

What works in Inclusion Health: overview of effective interventions for marginalised and excluded populations

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Abstract

Inclusion Health is a service, research, and policy agenda that aims to prevent and redress health and social inequities among the most vulnerable and excluded. We undertook an evidence synthesis of health and social interventions for exemplar Inclusion Health target populations, including people with experiences of homelessness, drug use, imprisonment, and sex work. These populations often have multiple overlapping risk factors and extreme levels of morbidity and mortality. We identified numerous interventions to improve physical and mental health, and substance use; however, evidence is limited for structural interventions, including housing, employment, and legal support that can prevent exclusion and promote recovery. Dedicated resources and better collaboration with the affected populations are needed to realise the benefits of existing interventions. Critically, research must inform the benefits of early intervention and implementing policies to address the upstream causes of exclusion such as adverse childhood experiences and poverty.

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Introduction

Inclusion Health is a service, research, , and policy agenda that aims to prevent and redress health and social inequities among the most vulnerable and excluded. Inclusion Health target populations face common adverse life experiences and risk factors such as poverty and childhood trauma that lead to deep social exclusion.¹ Consequently, these populations experience extreme levels of poor health, multiple morbidity, and early mortality (REF paper 1). Compounding these problems are numerous barriers to accessing health services.² The key aims of the Inclusion Health agenda are to highlight the magnitude and consequences of extreme inequity, the need for preventative and early intervention approaches, and improved access to essential services for those harmed by exclusion.

An agreed conceptual framework for Inclusion Health has not yet been developed. (Ref Paper 1) We draw on existing social exclusion,³ intersectionality,^{4,5} and lifecourse epidemiology⁶ perspectives which examine how factors accumulate and intersect over time and impact health. For example, risk factors such as substance use, rough sleeping, imprisonment, and exchanging sex for money or drugs are known to cluster and overlap among populations that are socially excluded¹ and lead to appalling health outcomes.(Ref Paper 1) This underscores the need to better understand what interventions can effectively address and prevent the multiple and complex needs of this population as a whole, rather than focussing on sub-populations defined by singular risk factors. Therefore, our paper aims to provide an overview of ‘what works’ in terms of individual and structural interventions to tackle the extreme health needs of Inclusion Health target populations.

We defined the review operationally using the PICO⁷ method (populations, interventions, comparators, outcomes). Populations with histories of substance use disorders (SUD, excluding alcohol, cannabis and tobacco), imprisonment, sex work, and homelessness in high-income countries were selected as exemplar populations based on previous research in

the UK showing a high degree of intersection between these groups^{1,5} and the need to coordinate services for them.⁸ Other important excluded groups, such as vulnerable migrants and transgender populations, were beyond the scope of the current review. Interventions that impact health or the social determinants of health in the broadest sense were examined. No comparators were specified and any health or social outcome was considered. We conducted a review of systematic reviews using these criteria. The focus on systematic reviews rather than primary sources was necessary due to the breadth of the target groups and interventions assessed. In addition we report a public engagement workshop with people with lived experience of social exclusion that aided the interpretation of the review findings. Further details of the search strategy and workshop are provided in the **Methods Panel**.

Effective Inclusion Health Interventions

We identified 272 potentially relevant systematic reviews of interventions with an impact on health or the social determinants of health for people with lived experience of homelessness, SUD, imprisonment or sex work, that live in high-income countries (**Figure 1**). There were 77 systematic reviews included in the final review, including 17 Cochrane systematic reviews, 49 reviews that included one or more randomised controlled trials (RCTs), and 11 reviews of exclusively observational research (**Table 1**). We summarise reviews in the following intervention categories; pharmacological, psychosocial, case management, disease prevention, housing and social determinants, and ‘other’ interventions. We also present references for each intervention category by each Inclusion Health sub-population (**Table 1**).

Middle-aged males made up a high proportion of participants in many of the studies we reviewed, and in the homelessness, SUD, and imprisonment literature more broadly.¹

However, age and gender-specific interventions may sometimes be more appropriate as the epidemiology of excluded women and young people likely varies compared to adult males⁹

(e.g. findings from Paper 1 in this series demonstrate that females have higher standardised all-cause mortality ratios relative to males). We have therefore presented interventions specifically tailored to women and youth separately.

Pharmacological Interventions

Pharmacological interventions were identified for SUD, dual diagnosis (mental illness and SUD), and infectious diseases. Inclusion Health target populations have an increased risk of contracting tuberculosis, hepatitis C virus, and human immunodeficiency virus (HIV) infections (REF Paper 1), for which there are proven effective pharmacotherapies, but they face numerous barriers to treatment engagement and adherence. A systematic review of HIV treatment adherence measures for people with SUD found that directly observed therapy, opioid replacement therapy (for opioid dependence), contingency management (vouchers or material incentives for adherence), and multi-component, nurse-delivered interventions all improved therapy adherence and virologic outcomes, but only for as long as the extra support continued.¹⁰ Similarly for tuberculosis, material incentives may improve short-term treatment adherence for people who are homeless, recently released from prison, or who use drugs, but more evidence is needed for long-term treatment compliance.¹¹ Evidence suggests standalone directly observed therapy is ineffective for improving tuberculosis treatment adherence among people with SUD, but can be an important component of broader case management interventions.¹² Treatment completion rates for hepatitis C virus are higher when opioid replacement therapy is provided concomitantly for people who inject drugs; outcomes are comparable to trials conducted in the general population.¹³ Further studies on the risk of re-infection are needed to assess the long-term effectiveness of hepatitis C virus treatment in people who inject drugs.¹⁴ New short-course, direct-acting antiviral drugs for hepatitis C virus, with better efficacy, fewer contraindications, and more favourable side effect profiles than traditional treatment regimens,¹⁵ appear promising and may promote better treatment

engagement and adherence. However, systematic reviews assessing these new treatments in Inclusion Health target populations have yet to be conducted.

With respect to SUD, opioid replacement therapy is highly effective for dependency on heroin and other opioids. Treatments include methadone maintenance therapy^{16,17} and buprenorphine.¹⁸ Methadone maintenance programs, however, are better at retaining patients in treatment.¹⁸ There is insufficient evidence to support widespread use of naltrexone for opioid dependency either orally¹⁹, or by slow release injection.²⁰ Detoxification is also unsupported as the majority of patients relapse to opioid use after slow tapering of methadone²¹ or buprenorphine.²² Opioid replacement therapy is also beneficial for reducing illicit opioid use and risk behaviours in prison, and criminal activity.^{23,24} For patients with inadequate response to standard opioid replacement therapy, meta-analyses of randomised controlled trials support the use of supervised injectable heroin, although it requires more intensive clinical supervision due to safety concerns.²⁵ Opioid replacement therapy has also been shown to reduce transmission of HIV.²⁶ If opioid replacement therapy is disrupted during brief incarceration, the risk of contracting hepatitis C virus increases significantly.²³ The use of naloxone treatment in opioid overdose prevention programmes is considered in the prevention section below. There is insufficient evidence for pharmacological treatment to reduce psycho-stimulant dependency, such as cocaine or methamphetamine use.²⁷⁻³⁰

Mental illness and SUD commonly co-occur. Long-acting injectable anti-psychotics are effective for people with schizophrenia and SUD with improvements in psychopathology, relapse prevention, and re-hospitalisation rates.³¹ A recent review of prisoners with SUD and mental health problems has shown there is a high risk of iatrogenic morbidity and mortality in this setting from high dosing, polypharmacy and other poor practices.³²

Psychosocial Interventions

Literature on psychosocial interventions has primarily considered SUD and mental health in the community and within the criminal justice system. The literature tends to support a multimodal approach,³³ but there is insufficient evidence for one type of intervention over another. A recent Cochrane review of 32 randomised controlled trials examined psychosocial interventions for people with severe mental illness to treat SUD problems.³⁴ They examined long-term integrated care, case management, cognitive behavioural therapy plus motivational interviewing, cognitive behavioural therapy alone, motivational interviewing alone, skills training, and contingency management (vouchers and material incentives). There was no evidence to support one intervention over another to improve treatment retention, SUD or mental health among people with severe mental illness. Overall, contingency management appears to be the most promising for promoting behaviour change for people who use cocaine and other psychostimulants.^{35–38} Motivational interviewing and cognitive behavioural therapy may also improve drug use and mental health outcomes when used in combination.^{38–40}

Combined motivational interviewing, cognitive behavioural therapy and/or contingency management has been shown to be effective for preventing re-incarceration when used in the context of therapeutic communities (an intense supportive residential intervention designed to isolate from outside influence).⁴¹ Mindfulness meditation has been examined in the context of SUD in the community and in prison settings to improve mental wellbeing, but the evidence is inconclusive.^{42,43} Peer support interventions in criminal justice settings were shown to be effective in reducing risk behaviours⁴⁴ and improving mental health, SUD, and health service engagement.⁴⁵

Case Management

Case management aims to improve the coordination and delivery of health and social care services and can be most simply understood by its functions: assessment, planning, linking

health and social services, monitoring, and advocacy.⁴⁶ Evidence for the effectiveness of case management is broad, and interventions are heterogeneous. For SUD, case management has been shown to improve linkages with services⁴⁶ and treatment processes,⁴⁷ but overall evidence for a reduction in drug use and health-related outcomes is lacking.^{46,47} In homeless populations, case management was associated with improvements in mental health symptoms and SUD compared with usual care.⁴⁸ Case management with assertive community treatment (multidisciplinary team with low caseloads, community-based services, and 24-hour coverage) was shown to reduce homelessness with a greater improvement in psychiatric symptoms when compared to standard case management for the treatment of homeless populations with severe mental illness.^{48,49}

Disease Prevention

Research on prevention of poor health outcomes largely consists of harm reduction interventions for people with SUD, such as needle and syringe programmes, as well as screening and vaccination for blood-borne viruses, which are more prevalent in Inclusion Health target populations (Ref Paper 1). The risk of becoming infected with HIV may be reduced by as much as one third among people with SUD participating in needle and syringe programmes.⁵⁰ Multicomponent harm reduction programmes, including needle and syringe programmes, behavioural interventions, treatment for SUD, and syringe disinfection have been shown to reduce the risk of hepatitis C infection by as much as 75%, although single component interventions are minimally effective.⁵¹ Using mobile outreach to deliver needle and syringe programmes has been shown to reach younger clients and those with a higher risk profile than static programmes.⁵²

Opioid overdose prevention programmes involve training people with SUD and their contacts to recognise overdose and administer naloxone to reverse the effects of opioids. Studies have reported 85-100% survival after naloxone administration, and areas with high uptake of

opioid overdose prevention programmes have lower levels of heroin overdose-related deaths.⁵³ Supervised injecting sites (where trained medical personnel provide harm reduction equipment and supervise drug consumption) have also been shown to reduce overdose deaths and ambulance call-outs for overdose as well as decrease unsafely discarded needles, public injecting, and needle sharing. Supervised injecting sites are not associated with increases in crime, or numbers of people injecting drugs.⁵⁴

Targeted screening in primary care, training of primary care practitioners, use of dried blood spot testing, and outreach all improve uptake of hepatitis C virus testing.⁵⁵ HIV risk reduction interventions, including screening programmes, psychosocial interventions, and opioid replacement therapy, have been shown to increase testing uptake for HIV as well as decrease high-risk sexual and injecting behaviours among people in contact with the criminal justice system.⁵⁶ Hepatitis B vaccination has been shown to effectively prevent infections when delivered in prisons.⁴⁵ Chest x-ray screening is a good tool for tuberculosis active case finding among homeless populations.⁵⁷

Housing and Social Determinants

‘Housing First’ is a well-evidenced intervention developed for people who are homeless who have mental health and substance use problems.⁵⁸ In contrast to ‘treatment first’ models (usual care), Housing First provides individuals with housing and subsequently attempts to engage them in mental health services, substance dependency treatment, and other services. A systematic review of RCTs of this intervention conducted across North America and Europe has shown significant improvements in stable housing status, quality of life, and reductions in contacts with the criminal justice system.⁵⁸ However, evidence was mixed for improving mental health, substance use, and community functioning outcomes compared to treatment as usual. Another review of housing interventions (including Housing First and

other models) found that provision of housing was effective in: improving sustained housing upon hospital discharge, decreasing substance use and relapses from periods of substance abstinence, decreasing health services utilisation, increasing housing tenure, and improving health outcomes of homeless populations with HIV.⁵⁹

Occupational therapy may help to increase education, employment and life skills among people experiencing homelessness.⁶⁰ The Individual Placement Scheme model of supported employment in ordinary workplaces has been positively evaluated in a recent Cochrane review for people with severe and enduring mental health problems,⁶¹ which may also be beneficial for Inclusion Health target populations more broadly.

Other Interventions

A range of other interventions was also identified. Respite care (short-term recuperative care for homeless persons after hospital discharge) can reduce future hospital admission rates and use of emergency departments in homeless populations.⁶² Interventions delivered via computers, mobile phone apps, and the Internet provide promising alternative healthcare delivery models and a systematic review of computer-based interventions for SUD found that some measures of substance use were improved along with increased motivation for behavioural change.⁶³ Physical exercise interventions can improve outcomes among people with SUD, including significant increases in abstinence rates and improvements in withdrawal symptoms, anxiety and depression.⁶⁴ Complementary and alternative therapies, such as acupuncture,⁶⁵ Chinese herbal medicine,⁶⁶ and yoga,⁶⁷ also show potential improvements in SUD outcomes, but studies were heterogeneous and of varying quality making overall conclusions on effectiveness difficult. Observational studies have found potentially positive effects of religion and spirituality on SUD recovery, but there was poor evidence from randomised trials.⁶⁸

Interventions Tailored to Women

Systematic reviews on tailored interventions for women focused on psychosocial therapies, case management/integrated programmes, and advocacy and empowerment. Interventions were rarely delivered in isolation, and pharmacological treatments, particularly for SUD, were also described (they are not reported here as they were not the main focus of the tailored reviews and have been described in detail for both genders combined in the section above).

Educational interventions, cognitive behavioural therapy and motivational interviewing have been shown to improve psychological, behavioural, and cognitive outcomes among women who are homeless.⁶⁹ For women in criminal justice settings, a range of psychological therapies have been shown to reduce depression and trauma, though not global assessments of mental health.⁹ Psychosocial interventions have also been shown to improve mental health and social outcomes and decrease recurrent physical abuse among women seeking shelter from a violent intimate partner.⁷⁰ However, two recent Cochrane Reviews found psychosocial therapies to be as effective as standard comprehensive care for reducing re-arrest rates and drug use among female offenders⁷¹ and for improving treatment outcomes and birth outcomes for pregnant women in outpatient drug treatment programmes.⁷²

Therapeutic communities (an intense supportive residential intervention designed to isolate from outside influence) appear to be an effective intervention for reducing re-incarceration and re-arrest rates,⁷¹ preventing women returning to drugs or a violent sexual partner, motivating women to make positive changes, and improving psychological wellbeing.⁶⁹ This intervention recognises trauma as an important aspect of recovery and takes a gender-specific and whole-person approach.⁷¹ Therapeutic communities have been most commonly used in drug rehabilitation, low-risk prison populations, and for women seeking shelter from intimate partner violence and are important for retaining women in treatment, for isolating and sheltering from outside influences, and as a means to retain custody of children.⁶⁹

Case management also appears beneficial for women, particularly when motherhood services are incorporated.⁷³ A series of five systematic reviews has been published examining the effectiveness of integrated programmes that include on-site pregnancy, parenting, or child-related services alongside SUD services. Results from meta-analyses suggest that integrated programmes have a significant advantage over non-integrated programmes in improving maternal mental health,⁷³ are effective in reducing maternal SUD, but less so than non-integrated programmes,⁷⁴ may have a small advantage over non-integrated programmes in length of stay but not in SUD treatment completion,⁷⁵ may improve parenting skills,⁷⁶ and significantly improve child outcomes with a small advantage over non-integrated programmes overall.⁷⁷ In contrast, Perry and colleagues⁷¹ found that among female offenders, case management (based on reduced caseloads, specialised probation officer training and efforts to increase contact between probation officer and probationer) was not effective for reducing self-reported drug use or re-arrest compared to standard parole, although it did reduce re-incarceration rates.

Research on intense advocacy interventions for women who are homeless in the US and the UK has shown reductions in psychological distress, healthcare use, and drug and alcohol use as well as improved self-esteem.⁶⁹ We did not find any systematic reviews of individual or structural interventions for sex workers conducted in high-income countries. One systematic review and meta-analysis of HIV prevention among establishment-based and non-establishment-based sex workers in low and middle-income countries found that community empowerment interventions resulted in a significant decrease in the prevalence of HIV and other sexually transmitted infections as well as a significant increase in prevalence of condom use with both regular and new clients.⁷⁸ These approaches warrant further investigation in high-income settings.

Interventions Tailored to Youth

There is limited evidence for the effectiveness of tailored interventions that address the broad needs of socially excluded young people (e.g. trust, subsistence, living skills, family/peer support and safety).⁷⁹ A recent Cochrane review examined a range of interventions compared to standard care for street-connected children and young people (children who work or sleep, or both, on the streets and may or may not necessarily be adequately supervised or directed by responsible adults) including: brief motivational interviewing, case management, group-based interventions (one gender-specific), family interventions, community reinforcement and HIV treatment, and a psychosocial mental health intervention.⁸⁰ Inclusion and re-integration (the primary outcomes of the review) were not measured in any of the reviewed studies, and no consistent results were found within the domains of psychosocial health, SUD, and risky sexual behaviour. The authors conducted a subsequent systematic review and found that neither length nor quality of service engagement could account for the lack of significant difference between interventions developed specifically for street-connected youth and standard services. The authors noted that in contrast, qualitative research findings consistently emphasise youth's appreciation of engagement-related aspects of interventions, such as safe environments and caring relationships, thus demonstrating their value irrespective of other outcomes.⁸¹

Although conclusive evidence is lacking, there are potentially promising results for family-based therapy,⁸² cognitive behavioural therapy,⁷⁹ and brief interventions⁸³ for a range of outcomes for youth. For children in care, foster care may help to reduce criminal activity and improve mental health outcomes;⁸⁴ however, there are no evidence-based transition support services for looked-after young people coming towards the end of care.⁸⁵ Detoxification⁸⁶ and opioid replacement therapy⁸⁷ for opioid dependency have been investigated in adolescents; results were inconclusive with only two trials in each of the reviews. The authors note that

the lack of evidence may be due to the practical and ethical difficulties conducting trials with young people.

Putting the Findings in Context: Views of Experts by Experience

People with lived experience of social exclusion, such as homelessness, addiction or incarceration, known as ‘experts by experience’, collaborated on this paper through an engagement workshop with the research team to contextualise the review findings (see **Methods Panel**). Inclusion Health as a concept was explored and characteristics of target populations, barriers that lead to exclusion, and values and actions that promote inclusion were discussed (**Figure 2**). Health statistics on target populations (as described in Paper 1) were discussed and informed conversations about why research was needed, data collection methods (new data versus collation of administrative data), consent, anonymisation, data security, and ‘the surveillance society.’ Overall, participants expressed positive attitudes towards enhancing research to improve services, including the use of linked electronic service records. Stakeholder analysis identified local governments, policy makers, healthcare organisations, and the media as the most important groups for influencing the Inclusion Health agenda. Conversations were also had about the interventions that are most important, research gaps in the review findings, and the characteristics of inclusive services, which are described in detail below. Recommendations for practice and research were formulated based on views expressed in the workshop and review findings (**Panel 2**).

Workshop participants were asked to list and categorise the interventions they felt were most important and then to rank these alongside the interventions identified in the literature review (**Table 2**). Housing was ranked as the single most important intervention. Several gaps in the systematic review evidence were highlighted. There were relatively few reviews of interventions to modify social determinants of health (housing, law, training/education and

employment) and advocacy interventions (especially peer-led interventions across health settings), despite these being the most valued interventions. There were no reviews of specialist models of care (primary care, secondary care, and dental care).

The engagement workshop also highlighted barriers and facilitators to receiving acceptable and inclusive services. Participants said that it was often ‘good fortune’ or ‘luck’ that enabled them to access a needed service and they highlighted the need to remove ‘red tape’ such as proof of address or benefits to access services. They also emphasised the need to reduce language, communication, and cultural barriers as well as fear, lack of awareness, and judgemental attitudes of service providers. Participants felt that the media should be encouraged to promote positive messages about people experiencing exclusion to reduce stigma and stereotyping, which were perceived as barriers to accessing effective interventions.

Service user involvement and active engagement were highlighted as key factors to promote positive service experiences. As noted in the workshop, ‘healthcare is a right and everyone should have a voice.’ Care coordination to help meet needs outside traditional health services, such as housing, welfare support and legal aid, were also seen as ways to enable people to take control and responsibility for themselves and their health. As volunteer peer health advocates, participants also talked about the benefits of peer worker programmes for themselves and the clients they support to access healthcare. To make services effective and inclusive, participants expressed that it often involves ‘going above the call of duty’ and ‘meeting people where they’re at’. The following were key principles of services that were valued by participants: provide ample time and patience to really listen, strive to develop trust and acceptance, provide supportive, unbiased, open, honest and transparent services in inclusive spaces and places, encourage clients to accept personal responsibility for health,

allow clients to take ownership, have choices, and participate in decisions, and above all, promote accessibility, fairness and equality.

Discussion

This review identified a number of Inclusion Health interventions with a high level of evidence of effectiveness and these are summarised in **Panel 1**. The majority of the research has been conducted in the United States. Interventions with the strongest evidence base were aimed to address substance use disorders and harm reduction, and to a lesser extent, mental health and infectious diseases. Several crosscutting themes of effective interventions emerged, described below, including individual care coordination of multicomponent interventions, active engagement, service user involvement, low-barrier access, and service provider values and training. Practical recommendations for service providers based on these themes and views expressed in the workshop are provided (**Panel 2**).

Multicomponent interventions for Inclusion Health target populations tended to have higher effectiveness than stand-alone interventions.^{10,48,49,51} Most of these multimodal approaches involved individual care coordination or case management with multi-disciplinary teams. Integrated mental health and drug treatment³⁴ and integrated programmes for women that include on-site pregnancy, parenting, or child-related services alongside substance use disorder services⁷³ are exemplars of this approach. Delivering effective coordinated care requires high-level partnership working across settings to permit cross-location interventions and to ensure longer-term continuity of care.⁹

Active engagement involves using a non-judgmental approach, ensuring confidentiality, providing a supportive interpersonal environment,⁸¹ creating safe communal spaces, and identifying common priorities, needs, and goals⁸⁸ and should be considered best practice in Inclusion Health. Peer workers^{44,89} and community nurses⁶⁹ with specialised training may be

particularly well placed to act as outreach and ‘in-reach’ personnel to actively engage people ‘where they’re at’ and to advocate on their behalf. Active engagement may be particularly important for youth.⁵² Involving service users is also important to reduce inequities in access to services. Community empowerment, supporting service-user led organisations, and peer advocacy are effective ways to involve Inclusion Health target populations.⁸⁸ There is a growing evidence base showing that peer support programmes have positive effects on both peer workers and those supported by them.^{44,89}

Healthcare providers, police and social services need to be aware of the realities, needs, and rights of people experiencing exclusion.⁸⁸ There is a need for on-going staff training, technical assistance, and monitoring of adherence to protocols⁷¹ to provide context-specific services. Others highlight the importance of delivering interventions in the community that cater holistically to the needs of target populations and not just providing services in institutions such as hospitals or prisons.⁹ There is also a need to use assessment measures that meaningfully reflect individuals’ own sense of health and wellbeing, as well as providing objective outcome evaluation.⁹

Specialised models of care, which aim to exemplify all of these crosscutting themes, are highly promising but have yet to be the subject of a systematic review. For instance, specialist care coordination for homeless people admitted to hospital – the Pathway model – is being adopted by hospitals across the UK and internationally.^{90,91} Another approach is Street Medicine, a fully integrated homeless healthcare and advocacy model involving mobile outreach teams that originated in the US and is also expanding internationally.⁹²

More evidence is needed for targeted interventions across the full spectrum of health problems experienced by Inclusion Health target populations (ref Paper 1), particularly those that could be improved through more equitable access to prevention and early intervention,

such as cardiovascular disease and cancer. Evidence for effective tobacco cessation interventions may be particularly beneficial in this regard. There was limited evidence for interventions that impact upstream determinants of poor health, such as employment and education. Neither the review, nor the workshop identified specific interventions for female sex workers in high-income countries, although gender-specific interventions were identified for excluded women. These interventions are also likely to benefit to female sex workers as research has demonstrated the high degree of overlap between sex work and other exclusion risk factors, such as drug use and homelessness.¹ There is a dearth of definitive evidence for excluded youth. Recommendations for future research are summarised in **Panel 2**.

Policy Implications

Co-ordinated policies at national and local levels are required to address the material as well the health needs of Inclusion Health target populations.¹ This is consistent with a 'whole-of-society' approach to addressing health inequities and the reversal of exclusionary processes.⁹³ Research on routes into homelessness has revealed high degrees of childhood trauma, including exposure to abuse, neglect, domestic violence and parental mental ill-health and SUD.¹ A life-course approach that recognises the impact of this accumulation of disadvantages from the early years is therefore warranted.⁹³

While Inclusion Health target populations form a small section of the population in high income countries, they suffer a much worse quality of life than other disadvantaged groups.⁴ They also have much poorer health behaviours and outcomes, which can cause significant harm to children, for example SUD.⁹⁴ In the face of inadequate levels of investment in preventive services and interventions, Inclusion Health target populations utilise high levels of costly acute services,⁴ providing a strong economic case for action to complement the compelling social justice case.⁹⁵ Within proportionate universalist priority-setting

frameworks (where actions to reduce inequalities are across the population, but the level of investment is proportionate to the level of disadvantage),⁹⁵ Inclusion Health target populations should be prioritised, reflecting the intensity of their needs and exceptionally poor health and social outcomes.

National and local policies should encapsulate the principles of good practice evidenced above, including 'personalisation' (defined as open-ended, persistent, flexible and co-ordinated support),⁸ and also 'deinstitutionalisation' (such that people have the option of staying in ordinary housing with the support that they need rather than being obliged to spend a period in hostels, refuges or other congregate settings if that is not their wish).^{96,97} Housing First is a well-evidenced model consistent with these principles.⁵⁸ 'Whole person'⁹⁸ and, where appropriate, whole family⁹⁹ strengths-based health and social policies (where individuals' strengths and abilities are emphasised) may also be beneficial in helping Inclusion Health target populations to recover from the multiplicity of issues they experience.

Policy should recognise the root causes of exclusion in the structural disadvantages faced by people, households and communities living in persistent or recurrent poverty.⁴ Health inequalities result from social inequalities,⁹⁵ with the worst effects felt by those experiencing the most extreme forms of material deprivation. Evidence from across high income countries indicates that the highest risks of homelessness,¹⁰⁰ persistent offending,¹⁰¹ and the most damaging drug problems,¹⁰² as well as their common childhood antecedents in abuse and neglect,¹⁰³ parental mental ill-health^{104,105} and domestic violence,¹⁰⁶ are concentrated within low-income populations. The direction of causation between poverty and these adverse life experiences is sometimes obscured, and is very often bi-directional. However, the underlying power of the structural drivers is revealed by well-evidenced spatial patterns, in the UK at least, of strong concentrations of offenders, those with SUD, and homeless people in areas of

long-term economic decline and entrenched poverty.⁴ Economic modelling in the UK has estimated that that two-thirds of all child protection service costs may be attributed to poverty effects,^{107,108} while evidence from experimental and quasi-experimental studies in the US indicate that raising the income of families in poverty had a significant impact in reducing child maltreatment rates.^{109,110} The most effective upstream prevention policy is therefore likely to be to reduce material poverty and deprivation amongst families with children who are at high risk of maltreatment.¹⁰⁸

Conclusion

This review has identified a wide range of interventions for Inclusion Health target populations. The focus on systematic reviews enabled identification of interventions where a body of evidence existed but will have excluded effective interventions that have not yet been the subject of systematic reviews. Some interventions, particularly in the area of drug treatment and harm reduction, have strong evidence of effectiveness, whilst the evidence in other areas is generally of lower methodological quality. This may reflect the pragmatic nature of many intervention studies, difficulties in randomising complex interventions, and limitations in available funding. Nevertheless, the review found a broad array of important opportunities to improve health through adequately funded services delivering individual and structural interventions based on best available current evidence. Upstream policy measures to reduce material poverty and deprivation are also needed to prevent extreme social and health inequalities from occurring in the first place. The views of people with lived experience and the delivery characteristics of the interventions identified across the literature can be used to guide practitioners to ensure services are not only effective, but also inclusive and equitable.

Figures, Tables and Panels

(High quality figures uploaded separately)

Figure 1. Study selection flow diagram.

Figure 2. The meaning of ‘Inclusion Health’ summarised from a research engagement workshop involving people with experiences of homelessness and other social exclusion risk factors.

Table 1. Classification of included systematic reviews.

		Homeless	Substance Use Disorders	Prisoners	Sex Workers
Pharmacological	Cochrane SR		16,18,20,21,24,29,30	24	
	SR with some RCT	11	10–13,17,19,22,23,25,27,28,31	11,23	
	SR observ. only		14,26	32	
	Additional Refs		15		
Psychosocial	Cochrane SR		34,38,41	41	
	SR with some RCT		33,35–37,39,40,42,43	44,45	
	SR observ. only				
Case Management	Cochrane SR		46		
	SR with some RCT	48,49	47		
	SR observ. only				
Disease Prevention	Cochrane SR				
	SR with some RCT		51,52	45,56	
	SR observ. only	57	50,53–55		
Housing and Social Determinants	Cochrane SR				
	SR with some RCT	58,59	58,59		
	SR observ. only	60			
	Additional Refs	61			
Other Interventions	Cochrane SR				
	SR with some RCT	62	63–67		
	SR observ. only		68		
Interventions Tailored to Women	Cochrane SR		71,72	71	
	SR with some RCT	69,70	73–77	9	
	SR observ. only				
	Additional Refs				78
Interventions Tailored to Youth	Cochrane SR	80*	80*,86,87	84*	
	SR with some RCT	79,81*	81*, 82,83		
	SR observ. only	85*	85*	85*	

Cochrane SR = gold standard systematic review published by the Cochrane Collaboration
SR with some RCT = systematic review contains one or more randomised controlled trials. Some studies have exclusively reviewed RCTs.

SR observ. only = systematic review of observational studies only

Additional Refs = additional references cited not meeting systematic review inclusion criteria.

*These studies on young Inclusion Health populations do not readily fit into adult Inclusion Health sub-population categories and have been classified here based on the outcomes reported. For example street-connected children^{80,81}, children in foster care⁸⁴, and looked after children⁸⁵ may transiently use substances, be unstably housed, and engage in criminal activity and risky sexual behaviours and would be at very high risk of homelessness, substance use disorders, imprisonment and sex work (thus justifying their inclusion in this review), though it would be inappropriate to classify them as prisoners, homeless, etc.

Table 2. Inclusion Health interventions ranked according to their importance by participants in the research engagement workshop involving people with experiences of homelessness and other social exclusion risk factors.

Interventions	Rank	Identified By
Housing	1	Workshop and Evidence Review
Advocacy	2	Workshop and Evidence Review
Psychosocial	3	Evidence Review
Youth	4	Evidence Review
Mental Health	4	Workshop and Evidence Review
GPs/Primary Care	4	Workshop
Drugs and Alcohol	5	Workshop and Evidence Review
Legal	5	Workshop
Training	5	Workshop and Evidence Review
Jobs	6	Workshop and Evidence Review
Pharmacological	7	Evidence Review
Case Management	7	Evidence Review
Specialist Care	7	Workshop
Disease Prevention	8	Evidence Review
Physical Health	8	Workshop
Women	9	Evidence Review
Re-integration	10	Workshop
Dental Care	10	Workshop
‘Other’ interventions (e.g. e-health)	11	Evidence Review

Key Messages

People who are excluded from mainstream society, such as people experiencing homelessness, imprisonment, drug addiction and sex work, have far higher rates of disease, injury and premature mortality. Services need to tackle the ‘tri-morbidity’ of physical and mental illness, and addiction. Multiple evidence-based individual and structural interventions are available to prevent and address this excess burden of disease, but the need to translate and scale effective practice into action is critical. Removing barriers to access and uptake of services can be accelerated by involving people with lived experience of social exclusion.

Extreme exclusion is associated with high use of acute services, providing a strong economic case for preventative action, which complement the compelling social justice case. Research on routes into homelessness has revealed high degrees of childhood trauma, including exposure to abuse, neglect, domestic violence and parental mental ill-health and substance use disorders. These are all adverse life experiences with a strong social gradient, such that the highest risks are found in low-income populations. The most effective upstream prevention policy is likely to be to reduce material poverty and deprivation, especially among families with children who are at high risk of maltreatment.

Gaps in knowledge remain, particularly around interventions to improve upstream determinants of social inclusion, such as employment and education, which are also instrumental to long-term recovery from social exclusion. People who have experienced exclusion have identified appropriate housing as the single most important intervention and systematic reviews demonstrate its effectiveness for improving health and social outcomes.

Methods

Findings and key points described in this study were concluded on the basis of the results of a literature review and the expert opinions of the research team and those with lived experience of homelessness and social exclusion.

Search Strategy and Selection Criteria

We conducted a review of systematic reviews to provide an overview of effective interventions that directly impact health (e.g. pharmacology, counselling, screening, prevention) or the wider determinants of health (e.g. housing, social support, training and education, employment, crime/recidivism). This method enabled summation of a broad literature base that would not have been feasible if we had reviewed primary studies. We searched both medical and interdisciplinary databases including Medline, EMBASE, PsychINFO, CINAHL, the Cochrane Collaboration Library, and Web of Science for systematic reviews, with and without meta-analysis, of any intervention for IHTP in high-income countries between 1 January 2005 and 16 June 2015. Here we provide the search terms for Medline as an example: (exp treatment outcome/ OR exp program evaluation/ OR exp outcome assessment (health care)/ OR exp randomized controlled trials) AND (exp substance abuse, intravenous/ OR exp substance related disorders/ OR exp vulnerable populations/ OR exp prisoners/ OR exp homeless persons/ OR exp sex workers/ OR exp drug users/ OR exp prostitution/) AND (systematic review.ti OR meta analysis.ti OR systematic review.ab OR meta analysis.ab); Limit Humans, 2005 – current (16 June 2015). We also considered systematic reviews that were recommended by expert authors. This strategy yielded 2651 unique articles. SL screened the titles and abstracts using PICO selection criteria (populations, interventions, comparators, outcomes): populations with histories of SUD (excluding alcohol, cannabis and tobacco), imprisonment, sex work, and homelessness in high-income countries; interventions that impact health or the social determinants of health; no comparators were specified; any health or social outcome was considered. We retained 272 relevant articles which were divided equally among authors SL, NM, RA, AH, AS, and NH to assess the full-text for inclusion. All articles that met the PICO criteria and reported on a unique intervention were included. Where there was more than one review on a specific topic, the hierarchy of evidence was used to select the review for inclusion (e.g. Cochrane Review, systematic review with meta-analysis of RCTs, systematic review without meta-analysis of RCTs, systematic review of observational studies only). This approach yielded 77 individual systematic reviews that were included in this paper. Given the breadth and diversity of interventions included in this review, a narrative approach was selected as the most appropriate synthesis method.

Engagement with People with Lived Experience

A public engagement workshop was used to involve people with lived experience of social exclusion and marginalisation as co-researchers in the interpretation and writing up of this paper. To identify and access people with lived experience to participate, we worked with Groundswell, a London-based registered charity which exists to enable homeless and vulnerable people to take more control of their lives, have a greater influence on services and to play a full role in our community (www.groundswell.org.uk). The full-day workshop took place on 17 September 2015 at University College London and included 16 individuals with experiences of social exclusion, such as homelessness, addiction or incarceration, who volunteer as homeless health peer advocates with Groundswell, four academic researchers, two service providers, and two non-participant observers to take notes and photographs of the workshop. Lunch and refreshments were provided and a £20 voucher was offered to the volunteer peer advocates at the end of the day (i.e. it was not an

incentive to attend). A range of participatory activities were developed involving all participants as equals to explore the following five objectives:

1. To increase understanding about the meaning of the term 'Inclusion Health'
2. To increase awareness of health statistics for IHTP and to examine views regarding data collection and surveillance to improve the health of these groups
3. To share positive stories about using health and other services to identify common themes that are beneficial for improving health
4. To understand which interventions are most important to people with lived experience of social exclusion and to compare these against the set of interventions identified in the literature review
5. To identify key stakeholders that can make a difference to the health of IHTP

Representatives from Groundswell were also involved in drafting and approving the manuscript.

Panel 1. Main Findings on Effective Interventions for Inclusion Health

Pharmacological Interventions

- Methadone and buprenorphine are effective for treating opioid dependency; however, methadone is better at retaining people in treatment. Supervised injectable heroin may also be indicated for people refractory to standard treatment. No other effective treatments for SUD were identified.
- Long acting injectable anti-psychotics are effective for people with schizophrenia and SUD.
- Hepatitis C treatment is as effective among people who inject drugs as the general population. Retention in treatment is improved when SUD treatment is provided simultaneously. New short-term antiviral drugs are highly promising for IHTP.
- HIV treatment outcomes are improved by directly observed therapy, medication assisted therapy, contingency management, and multi-component nurse delivered interventions.
- Adherence to tuberculosis treatment is improved in the short-term by incentives, but stand-alone directly observed therapy is ineffective.

Psychosocial Interventions

- Psychosocial interventions are most effective when provided in combination, though there is no clear evidence for one intervention or another.
- Contingency management (vouchers/incentives), motivational interviewing, and cognitive behavioural therapy have shown some benefits for SUD and in therapeutic communities for re-incarceration.
- Mental health and drug treatment services may be more effective when provided in an integrated setting.

Case Management

- Case management can improve and enhance linkages with services and improve mental health symptoms. Evidence is mixed about whether it improves SUD and other health-related outcomes.
- When used with assertive community treatment, case management may also help to reduce homelessness.

Disease Prevention

- Harm reduction schemes including needle and syringe programmes, substitution programmes and safe injecting site programmes can significantly reduce risk behaviour, risk of blood borne viruses and overdose risk. Multicomponent interventions tend to have higher effectiveness than stand-alone interventions. Interventions in community and criminal justice settings are effective and outreach interventions can reach younger users and those with greater risk taking behaviour. Training drug users to recognise opiate overdose and administer naloxone can reduce fatal overdose risk.
- Uptake of screening for hepatitis C can be increased through targeted screening in primary care, use of dried blood spots instead of venous blood samples, and outreach.
- In criminal justice settings, HIV risk reduction interventions and Hepatitis B vaccination are beneficial.

Housing and Social Determinants

- Provision of housing is effective at improving a range of health and social outcomes for homeless populations, particularly among those experiencing mental illness and SUD.
- Occupational therapy may increase education, employment and life skills among homeless populations.
- Supported work placements, which are effective for those with severe, long-term mental illness, may also help other socially excluded populations to secure employment.

Other Interventions

- Medical respite can reduce future hospital admission rates and use of emergency departments in homeless populations
- For SUD, computer-based interventions and physical exercise interventions may improve outcomes. Complementary and alternative therapies and spirituality/religion may also have potentially positive effects, but more rigorous evidence is needed

Women

- A variety of gender-sensitive interventions were identified to improve the health and social outcomes of women including: structured counselling and social support, therapeutic communities, case management and integrated programmes, and advocacy and empowerment
- Effective interventions for excluded women address the role of motherhood, trauma and violence, SUD, and education and empowerment as key aspects for recovery.
- Interventions can be delivered in community and institutional settings to support women.

Youth

- Evidence for excluded youth is generally limited, but there are potentially promising results for family-based therapy, cognitive behavioural interventions, and brief interventions for a range of outcomes.
- Foster care may help to reduce criminal activity and improve mental health; however, there are no evidence-based transition support services for looked-after young people coming towards the end of care.

Panel 2. Recommendations for Practice, Policy and Research

Practice

- Multi-component interventions with coordinated care are most effective and should include both health and non-health services. Partnership working and service design around the whole person is necessary to achieve the best results.
- Service user involvement is essential for ensuring equity, acceptability and relevance of services and should be standard practice. Peer worker programmes are an acceptable and effective method to involve service users.
- Working with Inclusion Health target populations requires active engagement and may necessitate 'going above the call of duty' and 'meeting people where they're at'. Trained community nurses and peer workers may be best positioned to conduct outreach and engagement. Given the effectiveness of motivational interviewing, engagement should be psychologically informed.
- Barriers to accessing services, such as communication problems, bureaucracy or stigma, should be addressed through on going staff training, technical assistance, and monitoring of adherence to protocols as well as through encouraging the media to promote more positive messages about people experiencing exclusion to the public.
- Providers and decision-makers should be sensitised to the realities, needs, and rights of excluded people and efforts should be made to deliver high quality comprehensive services in the community and on the streets, as well as in institutional settings such as prisons.
- When assessing health and wellbeing, use measurements that provide objective outcome evaluation but are also meaningful to the client group. Involving service users can help to develop appropriate measures.
- The values that should underpin services, as expressed by people with experience of exclusion include: provide ample time and patience to really listen, strive to develop trust and acceptance, provide supportive, unbiased, open, honest and transparent services in inclusive spaces and places, encourage clients to accept personal responsibility for health, allow clients to take ownership and participate in decisions, and above all, promote accessibility, fairness and equality for all.
- Improved recording and sharing of data is required to support service planning, policy and research.

Policy

- The most effective means of preventing the adverse life experiences and disadvantages faced by socially excluded populations is to reduce material poverty and deprivation, especially among families with children that are at high risk of maltreatment.
- Within proportionate universalist priority-setting frameworks (where actions to reduce inequalities are across the population, but the level of investment is proportionate to the level of disadvantage), excluded groups should be given a highly prioritised position, reflecting the intensity of their needs and exceptionally poor outcomes.
- National and local social and health policies for assisting Inclusion Health target populations should be based on the twin principles of 'personalisation' and 'deinstitutionalisation'.

- The provision of suitable and stable housing in ordinary community settings should be an overriding policy objective in strategies tackling social exclusion.

Research

- Development of interventions, that takes account of the practice recommendations above, is needed across the spectrum of health needs described in Paper 1.
- Intervention development is also needed to modify the social determinants of health, such as housing, law, training/education and employment.
- Peer support is a promising intervention to increase advocacy and improve outcomes across multiple domains of health. More research is needed to understand the impacts of peer-led interventions for peer workers and their clients, their cost-effectiveness, and how peer interventions can be used in other settings.
- Research on specialist and mainstream models of care (primary care, secondary care and preventative care, including dental care) is needed to understand how best to provide services for excluded groups at a population level.
- Research and services tend to focus on immediate health needs and there is a lack of evidence for how to prevent health and social problems and promote reintegration and recovery after social exclusion.
- Research is needed on the mechanisms of behaviour change as well as outcomes; little is known about agents of change that promote (or inhibit) engagement with and adherence to interventions.
- Research is needed on socially excluded women, particularly sex workers for whom there were no systematic reviews of effective interventions in high-income countries.
- Research on how to support excluded youth is also urgently needed, and particularly, how to support youth who are transitioning out of the children's care system and into adult services.
- Research using routine electronic service data, ideally with linked datasets, can be used to answer some of these questions.

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Authors' Contributions

NH conceived of the initial idea and all authors contributed to the subsequent design of the paper. SL conducted the literature searches, conceived, facilitated and summarised the engagement workshop, wrote the first draft, and coordinated the overall paper. SL, NM, RA, AH, AS and NH selected papers for inclusion in the review and summarised the literature. SF

drafted the policy sections of the paper. All authors contributed to the main content of the manuscript and provided critical comments on the final draft, and have read and approved the manuscript before submission.

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Conflicts of Interest

Serena Luchenski has nothing to disclose.

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Andrew Hayward is a trustee of the London Pathway, a charity that trains and supports Pathway care coordination teams in hospital.

Alistair Story is Clinical Lead of the Find & Treat Service, a specialist outreach team that work to tackle communicable and vaccine preventable diseases among Inclusion Health target populations.

Patrick Perri serves as medical director of the Center for Inclusion Health, where he provides clinical care to Inclusion Health target populations and helps design and implement care models to reduce health disparities for such populations. The Center for Inclusion Health is a clinical, education, and research program of the Allegheny Health Network, a non-profit health system and academic medical center, which employs Dr. Perri. He also serves as chairman of the all-volunteer board of directors of the Street Medicine Institute, a non-profit charitable organization dedicated to expanding the number and capacity of Street Medicine providers in communities around the world. Street Medicine is an example of an Inclusion Health care model serving rough-sleeper homeless populations.

James Withers serves as the Medical Director of Operation Safety Net a part of the Pittsburgh Mercy Health System, and which delivers medical services through the street medicine model to the rough sleepers of Pittsburgh. He is also on the medical staff of UPMC Mercy Hospital and an Assistant Clinical Professor of Medicine at the University of Pittsburgh School of Medicine. He is also the Founder, Board Member and Medical Director (an unpaid voluntary position) of the non-profit Street Medicine Institute, a charitable organization dedicated to expanding the number and capacity of Street Medicine providers in communities around the world. Street Medicine is an example of Inclusion Health.

Sharon Clint is Project Manager at Groundswell UK, a charity that exists to enable homeless and vulnerable people to take more control of their lives, have a greater influence on services and to play a full role in our community.

Suzanne Fitzpatrick conducts social research for a wide range of charitable and other funders. Her contribution to this paper drew upon research funded by the Joseph Rowntree Foundation (as part of their UK Anti-Poverty Strategy) and by the LankellyChase Foundation (on severe and multiple disadvantage in England).

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