ACT could be a promising approach that may be useful for promoting treatment engagement for people experiencing problem substance use.

Other reviews with engagement and retention data include Hwang *et al*. (2005), which included two good-quality studies focused on the treatment of latent tuberculosis (TB) for people who were homeless. The authors report that, compared with usual care, a cash incentive increased attendance at an appointment for initial assessment of a positive tuberculin skin test, and that for people who experienced homelessness with latent TB receiving directly observed preventive therapy, cash incentives and non-cash vouchers at each visit were equally effective in increasing completion rates. Sun (2012) reported that there was some

evidence that Motivational Interviewing (MI) and Motivational Enhancement Therapy (MET) increased treatment engagement during the short term for those experiencing homelessness and COSMHAD. There was also evidence of benefits from group MI in terms of increased attendance with aftercare and reduced alcohol consumption. Sun (2012) also identified evidence for combining MI with cognitive behavioural therapy (CBT) and family interventions for those experiencing schizophrenia and problem substance use. Regarding engagement in treatment for people with HIV, Bates *et al*. (2017) reported that adherence to highly active antiretroviral therapy (HAART) among people who used drugs was comparable to that among people who did not use drugs. However, people who used drugs and engaged in OST had increased adherence to HAART and better treatment outcomes, compared with people who used drugs who engaged in HAART alone. For people with HIV, there is also evidence in support of the use of directly administered antiretroviral therapy (DAART), both alone and integrated in medication-assisted therapy, to improve treatment and outcomes related to BBV infections. In terms of people with chronic HCV, there were no significant differences in BBV treatment dropout between PWID and those who do not who received combination treatment for HCV (ribavirin plus recombinant, or pegylated interferon-α).

Lastly, Carver *et al*.'s (2020) review identified that how an intervention is delivered, rather than what type of intervention it is, is also important to consider. They suggested that for those experiencing homelessness and problem substance use, engagement with all forms of treatment or service can be particularly problematic due to the (real or perceived) judgemental attitudes of others and stigma (Wise & Phillips, 2013). Carver *et al*. (2020) conclude that, regardless of the service approach, staff must be non-judgemental, and that supportive relationships should be central. While interpreting their own findings, the authors suggest that the alliance-outcome relationship is one of the strongest and most robust documentable predictors of treatment success, making it one of the most important influences on individual psychotherapy outcomes (Horvath *et al.,* 2011). Alliance quality can reflect the collaborative dimension of therapy, as well as the importance of practitioners responding non-defensively to client behaviours. Carver *et al*. (2020) cite other authors, such as Meier, Barrowclough and Donmall (2005), who also reported similar findings in their reviews, further strengthening the notion of therapeutic alliance being a consistent predictor of engagement and retention in substance use treatment for this population.

Taken together, the evidence suggests that engaging and retaining people who are homeless and have substance use problems in treatment can be difficult regardless of intervention type. There is evidence that ACT can lead to increased engagement rates for people who are homeless and use drugs, and that integrated services for people with COSMHAD lead to better engagement and retention than segregated treatments. Results regarding HF suggest that engagement can be difficult and that social isolation may be a problem for those using the service. Lastly, the evidence suggests that the way in which interventions are delivered can play a crucial role in treatment engagement and retention, with warmth, compassion, empathy, and lack of judgement from the workers or therapists being paramount.

4.5 Outcomes: successful completion of treatment

The included reviews provided little evidence on approaches to improve treatment completion. Six mentioned completion rates; however, only one presents data in the form of completion percentages (Kertesz *et al*., 2009), and one only provides completion percentages from one of its included studies (de Vet *et al*., 2013). Kertesz *et al*. (2009) provide some completion numbers for the Birmingham linear housing model. At the time, four RCTs and one meta-analysis of this model had been published. In the most recent of the trials, 65% of the participants completed a programme lasting 24 weeks (Milby *et al*., 2008), a figure higher than the 50% for social intervention studies and comparable to the 12-month retention rate of 34–56% in modified therapeutic communities (De Leon *et al*., 2000). In the review of case management approaches by de Vet *et al*. (2013), five studies investigated the effects of ICM on homelessness or residential stability in substance-using populations. Only one of them reported a significantly better result for ICM than for the usual case management services. de Vet *et al*. (2013) report that participants were recruited from a homeless shelter and that those who received ICM were more satisfied than control participants, although only a minority (29%) of the ICM participants completed the programme.

The remaining reviews which mentioned treatment completion rates included Wright and Tompkins' (2006) review of primary care interventions. The authors reported that, at the time, primary prevention interventions to reduce the prevalence of infectious disease in PWID consisted of vaccinations. Their review suggests that people experiencing homelessness and also injecting drugs should be offered hepatitis A and B, tetanus, influenza, pneumococcus, and diphtheria vaccinations, and they report that an accelerated HBV immunisation schedule (with doses administered at 0, 7, and 21 days, and a booster at 12 months) resulted in superior completion rates compared with traditional schedules with similar seroconversion rates. The same study is also included in the systematic review by Hwang *et al*. (2005), who also report information relating to interventions for people experiencing homelessness and who have TB, finding that a cash incentive increased attendance at an appointment for initial assessment of a positive tuberculin skin test. In people experiencing homelessness with latent TB receiving directly observed preventive therapy, cash incentives and non-cash vouchers at each visit were equally effective in increasing completion rates in young people who were homeless. However, the review does not specify whether the people in those studies were also experiencing problem substance use as well as homelessness, and thus conclusions cannot be made regarding the effectiveness of cash incentives for this subpopulation.

Regarding peer support interventions, Barker and Maguire (2017) reported that their included IPS studies show baseline data for 1,829 participants and complete data for 1,341 participants. There was a loss to follow-up of 488 participants (27%), which was considered low, but this attrition affected interpretation of study results. The authors report that one study suffered such extreme attrition from its control group that Barker and Maguire (2017) completely excluded those data from the report, although the percentage dropout was not reported. Lastly, in relation to people with COSMHAD, Brunette *et al*. (2004) reported that five studies examined short-term (lasting 6 months or fewer) residential programmes. Integrated approaches were associated with higher rates of programme completion (exact rates not reported by Brunette *et al*., 2004), but substance use outcomes were not different between the groups. Regarding people with COSMHAD, the authors suggest that treatment in parallel and separate mental health and substance use systems was ineffective (Brunette *et al*., 2004). Parallel treatment results in fragmentation of services, non-adherence to interventions, dropout from treatment

(exact numbers not reported), and service exclusions, because treatment programmes remain focused rigidly on single diagnoses and clients are unable to negotiate the separate systems or to make sense of disparate messages regarding treatment and recovery (Brunette *et al*., 2004).

4.6 Treatment outcomes

The included papers (n=22) discussed a wide range of outcomes, including those relating to substance use (reduction in drug and alcohol use; relapse rates; enrolment in substance use treatment; opioid overdose rates; mean injecting frequency; and drug-related deaths), housing, as well as 'other' outcomes, for example well-being/QoL, psychopathological symptomatology, criminal justice system involvement, and societal integration. For the purpose of this review, the treatment outcomes are grouped into substance use outcomes, housing outcomes, and 'other' outcomes (Sections 4.6.1–4.6.3). Four of the included reviews (Brunette *et al*., 2004; Carver *et al*., 2020; O'Campo *et al*., 2009; Sun, 2012) focus on the elements of successful treatment rather than, or in addition to, investigating types of specific treatments. For the purpose of this review, these are grouped into 'components of good practice' and presented in Section 4.7.

4.6.1 Treatment outcomes: substance use

Substance use outcomes were reported in all 22 reviews. Pleace (2008), in his REA of international literature on effective substance misuse services for people who are homeless, examined a range of approaches/services. Two forms of transitional housing were identified; the first, single-site transitional housing, is more common in Scotland (the country of focus for the review) and other countries in the UK. The second is the 'staircase' or 'continuum of care' (CoC) model, which uses multiple stages of accommodation and services. Other approaches included fixed-site detoxification, where services operate from a fixed site, such as a drop-in clinic or a day centre, or employ a residential setting; preventive services (including rent deposit schemes, housing advice, family reconciliation services, and various forms of debt counselling and financial management); joint working and case management based on interagency working and delivering floating support; and a variety of housing interventions. These included the Pathways to Housing model, which provides dedicated specialist workers and

offers open-ended support, with housing secured for the service users as quickly as possible and not being conditional on compliance with substance use or mental health services; permanent supportive housing, whereby all schemes take the form of shared, supportive housing, in which residents either have self-contained studio flats, bedsits, or rooms; and preventive tenancy sustainment services, using floating support services or transitional housing.

Pleace's (2008) review highlighted difficulties in assessing outcomes of services due to a lack of information regarding which specific outcomes were measured. The evidence for case management and joint working models among people who are homeless and use drugs is limited. Models of case management, while following shared general principles of operation, tend to differ markedly in the details of their operation, making a review of any one set of working practices difficult. The available USA research evidence indicated that case management tends to have limited success. There is little evidence on the effectiveness of single-site transitional housing delivered outside the USA. HF models were largely viewed as more effective than the CoC model in the USA. There was no significant evidence base relating to permanent supportive housing for people who are homeless with a history of problem substance use. It is not clear how successful these services are at harm reduction or supporting homelessness. Lastly, in this review, the evidence on homelessness prevention services was mixed. The prevention services identified also tended not to be focused on problem substance use.

Pleace and Quilgars (2013) looked at the available evidence on the effectiveness of HF services, and based on the main studies on HF, suggested that, overall, service utilisation is associated with stabilisation of drug and alcohol issues, rather than significant reductions or increases in use. They concluded that there is no evidence that substance use increased following rehousing. When comparing one approach to HF (Pathways to Housing) with CoC in the USA, there was no significant difference between HF participants and the control group on either alcohol or drug use at 24 or 48 months post intervention. Another approach (the Collaborative Initiative to Help End Chronic Homelessness across 11 sites in the USA) observed small but statistically significant improvements in alcohol and drug use over 24 months. Examining HF in Europe, the authors present mixed findings, with some studies finding a reduction in substance use among participants, while in others, substance use remained unchanged. Additional analysis of the Collaborative Initiative

to Help End Chronic Homelessness approach showed no difference in alcohol or drug use over time between those participants who were placed immediately into housing, compared with those who were in transitional housing (staircase services) prior to permanent housing. However, the former group reported experiencing more choice around treatment.

Other research undertaken in the USA has suggested that closely following the Pathways to Housing philosophy also seemed to have some beneficial effects on drug use. Reductions and cessation of use of opioids was associated with services closely reflecting the philosophy of Pathways to Housing. Both Baxter et al. (2019) and Beaudoin (2016) found that HF produced no clear differences in substance use when compared with normal service provision. Two of the studies included by Baxter et al. (2019) reported substance use outcomes, with data from one of them showing no significant differences in either alcohol or drug use at 24 months follow-up, but a greater reduction of heavy alcohol use (defined as using alcohol on more than 28 days in 6 months) during the 48-month study period in intervention groups compared with control groups, with no clear difference in drug use. Pooling two age-range subgroups of the second of the included studies showed a very small overall difference in self-reported problem substance use in favour of HF; however, both groups saw decreases in reported problems. Beaudoin (2016) found no differences between those involved in HF interventions and those accessing traditional psychosocial interventions. Although the findings do not show evidence for the effect of HF on substance use, the approach still has benefits in terms of housing for those with complex needs, as participants were able to retain their tenancies.

Benston (2015) and Chambers et al. (2017) examined permanent supportive and recovery housing, respectively, both with mixed findings. Benston (2015) found mixed clinical and substance use outcomes when analysing research in the USA on permanent supportive housing programmes for people who are homeless and have mental health problems. In some studies, reductions in substance use were reported among those provided with housing compared with controls, while in other studies, substance use declined or did not change in both the experimental and control conditions. Chambers et al. (2017) found some evidence of the effectiveness of recovery housing, but the authors deemed this to be of limited applicability to other settings, as all of the included research studies were conducted in the USA. This was largely because healthcare and benefits systems in the USA are unique. Moreover, some of the

studies investigated services offered to armed forces veterans through the United States Department of Veterans Affairs. In other countries, drug treatment services for armed forces, navy, and air force personnel would not necessarily be the provision of recovery houses specifically for veterans. At the time of publication of Chambers' *et al.'s* (2017) review, one recovery house, Oxford House, had been set up outside the USA in the UK, and a study found that it benefited the small number of residents, suggesting that a larger trial could be useful (Majer, Beers, & Jason, 2014). Chambers *et al.*'s (2017) suggest that the Oxford House model could be replicated in the UK and offered to people recovering from alcohol or substance use disorders (SUDs) as an alternative to HF that would allow users to live in an abstinent community. Overall, a key finding from Chambers *et al.* (2017) was that recovery houses can improve personal well-being through promoting abstinence from alcohol or drugs, but that not everybody benefits. The authors noted, however, that the strength of evidence for well-being outcomes was low or very low.

Bates *et al.*'s (2017) review of reviews provides a synthesis of international research on responses to problem drug use and reports findings relating to several different interventions. Regarding mentoring interventions, the authors reported that there was low-quality, review-level evidence suggesting no benefit of such interventions, specifically for adolescents who were homeless, when the mentoring intervention was delivered in combination with drug use treatment. It should be noted that the findings were based on a small number of studies with a low total population. When looking at interventions for people with HIV who used drugs, Bates *et al.* report that for people who used drugs, HAART in combination with OST leads to better outcomes than only using HAART alone and not engaging in OST. The authors also suggest that there is evidence supporting DAART, both alone and integrated in medication-assisted therapy to improve treatment and health outcomes for people with HIV. The findings regarding both contingency management and nurse-delivered interventions in relation to treatment and health outcomes were inconsistent, although the authors authors indicate that these interventions are likely to be promising. The authors also concluded that individuals who received harm reduction approaches such as OST were significantly more likely to reduce drug use compared with controls, but that, overall, there is no significant evidence to support the idea that harm reduction interventions lead to a reduction in needle sharing for people who use drugs.

Regarding harm reduction interventions, and specifically impact on needle sharing, Turner *et al.* (2011) pooled UK-based evidence to estimate the impact of needle and syringe programmes and OST on the incidence of HCV in people who inject drugs. The authors generated individual binary measures for OST and NSP coverage (receiving/not receiving OST, and high versus low NSP coverage (100% versus <100% needles per injection)). The primary outcome was new HCV infections, based on recently acquired infection (for cross-sectional studies) and incident infection (for cohort studies). The secondary outcomes were based on self-reported injecting risk behaviour, namely needle sharing, in the last month and the mean number of injections in the last month. The authors pooled the data and adjusted for factors that influence HCV incidence and may affect intervention effectiveness, such as gender and homelessness. In the pooled data, new HCV infections were significantly higher among women, crack cocaine injectors, and homeless injecting drug users, but there was no evidence that the interventions' effects (i.e. risk of HCV associated with NSPs and OST) varied. The authors concluded that full harm reduction, defined as receiving both OST and high NSP coverage, was associated with a reduction in self-reported needle sharing by 48% and mean injecting frequency by 20.8 injections per month.

This suggests that harm reduction approaches aiming to reduce needle sharing may need to be delivered in combination with each other rather than in isolation. Wright and Tompkins (2006) also reported on effective interventions for drug dependence and concluded that these include adequate oral OST, tetanus and hepatitis A and B immunisation, safer injecting advice, and access to NSPs. They suggested that there was emerging evidence for the effectiveness of supervised injecting sites for people who are homeless who inject drugs, as well as for the peer distribution of take-home naloxone, in reducing drug-related deaths. There was also some evidence that assertive outreach programmes for those with mental health problems, supportive programmes to aid those with the motivation to address problem alcohol use, and informal interactive programmes to promote sexual health can lead to lasting health gains. One core theme appeared to be that the type of community intervention is less important than the fact that an intervention is offered. Residential interventions, however, appeared to lead to greater reductions in drug use than community interventions, which, according to USA-based literature, are better able to retain users in services but do not yield high abstinence rates. This seems to be especially

common for ACTs. The literature included in Wright and Tompkins' (2006) review also suggested that therapeutic communities for people experiencing COSMHAD result in greater drug use reductions than community interventions (although both modalities reduce drug use).

Hwang et al. (2005) performed a systematic review of interventions to improve the health of people who were homeless. Studies of any intervention provided in primary care, or to which homeless patients could be referred, were eligible for inclusion, and interventions included case management services and/or supportive housing; ACT; the Access to Community Care and Effective Services and Supports programme; post-detoxification stabilisation; abstinence-contingent work therapy; intensive residential treatment; other preventive health interventions for substance dependence; cash incentive schemes; educational programmes; and outreach initiatives. The authors concluded that coordinated programmes for homeless adults with mental health problems or problem substance use generally resulted in better health outcomes than usual care. Other results were mixed, with studies looking at high- versus low-intensity case management finding no significant differences in mental health or substance use outcomes. However, studies of case management and other substance use-related therapies reported reduced alcohol and drug use compared with usual care.

For people experiencing COSMHAD, substance use outcomes were not significantly different when comparing housing and support services with a less intensive intervention. However, there was some support for psychosocial rehabilitation and a multifactorial programme of behavioural, abstinence-contingent, housing, and work therapy interventions in reducing substance use, and for education programmes in reducing injection drug use specifically among homeless women. Formosa et al. (2019) also examined a range of interventions, including case management, HF, substance use interventions (including extended-release naltrexone and opioid overdose education), ED-based resource desks, and ED compassionate care. The authors found limited evidence for these interventions in reducing substance use or in supporting enrolment in treatment. However, as mentioned earlier, full data from this review could not be extracted, and therefore no definite conclusions can be reached.

In terms of case management interventions more specifically, de Vet et al. (2013) investigated the effectiveness of various forms of case management for adults who are homeless. Regarding SCM, all the included studies recruited people who were homeless and used substances, except for one study conducted in the UK among people with severe mental health problems. The findings provided some evidence that SCM is effective for this subpopulation in reducing problem substance use, and that it seems to be more beneficial than usual care for people who are homeless who use substances. The samples in studies of ACT consisted of people who were homeless and had COSMHAD; people with mental health problems; veterans with problem substance use; and ex-prisoners with mental health problems. For all subpopulations, findings were largely non-significant or inconsistent. CTI was found to be significantly better than usual care in reducing substance use among people who were homeless with mental health problems (leaving either a homeless shelter or an inpatient care for veterans).

Torres Del Estal and Álvarez (2018) compared case management with other nurse-led intervention models. The authors state that case management is most commonly the first option for the management of substance use in people experiencing homelessness and conclude that it can lead to a reduction in substance use in this population. The identified literature also highlights case management as an effective option, either as a single intervention or in combination with others. Regarding other intervention models, when nurses work within interdisciplinary teams, they perform assessments, monitoring, and administration of the treatment using evaluation and motivation tools. This action model, according to Torres Del Estal and Álvarez (2018), is based on cooperation and teamwork, generates beneficial results, accelerates recovery, and guarantees patient safety. The review of the literature shows that programmes which combine case management and interventions carried out in the context of interdisciplinary teams (nursing, medicine, psychology, and public health) have better results than standard interventions. However, Penzenstadler et al. (2019), who evaluated the effect of ACT for individuals experiencing problem substance use, concluded that the results were mixed in terms of substance use outcomes, despite the services all using the key principles of ACT in their approach: community-based services, assertive engagement, high intensity of services, small caseloads, 24-hour responsibility, a team approach, and multidisciplinary working.

One of the reviews examined the effectiveness of sexual health promotion interventions for people experiencing homelessness and using drugs (Wright & Walker, 2006). The authors found that a significant proportion of the included studies compared 'traditional' and 'specialised' multicomponent AIDS-focused programmes that involved group educational and practical elements. Other studies included counselling, as well as benefits/housing assistance. Programmes offered HIV education; alcohol and drug counselling; benefits and housing assistance; a 'traditional' intervention of an AIDS videotape and a 1-hour group session (covering AIDS education, HIV testing, condom use, sterilising kits for injecting equipment, and a list of community resources). There was an overall concordance between the included studies that such interventions resulted in increased knowledge of drug issues. The interventions also initially led to a reduction in drug use. There was, however, no concordance between the included studies regarding whether the effect of the intervention was sustained over a 2-year follow-up period.

Four of the identified reviews only report minimal details on substance use outcomes. Barker and Maguire (2017) found some positive effects of IPS on substance use, with an overall reduction in harm related to substance use, including drug and alcohol use, relapse, amount of money spent on substances, and number of days using drugs or alcohol. Kertesz *et al.* (2009) report that several linear programmes cite reductions in 'addiction severity'; however, this is not expanded on. Brunette *et al.* (2004) found that longer-term residential programmes had better substance use outcomes, including better engagement and retention in treatment than short-term programmes. Lastly, in the Minyard *et al.* (2019) review, there was some evidence for the effectiveness of an integrated COSMHAD day programme in reducing hospitalisation and substance use rates.

4.6.2 Treatment outcomes: housing

Six of the identified reviews focused on housing interventions specifically (Baxter *et al.*, 2019; Beaudoin, 2016; Benston, 2015; Chambers *et al.*, 2017; Kertesz *et al.*, 2009; Pleace & Quilgars, 2013).

However, one of these reviews primarily reported on substance use and mental health outcomes rather than on housing outcomes and therefore will not be discussed in this section (Pleace & Quilgars 2013). A further three of the remaining included reviews also reported on housing outcomes in addition to their main outcomes of focus (Barker & Maguire, 2017; de Vet *et al.*, 2013; Formosa *et al.*, 2019). In total, housing outcomes were reported in nine of the included reviews.

In terms of housing interventions, Baxter *et al.* (2019) and Beaudoin (2016) focused on evaluations of HF specifically. Baxter *et al.* (2019) reviewed the effects of HF on the health and well-being of adults who are homeless or at risk of homelessness and performed a meta-analysis of RCTs. Their definition of HF was "providing the homeless person with access to housing through assistance in locating and entering housing and subsistence of rental costs to maintain permanent tenancy" (Baxter *et al.*, 2019, p. 379). The provided housing was defined as "intended to be permanent, with no intention by providers to end or transfer tenancy; counting sustained tenancy as the intended outcome; tenancy not contingent on adherence to treatment or substance abstinence; and with housing being rapid, with the process of securing and entering housing initiated at first contact with the homeless person and with the aim of beginning tenancy promptly" (Baxter *et al.*, 2019, p. 379). This systematic review found that HF resulted in large improvements in housing stability. In all the included studies, intervention participants spent more days housed and were more likely to be housed at 18–24 months since intervention. Beaudoin (2016) compared HF's effectiveness with traditional psychosocial interventions, such as case management and programmes based on the 'treatment first' approach. Any programme based on the HF approach was assessed, including those programmes with 'add-ons', such as HF plus outreach. Regular-intensity HF interventions were also compared with intensive HF interventions, or with HF interventions coupled with specialised services. Similar to Baxter *et al.* (2019), all the studies included in Beaudoin's (2016) review found that participants in programmes based on the HF approach spent more time in housing and less time on the street than treatment-as-usual participants. In two of the three included studies, people who had access to a programme based on the HF approach spent less time being homeless and more time in housing than those who accessed more traditional psychosocial interventions.

Kertesz *et al.* (2009) reviewed studies of HF and more traditional rehabilitative recovery interventions, focusing on the outcomes of both these approaches for people who are homeless and have problem substance use. The review included various HF interventions. For example, the New York Pathways

to Housing programme offers optional continuous support from an ACT team, available 24 hours a day, 7 days a week, including community-based substance use treatment, mental health care and general medical care, and vocational services. Clients were required to participate in a money management programme, to pay 30% of their income towards rent, and to meet with staff twice a month. This approach emphasised consumer choice and the reduction of harm from substance use (Greenwood *et al.*, 2005). Another example was San Francisco's Direct Access to Housing (DAH) programme (Corporation for Supportive Housing, n.d.) offering apartments in multi-unit residential buildings and on-site services, including case management, primary medical care, and mental health treatment. Tenants were required to spend 30–50% of their income on rent. DAH tenants were not allowed to sell drugs or to use drugs or alcohol in any common area, but abstinence was not a requirement. In contrast, the 'linear' approach (Ridgway & Zipple, 1990) generally makes rehabilitative treatment, typically residential, a prerequisite for permanent housing in either a subsidised or a private setting (including a return to family). For individual clients, failure to comply with the rules and requirements produced consequences that varied with the programme's philosophy and resources and could include restriction of privileges, transfer to more closely supervised settings, or administrative discharge. Kertesz *et al.* (2009) conclude that, according to reviews of comparative trials and case series reports, HF reports document excellent housing retention (despite the limited amount of data at the time), specifically pertaining to people who are homeless and experience severe problem substance use. They also highlight that several linear programmes have shortcomings in long-term housing success and retention, such as the fact that providers of treatment services rarely control or influence the allocation of permanent housing resources, and as a result, treatment does not always lead to housing, even when the treatment is effective.

Benston (2015) analysed the best available research in the USA on permanent supportive housing programmes for people who were homeless and who had mental health problems, and the effect of these programmes on housing status and mental health. The reviewed studies defined, designed, and implemented supportive housing in a variety of ways. Most of the studies did not specifically refer to their experimental housing conditions as 'supportive housing', instead using a variety of terms such as HF, 'comprehensive housing', 'evolving consumer households', 'integrated housing', and 'full-service partnerships'. The studies defined case management in a variety of ways, including 'intensive case management', 'intensive clinical case management', and 'comprehensive case management', and implemented it alongside 'traditional case management'. The studies found that most participants placed in experimental housing programmes with case management support remained in housing for at least 1 year, or experienced more days housed than homeless, relative to a comparison group. The review identified statistically significant results from studies which supported the hypothesis that the preferred housing intervention outperformed a control condition.

Chambers *et al.* (2017) conducted a systematic review of the evidence on housing interventions for housing-vulnerable adults, and its relationship to well-being. These interventions included HF interventions, recovery housing, supportive housing, and specific housing approaches for those experiencing homelessness and mental health problems, including ex-prisoners, or vulnerable young people. HF was defined as providing immediate access to housing without preconditions, with support from either mobile teams or on-site services. The authors found moderate-strength evidence for a positive effect of supportive housing on housing stability, and strong evidence that HF could improve housing stability, with a range of factors identified which influenced the effectiveness of HF. These included fidelity to core components, and whether the service is delivered in one place (single site/ congregate) or across separate apartments (scattered). A neurocognitive study included in the review suggested that for people without a history of problem substance use, executive function improved with group living in the congregate/single-site model and declined for those living in independent apartments. Other studies compared well-being outcomes from single-site/congregate models with scattered-site HF and indicated that residence in independent apartments was significantly associated with greater independence and greater occupational functioning. It was also significantly associated with a greater subjective sense of choice. Similarly, Baxter *et al.* (2019) reported that in one of their included studies, participants housed together in dedicated accommodation blocks experienced greater improvements than those in scattered-site housing in the areas of mental health, QoL, and problem substance use, among other outcomes.

A systematic review of the effectiveness of case management approaches for people who were homeless performed by de Vet *et al*. (2013) reported some evidence that SCM was effective in improving housing stability for people who were homeless and using substances. On the other hand, for the same subgroup, findings regarding the effectiveness of ICM were mixed or inconsistent. There was also evidence of a positive effect of ICM on housing outcomes for people experiencing homelessness, including those with mental health problems. However, the authors noted that more research is needed before any conclusions can be drawn about the consistency of these findings. Regarding ACT, the samples in de Vet *et al*.'s (2013) included studies consisted of people who were homeless with COSMHAD or mental health problems; veterans who used substances; and ex-prisoners with mental health problems. Results of the review indicated that ACT improved the housing stability of people with mental health problems, as well as those with COSMHAD, to a greater degree than less proactive case management models. All included reviews found ACT to be superior to other services, including other models of case management, in helping people who were homeless with mental health problems to achieve housing stability. Lastly, the effectiveness of CTI was examined specifically for people who were homeless with mental health problems, with one group leaving a homeless shelter and the other leaving inpatient care for veterans. For both groups, CTI was significantly better than usual services in supporting housing stability.

Two other reviews reported housing outcomes. Formosa *et al*. (2019) reviewed the literature on ED interventions that improved health and/or access to the SDOH for people who were homeless. The interventions included case management, HF, substance use interventions, ED-based resource desks, and ED compassionate care. Eight studies sought to improve access to housing: two were HF initiatives and the other six demonstrated significant reductions in homelessness and increased access to stable housing. However, full data extraction was not possible, as data from this review are only available in the form of a conference abstract, meaning that no definite conclusions can be reached from this review. Lastly, Barker and Maguire (2017) evaluated the effectiveness of IPS for people who are homeless, with all but one of the included studies reporting some positive effects of IPS regarding improvements in homelessness. These were reported as decreases in the number of homeless days and reduced relapse to homelessness.

4.6.3 Treatment outcomes: other

Thirteen studies examined outcomes other than housing or substance use. These included health and well-being outcomes, such as QoL and frequency of use of health services (including EDs), as well as outcomes relating to crime, incarceration, and participation in community life.

In terms of housing interventions, Baxter *et al*. (2019) found that the effects of HF on health and well-being outcomes were unclear in the short term, and there were no clear differences in terms of mental health or QoL compared with treatment as usual (TAU). However, the authors found that HF participants showed a clear reduction in non-routine use of healthcare services over TAU, which they suggest may be an indicator of improvements in health. Beaudoin (2016) assessed the effectiveness of HF and also found largely non-significant or mixed results relating to QoL and satisfaction, crime, incarceration, participation in community life, and victimisation. Overall, the results indicated that the HF approach does not lead to more positive effects on mental and physical health and does not increase social support more than access to usual services or traditional psychosocial interventions.

On the other hand, based on the findings of Chambers *et al*. (2017), there appears to be strong evidence that HF can improve measures of physical health in the short term for adults who are homeless or at risk of being homeless. Evidence was classed as moderate for positive effects on personal well-being, mental health, and locality-related well-being (i.e. well-being related directly to one's living situation and conditions), and for absence of effect on personal finance and community well-being. The strength of the evidence for other outcomes was rated as low or very low. The authors classified a range of complex interventions as "other interventions for people with mental/physical health problems" (Chambers *et al*., 2017, p. 2). A key finding was that while these interventions provided an opportunity for recovery, not everyone benefits. This suggests that outcomes may be dependent on baseline health status, rather than type of intervention. Finally, the authors examined interventions for other specific groups of housing-vulnerable people. Of seven studies on ex-prisoners, five were from the UK, suggesting relatively high transferability/applicability to similar settings. The main outcome examined in the studies was reduction in offending, which could be linked to both community and individual well-being, although the results on re-offending outcomes were mixed. Three UK studies of housing interventions for

vulnerable young people showed generally positive outcomes for well-being, but the studies were small, short-term, and generally uncontrolled. There was a general lack of evidence around measures related to community well-being and around cost-effectiveness of the interventions investigated. Lastly, Benston's (2015) review of permanent supportive housing programmes for people experiencing homelessness with additional mental health problems in the USA reported mixed clinical and substance use outcomes. It found support for a hypothesis that experimental housing can reduce can reduce mental health symptoms when compared with a control condition.

Regarding case management interventions, Penzenstadler et al. (2019) found evidence of a positive effect of ACT on hospitalisation rates for people with problem substance use. de Vet et al. (2013) found little evidence that SCM could lead to a differential effect on service utilisation for people experiencing homelessness and problem substance use, with some evidence that SCM is effective for this homeless subpopulation in removing employment barriers. However, only a few of these results were replicated for the sample of people who were homeless with concurrent mental health problems. The evidence base for ICM was limited, with the findings being non-significant or mixed in all outcome categories except for access to public assistance. Study quality ratings and service utilisation data suggested that these largely non-significant findings could be the result of treatment non-adherence and lack of between-group differentiation in the services received. For all subpopulations, findings in the other outcome categories were largely non-significant or inconsistent.

Although ACT appeared to influence patterns of mental health service use, most studies did not show a differential effect on mental health outcomes, although there was some evidence regarding improvement in symptom severity. There was evidence that CTI was significantly better than usual services in reducing mental health symptoms (as well as substance use) among those who are homeless with mental health problems. There were also associations between CTI and improved level of housing stability and the length of hospital, shelter, and other institutional stays. CTI achieved better long-term results than TAU, with similar associated costs. CTI was the least researched model in de Vet et al.'s (2013) review, so results from further studies are needed in order to reach any definite conclusions. Nevertheless, the findings are promising. Across the four different models of case management examined, case management generally seemed to have a positive impact on housing stability and

patterns of service use. Findings about any effects on variables measuring health, societal participation, and QoL were largely non-significant. Torres Del Estal and Álvarez (2018) noted that case management can be successful in terms of reducing substance use, as well as improving QoL and access to healthcare among people who are homeless with problem substance use. Throughout the review, the existence of specific interventions for certain subgroups of the homeless population, such as women, suggested that structured group sessions and community therapy, addressing the social sphere, and reducing non-adaptive social behaviours related to substance use can be successful. Hwang et al. (2005) reported that intensity of case management led to no difference in health-related outcomes.

Hwang et al. (2005) also found that coordinated programmes for homeless adults with mental health problems or problem substance use generally result in better health outcomes, including mental health and substance use outcomes, than usual care. This was a finding similar to that of Minyard et al. (2019), who found some evidence for the effectiveness of an integrated COSMHAD day programme for adults experiencing homelessness in reducing both hospitalisation and substance use rates. Hwang et al. (2005) also reported that studies focusing on immunisation and smoking cessation specifically for people who are homeless and use drugs suggested positive outcomes on health, including smoking abstinence. For COSMHAD, there were improvements in terms of time spent in hospital, but not in terms of mental health or substance use outcomes. There was also some evidence that cash incentives were effective in increasing adherence to TB screening and in improving completion rates; education initiatives improved HIV risk behaviours in runaway youth; outreach services reduced primary care utilisation in homeless families and children; and compassionate care from a visiting volunteer at ED reduced subsequent ED visits.

Wright and Walker (2006) reported that the relationship between sexual promotion interventions and psychosocial outcomes appeared to be complex. Broadly speaking, the interventions seemed to improve psychosocial functioning. The duration of the intervention appeared to be less important than the fact that an intervention used interactive methods, such as group work, videotapes, role-playing, or games. These findings concur with evaluations of generic HIV prevention programmes, which showed that programmes focusing on attitudinal and behaviour change using informal methods were the most effective at reducing sexual

risk (Coleman & Ford, 1996). In another review, Wright and Tompkins (2006) examined morbidity, mortality, primary care provision, primary prevention interventions, and sexual health promotion. Internationally, there are differing models and services aimed at providing healthcare for people who are homeless. The authors report that there is some evidence that assertive outreach programmes for those with mental health problems, and informal programmes to promote sexual health, can lead to lasting physical and/or mental health gains.

Regarding harm reduction interventions, in Turner *et al*.'s (2011) review, the primary outcome was new HCV infections based on recently acquired infection (for cross-sectional studies) and incident infection (for cohort studies). Both receiving OST and high NSP coverage (100% versus <100% needles per injection) were associated with a reduction in new HCV infections. Full harm reduction (with participants being on OST plus having access to high NSP coverage) reduced the odds of new HCV infections by nearly 80%.

Lastly, regarding peer interventions, Barker and Maguire (2017) found that all included studies reported some positive effects of IPS in terms of overall QoL, reductions in drug/alcohol use, improved mental/physical health, and increased social support. Common elements of IPS were identified from the included studies, suggesting that IPS works through components of shared experience, role modelling, providing social support, and increasing attendance/interest. Those four components are thought to moderate overall QoL through the eight outcomes reported. While there is mixed evidence regarding the effectiveness of the various interventions on mental health, well-being, and other outcomes, this suggests that integration of services and holistic treatment for people with comorbidities and COSMHAD leads to better psychosocial and substance use outcomes than treatment provided in 'silos'.

4.7 Components of good practice

Carver *et al*.'s (2020) meta-ethnography found that both harm reduction and abstinence-based treatments were considered effective by recipients. In several studies, participants preferred harm reduction-oriented services where they had opportunities to set individualised goals, rather than being required to achieve and maintain abstinence.

Harm reduction services provide a crucial way of engaging those who found high-threshold services inaccessible by meeting people where they are at (International Harm Reduction Association, 2009), yet participants in the meta-ethnography reported that abstinence-based treatments should also be made available for when people are open to this and ready to stop active use. The findings of this review highlight that people who are homeless and who are experiencing problem substance use desire an integrated approach to treatment, rather than separating treatments into either harm reduction or abstinence-based approaches. The authors report that, overall, participants considered five components key to effective treatment: the provision of a facilitative service environment, compassionate and non-judgemental support, adequate time in treatment, choices regarding treatment, and opportunities to (re)learn how to live. Interventions that were of longer duration and offered stability to service users were valued, particularly by women. Carver *et al*. (2020) developed a new model through the synthesis of 21 studies to provide a higher-level understanding of the key components of effective problem substance use treatment for those experiencing homelessness. The model highlights the need for the five key components to be delivered within the context of good relationships, with person-centred care, and with an understanding of the complexity of people's lives.

Sun's (2012) review discusses strategies for helping people who are homeless and who have COSMHAD and aims to provide practitioners with a framework and strategies for helping this client population. The author reports four components of this framework: ensuring an effective transition for individuals with COSMHAD from an institution (such as a hospital, foster care, prison, or a residential programme) into the community, which is particularly important for clients who were previously homeless, impoverished, or at risk of homelessness; increasing the resources of people who are homeless and who have COSMHAD by helping them apply for government entitlements or supported employment; linking individuals to supportive housing, including HF options rather than only treatment-first options, and being flexible in meeting their housing needs; and engaging individuals in treatment for COSMHAD, incorporating modified ACT, MI, CBT, contingency management, and COSMHAD-specialised self-help groups.

O'Campo *et al*. (2009), in their realist review of community-based services for people experiencing homelessness and COSMHAD, identified 10 distinct community-based or community-linked programmes

that employed a variety of approaches, including ACT, provision of housing, integrated mental health and substance use treatment, and a holistic approach through which many of the clients' life needs were supported. Most programmes delivered a combination of programme strategies or took different approaches to the same strategies – for example, different models of housing provision in the Pathways to Housing model compared with Community Connections; and different degrees of fidelity to the ACT model between programmes. Many of the studies identified motivation for, and maintenance of, behaviour change as a central factor for success. Called 'client's choice' in some programmes, this feature ensured that clients' choices would be respected, regardless of whether these choices were consistent with treatment priorities. Clients were perceived as autonomous individuals and experts in their own lives who should make their own decisions. For instance, in the Pathways to Housing programme, not only was the provision of housing not tied to mental health or substance use treatment, but clients also chose their apartments and neighbourhoods, in addition to making decisions about treatment. Clients of the Choices Centre similarly had significant input into staffing decisions, as well as into programme elements, which resulted in a programme that was maximally tailored to their own needs. Data from Pathways to Housing showed that clients' sense of mastery and their perceived level of choice were mediators in the causal pathway between housing and psychiatric symptoms. Thus, the beneficial effects that the Pathways to Housing programme and the provision of independent housing first had on psychiatric symptoms were attributed to the enhanced sense of mastery and control that clients experienced as part of their treatment.

Traditionally, therapeutic communities for substance use treatment have been characterised by a treatment philosophy of 'right living' and 'community as method' delivered in long-term residential programmes, largely directed and managed by clients. This model has emphasised a reliance on confrontational group therapy, treatment phases, and a hierarchy based on tenure in the programme and community roles (De Leon, 2000). Confrontational group therapy is a treatment based on the theory that verbal confrontation is the most effective way to treat problem substance use and that feedback should be provided to clients about their thoughts, feelings, and behaviour (Forrest, 1982). The premise is that clients have defence mechanisms that must be broken, and only then can progress be made with recovery (Hall, 1993). Tactics such as intentional

humiliation, coercion, ultimatums, withdrawal of services, and verbal aggression have been frequently used with this approach and it has been used both in peer group and professional settings (Hall, 1993; White & Miller, 2007). It is widely acknowledged now that this model is ineffective, and that it in fact causes more harm to clients (White & Miller, 2007). A review by Brunette *et al*. (2004) examined residential programmes for people with COSMHAD. They found that in terms of therapeutic communities, an important feature is the modification of the traditional confrontational approach to a more supportive, less intensive approach. Programmes rated by participants as being high in 'support', 'involvement', and 'task orientation' factors were associated with better outcomes, although it is not clear how these characteristics translated into specific programme components. In addition, specific modifications over the different stages of recovery – with a focus on slower, more concrete substance use counselling, more flexibility in treatment, fewer participant responsibilities for community governance, and more support and guidance from staff – were also highlighted. Brunette *et al*. (2004) concluded that other specific features of residential programmes were not clear.

4.8 Chapter summary

The aim of this chapter was to present the findings from the systematic review of reviews that examined which interventions are effective in engaging people who are homeless and use drugs in treatment services, and in facilitating their retention in treatment. Overall, the quality of the included reviews was moderate. Most of the reviews were undertaken in the UK, but nearly all the reviews (n=19) were international in focus. Even though the focus of the reviews was international, the majority of primary studies were undertaken in the USA, which may affect the generalisability of the findings to non-USA contexts. The papers included in the review were diverse in terms of their primary focus.

Regarding engaging and retaining people who are homeless and have drug problems in treatment, the evidence suggests that this can be difficult, regardless of intervention type. There is evidence that ACT can lead to increased engagement rates for people who are homeless and use drugs, and that integrated services for people with COSMHAD lead to better engagement and retention than segregated treatments. Results regarding HF suggest that

engagement can be difficult, and that social isolation may be a problem for those using the service. Lastly, evidence suggests that the way in which interventions are delivered can play a crucial role in treatment engagement and retention, with warmth, compassion, empathy, and lack of judgement from the workers or therapists being paramount. Regarding treatment completion, only a few reviews reported rates of successful treatment completion and, where presented, this seems to be below 50%.

Regarding substance use, our findings indicate that, firstly, there are many diverse interventions available for people experiencing homelessness and drug problems. Overall, the evidence suggests that the more integration there is between programmes and services (as opposed to parallel service provision) when dealing with people who have comorbidities, the better the outcomes. There is some evidence suggesting that harm reduction approaches can lead to decreases in drug-related risk behaviour, such as needle sharing, although the evidence is limited. Lastly, the evidence regarding substance use outcomes and HF seems to indicate that, while HF does not lead to significant changes in substance use, there are positive outcomes in terms of housing, as tenancy retention is very high.

Regarding housing outcomes, the evidence from the included reviews all supports the HF approach in terms of its effectiveness in increasing housing stability and retention, but there are issues relating to programme fidelity and type/model of HF housing. There is some evidence that supportive housing can also have a positive effect on housing stability. Interestingly, IPS can lead to a decrease in number of days spent homeless, and to a reduction in 'relapse' to homelessness. A range of models of case management can be effective in improving housing outcomes, particularly for people experiencing homelessness and mental health problems, for whom ACT may be particularly effective.

Some treatment outcomes that were not related to substance use or housing were also reported. These related primarily to mental health and well-being outcomes, with mixed evidence regarding the effectiveness of the different interventions studied.

Lastly, looking at components of best practice, evidence from the included reviews suggests that flexibility is needed in treatment approaches, and that support should be tailored to the person. If possible, a combination of approaches should be used to offer choices to people who may not be

ready for abstinence. Service providers need to be supportive and the treatment needs to be integrated, comprehensive, holistic, and person-centred in order to increase effectiveness. Optimal duration needs to be considered, with evidence suggesting that longer treatment leads to better outcomes, as well as being preferred by the service users.

5

Discussion and conclusions

5.1 Chapter overview

This chapter pulls together the high-level messages from each part of this review in order to help make connections between the respective parts. It describes the strengths and limitations of the study. It then discusses some of the most notable research gaps that exist, ending with recommendations for policy and practice.

5.2 Key messages from all study components

Recent data show that illicit drug use in the general population has increased in Ireland since 2010. Cannabis is the most used illicit drug overall, and approximately 19,000 people use opioids across the country (EMCDDA, 2019b). Data for the prevalence and patterns of drug use indicate that substance use is more commonly reported among people who are homeless than among the general population, and alcohol, cannabis, heroin, and benzodiazepines are the most commonly reported substances used by people who are homeless (Good Shepherd Services & Simon Community, 2011; Keogh *et al.*, 2015; Mayock & Sheridan, 2012; O'Reilly *et al.*, 2015). Polysubstance use is common within the homeless population, particularly with illicit drugs and alcohol. Simultaneous use of prescribed methadone, prescribed sedatives, and prescribed antipsychotics is common, as is simultaneous use of illicit and prescribed benzodiazepines (O'Reilly *et al.*, 2015). The number of drug-related deaths in Ireland rose each year from 607 in 2010 to 786 in 2017 (HRB, 2019a). More than one-half of poisoning deaths were linked to polysubstance use (HRB, 2019a). Overall, the total

number of drug treatment cases in Ireland increased to 10,664 in 2019 (HRB, 2020) – the highest number of recorded cases in the 10-year period between 2010 and 2020. The number of people who are homeless and have accessed drug treatment services rose from 581 in 2012 to 1,173 in 2019 (HRB, 2020).

Since data on existing treatment types are limited, our mapping of available services aimed to synthesise the wide range of services that exist to meet the needs of people who experience homelessness and use drugs in Ireland. Although the review has categorised services by their primary focus, organisations often provide a range of services to holistically meet an individual's needs. However, it is currently unclear by what pathways people who are homeless and use drugs are referred to services, and information on partnership working is limited. This possibly makes service provision appear more fragmented than it is. There is also limited information about specific outcomes relating to services and limited evidence of what works best for this population.

The systematic review of reviews focused on the intersection of homelessness and drug use and assessed the evidence base regarding treatment and intervention options for this population. Several reviews are available regarding interventions for people who are homeless, as well as for people with problem substance use. However, it is important to acknowledge that, despite high rates of substance use in the population of people who experience homelessness, not every individual who is homeless uses substances. This is why, despite a large number of studies having been undertaken on these topics independently, only a relatively small number of reviews have been included in this review (22 papers published between 2004 and 2020). Some of the reviews focused on people who are homeless who

have COSMHAD, or on all people who are homeless and, often by chance, including substantial numbers of people with problem substance use as well. This presents a difficulty in drawing conclusions on effective approaches for populations experiencing both homelessness and problem substance use. As this specific group of individuals often has very complex needs, including other challenging social problems and health comorbidities (Fitzpatrick-Lewis *et al.*, 2011), it is important to acknowledge that the type of support required is also likely to be complex, multifaceted, nuanced, and highly person-centred, rather than focused on responding to one challenge in isolation. People are of course all individuals with their own particular experiences, needs, and wishes with respect to health and treatment 'offers'.

This review of reviews reported on the breadth of interventions applicable to people who experience homelessness and have problem drug use, with diverse primary foci, ranging from specific housing interventions (which may subsequently impact on problem substance use) to interventions designed to help reduce or cease substance use, to harm reduction interventions for PWID. The evidence in support of the effectiveness of these various interventions is mixed. Moreover, the quantity and quality of the evidence varies between the interventions and treatments. For example, there are six reviews investigating housing interventions, but only one looking at the effect of OST and NSPs. A further complexity exists that should be borne in mind. Even the reviews which specifically explored the experiences of people who were homeless included heterogeneous study populations. For example, Barker and Maguire (2017) report on the effectiveness of IPS for people who are homeless, but the samples of the studies included in their review had to have a minimum of 30% of the population of interest. This then makes it more challenging to confidently conclude that the intervention worked specifically for those who were homeless when only a minority of the participants met the criteria for inclusion. With this in mind, we included a more stringent minimum percentage of 40%, which substantially reduced the body of selected evidence (without this minimum percentage, this review could have presented findings from an additional 12 reviews).

5.3 Strengths and limitations

Throughout the review, steps were taken to enhance methodological rigour: all stages of searching, screening, quality appraisal, data extraction, and analysis were checked for accuracy by at least two people. Another strength lies in the fact that we have captured and supplemented the quantitative reviews, with some more in-depth qualitative data looking specifically at what the targeted recipients of any of those interventions themselves believe works (and what does not). The most recent of those (Carver *et al.*, 2020) is one of only four systematic reviews which looks specifically at the subpopulation of people who are homeless (the others are Kertesz *et al.*, 2009; Torres Del Estal & Álvarez, 2018; and Wright & Walker, 2006). An additional strength lies in the fact that some non-English reviews were included (these were published in Spanish and French and translated via Google Translate, as the quality of translation was deemed appropriate).

Issues with the quality of some of the included reviews have been noted throughout the report. For example, a few of the included reviews were not systematic and did not report how many papers were included/excluded, or on what grounds. This means that the evidence presented in those studies should be classified as of low quality. It is also important to acknowledge that problematic substance use can take many forms and the appropriate treatment will vary accordingly. The length of treatment and the outcomes that can be expected will also differ. Moreover, it is important to note that some of the included reviews are relatively old (the earliest being published in 2004), meaning that the included primary studies in such reviews were even older. It is difficult to say how relevant these findings are today and what has changed, especially if no newer reviews were included on the same topic. For example, the review by Wright and Walker (2006) is the only one of the included reviews which investigated the effectiveness of sexual health promotion interventions for those experiencing homelessness and problem drug use. The review authors concluded that there were only very limited data available to inform sexual health promotion policy and practice. While it is likely that further individual studies have subsequently been published, these have not yet been collated in reviews. Moreover, reviews regarding other relevant interventions of interest have not been captured by this search (e.g. safe consumption rooms; take-home naloxone interventions to prevent drug-related deaths), which creates gaps in evidence. Furthermore, although reviews were

published internationally, most primary studies were conducted in the USA or Canada, which may limit the transferability of the findings to Ireland. Comparing the support and treatment options for those experiencing homelessness between Irish and North American contexts may be difficult given the substantial differences in systems for housing, healthcare (including substance use treatment), criminal justice, and welfare payments.

It is also important to note that interventions may be context-specific, or that certain contexts may influence the interventions and/or their effectiveness. For example, Pleace (2008) notes that one important contextual factor relates to the number of people requiring the service (e.g. is it economically justified?), or whether integration of existing services would be more justified or suitable. Similarly, whether an intervention will work will also depend on existing networks and whether there is support for joint working. The availability and extent of welfare systems, social care and healthcare systems, general economic conditions, housing and labour markets, and waiting lists for social rented housing are all also identified as potentially having an impact on the effectiveness of interventions. Pleace and Quilgars (2013) also identify the availability and extent of welfare, social care, and healthcare systems as influencing the effectiveness of interventions. They also note that available funds and costs can be influential and report that, in some USA research, HF has been shown to be cheaper than staircase services, suggesting that it may therefore be preferable. Similarly, the success of other existing approaches can be important; if they are not successful, a new approach may be more welcomed. Pleace and Quilgars (2013) also draw attention to the existing debate on whether specialised health services should separate and isolate people who experience homelessness or whether it would be better to try to enable them to use mainstream public health services. It is important to keep these contextual issues in mind when evaluating the effectiveness of the various interventions and the applicability of the findings to the Irish setting.

5.4 Research and evidence gaps

Our review investigated the available evidence for three main outcomes: treatment entry, engagement, and retention; successful completion of treatment; and treatment outcomes for people who experience homelessness and problem substance use. Despite

a large number of studies having been undertaken on these topics independently, only a relatively small number of reviews have been included in this review. Many of the included reviews included very small samples, or predominantly focused on either homelessness or substance use, making it difficult to draw conclusions on effective approaches for populations experiencing both. More research is needed about the needs of this population, with a caveat and an acknowledgement that this group is not homogenous.

Regarding treatment engagement and retention for people who are homeless and use drugs, data from the included reviews suggest that both engagement and retention can be problematic, regardless of intervention type. However, there appears to be a research and evidence gap regarding this, with only 11 of the included reviews mentioning treatment engagement and/or retention and, when doing so, providing only limited evidence on these outcomes. Limited data are available on successful treatment completion, and there is a lack of health economics studies examining the cost-effectiveness of these approaches. Other reviews and studies referred to high attrition rates, yet did not provide data. It is therefore difficult to draw conclusions about the success of treatments and interventions without taking into account completion rates.

Across the included reviews, the most data were available regarding treatment outcomes. However, the body of research for some of the intervention approaches is larger and more recent than others. Some of the reviews are more than a decade old and the quality of some reviews varies, with a few not being classed as systematic and scoring low on the quality assessment. In addition, even the highly rigorous systematic reviews of good quality may include low-quality data from primary studies within them. Only one review (Wright & Walker, 2006) investigated sexual health promotion interventions for people who are homeless and use drugs. This review highlighted the gaps in the evidence base at the time of publication, and the opportunities for further research. In particular, all of Wright and Walker's (2006) included studies were conducted in the USA, where the nature and experience of homelessness can differ from European contexts. This remains a notable evidence gap, as there is a lack of research on sexual health interventions for this population (Savage, 2016). Similarly, only one of the included reviews investigated peer support as a potential intervention for people who are homeless (Barker & Maguire, 2017), but this review did not specifically address this population. More research

into peer support for this specific population is needed, particularly into the evidence from Barker and Maguire (2017) that suggests clear benefits regarding homelessness outcomes, as well as some support for positive effects on problem substance use outcomes. Since the publication of Barker and Maguire's (2017) systematic review, a more recent systematic review regarding peer interventions for people who are homeless and experience problem substance use has been published (Miler *et al*, 2020). Both Miler *et al*. (2020) and the current review conclude that more research is needed in order to clearly define peer interventions and ascertain their impact on homeless populations, and on the peers themselves.

The authors of the most recent of the included reviews on case management (Penzenstadler *et al*., 2019) suggest that there is some evidence that those with high inpatient service use benefit most from the assertive approach of ACT, and that a similar high-need user group among people experiencing problem substance use might benefit most from this intervention. However, this needs to be studied more in depth. Future studies should investigate the effective 'ingredients' of ACT, which would help to conceptualise a specific ACT model that may be more effective. Further research is also needed to examine which types of clinical interventions might help difficult-to-engage patients with problem substance use in order to innovate treatment approaches and reach out to patients. There also appears to be a lack of uniformity in the outcomes examined and in the standardisation of measurement instruments, as well as variation in service provision between countries and settings; therefore, future studies on case management should be designed carefully. Moreover, according to de Vet *et al*. (2013), several important outcomes have not been subjected to sufficient scientific evaluation as only a few publications in their review included outcomes related to QoL, societal participation, physical health, or community integration. Therefore, only when the evidence gaps have been addressed will it be possible to establish which case management models or which specific components of these models are most suitable to accompany housing as part of a rapid-rehousing approach to homelessness.

There is a gap in evidence regarding optimal policies on discharge planning for statutory agencies, which can impact on continuity of care (Burt *et al*., 2004). Although there is evidence regarding the positive effects of integration of services and care for people experiencing COSMHAD, research is still needed in terms of establishing the effective components of integrated programmes of support.

Evidence regarding housing interventions suggests that different housing interventions may suit different groups. Overall, these may not have a huge impact on substance use (although they do not make it worse), but they but provide stability and probably have a bigger impact on substance use if other efforts are made to help service users engage with substance use services. Moreover, there is currently a lack of studies that have investigated the relationship between improvements in housing and well-being for the individual or the community. Chambers *et al*. (2017) suggest that this may reflect both limitations of the evidence base (relatively few high-quality studies reporting on core well-being outcomes) and the complexity of the relationship between housing and well-being for vulnerable people with complex needs. In terms of evidence gaps and implications for research, their review suggested that there is a need for further high-quality evaluations of interventions. There is a particular requirement for well-designed economic evaluations and studies focusing on the well-being dimensions that have been relatively under-researched to date – for example, links between housing interventions and education and skills outcomes, and community well-being outcomes.

Regarding HF more specifically, reviews which report on housing outcomes largely support the HF approach in terms of its effectiveness; however, further work is needed in relation to programme fidelity and the type of HF housing model (scattered versus single site). Further research is also needed on the potential benefits of social networks in congregate HF settings and whether these extend to service users with problem substance use. Other studies suggest that HF residents in scattered models experience increased isolation compared with residents in congregate models. Moreover, more research is needed regarding the impact of HF on substance use, and in assessing the long-term effects of improved housing stability on health outcomes. Beaudoin (2016) suggests that it is not currently possible to determine the best modalities and components to integrate into HF programmes, in terms of intensity of interventions, types of housing, and types of stakeholder teams, as the required level of evidence is currently unavailable.

Only one review (Turner *et al.*, 2011) specifically examined harm reduction, and not specifically for people who are homeless. Therefore, despite evidence suggesting that NSPs, especially if combined with OST, were effective in reducing the incidence of HCV for PWID, and given the high background HCV risk in some populations, the question remains on what levels of OST and NSP coverage (and behaviour change) are required in order to reduce HCV prevalence in people who are homeless (and how to achieve this). A number of relevant harm reduction interventions that could be used for this group are therefore missing from this report, especially in relation to drug-related deaths.

Evidence from Carver *et al*. (2020) suggests that more research is required in order to identify the optimal length of treatment duration for those experiencing homelessness and problem substance use. It is important to note that this work identified that lengthy treatment and aftercare was preferred by service users themselves. However, this view was far less prominent in primary author conclusions, suggesting that the importance of stability may be underreported in the literature, subsequently leading to the gap in knowledge regarding optimal treatment length.

5.5 Recommendations for policy and practice development

5.5.1 Intersection of homelessness and problem substance use

The systematic review of reviews focused specifically on the intersection of homelessness and substance use (with a main focus on drugs; however, some of the included reviews focused both on drugs and alcohol) and aimed to assess the evidence base regarding treatment and intervention options for this group of people. However, only 4 out of the 22 included reviews specifically examined this population. Other reviews focus on interventions for people who are homeless or for people with problem substance use. But it is important to acknowledge that, despite high rates of substance use in the homeless population, not every individual who is homeless uses substances, and not every individual who is experiencing problem substance use is homeless. This is a specific group of people with needs specific to their situation, which may be more complex (and therefore more challenging to tackle) than for people with only one of those problems in isolation. Due to this lack of research

and/or evidence syntheses focusing on this specific population, it may be misleading or inaccurate to base policy and service recommendations for this group on evidence which was not collected specifically for them. Therefore, the most important research recommendation stemming from this systematic review of reviews is to conduct more research pertaining to the intersection of homelessness and substance use specifically.

5.5.2 Lack of homogeneity

It is vital to acknowledge that people who are homeless and experience problem substance use are not a homogenous population. There are many more specific subgroups within this group, such as people who are homeless and experience COSMHAD. Their needs, understandably, will be even more complex than for the more 'general' population of people who are homeless and experience problem drug use. Moreover, gender, ethnicity, sexual orientation, and sexual identity may all play a role in how an individual who is homeless and experiences problem substance use seeks and responds to any treatment or intervention, and what other needs these individuals may have (for example, a woman and mother who is homeless and experiences problem substance use will have more needs than a non-parent man in similar situation). As noted by Carver *et al*. (2020), there are many missing voices both in their meta-ethnography, and in this present review of reviews. This adds an extra layer of uncertainty regarding the application of any of the findings to the wider population of people with homelessness and problem substance use concerns. We recommend that, in order to ensure that what we currently believe works for most people who are homeless and experience problem substance use applies to those missing voices too, more research, particularly qualitative research, should be conducted.

5.5.3 Tailored treatment versus 'ingredients' of success

To add another layer of complexity, it is important to remember that all people who are homeless and experience problem substance use, regardless of race and gender or any extra health needs, are individuals, with different circumstances, needs, wants, and preferences. As Carver *et al*. (2020) note, they are also likely to have different needs and desires relating to their substance use at different time points and their choices regarding treatment may change over time, depending on circumstances. There is a fine line between trying to establish the 'ingredients of success' of treatments

and interventions to ensure that the largest number of people can benefit, and assuming that one size fits all. We believe this to be one of the biggest challenges in terms of successful service provision: trying to balance establishing the most successful components of any treatment with ensuring that the treatment can be person-specific. How can we make sure that treatment is tailored to the individuals' needs and that there are choices provided to ensure preferences are taken into account and to strengthen the service users' sense of mastery of their own lives to foster improvements in self-esteem and well-being? Pleace (2008) similarly believes the importance of not falling into the trap of one size fits all, arguing that treatment failure often stems from the service providers not recognising the breadth and complexity of individual needs.

Due to the importance of choice for service users, we believe that a truly flexible system which provides both harm reduction and abstinence-based approaches is recommended for people experiencing homelessness. As it is vital that any treatment provision is tailored to individuals' needs, in agreement with Pleace's (2008) recommendations, we urge the service providers to set realistic service outcomes for individual service users, taking into account their circumstances and therefore placing any kind of demands on them accordingly without setting them up for failure.

However, we do acknowledge the need of service providers to establish key components or 'most successful ingredients' of interventions to try to reach and help the largest numbers of people in need. The difficulty is therefore in balancing the 'everyone is different' approach and the 'what works best for whom in what context' approach with trying to establish the common ingredients that are universal that make a positive difference. Between and within the included reviews, we note a large variation in service provision of the various models. For example, there are different types of HF, different case management models, and various 'combination treatments'. Moreover, there are issues relating to context or place; for example, Benston (2015) concludes that, except for some types of HF, the reviewed studies on housing are all unique to their environments.

One of the problems we have noted is the lack of standardisation of measures and outcomes which makes it difficult to make meaningful comparisons between different types of service models. We recommend that outcome measures are standardised and that more research directly comparing models of treatment, particularly in RCTs, is conducted. For example, with two of the HF reviews raising concerns regarding potential well-being implications of scattered versus congregate HF models, these should be compared using standardised measures. It would also be helpful for policy-makers and service providers to be given more evidence regarding any cost evaluations of those models too.

5.5.4 Optimal length of treatment and stability

Currently, treatment for problem substance use can be relatively short, with a minimum of 3 months being recommended. However, Pleace (2008) and Carver et al. (2020) stress the importance of stability related to longer treatment durations. This need for longer-term treatment duration is not surprising, given the myriad of challenges of those experiencing homelessness and problem substance use, and it is also consistent with findings from other studies in which extended treatment is associated with improved outcomes (e.g. Conners et al., 2006). There is a need for development and evaluation of longer-term treatment and aftercare models, to avoid relapse, enhance stability, and enhance the likelihood of a range of positive outcomes. It is important to note that Carver et al.'s (2020) meta-ethnography identified the requirement for lengthy treatment and aftercare as a strong view from participants. However, it was far less discernible within original author interpretations, suggesting that the importance of stability may be underreported in the literature. Interestingly, the authors also suggest that stability may be perceived differently when considering harm reduction and abstinence-based treatment, as those authors who noted the need for stability in the studies included in the meta-ethnography were all writing about harm reduction approaches.

The desire of service users for longer-lasting support conflicts with the reality of services globally, where austerity and systematic underfunding and cuts to services put pressure on services to discharge people as quickly as possible. In agreement with Pleace (2008) and Carver et al. (2020) we suggest that, firstly, more research is conducted to identify the optimal length of treatment duration for those experiencing homelessness and problem substance use, and, secondly, that there is a need for a secure funding base to enable the interventions and treatment to be prolonged once optimal duration is established.

5.5.5 Importance of staff: compassionate and non-judgemental approach

Evidence suggests that the way in which services and treatment are delivered can be more important than the type of treatment provided, and that good-quality positive relationships between the service users and staff are vital for success. It is therefore paramount that services prioritise good relationships between staff and service users, and that staff receive training and help if needed to ensure they can provide a person-centred approach and a genuine understanding of individuals' complex lives. As there needs to be a non-judgemental attitude with genuine respect for service users' choices, this may be something that needs to be continuously encouraged at an organisational level and periodically evaluated (by gaining service users' perspectives). This also resonates with the concept of PIEs; a psychological framework designed to ensure that services respond to the needs of those experiencing homelessness, which understands people's coping strategies, including problem substance use, as a response to past traumatic experiences and their ensuing emotional impact (Johnson & Haigh, 2010). The physical environment and staff training are two key components of PIEs (Keats et al., 2012). Alongside staff training, service providers can also make improvements to their environment to increase support through, for example, the use of flexible drop-ins, or improved dining facilities (Keats et al. 2012).

5.5.6 Integration and partnership working

Problem substance use treatment for those experiencing homelessness is a complex issue as multiple morbidity is common and this requires a complex, flexible, interagency response in addressing barriers to provision and ensuring effective multiagency working so that people who are homeless can access the full range of health and social care services. This has been a common recommendation among the papers included in this review of reviews.

Partnership working and integrated care are important aspects of service delivery when working with people who are homeless who use drugs. Partnership working is also an important part of trauma-informed care (Sweeney et al., 2016). In their systematic review of what works in inclusion health, Luchenski et al. (2018) conclude that partnership working is essential to achieve the best results for marginalised populations. Such work helps to ensure long-term continuity of care (Luchenski et al., 2018). Integrated care is the "organisation and management

of health services so that people get the care they need, when they need it, in ways that are user friendly, achieve the desired results and provide value for money" (Darker, 2014, p. 17). In practice, this means that services are easy to navigate, with good communication between healthcare workers at all levels of the system. They should involve partnership working across traditional professional boundaries and strong alliances between health and social care organisations (Darker, 2014). Integrated care is particularly important for people who are homeless, who often fall through the cracks of healthcare (Maness & Khan, 2014). People who are homeless are more likely to engage with services that are flexible and integrated (Maness & Khan, 2014; Mills, Burton & Matheson, 2015). Integrated care for people who are homeless is increasing in recognition, with the National Institute for Health and Care Excellence (NICE) in the UK in the process of developing guidance on such care, with a recognition of the need for joined-up health and social care that considers people's social, emotional, mental, and physical well-being, as well as other care and support needs (National Institute for Health and Care Excellence, 2020). As Carver et al. (2020) noted in their paper, for some individuals, standalone interventions may facilitate engagement with treatment but are unlikely to enable individuals to maintain their recovery. For many, their housing situation complicates their ability to engage in treatment, so providing services that address their substance use along with other needs is vital. This is why interventions such as transitional housing and HF, which provide individuals with a home to live in as well as access to a range of health and support services, may be of special benefit to this population.

5.5.7 Harm reduction

A continuum of services and approaches should be made available and offered without judgement. People experiencing homelessness should not feel that the only way to access a safe space is in settings in which abstinence is expected or enforced. Instead, substance use services and treatment settings need to support people to use substances safely, as required, without any assumption of continued abstinence.

One of the included reviews (which did not focus specifically on people who use drugs) looked specifically at harm reduction approaches and concluded that NSPs, especially if combined with OST, were effective in reducing the incidence of HCV (Turner et al., 2011). This review supports recommendations within the UK, Europe, and

globally on the need to expand NSPs and OST to prevent HCV infection. Nonetheless, even with high coverage, some participants still injected or became infected. Given the high background HCV risk in some populations, the question remains on what levels of OST and NSP coverage (and behaviour change) are required to drive down HCV prevalence (and whether these are sustainable). The evidence base needs to be strengthened and extended in two ways. First, Turner *et al*. (2011) suggest that their findings need to be corroborated, and the number of studies or public health surveillance programmes that measure HCV incident infections and intervention exposure increased. In this way, surveillance will move from describing disease prevalence or burden to evaluating and monitoring intervention impact. Secondly, they suggest the need to address and monitor the population impact of different levels of intervention coverage; that is, to compare HCV incidence between PWID with different levels of intervention exposure and consider what combination of interventions, including HCV treatment, are most likely to make sustained and substantial reductions in HCV transmission in the population.

5.5.8 Housing interventions

Reducing or stopping drug and alcohol use, as well as any related harm associated with it, for people who are homeless is a complex process. It is likely that expecting near-immediate, large-scale reductions in drug and alcohol use from HF services is unrealistic (Pleace & Quilgars, 2013). A central question when considering the role of HF services in enhancing health is how far the service model has to go in order to be judged a 'success'. Arguments have been made by the founder of Pathways to Housing suggesting that while it may be desirable for HF services to form the core response to chronic homelessness, there should be scope to also use alternative service models if they might suit a particular individual better, such as 'tolerant staircase models'. However, since chronic homelessness is extremely complex, both in terms of drug and alcohol use, and also more generally, the flexible and choice-led approach used by HF services may be advantageous. HF could be enhanced in respect of health and social integration by recognising that different 'levels' of success will be achieved when promoting and enabling better health and social integration. For some people using HF, there may be maximum success. For others there may be some movement towards better health and greater social integration, but that distance may vary and there may be limits to how far it is realistic for them to go. Once the likelihood of variable outcomes

is accepted, attention can then be paid to how outcomes in health and social integration can be enhanced. Clear recognition that achievable goals may vary between each person using a HF service is the first step to becoming more precise about what these services can achieve. Then, setting goals in relation to health and social integration outcomes should be defined, set, monitored, and tested using validated measures.

Evaluation of the relative contribution of the key principles of HF to its effectiveness would be an important next step, according to Pleace and Quilgars (2013). In addition, a clearer differentiation and comparison of the treatments broadly grouped under TAU could show whether better interventions exist for certain groups. This was also implied by Kertesz *et al*. (2009) who suggested that future research should evaluate both HF and 'linear' approaches, preferably in RCTs, with appropriate measures for both problem substance use and housing outcomes, as well as an analysis of how interventions apply to the vulnerabilities and preferences of individual clients. As mentioned earlier, we also recommend that scattered versus congregate HF models are compared with each other.

5.5.9 Interventions for people with COSMHAD

One of the key issues identified from this review of reviews regarding people with COSMHAD in relation to residential treatments is the need for statutory agencies to establish rules to ensure a well-executed discharge plan that links an institution that discharges an individual with the community that takes in the individual. This ties in with the previously mentioned need for stability and continuity of care. There seems to be consistent evidence across the included reviews suggesting that integration of care and communication between various treatment agencies is important.

Recently, Minyard *et al*. (2019) recommended that incentives in payment should be created to providers for integrating care of individuals with COSMHAD. They also suggest that when developing service payment agreements, deliverables that recognise the long path to recovery should be included. Moreover, policy-makers should analyse the system as it relates to access to psychological services and align providers with service needs, and also examine the payment structure for peer mentors, coaches, and instructors. Lastly, they suggest that policy-makers should explore how resources can be allocated to support a holistic approach to care (e.g. housing, supportive employment). Building a knowledgeable,

integrated workforce which keeps the individual at the centre; developing a common language among different provider types, consumers, and families; examining training models; and building in time to support provider training and cross-training to increase competence, confidence, and a culture of hope should all be paramount. In agreement with Minyard *et al*. (2019) we also recommend the creation of a learning community among the current integrated programmes in order to learn from each other. We suggest that conducting a realist review of integrated treatments for people with COSMHAD could be beneficial in terms of improving current programmes and building others.

5.5.10 Case management

The reviews evaluating various case management approaches report mixed results. However, taken together as 'case management-type interventions', there is evidence to support it as an effective intervention both when applied on its own and when combined with other interventions such as contingency management with positive reinforcement or incentives, art therapy, and health prevention and promotion programmes. Torres Del Estal and Álvarez (2018) recommend case management as an intervention model for both nurse-led and/or multidisciplinary teams working with people who are homeless and experience problem substance use. They recommend the promotion of such interventions at street level, with outreach and mobile units. They conclude that it is important not only to treat problem substance use as a preventable individual practice, but also in the context of health prevention and promotion programmes, where these are addressed as risk factors for subsequent disease. de Vet *et al*. (2013) also suggest that practitioners could employ case management to assist people who are homeless with improving their housing stability and changing their service use patterns. By far the most research to date has been conducted focusing on ACT, which has consistently produced positive effects on housing stability as well as being found to be cost-effective. Higher fidelity to the ACT model appears to improve results. However, this model seems to be suitable mainly for those experiencing homelessness and mental health problems or COSMHAD, who also have multiple and complex needs. The benefit of this assertive approach seems to increase the higher the inpatient service use (Penzenstadler *et al*., 2019), but this needs to be studied further. CTI has also produced promising results and seems to be more applicable for a variety of settings and populations because of its practical and time-limited nature.

In order to inform policy-makers, carefully designed experimental trials should be conducted among different subgroups of people who are homeless comparing the various types of case management models directly, using uniform and standardised measures. Only when the evidence gaps have been addressed will it be possible to establish which case management models or which specific components of these models are most suitable to accompany housing, as part of a rapid-rehousing approach to homelessness for specific homeless subgroups.

5.5.11 Peer-led or peer-involved interventions

Peer support refers to a process whereby individuals with lived experience of a particular phenomenon provide support to others by explicitly drawing on their experience of this situation. Peer support started in mental health settings in the 1970s and has since moved into other areas including homelessness, criminal justice, substance use treatment, and physical health. Peer support stemmed from the mental health recovery movement which rejected what was considered to be an outdated and stigmatising medical model for mental health treatment (Mead, Hilton & Curtis, 2001). The number of peer interventions has continued to increase globally, and the value of such interventions is increasingly recognised, for example in recommendations for peer involvement within international guidelines. In a state-of-the-art systematic review by Miler *et al*. (2020), peer support models were explored. The authors analysed 62 papers and identified a range of peer support interventions at the intersection between homelessness and problem substance use (Miler *et al*., 2020). There was evidence that peer support interventions were associated with positive outcomes in terms of substance use (alcohol, tobacco, and/or drugs), housing status, employment, physical health, and QoL (Miler *et al*., 2020). The qualitative studies included in the review highlighted the positive impacts on service users and peers, for example in terms of a sense of community and better access to treatment (Miler *et al*., 2020). Several challenges were identified in terms of vulnerability, authenticity, boundaries, stigma, and having their involvement valued (Miler *et al*., 2020). The authors conclude that peers should continue to be involved in such services and that their contributions are valued, well supported, and compensated (Miler *et al*., 2020).

Peer support is increasingly gaining in credibility and popularity, alongside strategic policy acknowledgement (Scottish Government, 2018) and the connections between the lived experiences

of both homelessness and problem substance use are becoming more visible in social research. However, only one of the reviews included in this systematic review of reviews focused on peer support interventions for people who are homeless (and this was not specific to those who also have problem substance use). Despite this limited quantity, the results of their review were very promising, showing clear benefits of peer involvement (Barker & Maguire, 2017). Furthermore, since the completion of the evidence synthesis in this systematic review of reviews, a recent state-of-the-art review has been published (Miler *et al.*, 2020), providing a systematic search and synthesis of literature examining use of peer support models within services for people impacted by homelessness and problem substance use specifically. Despite a marked increase in publication of studies on peer support in the past couple of years, only 23 of the 62 papers included in Miler *et al.'s* (2020) review focused explicitly on the intersection of homelessness and problem substance use, rather than merely including these groups of clients in their study samples. Even then, the 23 papers varied greatly in the numbers of included samples of interest, particularly people with lived experience of homelessness. This, yet again, highlights the gap in research and, subsequently, in the evidence base regarding people at the intersection of homelessness and problem substance use specifically.

Similar to the findings of Barker and Maguire (2017) (and having also included Barker and Maguire (2017) in their review), most of the studies included by Miler *et al.* (2020) reported at least some positive outcomes of peer-led/peer-staffed interventions, including an overall reduction in substance use-related harm; reductions in drug and alcohol use; reductions in cigarette use and increased smoking cessation; improvements in homelessness status; and psycho-socioeconomic benefits such as improved health, return to work, and greater community engagement leading to improvements in QoL. A small proportion of the included studies reported modestly positive outcomes only, or no differences from standard treatment or other existing interventions. These findings echo those from reviews of the effectiveness of peer support for those with substance use problems.

Qualitative studies in Miler *et al.*'s (2020) review emphasised that peers can have positive impacts on the lives of their clients, and that the clients can also benefit the peer workers themselves. For example, for some peers, the involvement in the projects

helped them to abstain from their own drug use. However, despite the identified benefits, there are also challenges that peer workers commonly face in their roles, including vulnerability, authenticity, boundaries, stigma, and having their involvement valued. There is an increasing recognition of the unique position of peers, including their ability to create a special type of rapport based on shared experience and lack of judgement, and their ability to gain trust. Many peers and professionals understand how valuable this is in engaging people with multiple social and health inequalities and connecting them to wider supports and services.

Embedding peers in services has implications for research, policy, and practice, and these require careful consideration. Peer workers commonly lack standard workplace benefits, including access to support services, training opportunities, fair pay and conditions, and career progression (Miler *et al.*, 2020). This needs to be addressed, although we acknowledge that this will necessarily be resource dependent and require cultural changes to take place to value the role of peer workers more highly. Furthermore, our recommendation regarding peer support interventions for people at the intersection of homelessness and problem substance use is to address methodological issues in research studies in order to enable us to distinguish the effects of peer recovery support from other support activities and to tackle the inconsistencies in the definitions of peer workers and recovery coaches.

5.6 Chapter summary

This chapter has sought to make connections between the respective components of this study. Based on the study findings, a number of recommendations for policy and practice were presented, alongside the main strengths and limitations of the study, and evidence gaps. Final 'key messages' from this study are provided below.

Key messages

» There is a lack of international research on effective interventions for people who are homeless who experience problems with substance use. There is also a lack of research, and a lack of Irish research in particular, which examines this intersection in depth.

» People who are homeless and experience problem substance use are not a homogenous population. More research, particularly qualitative research, should be conducted to explore the 'missing voices'.

» It is important that treatment for this population group is needs-led and person-centred. However, most research has examined complete treatment interventions and service models, and there is a lack of evidence on the effect of tailoring these.

» Treatment failure often stems from the service providers not recognising the breadth and complexity of individual needs.

» Due to the importance of choice for service users, a flexible system which provides opportunities for both harm reduction and abstinence-based approaches is recommended.

» Consensus on outcome measures (including treatment outcomes and treatment completion indicators for this population) should be reached to help research standardisation, and to support meaningful comparisons between interventions.

» Research is required on the optimal length of treatment for this population. This has implications for practice, as research findings may lead to a need to secure funding for extended periods of treatment.

» The findings highlight the importance of integration between different services, especially for people who are homeless and who experience COSMHAD.

» How interventions are delivered (non-judgemental, compassionate), providing choices, and respecting service users' preferences for approach, is an important determinant of success.

» In the review research studies there are insufficient data regarding treatment retention and completion available and/or synthesised.

» Housing interventions, especially HF, lead to improvements in housing outcomes, but evidence regarding HF interventions and health and well-being outcomes is mixed. Evidence suggests that HF does not impact on substance use outcomes.

» Case management-type interventions can be effective, but ACT seems suitable primarily for those experiencing homelessness and mental health problems or COSMHAD.

» Peer support interventions have the potential to lead to positive housing, substance use, and well-being outcomes, but care needs to be taken when embedding peers into services due to common challenges that they experience in such roles.

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Appendix 1. PICOS

Populations
People experiencing homeless and drug use (including polysubstance use)
Range of drugs used both problematically and/or recreationally, including PIEDs
Adults (over 18 years, with no upper age limit)

Interventions
Problem drug use treatment (including polysubstance use)
Harm reduction approaches
Interventions in primary care for drug use
Interventions in mental health settings for drug use
Residential rehabilitation
Detoxification

Comparators
Any

Outcomes
Reduced drug consumption
Reduced overdoses (fatal and non-fatal)
Reduced drug-related harm
Improved quality of life
Improved health outcomes

Study design
Review (including systematic review, meta-analysis, evidence synthesis, realist review, mixed methods review, qualitative synthesis, meta-epidemiology, integrative review, umbrella review, critical interpretative synthesis)

Appendix 2.
Sources for trend analysis

Organisation/author	Webpage/article
Bates (2017)	The drugs situation in Ireland: an overview of trends from 2005 to 2015
Duffin *el al.* (2020)	Street tablet use in Ireland. A Trendspotter study on use, markets, and harms
EMCDDA (2020a)	Key epidemiological indicators
EMCDDA (2019)	Ireland Drug Country Report 2019
Good Shepherd Services & Simon Community (2011)	Women's health and homelessness in Cork
Hay *et al.* (2017)	Estimating the prevalence of problematic opiate use in Ireland using indirect statistical methods
Health Research Board (HRB)	National Drugs Library
HRB (2016)	National Drug-Related Deaths Index 2004 to 2014 data
HRB (2019)	National Drug-Related Deaths Index 2008 to 2017 data
HRB (2017)	National Drug Treatment Reporting System 2009 to 2015 data
HRB (2019)	National Drug Treatment Reporting System 2012 to 2018 drug data
HSE	Review of Needle Exchange Provision in Ireland
Keogh *et al.* (2015)	Health and use of health services of people who are homeless and at risk of homelessness who receive free primary health care in Dublin
Mayock & Sheridan (2012)	Women's journeys to homelessness: key findings from a biographical study of homeless women in Ireland
National Advisory Committee on Drugs and Alcohol (NACDA) (2016)	Prevalence of drug use and gambling in Ireland and drug use in Northern Ireland. Bulletin 1
O'Reilly *et al.* (2015)	Homelessness: An unhealthy state. Health status, risk behaviours and service utilisation among homeless people in two Irish cities

Appendix 3. Relevant data sources

Table of organisations searched for mapping of current service provision

Statutory services	Third sector services	Organisations that specify that they provide specialist substance use services for people who are homeless
Health Service Executive (HSE) Addiction Services	Other HSE partners listed on the HSE website	Ana Liffey Drug Project
HSE Adolescent Addiction Service	YMCA Ireland	Cuan Mhuire
Substance Abuse Service Specific to Youth (SASSY)	Threshold	Suaimhneas
Soilse	Crosscare	Daisyhouse
Youth Drug and Alcohol Service (YoDA)	Focus Ireland	Focus Ireland
HSE Social Inclusion programme	Salvation Army	Static, outreach and pharmacy needle exchange services
Local and Regional Drug and Alcohol Task Forces	Daisyhouse	Simon Communities
Prescribing services (including opioid therapies)	Depaul	Merchants Quay Ireland
Static, outreach, and pharmacy needle exchange services	Narcotics Anonymous	Peter McVerry Trust
Planned medically supervised injecting facility at Merchants Quay	Cuan Mhuire	Safetynet
	Society of St. Vincent de Paul	Salvation Army
	Ana Liffey Drug Project	HSE Social Inclusion programme
	Merchants Quay Ireland	Society of St. Vincent de Paul
	Peter McVerry Trust	
	Safetynet	
	Simon Communities	

Organisations identified through relevant stakeholders

Statutory services	Third sector services
Cuan Dara Inpatient Therapeutic Detoxication Centre (HSE)	Sophia Housing
Keltoi Residential Treatment Centre (HSE)	HAIL (Housing Association for Integrated Living)
	RADE (Recovery through Arts, Drama and Education)
	Novas
	Clondalkin Tus Nua
	Depaul Tus Nua
	Rutland Centre

Appendix 4. Search strategy

MEDLINE

1   exp Homeless Persons/

2   homeless*.ti,ab,kw.

3   undomiciled.ti,ab,kw.

4   houseless*.ti,ab,kw.

5   (rough adj sleep*).ti,ab,kw.

6   "street person".ti,ab,kw.

7   "street people".ti,ab,kw.

8   vagrant*.ti,ab,kw.

9   "no fixed abode".ti,ab,kw.

10   (transient adj3 (people or person* or adult* or man or men or woman or women

or individual* or population* or group* or communit*)).ti,ab,kw.

11   (shelter adj (seek* or using or need*)).ti,ab,kw.

12   "shelter use".ti,ab,kw.

13   "unstabl* hous*".ti,ab,kw.

14   unshelter*.ti,ab,kw.

15   ((emergency or temporary or overnight or housed or intermittent or night) adj

(shelter* or hostel*)).ti,ab,kw.

16   roofless*.ti,ab,kw.

17   destitute.ti,ab,kw.

18   runaway*.ti,ab,kw.

19   ((without or lack) adj2 (home* or housing or house)).ti,ab,kw.

20   or/1-19

21   ((Drug* or substance* or polydrug or "poly-drug" or "legal high*" or

psychoactive* or "psycho-active*" or psychotropic*) adj4 (use* or abus* or misuse* or

"mis-use*" or refus* or problem* or taking or take* or experiment* or

addict*)).ti,ab,kw.

22   ((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 opiate*or hallucinogen* or "anabolic steroid*" or gabapentin

or pregabalin or etizolam or valium) adj4 (use* or abus* or misuse* or "mis-use*" or

refus* or problem* or taking or take* or experiment* or addict*)).ti,ab,kw.

23   (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 "novel

psychoactive substance*" or NPS or "harm reduction" or detox*).ti,ab,kw.

24   exp Street Drugs/

25   exp Designer Drugs/

26   exp Marijuana Abuse/

27	exp Drug-Seeking Behavior/
28	exp Performance-Enhancing Substances/
29	exp Substance-Related Disorders/
30	exp Amphetamine-Related Disorders/
31	exp Cocaine-Related Disorders/
32	exp Inhalant Abuse/
33	exp Marijuana Abuse/
34	exp Opioid-Related Disorders/
35	exp Phencyclidine Abuse/
36	exp Substance Abuse, Intravenous/
37	exp Marijuana Smoking/
38	exp Drug Users/
39	or/21-38
40	20 and 39
41	limit 40 to (meta analysis or "systematic review")
42	"systematic review".ti,ab,kw.
43	"evidence synthesis".ti,ab,kw.
44	"realist review".ti,ab,kw.
45	"realist synthesis".ti,ab,kw.
46	"meta analysis".ti,ab,kw.
47	"mixed methods review".ti,ab,kw.
48	"meta-synthesis".ti,ab,kw.
49	"mixed methods synthesis".ti,ab,kw.
50	meta-epidemiology.ti,ab,kw.
51	"qualitative synthesis".ti,ab,kw.
52	("meta-epidemiolog*" or meta-ethnograph*).ti,ab,kw.
53	"cochrane review".ti,ab,kw.
54	"integrative review".ti,ab,kw.
55	"umbrella review".ti,ab,kw.
56	"critical interpretive synthesis".ti,ab,kw.
57	or/42-56
58	40 and 57
59	41 or 58
60	from 59 keep 1-101

CINAHL

S1	(MH "Homeless Persons") OR (MH "Homelessness")
S2	TI homeless* OR AB homeless* OR SU homeless*
S3	TI undomiciled OR AB undomiciled OR SU undomiciled
S4	TI houseless* OR AB houseless* OR SU houseless*
S5	TI (rough NEAR sleep*) OR AB (rough NEAR sleep*) OR SU (rough NEAR sleep*)
S6	TI "street person" OR AB "street person" OR SU "street person"
S7	TI "street people" OR AB "street people" OR SU "street people"
S8	TI vagrant* OR AB vagrant* OR SU vagrant*
S9	TI "no fixed abode" OR AB "no fixed abode" OR SU "no fixed abode"
S10	TI ((transient N3 (people or person* or adult* or man or men or woman or women or individual* or population* or group* or communit*))) OR AB ((transient N3 (people or person* or adult* or man or men or woman or women or individual* or population* or group* or communit*))) OR SU ((transient N3 (people or person* or adult* or man or men or woman or women or individual* or population* or group* or communit*)))
S11	TI ((shelter N (seek* or using or need*))) OR AB ((shelter N (seek* or using or need*))) OR SU ((shelter N (seek* or using or need*)))
S12	TI "shelter use" OR AB "shelter use" OR SU "shelter use"
S13	TI "unstabl* hous*" OR AB "unstabl* hous*" OR SU "unstabl* hous*"
S14	TI unshelter* OR AB unshelter* OR SU unshelter*
S15	TI (((emergency or temporary or overnight or housed or intermittent or night) N (shelter* or hostel*))) OR AB (((emergency or temporary or overnight or housed or intermittent or night) N (shelter* or hostel*))) OR SU (((emergency or temporary or overnight or housed or intermittent or night) N (shelter* or hostel*)))

S16   TI roofless* OR AB roofless* OR SU roofless*

S17   TI destitute OR AB destitute OR SU destitute

S18   TI runaway* OR AB runaway* OR SU runaway*

S19   TI (((without or lack) N2 (home* or housing or house))) OR AB (((without or lack) N2 (home* or housing or house))) OR SU (((without or lack) N2 (home* or housing or house)))

S20   S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19

S21   TI (((Drug* or substance* or polydrug or "poly-drug" or "legal high*" or psychoactive* or "psycho-active*" or psychotropic*) N4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*))) OR AB (((Drug* or substance* or polydrug or "poly-drug" or "legal high*" or psychoactive* or "psycho-active*" or psychotropic*) N4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*))) OR SU (((Drug* o...

S22   TI (((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 opiate*or

hallucinogen* or "anabolic steroid*" or gabapentin or pregabalin or etizolam or valium) N4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*))) OR AB (((ketamine or speed or spice or cocaine or crack or mushroom* or solvent* or inhalant...

S23   TI ((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 "novel psychoactive substance*"...

S24   (MH "Street Drugs+")

S25   (MH "Designer Drugs")

S26   (MH "Substance Abusers+")

S27   (MH "Drug-Seeking Behavior")

S28   (MH "Substance Use Disorders+")

S29   (MH "Inhalant Abuse")

S30   (MH "Substance Dependence+")

S31   (TI ("harm reduction" or detox*)) OR (AB ("harm reduction" or detox*)) OR (SU ("harm reduction" or detox*))

S32   S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31

S33   S20 AND S32

S34   TI "systematic review" OR AB "systematic review" OR SU "systematic review"

S35   TI "evidence synthesis" OR AB "evidence synthesis" OR SU "evidence synthesis"

S36   TI "realist review" OR AB "realist review" OR SU "realist review"

S37   TI "realist synthesis" OR AB "realist synthesis" OR SU "realist synthesis"

S38   TI "meta analysis" OR AB "meta analysis" OR SU "meta analysis"

S39   TI "mixed methods review" OR AB "mixed methods review" OR SU "mixed methods review"

S40   TI "meta-synthesis" OR AB "meta-synthesis" OR SU "meta-synthesis"

S41   TI "mixed methods synthesis" OR AB "mixed methods synthesis" OR SU "mixed methods synthesis"

S42   TI "qualitative synthesis" OR AB "qualitative synthesis" OR SU "qualitative synthesis"

S43   (TI ("meta-epidemiolog*" or "meta-ethnograph*")) OR (AB ("meta-epidemiolog*" or "meta-ethnograph*")) OR (SU ("meta-epidemiolog*" or "meta-ethnograph*"))

S44   TI "cochrane review" OR AB "cochrane review" OR SU "cochrane review"

S45   TI "integrative review" OR AB "integrative review" OR SU "integrative review"

S46   TI "umbrella review" OR AB "umbrella review" OR SU "umbrella review"

S47   TI "critical interpretive synthesis" OR AB "critical interpretive synthesis" OR SU "critical interpretive synthesis"

S48   S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S45 OR S46 OR S47

S49   S33 AND S48

S50   S20 AND S32

S51   S49 OR S50

Embase

1.   exp homelessness/ or exp homeless person/

2.   homeless*.ti,ab,kw.

3.   undomiciled.ti,ab,kw.

4.   houseless*.ti,ab,kw.

5.   (rough adj sleep*).ti,ab,kw.

6.   "street person".ti,ab,kw.

7.   "street people".ti,ab,kw.

8.   vagrant*.ti,ab,kw.

9.   "no fixed abode".ti,ab,kw.

10.   (transient adj3 (people or person* or adult* or man or men or woman or women or individual* or population* or group* or communit*)).ti,ab,kw.

11.   (shelter adj (seek* or using or need*)).ti,ab,kw.

12.   "shelter use".ti,ab,kw.

13.   "unstabl* hous*".ti,ab,kw.

14.   unshelter*.ti,ab,kw.

15.   ((emergency or temporary or overnight or housed or intermittent or night) adj (shelter* or hostel*)).ti,ab,kw.

16.   roofless*.ti,ab,kw.

17.   destitute.ti,ab,kw.

18.   runaway*.ti,ab,kw.

19.   ((without or lack) adj2 (home* or housing or house)).ti,ab,kw.

20.   or/1-19

21.   ((Drug* or substance* or polydrug or "poly-drug" or "legal high*" or psychoactive* or "psycho-active*" or psychotropic*) adj4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*)).ti,ab,kw.

22.   ((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 opiate*or hallucinogen* or "anabolic steroid*" or gabapentin or pregabalin or etizolam or valium) adj4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*)).ti,ab,kw.

23.   (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 "novel psychoactive substance*" or NPS or "harm reduction" or detox*).ti,ab,kw.

24.   exp street drug/

25.   exp designer drug/

26.   exp cannabis addiction/

27.   exp drug seeking behavior/

28.   exp performance enhancing substance/

29.   exp drug dependence/

30.   exp amphetamine dependence/

31.   exp cocaine dependence/

32.   exp inhalant abuse/

33.   exp opiate addiction/

34.   exp phencyclidine abuse/

35.   exp substance abuse/

36.   exp cannabis smoking/

37.   exp drug abuse/

38.   or/21-37

39.   20 and 38

40.   limit 39 to (meta analysis or "systematic review")

41.   "systematic review".ti,ab,kw.

42.   "evidence synthesis".ti,ab,kw.

43.   "realist review".ti,ab,kw.

44. "realist synthesis".ti,ab,kw.

45. "meta analysis".ti,ab,kw.

46. "mixed methods review".ti,ab,kw.

47. "meta-synthesis".ti,ab,kw.

48. "mixed methods synthesis".ti,ab,kw.

49. "qualitative synthesis".ti,ab,kw.

50. ("meta-epidemiolog*" or meta-ethnograph*). ti,ab,kw.

51. "cochrane review".ti,ab,kw.

52. "integrative review".ti,ab,kw.

53. "umbrella review".ti,ab,kw.

54. "critical interpretive synthesis".ti,ab,kw.

55. or/41-54

56. 39 and 55

57. 40 or 56

PscyINFO

1. exp Homeless/

2. homeless*.ti,ab,id.

3. undomiciled.ti,ab,id.

4. houseless*.ti,ab,id.

5. (rough adj sleep*).ti,ab,id.

6. "street person".ti,ab,id.

7. "street people".ti,ab,id.

8. vagrant*.ti,ab,id.

9. "no fixed abode".ti,ab,id.

10. (transient adj3 (people or person* or adult* or man or men or woman or women or individual* or population* or group* or communit*)).ti,ab,id.

11. (shelter adj (seek* or using or need*)). ti,ab,id.

12. "shelter use".ti,ab,id.

13. "unstabl* hous*".ti,ab,id.

14. unshelter*.ti,ab,id.

15. ((emergency or temporary or overnight or housed or intermittent or night) adj (shelter* or hostel*)).ti,ab,id.

16. roofless*.ti,ab,id.

17. destitute.ti,ab,id.

18. runaway*.ti,ab,id.

19. ((without or lack) adj2 (home* or housing or house)).ti,ab,id.

20. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19

21. ((Drug* or substance* or polydrug or "poly-drug" or "legal high*" or psychoactive* or "psycho-active*" or psychotropic*) adj4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*)).ti,ab,id.

22. ((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 opiate*or hallucinogen* or "anabolic steroid*" or gabapentin or pregabalin or etizolam or valium) adj4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*)).ti,ab,id.

23. (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 "novel psychoactive substance*" or NPS or "harm reduction" or detox*).ti,ab,id.

24. exp Drug Abuse/

25. exp Designer Drugs/

26. exp Drug Dependency/

27. exp Marijuana Usage/

28. exp Drug Seeking/

29. exp Drug Addiction/

30. exp Performance Enhancing Drugs/

31. exp "Substance Use Disorder"/

32. exp Inhalant Abuse/

33. exp "Substance Use Treatment"/

34. or/21-33

35. 20 and 34

36.   "systematic review".ti,ab,id.

37.   "evidence synthesis".ti,ab,id.

38.   "realist review".ti,ab,id.

39.   "realist synthesis".ti,ab,id.

40.   "meta analysis".ti,ab,id.

41.   "mixed methods review".ti,ab,id.

42.   "meta-synthesis".ti,ab,id.

43.   "meta-synthesis".ti,ab,id.

44.   "qualitative synthesis".ti,ab,id.

45.   ("meta-epidemiolog*" or meta-ethnograph*).ti,ab,id.

46.   "cochrane review".ti,ab,id.

47.   "integrative review".ti,ab,id.

48.   "umbrella review".ti,ab,id.

49.   "critical interpretive synthesis".ti,ab,id.

50.   36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49

51.   35 and 50

CDSR

#1   MeSH descriptor: [Homeless Persons] explode all trees

#2   homeless*:ti,ab

#3   undomiciled:ti,ab

#4   houseless*:ti,ab

#5   (rough NEAR sleep*):ti,ab

#6   "street person":ti,ab

#7   "street people":ti,ab

#8   vagrant*:ti,ab

#9   "no fixed abode":ti,ab

#10   (transient NEAR/3 (people or person* or adult* or man or men or woman or women or individual* or population* or group* or communit*)):ti,ab

#11   (shelter NEAR (seek* or using or need*))

#12   "shelter use":ti,ab

#13   "unstabl* hous*":ti,ab

#14   unshelter*:ti,ab

#15   ((emergency or temporary or overnight or housed or intermittent or night) NEAR (shelter* or hostel*)):ti,ab

#16   roofless*:ti,ab

#17   destitute:ti,ab

#18   runaway*:ti,ab

#19   ((without or lack) NEAR/2 (home* or housing or house)):ti,ab

#20   {OR #1-#19}

#21   ((Drug* or substance* or polydrug or "poly-drug" or "legal high*" or psychoactive* or "psycho-active*" or psychotropic*) NEAR/4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*)):ti,ab

#22   ((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 opiate*or hallucinogen* or "anabolic steroid*" or gabapentin or pregabalin or etizolam or valium) NEAR/4 (use* or abus* or misuse* or "mis-use*" or refus* or problem* or taking or take* or experiment* or addict*)):ti,ab

#23   (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 "novel psychoactive substance*" or NPS or "harm reduction" or detox*):ti,ab

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

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

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

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

#28   MeSH descriptor: [Performance-Enhancing Substances] explode all trees

#29   MeSH descriptor: [Substance-Related Disorders] explode all trees

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

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

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

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

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

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

#36   MeSH descriptor: [Substance-Related Disorders] explode all trees

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

#38   MeSH descriptor: [Drug Users] explode all trees

#39   (Gordon, Grimmer *et al.* -#38)

#40   #20 AND #390

PROSPERO

#1   MeSH DESCRIPTOR Homeless Persons EXPLODE ALL TREES

#2   homeless* or undomiciled or houseless* or "rough sleep*" or shelter or "street person" or "street people" or vagrant* or "no fixed abode" or shelter or "unstabl* hous*" or hostel* or unshelter* or roofless* or destitute or runaway* or "without home*" or "without housing" or "without house" or "lack home*" or "lack housing" or "lack house"

#3   #1 OR #2

#4   Drug* or substance* or polydrug or "poly-drug" or "legal high*" or psychoactive* or "psycho-active*" or psychotropic* or 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 opiate*or hallucinogen* or "anabolic steroid*" or gabapentin or pregabalin or etizolam or valium or 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 "novel psychoactive substance*" or NPS or "harm reduction" or detox*

#5   MeSH DESCRIPTOR Street Drugs EXPLODE ALL TREES

#6   MeSH DESCRIPTOR Designer Drugs EXPLODE ALL TREES

#7   MeSH DESCRIPTOR Marijuana Abuse EXPLODE ALL TREES

#8   MeSH DESCRIPTOR Drug-Seeking Behavior EXPLODE ALL TREES

#9   MeSH DESCRIPTOR Performance-Enhancing Substances EXPLODE ALL TREES

#10   MeSH DESCRIPTOR Substance-Related Disorders EXPLODE ALL TREES

#11   MeSH DESCRIPTOR Amphetamine-Related Disorders EXPLODE ALL TREES

#12   MeSH DESCRIPTOR Cocaine-Related Disorders EXPLODE ALL TREES

#13   MeSH DESCRIPTOR Inhalant Abuse EXPLODE ALL TREES

#14   MeSH DESCRIPTOR Marijuana Abuse EXPLODE ALL TREES

#15   MeSH DESCRIPTOR Opioid-Related Disorders EXPLODE ALL TREES

#16   MeSH DESCRIPTOR Phencyclidine Abuse EXPLODE ALL TREES

#17   MeSH DESCRIPTOR Substance Abuse, Intravenous EXPLODE ALL TREES

#18   MeSH DESCRIPTOR Marijuana Smoking EXPLODE ALL TREES

#19   MeSH DESCRIPTOR Drug Users EXPLODE ALL TREES

#20   #19 OR #18 OR #17 OR #16 OR #15 OR #14 OR #13 OR #12 OR #11 OR #10 OR #8 OR #9 OR #7 OR #6 OR #5 OR #4

#21   #3 AND #20

Epistemonikos

(homeless* OR undomiciled OR houseless* OR "rough sleep*" OR shelter OR "street person" OR "street people" OR vagrant* OR "no fixed abode" OR transient OR "unstabl* hous*" OR hostel* OR unshelter* OR roofless* OR destitute OR runaway* OR "without home*" OR "without housing" OR "without house" OR "lack home*" OR "lack housing" OR "lack house") AND (Drug* OR substance* OR polydrug OR "poly-drug" OR "legal high*" OR psychoactive* OR "psycho-active*" OR psychotropic* OR 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 opiate*or hallucinogen* OR "anabolic steroid*" OR gabapentin OR pregabalin OR etizolam OR valium OR 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 "novel psychoactive substance*" OR NPS OR "harm reduction" OR detox* OR "drug* use*" OR "drug* abuse*" OR "drug* misuse" OR "drug* mis-use*" OR "drug* addict*" OR "drug* taker" OR "drug taking" OR "drug* problem*" OR "substance* use*" OR "substance* abuse*" OR "substance* misuse" OR "substance* mis-use*" OR "substance* addict*" OR "substance* problem*" OR "substance* taker" OR "substance taking" OR polydrug OR "poly-drug" OR "legal high*" OR psychoactive* OR "psycho-active*" OR psychotropic*)

The Campbell Collaboration

Search term	Results
homeless/homelessness[1]	3
undomiciled	0
houseless	0
"rough sleep*"	0
"street person"	0
"street people"	0
shelter	2
vagrant*	0
"no fixed abode"	0
transient	0
"unstable housing"	0
hostel	0
unshelter	0
roofless	0
destitute	0
runaway*	0
"without home"	0
"without housing"	0
"without house"	0
"lack home"	0
"lack housing"	0
"lack house"	0

Notes:
1. Homeless also retrieves records with homelessness
2. Cannot search using truncation *
3. This database cannot process long search strings

NIHR Journals Library (HTA)

Search term	Results
homeless*	3
undomiciled	0
houseless*	0
"rough sleep*"	0
"street person"	0
"street people"	0
shelter	1
vagrant*	0
"no fixed abode"	0
transient	27
"unstabl* hous*"	0
hostel*	0
unshelter*	0
roofless*	0
destitute	1
runaway*	0
"without home*"	0
"without housing"	0
"without house"	0
"lack home"	0
"lack housing"	0
"lack house"	0

Notes:
   NIHR Journals Library cannot process long search strings, so
   each term was searched separately

Appendix 5. Inclusion and exclusion criteria

Inclusion	Exclusion
Type of study	
Review (including systematic review, meta-analysis, evidence synthesis, realist review, mixed methods review, qualitative synthesis, meta-epidemiology, integrative review, umbrella review, or critical interpretative synthesis)	Primary research Non-systematic literature search
Participants	
People experiencing homelessness and drug use (including polysubstance use)	People who are not deemed homeless; alcohol use only
Range of drugs used problematically and/or recreationally, including performance and image enhancing drugs	Non-drug use
Adults (aged 18 years or over, with no upper age limit)	People aged under 18
Interventions	
Problem drug use treatment (including polysubstance use) Harm reduction approaches Interventions in primary care for drug use Interventions in mental health settings for drug use Residential rehabilitation Detoxification	Non-drug-related interventions and treatment Alcohol-only interventions
Outcomes	
Reduced drug consumption Reduced overdoses (fatal and non-fatal) Reduced drug-related harm Improved quality of life Improved health outcomes	Non-drug-related outcomes Alcohol-only-related outcomes

Appendix 6.
Final inclusion decisions for identified papers

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Althaus *et al.* **(2011)**	Effectiveness of interventions targeting frequent users of emergency departments: a systematic review.	Primary outcome of interest was the reduction in emergency department (ED) use but explored cost analyses and various clinical and social outcomes.	Systematic review of the type and effectiveness of interventions to reduce the number of ED visits by frequent users. Eleven studies (3 randomised controlled trials (RCTs), 2 controlled, and 6 non-controlled before-and-after studies). Only 3/11 looked at homelessness and substance use (together).	Three of the 11 studies reported clinical outcomes, and each of these tested case management. One study demonstrated a significant reduction both in alcohol use and drug use 12 months after intervention, another study identified a reduction in alcohol use but no difference in psychiatric symptoms 24 months after intervention. The third study did not find differences in either drug or alcohol use. Social outcomes were reported in the same three studies. All reported significant positive outcomes on homelessness.	Review excluded.	Only 27% of the included studies reported on drug/alcohol outcomes. PICOS – population of interest is not substance-using homeless people.
Barker and Maguire (2017)	Experts by Experience: Peer Support and its Use with the Homeless.	IPS for the homeless.	Systematic review; at least 30% participants in each study have to be homeless. Ten studies.	Ten studies. The samples had high rates of substance use and it was generally found that a peer intervention reduced harm related to addiction. Half of the included studies report positive outcomes in reducing drug and alcohol use and reducing relapse rates. Two studies found non-significant changes related to addiction.	Review included.	Authors used 30% minimum of homeless populations in their included studies, but the overall percentage across the 10 studies was >40%. Reported substance use-related outcomes.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Bassuk *et al.* **(2014)**	The effectiveness of housing interventions and housing and service interventions on ending family homelessness: a systematic review.	Appraise and synthesise evidence on effective interventions addressing family homelessness. Outcomes included housing status, parental trauma and mental health and substance use, children's behavioural and academic status, and family reunification.	Systematic review, six studies. Had to include "homeless families" defined as (a) parent(s) – mothers, fathers, or other primary caretakers (e.g. grandparents) – accompanied by at least one child aged under 18 years; (b) pregnant mothers; and (c) children aged under 18 years accompanied by at least one parent.	Rates of parental mental health and substance use were underreported because several of the programmes excluded families with these problems. For example, in one study, 89% of transitional housing programmes did not enrol families with active substance use issues, 22% required at least 6 months of sobriety before admission, and some required one year or more. Because of major differences in the programmes, insufficient information about the nature of the interventions, and methodological limitations in the evaluation design of individual studies, inferential conclusions about programme effectiveness were not possible.	Review excluded.	PICOS – population here includes children and youth which we have decided to exclude in our inclusion/ exclusion criteria. Not much data on substance use because of methodological limitations.
Baxter *et al.* **(2019)**	Effects of Housing First approaches on health and well-being of adults who are homeless or at risk of homelessness: systematic review and meta-analysis of randomised controlled trials.	Aimed to systematically review the evidence from RCTs for the effects of HF on health and well-being. Extracted data on the following outcomes: mental health; self-reported health and quality of life; substance use; non-routine use of healthcare services; and housing stability.	Systematic review and meta-analysis. Four studies.	The impact of HF on most short-term health outcomes was imprecisely estimated, with varying effect directions. No clear difference in substance use was seen. Intervention groups experienced fewer ED visits.	Review included.	Homeless population and reporting on substance use outcomes.
Beaudoin (2016) (French)	Effectiveness of the "housing first" approach: A systematic review. [Effectiveness of the "housing first" approach: A systematic review]	Systematic review of Canadian and international literature was undertaken to respond to the following evaluation question: can the HF approach be effective in response to the needs of homeless people with mental health or substance use problems?	Systematic review, 25 studies included.	The HF approach has effects similar to those of usual services and traditional psychosocial interventions on mental health, physical health, and substance use. None of the included studies found a significant difference between HF and non-HF approaches on substance use.	Review included.	Population is homeless people with mental health or substance use problems.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Benston (2015)	Housing programs for homeless individuals with mental illness: Effects on housing and mental health outcomes.	Analysed the best available research in the United States of America (USA) on permanent supportive housing programmes for homeless individuals with mental illness and the effect of these programmes on housing status and mental health.	Systematic review, 14 studies.	Seven of the 14 studies reported mixed clinical and substance use outcomes. One study reported that the experimental housing condition was associated with a reduction in substance use; another found no difference in substance use because substance use declined in both conditions. Four studies found that the preferred housing condition did not yield any advantage in clinical outcomes over the comparison or control condition, either because no improvements were found or because both experimental and comparison groups showed similar gains.	Review included.	50% of studies reported on substance use outcomes. PICOS – population here is homeless people with mental health problems, but we are aware that there is a very high level of comorbidity between mental health and substance use.
Bøg et al., (2017)	12-step programs for reducing illicit drug use	Review examined the effectiveness of 12-step programmes aimed at "illicit-drug-dependent participants" compared to no intervention, TAU, and other interventions.	Systematic review and meta-analysis. Primary outcome of interest was drug use. Secondary outcomes included homelessness and treatment retention. Only studies that considered 12-step interventions and used an RCT/quasi-randomised controlled trial (QRCT) design or a qualitative evidence synthesis with a well-defined control group were eligible for inclusion. Thirteen studies met the inclusion criteria, with six studies contributing data on three independent studies. In total, 10 studies were included in the review.	Analyses did not reveal any statistically significant differences for the primary outcome of drug use between 12-step programmes and the alternative set of interventions. The results of this review suggest that 12-step interventions to support illicit drug users are as effective as alternative psychosocial interventions in reducing drug use.	Review excluded.	Does not report on homelessness even though homelessness was a secondary outcome, because "None of the studies measured or reported outcomes related to homelessness" (Bøg, 2017, p. 35).
Brunette et al. (2004)	A review of research on residential programs for people with severe mental illness and co-occurring substance use disorders	Residential programmes for people with co-occurring serious mental health problems and alcohol/drug use (COSMHAD).	Review. Ten controlled studies of residential interventions. Five of 10 focused on homeless people.	Ten controlled studies suggest that greater levels of integration of substance abuse and mental health services is more effective than less integration.	Review included.	50% of the studies are about homeless people. All studies report on substance use outcomes.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Carver *et al.* (2020)	What constitutes effective problematic substance use treatment from the perspective of people who are homeless? A systematic review and meta-ethnography.	What treatment do people who are homeless and experience problem substance use find effective?	A systematic review and meta-ethnography. Twenty-three papers.	Participants in all types of interventions had a preference for harm reduction-oriented services and considered treatment effective when it provided a facilitative service environment; compassionate and non-judgemental support; time; choices; and opportunities to (re)learn how to live. Longer durations valued, especially by women.	Review included.	PICOS – exact population of interest. All included studies are relevant to our question.
Carver *et al.* (2020)	What constitutes effective problematic substance use treatment from the perspective of people who are homeless? A systematic review and meta-ethnography.	What treatment do people who are homeless and experience problem substance use find effective?	A systematic review and meta-ethnography. Twenty-three papers.	Participants in all types of interventions had a preference for harm reduction-oriented services and considered treatment effective when it provided a facilitative service environment; compassionate and non-judgemental support; time; choices; and opportunities to (re)learn how to live. Longer durations valued, especially by women.	Review included.	PICOS – exact population of interest. All included studies are relevant to our question.
Chambers *et al.* (2017)	Systematic review of the evidence on housing interventions for 'housing-vulnerable' adults and its relationship to wellbeing.	Authors synthesised and considered the quality of evidence on how housing interventions can contribute to improving the lives of adults who are vulnerable in relation to the security of their housing tenure ('housing-vulnerable' adults). Did not look at people with substance use problems specifically but does include them.	Studies of housing-vulnerable adults, their families or carers, and providers of housing services. Studies had to include an intervention designed to avoid homelessness or unstable housing and report outcomes related to well-being and/or housing stability. Housing-vulnerable people included those who were homeless or had a history of homelessness, people with a history of mental illness, people with a learning disability, refugees and recent immigrants, young people leaving care, and ex-prisoners.	Strong evidence that HF can improve housing stability and measures of physical health in the short term. Evidence was classed as moderate for positive effects on personal well-being, mental health, and locality-related well-being (i.e. well-being related directly to one's living situation and conditions) and for absence of effect on personal finance and community well-being. Strength of evidence for other outcomes was rated as low or very low. Research identified a range of factors that can affect the effectiveness of HF, including fidelity to core components and whether the service is delivered in one place or service users are dispersed in separate apartments. Other complex interventions provide an opportunity for recovery but not everyone benefits.	Review included.	Focus is on people who are homeless or at risk of homelessness and the review does include problem substance use.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
de Vet *et al*. **(2013)**	Effectiveness of Case Management for Homeless Persons: A Systematic Review.	Seven outcome domains: service use (services provided by programme staff and non-programme inpatient, emergency, and outpatient services); housing; health (physical and mental); substance use (alcohol and drugs); societal participation (economic participation, security, criminal activity, legal problems, and social behaviour, support); quality of life; and cost (service expenses and cost-effectiveness).	Reviewed the literature on SCM, ICM, Assertive Community Treatment (ACT), and CTI for homeless adults. Searched databases for peer-reviewed English articles published from 1985 to 2011 and found 21 RCTs or quasi-experimental studies comparing case management to other services.	Four studies of SCM, whose participants were homeless people with substance use problems, assessed substance use outcomes, as reported in three articles. All but one found differential effects, suggesting that SCM was significantly more effective than referral to community services in reducing alcohol and drug use among homeless substance users. Four of six studies of the effect of ICM on alcohol or drug use did not show a positive impact. Five studies, which produced eight articles with alcohol and drug use outcomes, concluded that ACT did not significantly affect substance use or related problems. One study on CTI looked at substance use variables. In a sample of mentally ill homeless veterans, those offered CTI improved more with regard to alcohol and drug use than participants who received usual services. Furthermore, participants in the CTI group spent less money on these substances.	Review included.	66.7% report on substance use outcomes.
Fitzpatrick-Lewis *et al*. **(2011)**	Effectiveness of interventions to improve the health and housing status of homeless people: A rapid systematic review	Rapid review examines recent evidence regarding interventions that have been shown to improve the health of homeless people, with focus on the effect of these interventions on housing status.	Structured search of five electronic databases, a hand search of grey literature and relevant journals, and contact with experts. Eighty-four studies.	For homeless people with mental illness, provision of housing upon hospital discharge was effective in improving sustained housing. For homeless people with substance abuse issues or concurrent disorders, provision of housing was associated with decreased substance use, relapses from periods of substance abstinence, and health services utilisation, and increased housing tenure. Abstinence-dependent housing was more effective in supporting housing status, substance abstinence, and improved psychiatric outcomes than non-abstinence-dependent housing or no housing. Provision of housing also improved health outcomes among homeless populations with human immunodeficiency virus (HIV).	Review excluded.	It seems unclear how many papers actually looked at homeless people who use substances. A table seems to list 12 papers under this heading but review only talks about 10/84 studies because of quality (74 were low quality). Out of the 10, 30% discuss substance use.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Formosa *et al.* **(2019)**	Emergency Department Interventions for Homelessness: A Systematic Review	To aggregate and review the literature on ED interventions that improve health and/or access to the SDOH for homeless patients.	Systematic review included studies of homeless patients (or majority homeless patients) that recruited patients at the level of the ED. Included studies had a control group or were a pre-/post-intervention trial, and measured outcomes that reflected the health (including access to the SDOH) of the studied subjects. Thirteen studies.	Studied interventions included case management, HF initiatives, substance use interventions, ED-based resource desks, and ED compassionate care. Eight studies sought to improve access to housing; two were HF initiatives (all patients housed). The other six studies demonstrated significant reductions in homelessness and increased access to stable housing. Six of 13 studies focused on homeless patients using substances. One evaluated extended-release naltrexone and found the intervention feasible in a homeless demographic. Three case management interventions reported reductions in alcohol and substance use and enrolment in substance abuse treatment. One study evaluated opioid overdose education as a harm reduction initiative but found no change in opioid overdose rates.	Review included.	46% of the included studies focus on homeless people who use substances.
Hwang *et al.* **(2005)**	Interventions to improve the health of the homeless: a systematic review.	To provide guidance in the development and organisation of programmes to improve the health of homeless people.	Systematic review. Seventy-three studies conducted from 1988 to 2004 met inclusion criteria (use of an intervention, use of a comparison group, and the reporting of health-related outcomes).	For homeless people with mental illness, case management linked to other services was effective in improving psychiatric symptoms, and assertive case management was effective in decreasing psychiatric hospitalisations and increasing outpatient contacts. For homeless people with substance abuse problems, case management resulted in greater decreases in substance use than did usual care.	Review included.	Poor-quality studies rejected. Forty-five had moderate or high quality. Twenty of 45 (44%) looked at homeless people with substance use problems/homeless people with COSMHAD.
Kertesz *et al.* **(2009)**	Housing First for Homeless Persons with Active Addiction: Are We Overreaching?	Article reviews studies of HF and more traditional rehabilitative (e.g. 'linear') recovery interventions, focusing on the outcomes obtained by both approaches for homeless individuals with addictive disorders.	A review but not systematic as it does not report how many studies were included.	According to reviews of comparative trials and case series reports, HF reports document excellent housing retention, despite the limited amount of data pertaining to homeless clients with active and severe addiction. Several linear programmes cite reductions in addiction severity but have shortcomings in long-term housing success and retention.	Review included.	PICOS – population is homeless people who use drugs but the study does not report how many papers were included in the review, so low quality.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Luchenski *et al.* (2018)	What works in inclusion health: overview of effective interventions for marginalised and excluded populations.	Evidence synthesis of health and social interventions for inclusion health target populations, including people with experiences of homelessness, drug use, imprisonment, and sex work.	Evidence synthesis. Review of reviews (N=77). Populations with histories of substance use disorders (SUDs) (excluding alcohol, cannabis, and tobacco), imprisonment, sex work, and homelessness in high-income countries.	Summarise reviews in the following intervention categories: pharmacological, psychosocial, case management, disease prevention, housing and social determinants, and 'other' interventions. Identified numerous interventions to improve physical and mental health, and substance use; however, evidence is scarce for structural interventions, including housing, employment, and legal support that can prevent exclusion and promote recovery.	Review excluded.	74% of studies are about substance use outcomes, but only 14% (11/77) are about homelessness and only 3 studies are about specifically homelessness and substance use. The studies on substance use do not report on homelessness. Some of the reviews were about youth.
Magwood *et al.* (2019)	Common trust and personal safety issues: A systematic review on the acceptability of health and social interventions for persons with lived experience of homelessness.	Systematic review to understand the factors that influence the acceptability of social and health interventions among persons with lived experience of homelessness.	Only qualitative studies included. Primary studies that reported on the experiences of homeless populations interacting with practitioners and service providers working in permanent supportive housing, case management, interventions for substance use, income assistance, and women- and youth-specific interventions. Used framework analysis.	Synthesis highlighted that individuals were marginalised, dehumanised, and excluded by their lived homelessness experience. Lived experience of homelessness influenced attitudes towards health and social service professionals and sometimes led to reluctance to accept interventions. Physical and structural violence intersected with low self-esteem, depression, and homeless-related stigma. Positive self-identity facilitated links to long-term and integrated services, peer support, and patient-centred engagement. Thirty-five studies.	Review excluded.	PICOS – population is homeless but not necessarily substance using. Moreover, a number of the studies were youth specific, including children as young as 14 years old.
O'Campo *et al.* (2009)	Community-based services for homeless adults experiencing concurrent mental health and substance use disorders: a realist approach to synthesizing evidence.	Collaborative research effort between academic-based and community-based partners to conduct a systematic evidence synthesis drawing heavily from Pawson's realist review methodology to focus both on whether programmes are successful, and why and how they lead to improved outcomes.	Examined scholarly and non-scholarly literature to explore programme approaches and programme elements that lead to improvements in mental health and SUDs among homeless individuals with concurrent disorders (CDs). Realist synthesis. Seventeen peer-reviewed articles included.	Identified 10 distinct community-based or community-linked programmes serving homeless individuals experiencing CDs that employed a variety of approaches including ACT, provision of housing, integrated mental health and substance use treatment, and a holistic approach through which many of the clients' life needs were supported. Most programmes delivered a combination of programme strategies or took different approaches to the same strategies. Many of the studies identified autonomy as a central factor in motivation for and maintenance of behaviour change.	Review included.	Focuses on homeless people with substance use (and concurrent mental health issues).

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Penzenstadler et al. (2019)	Effect of Assertive Community Treatment for Patients with Substance Use Disorder: A Systematic Review.	Aims to assess the effectiveness of ACT for patients with SUD on a number of measures: substance use, treatment engagement, hospitalisation rates, quality of life, housing status, medication compliance, and legal problems.	Systematic review of ACT interventions for patients with SUD by analysing RCTs published before June 2017 found on the electronic databases PsycINFO, MEDLINE, and PsycARTICLES. Eleven publications using five datasets were included in the meta-analysis.	Two of five datasets included homeless patients and two of five datasets included patients with high service use. The results of the very few existing RCTs are mixed. Treatment engagement was higher for ACT in four datasets. Substance use reduced only in half of the datasets, of which only one showed a significant reduction in the ACT group.	Review included.	40% of the studies were about homeless people with SUD.
Rash et al. (2017)	Substance Abuse Treatment Patients in Housing Programs Respond to Contingency Management Interventions.	Examined whether contingency management (CM) protocols that use tangible incentives for submission of drug-free specimens or other specific behaviours are effective for treatment-seeking people with problem substance use whose behaviour may also be shaped by housing programmes.	Not a systematic review – pooled analysis of three separate RCTs of CM.	Those who accessed housing programmes submitted a higher percentage of negative samples (75%) compared to those who did not access housing programmes (67%). Regardless of housing status, CM was associated with longer durations of abstinence and treatment retention. No interactive effects of housing and treatment condition were observed ($p>0.05$). Results suggest that those who accessed housing programmes during substance abuse treatment benefit from CM to a comparable degree as their peers who did not use such programmes.	Review excluded.	Population is homeless people who use drugs; however, in terms of methodology, it was not a systematic review but a pooled analysis of three datasets.
Saks et al. (2010)	Modified therapeutic community for co-occurring disorders: single investigator meta-analysis	Examined the effectiveness of modified therapeutic community (MTC) treatment for clients with COSMHAD. One of the three studies is a 'homelessness study'.	Paper presents a meta-analysis of data from three studies examining the effectiveness of MTC treatment for clients with COSMHAD. Measures from six outcome domains were assessed (substance abuse, mental health, crime, HIV risk, employment, and housing).	Substance abuse: Moderate, significant, and consistent effects across the studies favouring the MTC emerged for the substance abuse domain. Specifically, significant MTC treatment effects emerged for substance abuse and employment in Study 1 (homeless people), for substance abuse, crime, and employment in Study 2 (offenders), and for mental health in Study 3 (outpatients).	Review excluded.	Only 33.3% of studies were about homeless people.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Schumacher *et al.* **(2007)**	Meta-Analysis of Day Treatment and Contingency-Management Dismantling Research: Birmingham Homeless Cocaine Studies (1990–2006).	Meta-analysis of four successive RCTs of day treatment and contingency-managed housing interventions for crack cocaine addiction among homeless persons.	Four successive RCTs studying CM, involving various treatment arms of drug-abstinent housing and work therapy and day treatment (DT) with a behavioural component, were compared on common drug abstinence outcomes at two treatment completion points (2 and 6 months). The clinical trials were conducted from 1990 to 2006 in Birmingham, Alabama, with a total of 644 homeless persons with primary crack cocaine addiction.	The results of the meta-analysis show that both CM and DT are beneficial in producing abstinence, but the CM treatment appears to have a stronger effect than does DT.	Review excluded.	Population is homeless people with crack cocaine addiction. However, it was a meta-analysis and not a review.
Smith *et al.* **(2001)**	The community reinforcement approach to the treatment of substance use disorders.	Community reinforcement approach (CRA), a broad-spectrum cognitive-behavioural treatment for SUDs. At the core of CRA is the belief that an individual's environment can play a powerful role in encouraging or discouraging drinking and drug use.	Review but not systematic. Talks about evidence for the CRA split into: meta-analytic reviews of alcohol interventions; early alcohol studies; more recent alcohol studies; illicit drug studies; and Community Reinforcement and Family Training (CRAFT).	One study explicitly called a 'homelessness study' but focuses on alcohol.	Review excluded.	Only one study was about a homeless population (and it focused on alcohol, not other substances).

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Speirs *et al.* **(2013)**	A systematic review of interventions for homeless women.	Aim was to undertake a systematic review of the existing literature to determine effective physical and psychosocial interventions for homeless women. Types of interventions included counselling, motivation therapy, empowerment, disease prevention, management of health problems, and therapeutic relationship building. Types of services included case management, clinics, and mobile or static services. Service providers included all health professionals.	Systematic review, six studies included. The methodologies included the following: RCTs (2), quasi-experimental (3), and comparative study (1). Due to the diversity of the designs, measurement tools, interventions, and outcomes of these studies, narrative synthesis was used to appraise their effectiveness.	Study interventions such as structured education and support sessions (with and without advocates or support persons) and therapeutic communities reduced psychological distress and healthcare use, improved self-esteem, and reduced drug and alcohol use within some limitations. Cognitive behavioural therapy (CBT) influenced drug and alcohol behaviours of women. Negotiation skills and coping methods for the challenges of street life helped women make decisions about drug and alcohol use, sexual risk behaviours, and the influence of their social network.	Review excluded.	Two of six (33.3%) studies measured substance use. Studies also included youth – across the six studies, age range was 15–60 years.
Sun (2012)	Helping Homeless Individuals with Co-occurring Disorders: The Four Components.	Article discusses strategies for helping homeless individuals with COSMHAD on the basis of a literature review.	Literature review on databases. Does not state how many studies included, so not a systematic review – not following PRISMA guidelines.	Four components emerged from a literature review: (1) ensuring an effective transition for individuals with COSMHAD from an institution (such as a hospital, foster care, prison) into the community; (2) increasing the resources of homeless individuals with COSMHAD by helping them apply for government entitlements or supported employment; (3) linking homeless individuals to supportive housing, as opposed to only treatment-first options, and being flexible in meeting their housing needs; and (4) engaging homeless individuals in COSMHAD treatment, incorporating modified ACT, Motivational Interviewing, CBT, CM, and COSMHAD specialised self-help groups.	Review included.	Does not state how many studies were included, thus low quality.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Torres Del Estal and Álvarez (2018) (Spanish)	Intervenciones enfermeras para el manejo de adicciones a sustancias químicas de personas sin hogar. [Nurse interventions for the management of chemical addictions in people who are without a home]	Nursing interventions for the management of substance use of homeless persons.	Systematic review; quantitative or mixed design studies, both primary and secondary. Articles published in the last 10 years, written in English, French, or Spanish. Fifteen articles included.	Results divided into case management and 'other interventions'.	Review included.	Population is homeless people who use substances.
Turner et al. (2011)	The impact of needle and syringe provision and opiate substitution therapy on the incidence of hepatitis C virus in injecting drug users: pooling of UK evidence.	To investigate whether opioid substitution therapy (OST) and needle and syringe programmes (NSPs) can reduce hepatitis C virus (HCV) transmission among PWID. Primary outcome was new HCV infection. The secondary outcomes were based on the self-report of injecting risk behaviour (needle sharing and the mean number of injections in the last month).	Meta-analysis and pooled analysis, with logistic regression allowing adjustment for gender, injecting duration, crack injecting, and homelessness. Six United Kingdom (UK) studies included. Between 32% and 62% "homeless in the past year" in the study samples.	Using pooled data from the UK, demonstrated that harm reduction interventions (namely OST and high NSP coverage) can reduce HCV transmission among PWID. Full harm reduction was associated with a reduction in self-reported needle sharing by 48% and mean injecting frequency by 20.8 injections per month.	Review included.	A meta-analysis but with a systematic search on databases. Across the included six studies, 46% of participants were homeless (ranging from 32% to 62%).
Vanderplasschen et al. (2007)	Effectiveness of different models of case management for substance-abusing populations.	A systematic and comprehensive review of peer-reviewed articles (N=48) published between 1993 and 2003, focusing on the effects of different models of case management among various substance-abusing populations.	A systematic and comprehensive review of peer-reviewed articles.	Results show that several studies have reported positive effects, but only some RCTs have demonstrated the effectiveness of case management compared with other interventions. Longitudinal effects of this intervention remain unclear.	Review excluded.	27% look at homeless people.

Author (year)	Title	Focus	Methods	Results	Final decision	Rationale for decision
Wright and Tompkins (2006)	How can health services effectively meet the health needs of homeless people?	Aim was to critically examine the international literature pertaining to the healthcare of homeless people and to discuss the effectiveness of treatment interventions.	Review and synthesis of current evidence. Does not say how many papers/ studies included, but searched databases.	Effective interventions for drug dependence include adequate oral opiate maintenance therapy, hepatitis A and B and tetanus immunisation, safer injecting advice, and access to needle exchange programmes. There is emerging evidence for the effectiveness of supervised injecting rooms for homeless injecting drug users and for the peer distribution of take-home naloxone in reducing drug-related deaths. There is some evidence that assertive outreach programmes for those with mental ill health, supportive programmes to aid those with motivation to address alcohol dependence, and informal programmes to promote sexual health can lead to lasting health gains.	Review included.	Quality is an issue; paper does not report how many studies were included. However, there is a lot of data reported in the paper on substance use outcomes.
Wright and Walker (2006)	Homelessness and drug use – a narrative systematic review of interventions to promote sexual health.	Objective of this research project was to examine the effectiveness of sexual health promotion interventions in homeless drug-using populations.	Searched databases. Inclusion criteria covered longitudinal studies using comparative statistics examining interventions to promote sexual health among homeless drug users. Of 99 papers identified, only 6 fulfilled the inclusion criteria.	Interventions which seek to effect attitudinal and behavioural change through interactive methods such as role-playing, video games, and group work led to a self-reported reduction in both risk from drugs and sexual activity. The evidence for maintenance of risk reduction over one year remains unclear.	Review included.	Focus is not specifically on substance use – the interventions are about sexual health – but the population is homeless people who use drugs, and some substance use outcomes are also reported.

Appendix 7. Organisations included in search for grey literature

International evidence regarding interventions in primary care, mental health, and drug treatment settings for homeless people who use drugs: grey literature search

Scotland

Scottish Health Action on Alcohol Problems
Search 'homeless' or 'homelessness'

2 results:
Neither relevant for the review (one summary of a talk, one report on minimum unit pricing)

NHS Health Scotland
Search 'homeless'

23 results:
NHS Health Scotland (2016). Health and homelessness inequality briefing.

http://www.healthscotland.scot/media/1251/health-and-homelessness_nov2016_english.pdf
(full text downloaded, but not relevant)

Search 'homelessness' and 'drugs' and 'drug treatment' and 'substance use'

Nothing extra

Healthcare Improvement Scotland
Search 'homeless' or 'homelessness'

2 results:
Nothing about drug treatment

Recent publications > 'homeless' key word search

0 results

Scottish Government
Search 'homeless'

114 results:
Waugh, A., Clarke, A., Knowles, J., & Rowley, D. (2018). *Health and homelessness in Scotland: research.*

https://www.gov.scot/publications/health-homelessness-scotland/
(full text downloaded)

Scottish Government (2005)
Health and homelessness standards.

https://www.gov.scot/publications/health-homelessness-standards/
(full text downloaded) (not relevant as it is not explicitly about substance use treatment)

Search 'homelessness'

229 results:
Scottish Government (2016)
Understanding the patterns of use, motives, and harms of New Psychoactive Substances in Scotland.

https://www.gov.scot/publications/understanding-patterns-use-motives-harms-new-psychoactive-substances-scotland/
(full text downloaded)

Search 'drug treatment'

86 results:
Audit Scotland (2019)
Drug and alcohol services: An update.

https://www.audit-scotland.gov.uk/report/drug-and-alcohol-services-an-update
(full text downloaded)

Pleace, N. (2008)
Effective services for substance misuse and homelessness in Scotland: Evidence from an international review.

https://www.york.ac.uk/media/chp/documents/2008/substancemisuse.pdf
(full text downloaded)

Scottish Government (2018)
Rights, Respect and Recovery: Alcohol and drug treatment strategy.

https://www.gov.scot/publications/rights-respect-recovery/
(full text downloaded)

Scottish Drugs Forum

Resources > All SDF Publications > homelessness and housing

4 results:
Scottish Drugs Forum (2019)
Staying alive in Scotland: Strategies to prevent drug deaths.

http://www.sdf.org.uk/wp-content/uploads/2019/11/Staying-Alive-in-Scotland-Digital.pdf
(full text downloaded) (since it is mostly a toolkit, this probably is not helpful)

Scottish Drugs Forum (2010)
Effective services for substance misuse and homelessness in Scotland: Evidence from a global review.

http://www.sdf.org.uk/wp-content/uploads/2017/03/AGHSU_Recommendations_Paper.29.1.10.pdf
(full text downloaded)

Resources > All SDF Publications > drug prevention and treatment

Nothing extra

Resources > All SDF Publications > harm reduction

Nothing extra

University of Stirling Salvation Army Centre for Addiction Services and Research Online Library

Search 'homeless' or 'homelessness'

12 results:
Weal, R., & Orchard, B. (2018)
Dying on the streets: The case for moving quickly to end rough sleeping

https://www.mungos.org/publication/dying/
(full text downloaded)

Pleace, N. (2008)
Effective services for substance misuse and homelessness in Scotland: Evidence from an international review.

https://www.york.ac.uk/media/chp/documents/2008/substancemisuse.pdf
(full text downloaded)

Australian Government (2007)
Homeless SAAP clients with mental health and substance use problems 2004–05.

https://www.aihw.gov.au/getmedia/f05f2299-7955-4378-86da-6914085e5b4a/bulletin51.pdf.aspx?inline=true
(full text downloaded)

Sacks, J.Y., Sacks, S., Harle, M., & De Leon, G. (1999)
Homelessness Prevention TC for Addicted Mothers.

Alcoholism Treatment Quarterly, 17 (1-2), 33-51.
(full text downloaded)

Sacks, S., Skinner, D., Sacks, J., & Peck, A. (2002)
Manual for Engaging Homeless Mentally Ill Chemical Abusers in a Modified TC Shelter Program.

http://drugslibrary.wordpress.stir.ac.uk/files/2017/04/sa.pdf
(full text downloaded)

Keane, M. (2007)
Social reintegration as a response to drug use in Ireland: An overview. Drugnet Ireland, 24, 5-6.

https://www.drugsandalcohol.ie/11438/
(full text downloaded)

Reeve, K., & Batty, E. (2011)
The hidden truth about homelessness Experiences of single homelessness in England.

https://www.crisis.org.uk/media/236815/the_hidden_truth_about_homelessness.pdf
(full text downloaded)

Chartered Institute of Housing (2012)
The role of housing in drugs recovery: A practice compendium.

http://www.cih.org/resources/PDF/Policy%20free%20download%20pdfs/Role%20of%20housing%20in%20drugs%20recovery%20-%20final%20version.pdf
(full text downloaded)

Yates, R., Anderson, I., Wilson, J., Wilson, M., & Freedman, L. (2001)
Trouble Every Way I Turn: Homelessness & Substance Abuse in East Renfrewshire.

http://www.dldocs.stir.ac.uk/documents/ERreport.pdf
(full text downloaded)

Institute for Research and Innovation in Social Services
Search 'homeless' or 'homelessness'

847 results:

Decision to narrow search due to number of results > search 'homeless' and 'drugs'

190 results:

Decision to narrow search due to number of results > search 'homeless' and 'drug treatment'

35 results:
Allcock, A., & Smith, L. (2018)
Impact of women specific interventions.

https://www.iriss.org.uk/resources/esss-outlines/women-specific-interventions#:~:text=Women%20specific%20services%20are%20designed%20to%20improve%20outcomes%20for%20women.&text=Improving%20women's%20well%2Dbeing%20can,impacts%20on%20outcomes%20for%20children.
(full text downloaded) (SR on interventions for women with complex needs, includes homelessness and substance use but is not about specific treatment, more what is important components of an intervention).

United Kingdom

Royal College of Psychiatrists
Search 'homeless' or 'homelessness'

22 results:
Nothing relevant to substance use treatment

Royal College of Physicians
Search 'homeless' or 'homelessness'

13 results:
Nothing relevant to substance use treatment

British Psychological Society
Search 'homeless' or 'homelessness'

Policy > research and impact > search 'homeless'

0 results

Public Health England
Search 'homeless' or 'homelessness'

1,214 results:
Decision to narrow search due to number of results > search 'homeless' and 'drugs'

132 results:
Decision to narrow search due to number of results > search 'homeless' and 'drug treatment'

9 results:
Nothing relevant for the review

Pathway: The Faculty of Homeless and Inclusion Health

Search 'homeless' or 'homelessness'

16 results:
Dorney-Smith, S., Burridge, S., Bell, J., Ellis, J., & Snowball, L. (2017)
Digital health inclusion for people who have experienced homelessness – is this a realistic aspiration?

https://www.pathway.org.uk/wp-content/uploads/2013/05/Digital-Inclusion-Report-Final-for-web.pdf
(full text downloaded)

Hewett, N., & Dorney-Smith, S. (2013)
Kings Health Partners and the Impact of Homelessness Needs Assessment.

https://www.pathway.org.uk/wp-content/uploads/2014/01/NEEDS-ASSESSMENT-KHP-EMAIL.pdf
(full text downloaded)

Gazey, A., Vallesi, S., Cumming, C., & Wood, L. (2018)
Royal Perth Hospital Homeless Team: A Report on the First 18 Months of Operation.

http://homelesshealthcare.org.au/wp-content/uploads/2018/07/Royal-Perth-Hospital-Homeless-Team-FINAL-report-June-2018.pdf
(full text downloaded)

We Are With You (formerly Addaction)
Search 'homeless' or 'homelessness'

29 results:
Nothing relevant for this review (all short, blog post-type reports)

Crisis
Search 'drugs' (the rationale being that it is a homelessness organisation, so it would not be helpful to search for 'homeless' or 'homelessness')

14 results:
Thomas, B. (2012)
Homelessness kills: An analysis of the mortality of homeless people in early twenty-first century England.

https://www.crisis.org.uk/media/236798/crisis_homelessness_kills2012.pdf
(full text downloaded)

Shelter

Search 'drugs' (the rationale being that it is a homelessness organisation, so it would not be helpful to search for 'homeless' or 'homelessness')

16 results:
Shelter (2006)
Safe as houses: An inclusive approach for housing drug users.

https://england.shelter.org.uk/professional_resources/policy_and_research/policy_library/policy_library_folder/safe_as_houses_an_inclusive_approach_for_housing_drug_users/safe_as_houses_an_inclusive_approach_for_housing_drug_users.pdf
(full text downloaded)

Groundswell

Publications

19 results:
Finlayson, S., Boelman, V., Young, R., & Kwan, A. (2015)
Saving lives, saving money. How homeless health peer advocacy reduces health inequalities.

https://groundswell.org.uk/wp-content/uploads/2018/10/Groundswell-Saving-Lives-Saving-Money-Full-Report-Web-2016.pdf
(full text downloaded)

Groundswell (2012)
The homeless people's commission: Full report.

https://groundswell.org.uk/wp-content/uploads/2018/10/Groundswell-Homeless-Peoples-Commission-Full-Report-2012.pdf
(full text downloaded)

Gorton, S., Manero, E., & Cochrane, C. (2004)
Listening to homeless people: Involving homeless people in evaluating health services.

http://www.health-link.org.uk/publications/Listening_to_Homeless_People.pdf
(full text downloaded)

St Mungo's
Search 'drugs' (the rationale being that it is a homelessness organisation, so it would not be helpful to search for 'homeless' or 'homelessness')

26 results:
Nothing relevant for this review (all short blog post-type reports)

Homeless Link
Search 'drugs' (the rationale being that it is a homelessness organisation, so it would not be helpful to search for 'homeless' or 'homelessness')

130 results:
Decision to narrow search due to number of results > search 'drug treatment'

3 results:
Nothing relevant for this review (all short blog post-type reports)

The Salvation Army
Search 'homeless' or 'homelessness'

663 results:
Decision to narrow search due to number of results > search 'homeless' and 'drugs'

108 results:
Nothing relevant for this review (all short reports/news reports, etc.

Centre for Homelessness Impact
Evidence tools > Evidence and gap maps:

2 results:
Relevant systematic reviews but no grey literature (all published in academic journals)

Republic of Ireland
Health Service Executive Addiction Services

Search 'homeless' or 'homelessness'

648 results:
Decision to narrow search due to number of results > search 'homeless' and 'drugs'

2,091 results (this shows that Boolean searching does not work for this site)

Search 'drug review'

6 results:
Nothing relevant for this review

YMCA Ireland
YMCA Publications

38 results:
Nothing relevant for this review

Threshold
Publications > Reports

20 results:
Nothing relevant for this review

Crosscare
Search 'homeless'

2 results:
Nothing relevant for this review

Search 'homelessness'

Nothing extra

Focus Ireland
Resource Hub > Publications and Partnerships > Research

25 results:
Houghton, F.T., & Hickey, C. (2001)
Caught in a trap. The Long-term Homeless: A Profile of Needs and Service Use.

https://www.focusireland.ie/wp-content/uploads/2016/04/Houghton-and-Hickey-2001-A-Profile-of-Needs-and-Service-Use-of-Long-Term-Homeless-Population.pdf
(full text downloaded)

Depaul
Our work > Reports & Publications

15 results:
S3 Solutions (2019).
Contextualized study of current trends of the alcohol and drug environment within the Western Trust area.

https://ie.depaulcharity.org/reports-publications
(full text downloaded)

Ana Liffey Drug Project
Resources > Research

3 results:
Nothing relevant for this review

Resources > Reports

15 results:
Nothing relevant for this review

Merchants Quay Ireland
Media Hub > Submissions and Policies

3 results:
Nothing relevant for this review

Peter McVerry Trust
Search 'drugs' (the rationale being that it is a homelessness organisation, so it would not be helpful to search for 'homeless' or 'homelessness')

0 results
Search 'drug treatment'

1 result:
Nothing relevant for this review

Safetynet
Press (only available option for searching publications, reports, etc.)

19 results:
Nothing relevant for this review

Simon Communities
Publications > Research > Drugs research

18 results:
Good Shepherd Services & Simon Community (2011) Women's Health and Homelessness in Cork: A Joint Snapshot Study of the Health and Related Needs of Women who are Homeless in Cork.

https://www.drugsandalcohol.ie/16071/1/Simon_Women%27s_Health_and_Homelessness_in_Cork_October_2011.pdf
(full text downloaded)

Health Research Board
Publications > Alcohol & drugs > Deaths figure +
Drugs research + Treatment figures

77 results:
Bates, G., Jones, L., Maden, M., Cochrane, M.,
Pendlebury, M., & Sumnall, H. (2017)
*The effectiveness of interventions related to the
use of illicit drugs: prevention, harm reduction,
treatment and recovery. A 'review of reviews'.*

https://www.hrb.ie/fileadmin/publications_files/
Review_of_reviews_draft_03_FINAL_28_June_2017.
pdf
(full text downloaded)

Minyard, K., Manteuffel, B., Smith, C.M., Attell, B.K.,
Landers, G., Schlanger, M., & Dore, E. (2019)
*Treatment services for people with co-occurring
substance use and mental health problems. A rapid
realist synthesis.*

https://www.hrb.ie/fileadmin/user_upload/HRB_
Evidence_Review_Alcohol_and_Evidence_Review_
FINAL_PROOF_11.6.19.pdf
(full text downloaded)

Connolly, J., Foran, S., Donovan, A.M., Carew, A.M., &
Long, J. (2008)
*Crack cocaine in the Dublin region: an evidence base
for a crack cocaine strategy.*

https://www.drugsandalcohol.ie/11512/1/HRB_
Research_Series_6_Cocaine.pdf
(full text downloaded)

Partnership for Health Equity
Search 'homeless' or 'homelessness'

41 results:
O'Reilly, F., Barror, S., Hannigan, A., Scriver, S., Ruane,
L., MacFarlane, A., & O'Carroll, A. (2015)
Homelessness: An unhealthy state.

https://www.drugsandalcohol.ie/24541/1/
Homelessness.pdf
(full text downloaded)

International

Australia

Centre for Social Research in Health
Search 'homeless' or 'homelessness'

57 results:
MacKenzie, D., McNelis, S., Flatau, P., Valentine, K., &
Seivwright, A. (2017)
*The funding and delivery of programmes to reduce
homelessness: the case study evidence.*

https://www.ahuri.edu.au/__data/assets/pdf_
file/0019/11818/The-funding-and-delivery-of-
programs-to-reduce-homelessness-the-case-study-
evidence-Executive-summary.pdf
(full text downloaded)

Bullen, J. (2017)
Meeting the needs of women experiencing chronic
homelessness.

http://unsworks.unsw.edu.au/fapi/datastream/
unsworks:43400/bine684391d-3e88-41ca-a748-
c6c870dba1e7?view=true
(full text downloaded)

**National Drug and Alcohol Research Centre
(NDARC)**
Search 'homeless'

54 results:
Mission Australia (2012)
*The Michael Project, 2007–2010: New perspectives
and possibilities for homeless men.*

https://www.missionaustralia.com.au/publications/
research/homelessness/59-the-michael-project-
2007-2010-new-perspectives-and-possibilities-for-
homeless-men-2012/file

Mission Australia (2012)
*How homeless men are faring: Baseline report
from Michael's Intensive Supported Housing Accord
(MISHA).*

https://ndarc.med.unsw.edu.au/sites/default/files/
ndarc/resources/MISHA%20Baseline%20report%20
2012.pdf
(full text downloaded)

Mission Australia (2013)
Home safe and sound: MISHA 12 month report.

https://ndarc.med.unsw.edu.au/sites/default/files/ndarc/resources/MISHA-snapshot-report-august-2013.pdf
(full text downloaded)

Silins, E., Sannibale, C., Larney, S., Mattick, R., & Wodak, A. (2006)
A process evaluation of Gorman House detoxification service.

https://ndarc.med.unsw.edu.au/sites/default/files/ndarc/resources/TR.260.pdf
(full text downloaded)

Roxburgh, A., Degenhardt, L., Larance, B., & Copeland, J. (2005)
Mental health, drug use and risk among female street-based sex workers in greater Sydney.

https://ndarc.med.unsw.edu.au/resource/mental-health-drug-use-and-risk-among-female-street-based-sex-workers-greater-Sydney
(full text downloaded)

Kinner, S., & Fischer, J. (2004)
Queensland Drug Trends 2003: Findings from the Illicit Drug Reporting System (IDRS).

https://ndarc.med.unsw.edu.au/resource/queensland-drug-trends-2003-findings-illicit-drug-reporting-system-idrs
(full text downloaded)

McKetin, R., Kelly, E., Indig, D., & McLaren, J. (2004)
Characteristics of treatment provided for amphetamine users in NSW, 2002-03.

https://ndarc.med.unsw.edu.au/resource/characteristics-treatment-provided-amphetamine-users-nsw-2002-03
(full text downloaded)

Cogger, S., Dietze, P., & Lloyd, B. (2013)
Victorian Drug Trends 2012: Findings from the Illicit Drug Reporting System (IDRS).

https://ndarc.med.unsw.edu.au/sites/default/files/ndarc/resources/VIC_IDRS_2012_FINAL.pdf
(full text downloaded)

Search 'homelessness'

42 results:
Williamson, A., Darke, S., Ross, J., & Teesson, M. (2003)
Cocaine use among the ATOS NSW sample: Prevalence and related harms.

https://ndarc.med.unsw.edu.au/resource/cocaine-use-among-atos-nsw-sample-prevalence-and-related-harms%20
(full text downloaded)

Canada

Canadian Institute for Substance Use Research (Canada)
Publications & resources > 'homeless' key word search

27 results:
Nothing relevant with regard to drug treatment for people who are homeless

Search 'homelessness'

21 results:
Nothing relevant with regard to drug treatment for people who are homeless

Homeless Hub/Canadian Observatory on Homelessness (Canada)
About us > COH Publications > Reports

32 results:
Falvo, N. (2011)
Homelessness in Yellowknife: An Emerging Social Challenge.

https://www.homelesshub.ca/sites/default/files/Falvo_Homelessness_Policy_Report_finalMAY25.pdf
(full text downloaded)

Europe

European Monitoring Centre for Drugs and Drug Addiction
Publications > topic > Treatment

11 results:
European Monitoring Centre for Drugs and Drug Addiction (2016)
How can contingency management support treatment for substance use disorders? A systematic review.

https://www.emcdda.europa.eu/system/files/publications/3162/TDAU13001ENN.pdf
(full text downloaded) (probably not helpful, as it only mentions homelessness in the reference list)

Strang, J., Groshkova, T., & Metrebian, N. (2012)
EMCDDA Insights: New heroin-assisted treatment.

https://www.emcdda.europa.eu/system/files/
publications/690/Heroin_Insight_335259.pdf
(full text downloaded) (probably not helpful, as it only
mentions homelessness once in the full paper)

European Observatory on Homelessness
Search 'drugs' (the rationale being that the
organisation has a focus on homelessness, so it
would not be helpful to search for 'homeless' or
'homelessness')

121 results:
Pleace, N., & Quilgars, D. (2013)
*Improving Health and Social Integration through
Housing First.*

https://www.feantsaresearch.org/download/health-
and-social-integration6437852015379683856.pdf
(full text downloaded)

Ceannt, R., Macdonald, S.H-F., Fenton, J., & Larkan,
F. (2016)
*Circles Within Circles: Dublin's Frontline Homeless
Sector Workers Discuss the Intersectional Issues of
Homelessness, Mental Illness and Addiction.*

https://www.feantsa.org/download/10-2_
article_3896701582454085800.pdf
(full text downloaded)

Anderson, I., Baptista, I., Wolf, J., Edgar, B.,
Benjaminsen, L., Sapounakis, A., & Schoibl, H. (2006)
*The Changing Role of Service Provision: Barriers of
Access to Health Services for Homeless People.*

https://www.feantsaresearch.org/
download/2006_barriers_of_access_to_health_
services7648924114704018507.pdf
(full text downloaded)

Search 'drugs' and 'systematic review'

32 results:
Nothing extra

UK

National Drug Evidence Centre
Our research > publications

76 results:
None relevant for this review. Mostly published
papers, book chapters, and posters. There are also
some commissioned reports, but none in relation to
homelessness.

USA

**National Institute on Drug Abuse (United States of
America)**
Search 'homeless'

17 results:
Nothing relevant for this review (all articles only
mention homelessness one or two times, and not in
relation to treatment)

Search 'homelessness'

12 results:
Nothing extra

**United Nations Office on Drugs and Crime
(UNODC)**
Topics > Drug prevention, treatment and care >
Publications > Publications on prevention of drug
use and treatment, care and rehabilitation of drug
dependence

48 results:
European Monitoring Centre for Drugs and Drug
Addiction and United Nations Office on Drugs and
Crime (2019)
*Drug treatment systems in the Western Balkans
Outcomes of A Joint EMCDDA-UNODC Survey Of
Drug Treatment Facilities.*

https://www.unodc.org/documents/
southeasterneurope//Drug_treatment_systems_in_
the_Western_Balkans.pdf
(full text downloaded)

*Drug Dependence Treatment: Community Based
Treatment.*

https://www.unodc.org/docs/treatment/CBTS_
AB_24_01_09_accepted.pdf
(full text downloaded) (only briefly mentions
homelessness, does not go into much depth about
specific treatment)

*Drug Dependence Treatment: Role In The Prevention
And Care Of HIV And AIDS.*

https://www.unodc.org/docs/treatment/111_HIV.pdf
(full text downloaded) (only briefly mentions
homelessness, does not go into much depth about
specific treatment)

United Nations Office on Drugs and Crime (2008).
Drug Dependence Treatment: Sustained Recovery Management.

*https://www.unodc.org/docs/
treatment/111SUSTAINED_RECOVERY_MANAGEMENT.
pdf*
(full text downloaded) (only briefly mentions
homelessness, does not go into much depth about
specific treatment)

World Health Organization
Search 'homeless' or 'homelessness'

118 results:
Nothing relevant to drugs/substance use, only natural
disasters or reports on tuberculosis

Appendix 8. JBI Critical Appraisal Checklist for Systematic Reviews and Research Syntheses

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

Comments (Including reason for exclusion)

_____

_____

_____

Appendix 9. Quality appraisal final scores

Source	Clear research question	Appropriate inclusion criteria	Appropriate search strategy	Appropriate sources and resources	Appropriate criteria for appraisal	Appraisal conducted by two or more reviewers	Methods to minimise data extraction errors	Appropriate methods to combine data	Publication bias assessed	Recommendations for policy supported	Appropriate directives for new research	Total
Barker and Maguire (2017)	Yes	Yes	Yes	Yes	Yes	Not clear	Yes	Yes	Yes	Yes	Yes	10/11
Baxter et al. (2019)	Yes	Yes	Yes	Yes	Yes	Not clear	Yes	Yes	Not clear	Yes	Yes	9/11
Beaudoin (2016)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	11/11
Benston (2015)	Yes	Yes	Yes	Not clear	No	No	Not clear	Yes	Not clear	Yes	Yes	6/11
Brunette et al. (2004)	Not clear	Yes	Not clear	Yes	No	No	No	No	No	Yes	Yes	4/11
Carver et al. (2020)	Yes	Yes	Yes	Yes	Yes	No	Not clear	Yes	Not clear	Yes	Yes	8/11
Chambers et al. (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	11/11
de Vet et al. (2013)	Yes	Yes	Yes	Yes	Yes	Yes	Not clear	Yes	Not clear	Yes	Yes	9/11
Formosa et al. (2019)	Yes	Yes	Yes	Not clear	Not clear	Not clear	Not clear	Yes	Not clear	Not clear	Not clear	4/11
Hwang et al. (2005)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not clear	Yes	Yes	10/11
Kertesz et al. (2009)	Not clear	Yes	Yes	Yes	No	No	Not clear	Not clear	Not clear	Not clear	Not clear	3/11
O'Campo et al. (2009)	Yes	Yes	Yes	Yes	Yes	Not clear	Yes	Yes	Yes	Yes	Not clear	9/11
Penzenstadler et al. (2019)	Not clear	Yes	Yes	Yes	Yes	Not clear	Not clear	Yes	Not clear	Yes	Yes	7/11
Sun (2012)	No	Yes	Yes	Yes	No	No	Not clear	Not clear	Not clear	Yes	Not clear	4/11
Torres Del Estal and Álvarez (2018)	Yes	Yes	Yes	Yes	Yes	Not clear	Not clear	Yes	Not clear	Not clear	Yes	7/11
Turner et al. (2011)	Yes	Yes	Yes	Yes	No	No	Not clear	Yes	Not clear	Yes	Yes	7/11
Wright and Tompkins (2006)	Yes	Not clear	Yes	Yes	Not clear	Not clear	Not clear	Yes	Not clear	Yes	Yes	6/11
Wright and Walker (2006)	Yes	Yes	Yes	Yes	Not clear	Not clear	Not clear	Yes	Not clear	Yes	Yes	7/11

Appendix 10. Quality appraisal mediation

Paper	Reviewer 1	Reviewer 2	Reviewer 3	Final score
Beaudoin (2016)	11	7	11	11
Brunette *et al.* (2004)	7	4	4	4
Carver *et al.* (2020)[5]	9	9	9	8
Chambers *et al.* (2017)	10	11	11	11
Penzenstadler *et al.* (2019)	9	6	7	7
Wright and Tompkins (2006)	7	2	5	6

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5   All reviewers gave an initial score of 9; however, the placement of the scores differed and warranted further discussion.

Appendix 11.
Data extraction table

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/ setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
GREY LITERATURE REPORTS													
Pleace (Centre for Housing Policy – University of York)	Effective services for substance misuse and homelessness in Scotland: Evidence from an international review	2008	The review was focused on countries broadly comparable with Scotland, including the European Union, other European countries, Australasia, Japan, and North America, and on England, Wales, and Ireland (including Northern Ireland).	An REA of international literature on effective substance use services for people who are homeless, to review best practice in other countries and determine if there were any lessons for Scotland.	REA. Two broad searches were conducted: one using the definitions agreed with the research advisory group; the second was broad and included all references that included the terms 'Scotland' and 'homelessness' alongside associated phrases.	Not specified. 6,645 references were screened.	Any study relevant to research question, with a focus on homelessness and substance use (this could be alongside other subjects), if not about Scotland, then had to be broadly applicable to Scotland.	Various (ranging from abstinence-based treatment to harm reduction) but all for people who use or had used drugs and had experience of homelessness.	All drugs (including alcohol).	People who use or had used drugs and who were at risk of homelessness, or who were homeless. Services were excluded from the review if service users did not meet these criteria.	1) Joint working and case management (based on interagency working and delivering floating support to people in general needs housing). Support includes financial, training, employment, physical health, mental health, substance use, social and emotional support, and advocacy among others); 2) Fixed-site detoxification; 3) Staircase, continuum of care (CoC), and other transitional housing models; 4) The Pathways to Housing model; 5) Permanent supportive housing (all schemes take the form of shared, supportive housing, in which residents either have self-contained studio flats, bedsits, or rooms); and 6) Preventive services (including rent deposit schemes, housing advice, family reconciliation services, and various forms of debt counselling and financial management).	The review describes the difficulty with measuring outcomes of services, as it is not clear in the included literature which specific outcomes have been measured and project/programme outcomes differ significantly. Given its extent, the evidence base on case management and joint working models specifically related to homelessness and people who use drugs is surprisingly thin. The available USA research evidence indicates that fixed-set detoxification services tend to have limited success. There is little evidence on the effectiveness of single-site transitional housing in Scotland or elsewhere in the UK. HF models are largely viewed as more effective than the CoC model in the USA, but also have several conditions that are necessary to ensure that services could deliver good performance. There is not a significant evidence base relating to permanent supportive housing for people who are homeless with a history of problem substance use in the UK. It is not clear how successful these services are at harm reduction or supporting homelessness. In this review, the evidence on homelessness prevention services within Scotland is mixed. Prevention services identified also tended not to be focused on problem substance use.	1) Realistic service outcomes need to be set and these should be tailored to individual service users; 2) The reason for treatment failure is often due to placing too many demands on service users, not providing the right range of support, and, in particular, not recognising the breadth and complexity of needs. Harm reduction models appear to meet with more success, even if the goals do not meet 'abstinence' goals. Outcomes including harm reduction, sustainable housing, improved quality of life, and generally increased stability can be achieved, even for highly vulnerable individuals with challenging behaviour; 3) Abstinence-based services can also be effective, even if only for a minority of homeless people with a history of substance use; 4) The evidence base suggests a need for a mixture of services; 5) Context needs to be taken into account. Outcomes in the service-rich environments of cities may be different from what is practical and achievable in smaller cities, towns, and more rural areas; 6) Outcome monitoring is essential to good service design and management. Longitudinal monitoring of service outcomes should be undertaken where possible; 7) The evidence base suggests that service interventions may need to be prolonged, creating a need for a secure funding base; and 8) Modification of generic services may be the best option in areas where numbers of people who are homeless and with a history of substance use are low.

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/ setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
GREY LITERATURE REPORTS													
Pleace and Quilgars (Centre for Housing Policy – University of York)	Improving health and social integration through Housing First: A review	2013	The review was international in scope. It included papers published in English as well as articles in French.	What happens after people who are homeless have been successfully rehoused? REA of the international evidence on success of HF in promoting healthcare integration and social and economic integration for people who were formerly homeless and using HF services. The REA covered service evaluations and research on HF services for people experiencing homelessness or potential homelessness, who are characterised by high support needs and recurrent or sustained homelessness.	REA. The searches for this review were carried out by a trained information specialist in the UK Centre for Reviews and Dissemination (CRD). Searches were run to identify the literature on the impacts of social, health, and community support in HF models. Firstly, a search of all 'systematic research reviews' on homelessness was carried out. A second, more extensive set of searches aimed to identify research of all study designs on community integration for people who are homeless and in supportive housing.	Not specified. 1,258 reviews were screened after deduplication.	The background search was for systematic reviews. The second targeted search included all study designs.	All HF services, all of which provide people who are homeless with ordinary housing in the community. Treatment for drug use uses a harm reduction approach with a recovery orientation.	All drugs (including alcohol).	People who were formerly homeless and using HF services.	HF services follow a harm reduction framework with a recovery orientation. It is acknowledged that drug use occurs, and open use of alcohol is permitted. This tolerance of drug and alcohol use is accompanied by the provision of a range of support, either direct or delivered jointly with other services, to enable those in HF services to reduce, or stop, their substance use. The end goal of harm reduction services with a recovery orientation is the same as that for abstinence-based services – but rather than instruction to immediately cease all substance use, it seeks to create an environment where an individual can stop or reduce using substances when they choose to do so.	The available evidence on the effectiveness of HF services, from the main studies on HF, suggests that, overall, service utilisation is associated with stabilisation of drug and alcohol issues, rather than significant reductions or increases in drug and alcohol use. There is no evidence that drug and alcohol use increase following rehousing.	1) Take lessons from other services; and 2) Enhancing HF in respect of health and social integration may involve recognising that different 'levels' of success will be achieved when promoting and enabling better health and social integration. Clear recognition that achievable goals may vary between each person using a HF service is the first step to becoming more precise about what HF services can achieve. Then, goals in relation to health and social integration outcomes should be defined, set, monitored, and tested using validated measures.
Minyard et al. (Georgia Health Policy Center)	Treatment services for people with co-occurring substance use and mental health problems. A rapid realist synthesis	2019	Undertaken in Ireland but with international focus.	Recent systematic reviews of effective treatments for COSMHAD are limited by their focus on specific mental health conditions or substances. They do not identify the contexts and mechanisms that may serve as facilitators for, or barriers to, achieving positive outcomes in providing integrated care.	A realist approach. A two-round iterative search. The searches were limited to results published between 1998 and 2018 which were written in English.	151 (10,971 unduplicated articles were screened).	Any study type, but the 151 articles selected included 118 empirical studies (22 RCTs, 48 programme evaluations, 15 longitudinal analyses, 39 qualitative studies, 14 other); 16 syntheses or reviews (11 systematic reviews, 4 literature syntheses, 1 other); 16 brief reports; and 1 commentary.	Various interventions. Articles were chosen, first, for their relevance to the research question. Only two studies with a homelessness focus were included.	All drugs (including alcohol).	People who use or had used drugs, and who were at risk of homelessness or who were homeless.	Integrated COSMHAD day programme.	Two of the included studies found an integrated COSMHAD day programme to be effective for the adult homeless population, reducing hospitalisation rates and decreasing substance use.	Policy/system: 1) Create incentives in payment to providers for integrating care of individuals with COSMHAD; 2) When developing service payment agreements, include deliverables that recognise the long path to recovery; 3) Analyse the system as it relates to access to psychological services and align providers with service needs; 4) Examine payment structure for peer mentors, coaches, and instructors; and 5) Explore how resources can be allocated to support a holistic approach to care (e.g. housing, supportive employment).

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/ setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
GREY LITERATURE REPORTS													
Bates *et al.* (Public Health Institute at Liverpool John Moores University)	The effectiveness of interventions related to the use of illicit drugs: prevention, harm reduction, treatment and recovery. A 'review of reviews'	2017	Undertaken in the UK but with an international focus.	To provide a synthesis of the best international research on responses to problem drug use.	Review of reviews. High-quality systematic reviews published since 2010 were identified through a comprehensive search of relevant electronic databases and screened for relevance against predefined inclusion and exclusion criteria. Lower-quality reviews and reviews published prior to 2010 were included where evidence was missing on key interventions.	99 review articles divided under the headings 'prevention' (n=13), 'harm reduction' (n=24), and 'treatment and recovery' (n=62).	Reviews only.	Various interventions or treatments, not all relevant for people who are homeless. The ones that were relevant were community interventions for: adolescents who are homeless; people living with HIV who inject drugs; and people living with HCV who inject drugs.	All drugs (including alcohol).	Not specific to people who are homeless but did seek to highlight evidence on interventions for 'high-risk' groups, including people who are homeless and use drugs. Populations included adolescents, people with HIV who inject drugs, and people with HCV who inject drugs.	1) Mentoring interventions: The review highlights the importance of the following interventions/ treatment for people who are homeless due to increased risk of BBV in vulnerable populations; 2) HIV treatment approaches: HAART, DAART, contingency management, and nurse-led interventions; 3) Harm reduction approaches for drug use and for needle sharing; and 4) Combination treatment approaches for HCV.	There was no benefit from a mentoring intervention delivered in combination with drug use treatment to adolescents who are homeless. Adherence to HAART among people who use drugs was comparable to among people who do not use drugs. People who used drugs and engaged in OST had increased adherence to HAART and better treatment outcomes than those receiving HAART alone. Evidence supported DAART alone and integrated in medication-assisted therapy to improve treatment and virological outcomes. Findings for contingency management are inconsistent but promising in favour of it. Findings for nurse-delivered interventions are inconsistent but promising. Individuals who received harm reduction approaches were significantly more likely to reduce drug use, but no significant differences in needle sharing between individuals who received harm reduction and controls were seen.	Because this review was not specific to people who are homeless, there were no specific recommendations in this area. However, the results in the outcomes summary column (see left) show what could work for future treatment/services for this population.

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/ setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
ACADEMIC LITERATURE													
Barker and Maguire (University of Southampton)	Experts by Experience: Peer Support and its Use with the Homeless	2017	Undertaken in England, but had an international focus: 9 USA, 1 Canada, 1 Netherlands.	Attempting to understand what the literature reveals about IPS and homelessness. How IPS is currently being used with the homeless, the landscape of practice, outcomes of practice, and if IPS is a viable option for work with heterogeneous populations. Assessment of the effectiveness of IPS with a homeless population – peers are the intervention, not only delivering it.	A systematic review. Studies that had a primary intervention of IPS and its effects on those experiencing homelessness, with a minimum of 30% of the participants identifying as homeless.	11 articles reporting on 10 studies. 4,028 articles screened after deduplication. Two articles reporting on the same dataset were combined for the purposes of this review.	Any type of study could be included, and the 10 studies comprise longitudinal, quasi-experimental, and cross-sectional studies.	IPS, where the peers are the intervention.	All drugs (including alcohol).	People who are homeless (at least 30% of each study's sample), but did not look specifically at people who use drugs. Adults and young adults, including rough sleepers and those engaged in services.	IPS is termed 'intentional' because it is fostered and developed by professional organisations. IPS can be either mentorship support or mutual support; thus, studies that are using IPS may be using peers as client mentors or as an adjunct to services provided, such as combining peers and professionals in the delivery of services. IPS models are quite diverse; organisations not only utilise peers in multiple ways, but peers may or may not be trained and/ or paid for their work.	All studies report some positive effects of IPS. Overall reduction in harm related to addiction observed. One-half of the studies report reduction in drug and alcohol use, and reducing relapse rates. Three studies report improvements on homelessness: decreases in number of homeless days, reduced relapse to homelessness, and reports of an overall improvement in environment. Positive outcomes relate to the improvement of the participants' overall QoL; specifically, the reduction of drug/alcohol use, improved mental/physical health, and increased social support.	IPS can have a positive impact on outcomes for homeless people. Based on the evidence in this review, homeless organisations utilising peers should focus their outcomes on the areas where peers are shown to have impact, such as reduction of drug/alcohol abuse/use, increasing mental and physical health, and increasing social support. Practical applications of these results pertain to the training of peers, whereby training sessions focus on the common elements and the identified outcomes. For example, peers could learn how to use their shared experiences in a manner that models recovery from homelessness.

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/ setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
ACADEMIC LITERATURE													
Baxter *et al.* (University of Glasgow)	Effects of Housing First approaches on health and well-being of adults who are homeless or at risk of homelessness: systematic review and meta-analysis of randomised controlled trials	2019	Undertaken in Scotland with international focus. The included studies were all from the USA and Canada.	A policy approach aiming to end homelessness across Europe and North America – the HF model provides rapid housing that is not conditional on abstinence from substances use. Authors systematically review the evidence from RCTs for the effects of HF on health and well-being.	A systematic search. Searches were restricted to studies published from 1992 up to the date of the search (15 May 2017) in peer-reviewed journals. Reference lists of previous reviews were checked for additional studies. The search strategy was developed in collaboration with a University of Glasgow librarian. Electronic databases were searched.	25 eligible papers were identified for inclusion, reporting results from four studies. The four studies all had a high risk of bias.	RCTs of interventions providing rapid access to non-abstinence-contingent, permanent housing. Only studies published in English in peer-reviewed journals which reported a primary health outcome were included.	The intervention was defined as rapid provision of permanent, non-abstinence-contingent housing. The inclusion of additional supports (such as ICM or ACT) was not used to define the intervention. Compared interventions adhering with the wider principles of HF with interventions providing only housing; however, all studies included some form of additional support, so this subgroup analysis was not possible. All interventions included both rapid provision of permanent, non-contingent housing and additional support, thus are labelled 'HF' regardless of whether they were identified as such in the literature.	All drugs (including alcohol).	Adults (16 years and older) who meet at least one of the European Typology of Homelessness and Housing Exclusion (ETHOS) criteria: roofless, houseless, living in insecure housing, living in inadequate housing. Did not specifically look at substance use but 2/4 studies reported on this.	Providing access to housing through assistance in locating and entering housing, and subsistence of rental costs to maintain permanent tenancy. The housing provided was defined as intended to be permanent, counting sustained tenancy as the intended outcome. Not contingent on adherence to treatment or substance abstinence. Rapid, with the process of securing and entering housing initiated at first contact with the homeless person and with the aim of beginning tenancy promptly.	HF resulted in large improvements in housing stability, with unclear short-term impact on health and well-being outcomes. For mental health, QoL, and substance use, no clear differences were seen when compared with TAU. HF participants showed a clear reduction in non-routine use of healthcare services over TAU. This may be an indicator of improvements in health. Two studies reported substance use outcomes with mixed results.	HF approaches appear to be highly effective in reducing homelessness among vulnerable participants. However, in several direct measurements of short-term health outcomes, the impact of HF is not clear. Further evidence could be valuable in assessing the long-term effects of improved housing stability on health. HF could be implemented with strong confidence in its success as a housing intervention, alongside some confidence in a lack of immediate adverse effects on health, but with caution in relying on this model for certainty in improved health outcomes.

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/ setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
ACADEMIC LITERATURE													
Beaudoin (National Institute of Excellence in Health and Social Services *(Institut national d'excellence en santé et en services sociaux; INESSS))*	Efficacite de l'approche "logement d'abord": une revue systematique [Effectiveness of the "housing first" approach: A systematic review]	2016	Undertaken in Canada with international focus; but majority of the included studies are from the USA.	The Pathways to Housing model has influenced the creation of several hybrid programmes, based on the HF approach combined with a range of services and diversified housing. This approach is based on the same philosophy as the original model: that people do not have to be abstinent or undergo psychiatric treatment to access accommodation. In Canada, the Government plans to primarily subsidise programmes based on this approach.	The search was carried out in several databases and in search engines on the Internet. January 2002 to January 2012 was the time frame within which results needed to have been published in order to be included, and an update was subsequently made, until June 2013.	25 high-quality papers included. Quality of 39 assessed, and 14 of them were excluded due to their low quality.	Selection based on pre-established inclusion criteria for population, intervention, comparator, and results. Experimental studies, and quasi-experimental (with control group) and systematic reviews, were selected. 3 systematic reviews, 11 papers from 5 experimental studies, and 11 papers from 11 quasi-experimental studies were included.	Psychosocial interventions included traditional interventions, such as case management, and programmes based on the 'treatment first' approach. Housing voucher programmes were generally reserved for people who have first received treatment, who are abstinent, and whose mental health is stable, thus classified here as traditional psychosocial interventions. The HF approach refers to all the programmes and models in which housing support is offered without obligation of abstinence or compliance with prescriptions without treatment prior to access to housing.	All drugs (including alcohol).	Homeless people living with mental and/or substance-related disorders.	Programmes based on the HF approach and any type of HF-based programme with add-ons.	All the studies that have compared the HF approach with access to usual services show that participants in programmes based on the HF approach spend more time in housing and less time on the street. The results of the effects on QoL and satisfaction, crime, incarceration, participation in community life, and victimisation are mixed. Other results show that the HF approach does not have a more positive effect on mental health, physical health, substance use, or social support than access to usual services.	In the province of Quebec, HF types of programmes, typified by varying levels of housing and intervention intensity, should be promoted. However, they must take into account the ever-present dichotomy between the rural and urban realities of Quebec.

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
ACADEMIC LITERATURE													
Benston (State of Nevada Department of Health and Human Services)	Housing programs for homeless individuals with mental illness: Effects on housing and mental health outcomes.	2015	Undertaken in the USA with focus on USA.	This analysis reviewed results of the best available research in the USA on permanent housing programmes for homeless individuals with mental illness and the effect of these programmes on treatment outcomes, including housing status and mental health.	Limited to studies in which permanent housing was offered as an intervention and research input. A search of indexed literature from January 1980 through December 2013 was conducted, limiting findings to RCTs and quasi-experimental studies.	12 primary studies and 2 secondary analyses, involving more than 7,400 homeless participants with mental illness.	Excluded research that did not include permanent housing (e.g. transitional housing, case management, outreach programmes). Studies that examined housing as an output, and studies involving homeless individuals who were not mentally ill or individuals with mental illness who were not homeless, were excluded.	Permanent supportive housing is loosely defined as subsidised housing coupled with supportive services. No standardised model for housing homeless individuals with mental illness exists to guide research or policy. Housing studies involving this population are plagued by vague or conflicting definitions and conceptualisations of supportive housing, hampering comparative analysis.	All drugs (including alcohol).	Homeless individuals with mental illness. Did not look at substance use specifically but did include samples with substance use problems.	The reviewed studies defined, designed, and implemented supportive housing in a variety of ways. Most of the studies did not specifically refer to their experimental housing conditions as 'supportive housing'. The studies defined and implemented case management in a variety of ways. Seven studies used ACT teams and others used services that included ICM, intensive clinical case management, and comprehensive case management, alongside traditional case management.	Majority of participants placed in experimental housing programmes with case management support remained in housing for at least one year or experienced more days housed than homeless relative to a comparison group. 7 of the 14 studies reported mixed clinical and substance use outcomes. One study reported that the experimental housing condition was associated with a reduction in substance use. Another study saw substance use decline in both conditions. Four studies found that the preferred housing condition did not yield any advantage in clinical outcomes over the comparison or control condition, either because no improvements were found or because both experimental and comparison groups showed similar gains.	There is a need for further experimental research to inform funding and policy decisions. The body of research is unable to answer fundamental questions about what type of housing programme works best for homeless individuals with mental illness. This review of the best studies on permanent supportive housing identified a small base of research with limited usefulness for decision-makers seeking empirical evidence to justify policy choices. The research cannot yet pinpoint which factors drive positive housing and clinical outcomes.
Brunette et al. (New Hampshire–Dartmouth Psychiatric Research Center and Dartmouth Medical School)	A review of research on residential programs for people with severe mental illness and co-occurring substance use disorders	2004	Undertaken in USA, with unclear focus. Studies from the USA and one from Honduras included.	Authors reviewed controlled studies of residential programmes for people with dual disorders (mental illness and substance use).	Searched electronic databases and a variety of websites to also identify unpublished reports.	10 controlled studies of residential interventions.	Limited to controlled studies.	Residential programmes were recommended frequently for people with dual disorders, but their effectiveness was uncertain at the time. Authors categorised the interventions as short term (average stay <6 months) or long term (>6 months), as longer length of participation may be associated with better outcomes.	All drugs (including alcohol).	People with COSMHAD. 5/10 studies focus specifically on people who are homeless.	Various long- and short-term residential programmes.	9 of 10 studies suggest advantages for integrated residential programmes that were modified to meet the needs of clients with severe mental illness, although each of these studies has major methodological issues.	Ultimately, a continuum of housing supports is necessary to serve people with dual disorders at different stages of treatment.

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/ setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
ACADEMIC LITERATURE													
Carver *et al.* (Salvation Army Centre for Addiction Services and Research, University of Stirling, UK; and School of Health and Social Care, Sighthill Campus, Edinburgh Napier University, UK)	What constitutes effective problematic substance use treatment from the perspective of people who are homeless? A systematic review and meta–ethnography	2020	Undertaken in Scotland, focus is international.	People experiencing homelessness have higher rates of problem substance use but difficulty engaging with treatment services. There is limited evidence regarding how problem substance use treatment should be delivered for these individuals. Previous qualitative research has explored perceptions of effective treatment by people who are homeless, but these individual studies need to be synthesised to generate further practice-relevant insights from the perspective of this group.	Meta-ethnography. Search in electronic databases for literature published between 2000 and 2019. Grey literature was identified by searching the websites of various relevant organisations for reports published since 2007. Reference lists of all included studies were reviewed.	23 papers, involving 462 participants, were synthesised. 22 published papers and 1 grey literature study. Four papers were from two studies; thus, the findings from 21 studies were synthesised.	Qualitative, published between 2000 and 2019, plus grey literature. Eligible if: (a) reported primary qualitative research of perspectives of treatment for problem substance use; (b) was published in English; and (c) included adults aged 18 or over who were homeless/at risk of homelessness and had accessed treatment for problematic drug and/or alcohol use.	Any treatment for problematic drug and/or alcohol use.	All drugs (including alcohol).	Adults aged 18 or over who were homeless/at risk of homelessness and had accessed treatment for problematic drug and/or alcohol use (currently or in the 10 years prior to the study being conducted). Studies focusing on youth were excluded.	The 21 studies were conducted between 2002 and 2018 in the USA (n=11), Canada (n=7), and the UK (n=3), involving 462 participants. Participants were recruited from a range of services rather than directly from the streets. 10 studies provided insight into participant views of services generally, 1 study explored a hypothetical intervention, and 10 studies examined specific substance use interventions. Harm reduction and abstinence-based treatments featured in the reviewed studies. Interventions included managed alcohol programmes and HF.	Participants in all types of interventions preferred harm reduction services and considered treatment effective when it provided a facilitative service environment; compassionate and non-judgemental support; time; choices; and opportunities to (re)learn how to live. Longer-duration interventions that offered stability to service users were valued, especially by women. Critical components of effective substance use treatment include a service context of good relationships, with person-centred care and an understanding of the complexity of people's lives.	Participants considered an effective intervention to be one which provided long-term treatment and ongoing support to help them to achieve stability. There is a need for development and evaluation of longer-term treatment and aftercare models, to avoid relapse, enhance stability, and enhance the likelihood of a range of positive outcomes, within both harm reduction and abstinence-based interventions. This desire from participants is in conflict with the reality of services globally, where austerity and systematic underfunding and cuts to services put pressure on services to discharge people as quickly as possible.

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ACADEMIC LITERATURE													
Chambers *et al.* (School for Health and Related Research (ScHARR), University of Sheffield, UK)	Systematic review of the evidence on housing interventions for 'housing-vulnerable' adults and its relationship to wellbeing	2017	Undertaken in the UK, focus is international.	Access to safe, good-quality, affordable housing is essential to well-being and housing-related factors can have an important influence on sense of community belonging. A recent scoping review on housing and well-being identified a lack of review-level evidence around the impact of housing interventions on well-being of people who are vulnerable to discrimination or exclusion in relation to housing. This systematic review was commissioned to address that gap.	Searched six bibliographic databases, performed reference and citation checking, and searched the websites of university departments and charities with expertise in housing. Reviewed quantitative (experimental and observational) and qualitative research from the UK and other Organisation for Economic Co-operation and Development (OECD) countries published between 2005 and 2016.	90 publications were included in the review.	Quantitative (experimental and observational) and qualitative research from the UK and other OECD countries published between 2005 and 2016.	HF (47), other interventions for homeless people with mental health problems (11, recovery housing (10, supportive housing (12, housing interventions for ex-prisoners (7, housing interventions for vulnerable young people (3).	All drugs (including alcohol).	Inclusion criteria: Studies of housing-vulnerable adults, their families or carers, and providers of housing services. Had to include an intervention designed to avoid homelessness or unstable housing and report outcomes on well-being and/or housing stability. Housing-vulnerable people included those who were homeless or had a history of homelessness, people with a history of mental illness, people with a learning disability, refugees and recent immigrants, young people leaving care, and ex-prisoners.	HF (47), other interventions for homeless people with mental health problems (11), recovery housing (10), supportive housing (12), housing interventions for ex-prisoners (7), housing interventions for vulnerable young people (3).	Strong evidence that HF can improve housing stability and measures of physical health in the short term. Evidence was classed as moderate for positive effects on personal well-being, mental health, and locality-related well-being (i.e. well-being related directly to one's living situation and conditions) and for absence of effect on personal finance and community well-being. In other interventions for people with mental/physical health problems, a key finding was that they provide an opportunity for recovery but not everyone benefits. Recovery houses can improve personal well-being through promoting abstinence from alcohol or illegal drugs. Supportive housing found moderate strength of evidence for a positive effect on housing stability. However, strength of evidence for well-being outcomes was low or very low.	Findings may be difficult to translate into 'actionable messages' for policy and practice. Providing housing support for vulnerable people is clearly necessary but may not always be sufficient to improve their well-being and that of the community as a whole. In considering how to apply the evidence, decision-makers also need to take into account the wider context, including pressure on local authority budgets and changes in the political environment.

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ACADEMIC LITERATURE													
de Vet et al. (Department of Primary and Community Care, Radboud University Nijmegen Medical Centre, Netherlands; the Child Abuse and Neglect Team, Academic Medical Center, Amsterdam, Netherlands; and the Department of Orthopedagogics, Ghent University, Belgium)	Effectiveness of Case Management for Homeless Persons: A Systematic Review	2013	Undertaken by Dutch/Belgian team, focus is international: 20 studies from USA, 1 from UK.	Reviewed the literature on SCM, ICM, ACT, and CTI for homeless adults.	Electronic systematic literature search for peer-reviewed articles published in English between January 1985 and June 2011 in electronic databases. The title or abstract had to indicate that the study included an intervention. In the full-text article, at least one of the included interventions had to be identified as adhering to, or being based on, one of the four models of case management selected.	33 publications pertained to 21 unique study samples.	RCTs or before-and-after studies only, incorporating a baseline and at least one follow-up assessment of outcome variables, comparing two or more groups that received different interventions. The article had to include participant-level outcomes.	SCM, ICM, ACT, and CTI for homeless adults.	All drugs (including alcohol).	Participants in eligible study samples were aged 18 years or over. The recruitment strategy of the study had to target a predominantly homeless population, as evidenced by the description of the target population, recruitment setting, or selection criteria. Definition of homelessness provided.	SCM, ICM, ACT, and CTI for homeless adults.	Across the four different models, case management generally seemed to have a positive impact on housing stability and patterns of service use. Findings about substance use outcomes were mixed, and effects on variables measuring health, societal participation, and QoL were largely non-significant.	To properly inform policy-makers in the European Union, experimental trials should be conducted among different homeless groups in a variety of service settings and countries. These studies should be carefully designed. They should aim for more uniformity in outcomes examined and for more standardisation of measurement instruments. Practitioners could employ case management to assist homeless persons with improving their housing stability and changing their service use patterns.
Formosa et al. (NOT a study – conference abstract only; University Health Network, Toronto, Canada)	Emergency Department Interventions for Homelessness: A Systematic Review	2019	Undertaken in Canada; unsure about focus.	Study aims to aggregate and review the literature on emergency department (ED) interventions that improve health and/ or access to the SDOH for homeless patients.	Developed search strategy with a library scientist, searching eight databases for peer-reviewed published studies as well as grey literature. Included studies of homeless patients (or majority homeless patients) that recruited patients at the level of the ED.	13 studies.	Included studies had a control group or were a pre-/post-intervention trial, and measured outcomes that reflected the health (including access to the SDOH) of the studied subjects.	Various interventions included.	Drugs, but unclear if alcohol.	Included studies of homeless patients (or majority homeless patients) that recruited patients at the level of the ED.	Studied interventions included case management, HF, substance use interventions, ED-based resource desks, and ED compassionate care.	8 studies (2 HF) sought to improve access to housing and 6 demonstrated significant reductions in homelessness and increased access to stable housing. 6 studies focused on homeless people using substances. 1 found extended-release naltrexone feasible in a homeless demographic. 3 case management interventions reported reductions in alcohol and substance use and enrolment in substance use treatment. 1 study found no change in opioid overdose rates after opioid overdose education harm reduction initiative.	ED is in a unique position to try intervening in breaking the cycle of homelessness. While ED programmes that directly connect people with housing are beneficial, studies of ED-initiated case management can have similar results.

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ACADEMIC LITERATURE													
Hwang *et al.* (Centre for Research on Inner City Health, St. Michael's Hospital, St. Joseph's Health Centre, Toronto, Ontario; Departments of Medicine and Psychiatry, University of Toronto, Toronto, Ontario; and Dalhousie Medical School, Halifax, Nova Scotia, Canada)	Interventions to improve the health of the homeless: a systematic review	2005	Undertaken in Canada, focus is international.	This review evaluated interventions to improve health-related outcomes for homeless people.	Electronic databases were searched from inception to July 2004 for articles published in English. The bibliographies of relevant reviews and included articles were screened for additional studies.	73: 37 RCTs, 19 prospective longitudinal studies, 10 retrospective studies, and 7 secondary analyses of RCT data.	RCTs, prospective longitudinal studies with non-randomised allocation to different treatment groups, retrospective studies with comparison of outcomes in different treatment groups, and secondary analyses of RCT data where the intervention was not the same as that allocated in the original trial.	Interventions for people with mental illness (15 studies). Interventions for people with substance use (13 studies). Interventions for people with concurrent mental illness and substance use (7 studies).	All drugs (including alcohol).	Studies of homeless people, including those with no fixed, regular, and adequate night-time residence, and those living in supervised shelters or locations not intended for human use. Studies that included non-homeless people as part of the population had to include at least half who were homeless and report the results separately.	Studies of any intervention provided by primary care, or to which homeless patients could be referred. The eligible comparators were another intervention or no intervention (usual care). Those included in the review were case management services and/or supportive housing; ACT; the Access to Community Care and Effective Services and Supports programme; post-detoxification stabilisation; abstinence-contingent work therapy; intensive residential treatment; other preventive health interventions for substance dependence; cash incentive schemes; educational programmes; and outreach initiatives.	Coordinated programmes for homeless adults with mental illness or substance use generally result in better health outcomes than usual care. Cash incentives were effective in increasing adherence to tuberculosis screening and improved completion rates; education initiatives improved HIV risk behaviours in runaway youth; outreach services reduced primary care utilisation in homeless families and children; education programmes reduced injection drug use among homeless women; and compassionate care reduced ED visits.	Practice: The authors stated that clinicians should focus on directing homeless people to tailored, coordinated treatment and support programmes. Research: The authors stated that future studies should include usual care control groups and address the diversity of the homeless population, with focus on the needs of runaway youth and homeless families and children.

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ACADEMIC LITERATURE													
Kertesz *et al.* (Center for Surgical, Medical Acute Care Research and Transitions at the Birmingham Veterans Affairs Medical Center, University of Alabama at Birmingham, USA)	Housing First for homeless persons with active addiction: are we overreaching?	2009	Undertaken in the USA. Focus unclear but possibly USA.	The authors compare the effectiveness of HF for homeless people who have 'addiction disorder' with linear approaches on a number of outcomes.	Primarily comparative studies of HF and linear approaches to homeless persons with addiction and with or without concurrent non-addictive mental illness through electronic databases, Google Scholar, websites, and a review of health-oriented studies. Articles published in English in peer-reviewed journals.	Not reported.	(1) The target population (homeless, with addiction or mental illness); (2) Use of quantitative data; (3) A comparative study design with randomised or pseudorandomised design assessing a linear or HF approach; and (4) Inclusion of housing outcomes. Several non-comparative studies (e.g. case series) were included if they had illustrative value not available through comparative research.	More than 350 communities in the USA have committed to ending chronic homelessness. One nationally prominent approach, HF, offers early access to permanent housing without requiring completion of treatment or, for clients with addiction, proof of sobriety.	All drugs (including alcohol).	Homeless individuals with addictive disorders, with or without concurrent non-addictive mental illness.	Various HF interventions. The 'linear' approach anticipates that homeless persons with varying disabilities will enter rehabilitation-oriented programmes with the long-term goal of returning to housing. The linear approach generally makes rehabilitative treatment, typically residential, a prerequisite for permanent housing. Subsidised permanent housing depends on the client's success in the programme, which typically requires abstinence from drugs and alcohol.	HF reports document excellent housing retention, despite the limited amount of data pertaining to homeless clients with active and severe addiction. Several linear programmes cite reductions in addiction severity but have shortcomings in long-term housing success and retention.	This article suggests that the current research data are not sufficient to identify an optimal housing and rehabilitation approach for people who are homeless and use substances. The research regarding HF and linear approaches can be strengthened in several ways, and policy-makers should be cautious about generalising the results of available HF studies to those with active substance use when they enter housing programmes.
O'Campo *et al.* (The Centre for Research on Inner City Health, The Keenan Research Centre, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Canada; Dalla Lana School of Public Health, University of Toronto, Canada; Department of Psychology, Ryerson University, Toronto, Canada; Johns Hopkins Bloomberg School of Public Health, Baltimore, USA)	Community-based services for homeless adults experiencing concurrent mental health and substance use disorders: a realist approach to synthesizing evidence	2009	Undertaken in Canada, focus is international.	Collaborative research effort between academic-based and community-based partners to conduct a realist review focusing on both whether programmes are successful and why and how they lead to improved outcomes. Addressing a gap in knowledge regarding effectiveness of programme components in community-based treatment approaches for homeless people with concurrent mental health and SUDs in urban community settings.	Authors present a list of all searched databases and supplement scholarly literature with grey literature. Authors also emailed corresponding authors of the included studies to learn more about how each programme operated.	17 scholarly articles included (corresponding to 10 programmes) supplemented by other sources; overall, included 38 sources of evidence on the 10 programmes.	All English literature since 1980 with keywords related to interventions and mental health and SUDs was considered.	Treatment of concurrent mental health and SUDs has emerged only since the early 1990s, with literature characterised by poor evaluation designs, short-term follow-up, and heterogeneous interventions and populations. Several types of interventions lack enough evidence to determine their effectiveness. Case management has been met with inconsistent findings.	All drugs (including alcohol).	Homeless individuals with concurrent mental health and SUDs.	Authors identified 10 distinct community-based or community-linked programmes serving homeless individuals experiencing concurrent mental health and SUDs that employed a variety of approaches, including ACT, provision of housing, integrated mental health and substance use treatment, and a holistic approach through which many of the clients' life needs were supported. Most programmes delivered a combination of programme strategies or took different approaches to the same strategies.	Authors identified six important and promising programme strategies that reduce mental health and, to a far lesser degree, substance use problems: client choice in treatment decision-making, positive interpersonal relationships between client and provider, ACT approaches, providing supportive housing, providing supports for instrumental needs, and non-restrictive programme approaches.	Continuous involvement of community-based agencies in various stages of the research process. While experience and expertise from the community partners was key in the integration of knowledge, the evidence gathering process, as well as the extraction and synthesis phases, the authors were particularly motivated to retain involvement of these key stakeholders to maximise the chances that the evidence will be used to change or inform current practice or policy.

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ACADEMIC LITERATURE													
Penzenstadler *et al.* (Geneva University Hospitals, Switzerland; Geneva University, Faculty of Medicine, Oxford Health National Health Service (NHS) Foundation Trust, UK; and Research Center, Montreal University Institute of Mental Health, Quebec, Canada)	Effect of Assertive Community Treatment for Patients with Substance Use Disorder: A Systematic Review	2019	Undertaken by a collaborative team from Switzerland, the UK, and Canada; focus is international. Most of the studies originate from the USA and one from the UK.	The ACT model was originally developed for patients with a severe mental illness but has been adapted for patients with SUD by integrating specific SUD treatments into the traditional ACT model. This paper aims to assess the effectiveness of ACT for patients with SUD on several measures.	Authors performed a systematic search. No grey literature search. No mention of contact with experts or looking at references list.	11 publications using 5 datasets were included in the analysis.	RCTs published before June 2017 found on the electronic databases.	The key elements of the ACT model are assertive engagement, delivery of services in the community, high intensity of services, holistic and integrated services by multidisciplinary teams, and continuity of care. In order to provide a high intensity of care, the caseloads are small and in the original model, a 24-hour service is provided.	All drugs (including alcohol).	Patients included in the studies had a diagnosis of SUD. Two datasets included homeless patients and two datasets included patients with high service use.	The services in the included studies all used the principles of ACT in their approach, with services provided in the community, assertive engagement, high intensity of services, small caseloads, 24-hour responsibility, a team approach, and multidisciplinary working.	The results of the very few existing RCTs are mixed. Treatment engagement was higher for ACT in four datasets. One dataset reported higher service contact rates for the ACT group than for controls. In two datasets a positive effect on hospitalisation rates was found. Higher fidelity to the ACT model appears to improve outcomes. Substance use reduced only in half of the datasets, of which only one showed a significant reduction in the ACT group.	The research base is variable concerning the usefulness of ACT in the field of addiction. Higher fidelity to the ACT model appears to improve results and studies often found at least one outcome measure improved. Future research should investigate the effective 'ingredients' of ACT. This would help to conceptualise a specific ACT model that may be more effective. Further research is needed to examine which types of clinical interventions might help difficult-to-engage patients with addictions in order to innovate treatment approaches and reach out to patients.

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ACADEMIC LITERATURE													
Sun (School of Social Work, University of Nevada, Las Vegas, Nevada, USA)	Helping Homeless Individuals with Co-occurring Disorders: The Four Components	2012	Undertaken in the USA, focus is on USA.	Homeless individuals with COSMHAD are one of the most vulnerable populations. This article provides practitioners with a framework and strategies for helping this client population.	Database searches plus the reference lists of located articles.	Not reported.	All study types.	Various interventions.	All drugs (including alcohol).	Homeless individuals with COSMHAD.	Various interventions, e.g. CTI (an evidence-based treatment that goes one step beyond a discharge plan, where during the first months after discharge, when a client's relationship with people in the community may be fragile, CTI strengthens the client's adjustment to the community by pairing the client with a social worker who visits the client's community residence, accompanies the client to appointments, and helps the client develop relationships with people at the appointments and provides advice in periods of crisis); Motivational Interviewing (MI) before client discharge (the MI session addresses the differences between hospital and outpatient treatment regarding the treatment goals and methods and engages the client to explore his or her own understanding of his or her clinical condition and commitment to treatment).	Four components emerged from a literature review: (1) ensuring an effective transition for individuals with COSMHAD from an institution; (2) increasing the resources of homeless individuals with COSMHAD by helping them apply for government entitlements or supported employment; (3) linking homeless individuals to supportive housing, including HF options as opposed to only treatment first options, and being flexible in meeting their housing needs; and (4) engaging homeless individuals in COSMHAD treatment, incorporating modified ACT, MI, CBT, contingency management, and COSMHAD specialised self-help groups.	This article suggests four components: (1) ensuring effective transition of homeless individuals from institutions into community living; (2) helping them apply for government entitlements and obtain supported employment; (3) linking them with supported and supportive housing; and (4) applying and combining modified ACT, clinical case management, MI/ Motivational Enhancement Therapy, CBT, contingency management, and specialised 12-step groups to maximise treatment effects.

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ACADEMIC LITERATURE													
Torres Del Estal and Álvarez (Hospital Universitario La Paz, Madrid, Spain)	Intervenciones enfermeras para el manejo de adicciones a sustancias químicas de personas sin hogar' [Nursing interventions for the management of substance use of homeless persons]	2018	Undertaken in Spain, focus is international. Studies in English, Spanish, and French searched.	Substance use is one of the most prevalent health problems in people who are homeless. The aim is to review the literature about the effective nurse-led interventions for the management of substance use in people who are homeless.	Electronic databases were searched. Quantitative design studies (primary and secondary) and mixed methods studies, published in English, Spanish, and French in the last 10 years, were included.	15 studies included.	Quantitative design studies (primary and secondary) and mixed methods studies, published in English, Spanish, and French in the last 10 years.	Nurse-led interventions were classified according to the intervention model: case management or other nurse-led intervention models.	Drugs (not alcohol).	Homeless people who use drugs.	Case management versus other nurse-led intervention models.	Case management is an option with effective results either as a single intervention or in combination with others. Programmes that combine case management and interventions carried out in the context of interdisciplinary teams (nursing, medicine, psychology, and public health) have better results than standard interventions.	Nursing must be involved in programmes that develop feasible and effective interventions that reduce the health problems in people who are homeless. Apart from being effective alone, it could be accompanied with good results by other interventions such as contingency management with positive reinforcement or incentives, artistic therapy, health prevention and promotion programmes, and multidisciplinary teams.
Turner et al. (University of Bristol, UK; Health Protection Scotland, UK; University of Strathclyde, UK; London School of Hygiene and Tropical Medicine, UK; Health Protection Agency, Centre for Infection, London, UK; Health Protection, Public Health Wales, UK; University of the West of Scotland, UK; Institute of Public Health, Cambridge, UK; and West of Scotland Specialist Virology Centre, UK)	The impact of needle and syringe provision and opiate substitution therapy on the incidence of hepatitis C virus in injecting drug users: pooling of UK evidence	2011	Collaborative study by various researchers across the UK, focus is on the UK.	To investigate whether opiate substitution therapy and NSPs can reduce HCV transmission among PWID.	Studies were included if they contained individual-level data on both intervention coverage (NSP and/or opiate substitution therapy) and a measure of newly acquired HCV infection among PWID surveyed in the community. Consulted UK experts and reviewed electronic databases. Studies published prior to 2000 or conducted in prisons were excluded.	Six UK studies with participant numbers as follows: Birmingham (n=310), Bristol (n=299), Glasgow (n=947), Leeds (n=302), London (n=428), and Wales (n=700).	Included if contained individual-level data on both intervention coverage (NSP and/or opiate substitution therapy) and a measure of newly acquired HCV infection among PWID surveyed in the community. Studies published prior to 2000 or conducted in prisons were excluded. Four cross-sectional studies (Birmingham, Bristol, Glasgow, and Leeds) and two cohort studies (London and Wales).	Opiate substitution therapy and NSPs.	Injection drugs.	PWID. Did not look at homeless people specifically, but each study sample contained between 32% and 62% of people who were homeless in the previous year.	Two important interventions for PWID are opiate substitution therapy to reduce drug dependence and injecting frequency, and the provision of clean injecting equipment through NSPs to reduce unsafe injecting (i.e. sharing used syringes).	Both receiving opiate substitution therapy and high NSP coverage were associated with a reduction in new HCV infections. Full harm reduction (on opiate substitution therapy plus high NSP coverage) reduced the odds of new HCV infection by nearly 80% (adjusted odds ratio (AOR)=0.21, 95% confidence interval (CI): 0.08–0.52). Full harm reduction was associated with a reduction in self-reported needle sharing by 48% (AOR=0.52, 95% CI: 0.32–0.83) and mean injecting frequency by 20.8 injections per month.	NSP, especially if combined with opiate substitution therapy, was effective, and supports recommendations within the UK, Europe, and globally on the need to expand NSP and opiate substitution therapy to prevent HCV infection. The question remains on what levels of opiate substitution therapy and NSP coverage (and behaviour change) are required to drive down HCV prevalence (and whether these are sustainable).

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ACADEMIC LITERATURE													
Wright and Tompkins (Leeds Community Drug Treatment Services and North East Leeds Primary Care Trust)	How can health services effectively meet the health needs of homeless people?	2006	Undertaken in the UK, focus was international.	To critically examine the international literature pertaining to the healthcare of homeless people and discuss the effectiveness of treatment interventions.	Electronic databases were reviewed using key terms relating to homelessness, intervention studies, drug misuse, alcohol misuse, and mental health. The review was not limited to publications in English. Grey literature search and discussion with experts were conducted. Literature from 1966 to 2003 included.	Not reported.	Not specified – potentially any study type.	Interventions such as: primary prevention interventions; management of drug dependence; medically supervised injecting centres; sexual health promotion; and management of alcohol dependence.	All drugs (including alcohol).	Looked at people who are homeless but, in their search, included key terms relating to substance use, alcohol use, and mental health.	Effective interventions for drug dependence include adequate oral opiate maintenance therapy, tetanus and hepatitis A and B immunisation, safer injecting advice, and access to needle exchange programmes. There is emerging evidence for the effectiveness of supervised injecting rooms for homeless injecting drug users and for the peer distribution of take-home naloxone in reducing drug-related deaths. There is some evidence that assertive outreach programmes for those with mental ill health, supportive programmes to aid those with the motivation to address alcohol dependence, and informal interactive programmes to promote sexual health can lead to lasting health gain.	Effective interventions for drug dependence include adequate oral opiate maintenance therapy, tetanus and hepatitis A and B immunisation, safer injecting advice, and access to needle exchange programmes. Emerging evidence for the effectiveness of supervised injecting rooms and for the peer distribution of take-home naloxone in reducing drug-related deaths. Some evidence that assertive outreach programmes for those with mental ill health, supportive programmes to help address alcohol dependence, and informal programmes to promote sexual health can lead to lasting health gain.	As multiple morbidity is common among homeless people, accessible and available primary healthcare is a prerequisite for effective health interventions. This requires addressing barriers to provision and multi-agency working so that homeless people can access the full range of health and social care services. There are examples of best practice in the treatment and retention of homeless people in health and social care, and such models can inform future provision.

Author (and organisation)	Title	Date	Location (country)	Summary of topic	Search strategy	No. of total included studies	Type of included studies (e.g. RCT)	Context/setting of interventions	Substance(s)	Population details	Intervention/ treatment overview	Outcome(s) summary	Recommendations for policy and practice development
ACADEMIC LITERATURE													
Wright and Walker (Leeds Community Drug Treatment Services, Centre for Research in Primary Care, UK, and School of Health and Community Care, Leeds Metropolitan University, UK)	Homelessness and drug use – a narrative systematic review of interventions to promote sexual health.	2006	Undertaken in the UK, focus was international but only high-income countries.	The objective of this research project was to examine the effectiveness of sexual health promotion interventions in homeless drug-using populations.	Electronic databases (1966 to 2003) were searched. Two independent researchers selected studies for inclusion. Relevant journals from the preceding five years and reference lists were also screened for additional studies. There were no language restrictions and unpublished literature was sought from experts in the field.	Six studies included.	All longitudinal controlled study designs, including RCTs, quasi-experimental, and non-experimental designs, were eligible. Studies that evaluated interventions to promote sexual health were eligible for inclusion.	A significant proportion of the included studies compared 'traditional' and 'specialised' multicomponent AIDS-focused programmes that involved group educational and practical elements. Other studies included counselling, and benefits/housing assistance. The study reviewed interventions which targeted the individual. Such interventions attempt to modify the knowledge, attitudes, motives, skills, and/or physiological state of individuals in the target population.	All drugs (including alcohol).	Study selection was restricted to homeless populations residing in high-income, 'developed' countries. It excluded backpacker populations and asylum-seeking populations from the review.	Comparison of 'traditional' and 'specialised' multicomponent AIDS-focused programmes that involved group educational and practical elements. Other studies included counselling, and benefits/ housing assistance. Programme offered HIV education; alcohol and drug counselling; benefits and housing assistance; 'traditional' intervention of AIDS videotapes and 1-hour group session (covering AIDS education, HIV testing, condom use, use of bleach to sterilise injecting equipment, and a list of community resources). 'Specialised' intervention of AIDS videotape and 2-hour session tailored to individual learning needs. This included demonstration and return demonstration of risk-reducing behaviours, discussion of coping skills, and enhancing self-esteem.	There is concordance between the studies that sexual health promotion interventions resulted in increased knowledge of both sexual risk and drug issues. The interventions also initially led to a reduction in sexual risk and a reduction in drug use. There was no concordance between the studies regarding whether the effect of the intervention was sustained over a 2-year period. The relationship between the intervention and psychosocial outcomes appeared to be more complex. Broadly speaking, the interventions improved psychosocial functioning.	Brief interventions appear to confer significant benefit. However, there is a need for further implementation and evaluation of health promotion activities in the UK context which target the individual, the social setting, and societal structure. There is a need to formally plan, initiate, and evaluate interventions to promote sexual health among UK homeless drug-using populations.