Rapid evidence review of peer-based harm reduction interventions for people who inject drugs

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Summary

A rapid evidence review was conducted to ascertain if and how a peer-based harm reduction (HR) service for adults should be implemented in an English local authority. Following a systematic literature search, plus grey literature searching and advice from experts, 47 pieces of evidence were identified for inclusion. A limited assessment of the evidence found that, although studies ranged across the hierarchy of evidence, the majority would be considered of low quality. Five 'providers' of peer-based HR services were also consulted about the practicalities of developing such services.

The evidence suggests a range of positive outcomes from peer-based HR, with underpinning theoretical basis, although the higher quality studies did not conclusively find statistically significant effectiveness compared to other types of HR service. Importantly, peer-based services did appear to better reach the most marginalised people who inject drugs (PWID).

Different models for peer-based HR have been identified with a distinction between user-led or service-led but a combination of these is recommended as that gives the formality needed for peer workers to be properly valued and supported. In terms of the practicalities of developing a peer-based HR service, the evidence covered potential HR interventions to include as well as recruitment, supervision, reward/compensation, ethical considerations and sustainability. These findings have been translated into the following recommendations for the various stages of developing a service: -

Preparation

- Set up a steering group (e.g. commissioners, providers, police, PWID)
- Steering group to guide design of service
- Communications to wider stakeholders and the public
- Use change model to guide implementation
- Establish evaluation framework making use of available resources
- Identify and secure recurrent funding and other resources (such as staff time)

Implementation

- Agree and develop job descriptions with steering group
- Targeted recruitment of suitable services users as peer workers, plus open recruitment of other current PWID
- Establish sufficient supervision and support systems
- Agree and establish systems for reward/compensation
- In partnership with police, design system for identification of peer workers and ensure this is communicated to the wider community safety workforce
- Set up secure systems and start collecting monitoring data

On-going

- Establish pathways to education or employment for peer workers who want to develop their career
- Regularly check that recurrent funding for service is available and seek new funding sources if necessary
- Actively recruit new peer workers
- Set up system of cascade training and mentoring for new peer workers
- Carry out interim evaluation and use results to make any necessary changes to the service

Background

Harm reduction (HR) can be defined as a public health approach which prioritises reducing the negative effects of drug use rather than eliminating it or attaining abstinence[1]. HR interventions include needle and syringe programmes (NSP), opioid substitution therapy (OST) and provision of naloxone as an emergency antidote to opiate overdose. HR plays an important role in reducing poor health outcomes for people who inject drugs (PWID)[2–4].

Peers are people "with equal standing within a particular community who share a common lived experience"[5] and peer-based interventions use these community members to deliver education, advice, support and services. Such interventions have been shown to be effective across many aspects of health and care[6,7]. Peer support can be informal and ad-hoc from one individual to another, but it is a more formal model, where 'peer workers' are recruited as a service and trained to offer HR, that is the focus of this review.

A recent rapid evidence review of HR services during a global pandemic found that the associated shift to remote/digital services may exacerbate inequalities by failing to reach the most marginalized[8]. Consequently, substance misuse commissioners and providers in England are encouraged to find innovative ways of reaching these very vulnerable individuals[9]. Peer-based HR interventions could offer a solution but there is a lack of robust evidence on their effectiveness and on the best ways of delivering such services.

This rapid review aims to identify and synthesize the evidence on peer-based HR interventions for PWID in order to make recommendations for if and how such a service should be implemented in an English local authority.

Methodology

A protocol for the review was written and agreed with the review team.

Databases searched were PROSPERO, Cochrane, TRIP, Medline, PsycInfo, Web of Science, EMBASE, PubMed, OpenGrey, PLOS and Google Scholar using the terms shown in Table 1 (full details of the searches are included in Appendix 1): -

Table 1: Summary of search terms

Factor	Search term
Relating to the population	P* who inject drugs PWID* Substance misuse* Inject* drug use* Substance abuse* Substance use*
Relating to the intervention	Peer* Peer led Peer-led Harm reduct* Harm min* Needle syringe Provi* Injecting Equipment Provi* Opiate Substitution Therapy Blood borne virus BBV Hepatitis C HCV HepC HIV

*Note: *indicates truncation*

Internet searching and suggestions from topic experts were used to find grey literature, pre-publication and non-peer reviewed evidence. The searches were not restricted to studies with a comparison group because of the lack of formal experimental evidence. However, only evidence published since 2000, in English language and from middle/high income countries was included.

The evidence was screened initially on whether the title alone appeared to have relevance to the research aim. The second screen was based on abstract or summary and used two inclusion criteria; firstly, that the population was PWID and, secondly, that the intervention was a peer-based HR service.

Data were extracted into a spreadsheet which recorded study bibliographic details, HR intervention details and key findings relating to the research aim.

As part of the rapid review approach, evidence was not subject to a robust quality appraisal but details of the type of evidence, study design and expert affiliation were extracted to allow a limited assessment of quality.

To supplement the written evidence, individuals involved in existing peer-based HR services were identified via consultation with experts in the field. These individuals, known henceforth as 'providers', were asked to participate in a structured conversation in order to gain insight into the practicalities of running such services. Notes from these conversations were recorded in an excel spreadsheet.

A narrative synthesis approach was used to collate and describe the key findings from the written evidence and from the structured conversations with providers in relation to the research aim.

Results

Search results

The initial screening identified 152 pieces of evidence which was reduced to 47 for inclusion in the review as shown in Figure 1.

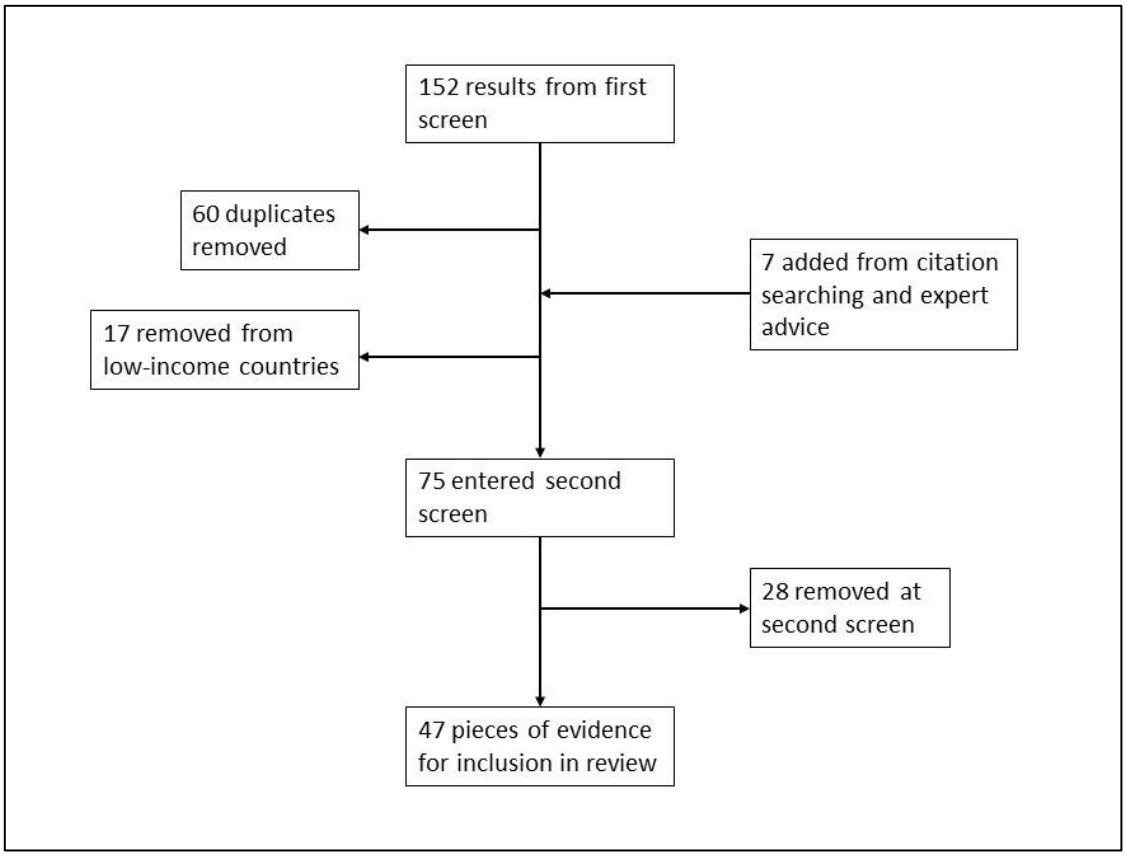

Figure 1: Flow diagram of search

Of the 47 included pieces of evidence, the majority (34) were studies with the remainder being guidance (5), expert opinion pieces (4) and evidence reviews (4 in total, of which 2 were systematic reviews). Of the studies, 12 were qualitative, seven were randomised controlled trials (RCTs) and five were mixed methods with the rest largely being cross-sectional studies and surveys. According to the widely recognized 'hierarchy of evidence'[10], systematic reviews and RCTs are considered higher quality evidence than the other study types for quantifying the impact of interventions . Conducting research considered as high quality with PWID is complicated for practical, social, legal, and ethical reasons, nevertheless, it should be borne in mind that the bulk of the evidence included in this review would be considered of low quality.

Most of the evidence came from either USA (15), Canada (10) or Australia (9). There were six pieces of evidence from the UK (including two from Scotland) and the remainder were from New Zealand, Russia and elsewhere in Europe. Appendix 2 gives further details of the included evidence.

Structured conversations were held with five providers who had been involved in peer-based HR interventions across the UK (including London, Glasgow, Nottingham and North East England).

Narrative Synthesis

Underlying theory

In order to know whether peer-based HR is effective, it is important to understand the underlying theory of how these types of intervention might work; much of the included evidence provides such theoretical explanations.

For instance, a handbook for peer involvement, produced by the Correlation Network, explains a range of theories underpinning peer-based HR. These include social learning theory which states that one way people learn is by observing and modelling the behaviour of role models and people with whom they identify.[11]

The diffusion of innovation and social identity theories were also frequently cited; these describe the influence of trusted "models" with whom recipients can identify and explain their power in changing the practices of their peers[11–15].

Other authors have identified further logic of peer involvement being that peers use language that PWIDs understand and find more suitable ways to communicate than professionals use[16,17]. Additionally, the fact that PWID naturally cooperate together in informal mutual aid networks, even where there are not formal drug user groups, is cited as another explanation for why peer-based HR should work[18].

Effectiveness

Overall effectiveness

Several studies investigating the effectiveness of peer-based HR education or information exchange found positive results. For instance, a New Zealand study found the rate of health information exchange was greater for peer-based NSP than non-peer NSP[19] and a USA peer education intervention for young adults produced a 29% greater reduction across six injection risk behaviors compared with the control participants[20].

Similarly, an evaluation of a peer-based HR education intervention in Australia, reported increased knowledge and awareness, enhanced skills via demonstration of equipment use and, in some cases, behaviour change in line with the project's goals[16]. Another Australian study recommended a shift away from print-based resources to an investment in peer education on the basis of their findings[21] and a USA study found peer-based HR services increase engagement of PWID[22].

However, an RCT, which is considered the highest quality of evidence, found effectiveness of a peer-based HR education programme in Baltimore, decreased over time.[23]

Much of the evidence on effectiveness relates to peer-based approaches to care for bloodborne viruses (BBV) such as Hepatitis C (HCV) and HIV. These include a study in Georgia which found an increase in HCV treatment uptake when peer supporters were involved[24] and an Australian qualitative study of peer-to-peer communication about HCV treatment which concluded that interventions should expand upon the existing self-initiated supportive behaviours of peer networks[17].

In a further Australian study of peer-delivered HCV testing and counselling, PWID felt comfortable and able to discuss their lives at a greater level of detail than in more formal conditions which, the authors concluded, meant the peer delivered model gave greater scope for HR knowledge to be acted upon[25].

Another Australian study of peer support for HCV care found a high level of patient acceptability of this model[26].

However, evidence from an RCT conducted in the USA investigated the impact of peers and cash incentives on rates of HCV and HIV treatment initiation amongst PWID. The treatment initiation rate was higher in persons randomized to peers or cash compared to usual care, however, these differences did not reach statistical significance.[27]

In terms of the effectiveness of peer-based HR on risky behaviours, a non-randomised trial from the USA found education alone was insufficient to reduce risky behavior but peer-directed interventions may be useful in reducing some forms of risk behavior among PWID[28]. Higher quality evidence from an RCT of an HIV prevention programme found efficacy at 18 months in reduced injection risk behaviours[15]. However, another RCT compared a peer mentoring intervention for HIV positive PWID with a video-based intervention and found that although both decreased injecting risk behaviours there was no statistically significant difference between the two[14].

A review of HR interventions carried out in 2010 found insufficient evidence to draw conclusions about the effect of peer naloxone distribution on overdose deaths although they did cite studies that suggested the feasibility of such interventions and one ecological study which suggested such an intervention may have played a role in reducing overdose deaths at the city level.[29]

Some of the included evidence looked at effectiveness for particular sub-groups of PWID. For instance, a New York peer-based programme for Puerto Rican migrants found some positive effects but very few participants were able to translate these perceived benefits into life changes during the study's follow-up period[30].

A recent UK based systematic review of peer-based interventions for homeless PWID, found all included studies reported at least some positive outcomes. However, the review also identified considerable challenges and risks for the peers themselves which were grouped into the themes of vulnerability, authenticity, boundaries, stigma, and having their involvement valued.[31]

A number of other advantages of peer-based HR were identified in the evidence including social engagement, peer workers' self-esteem, mental wellbeing, support for PWID to access healthcare and benefits to the service and wider society[11,32–36]. For instance, a study in New Zealand found mental health benefits for PWID who engaged with peer-based NSP including lower levels of depression and anxiety and higher levels of life satisfaction, compared to PWID who engaged with non-peer-based programmes[19].

Effectiveness at reaching most marginalized

A recent rapid review of HR interventions during the COVID pandemic concluded that peer led HR could offer a way of mitigating the risk of further marginalizing the most vulnerable PWID through the switch to remote and digital delivery[8]. Other included evidence describes the rationale for this; for instance, a toolkit for peer-based NSP explains how peers are uniquely positioned to access the very hardest-to-reach communities[35] and a best practice guide from Australia defines the role of people with lived experience as 'critical' because of the trust that exists within peer networks and their reach into communities of people who may not frequently engage with the health system[36]

There is evidence from Russia[13], Ukraine'[11,37], Canada[38], USA[39,40] and Australia[41] of the effectiveness of peers in reaching PWID who were marginalized and not engaged with existing HR services. However,

a recent RCT from Canada evaluating peer led HCV testing found, that although this model was successful in engaging with a highly marginalized population in testing, it was insufficient to promote engagement in HCV treatment for this population.[42]

Cost-effectiveness

Much of the included evidence suggests that peer-based HR is a cost effective approach[11,13,43] but high quality evidence on this is lacking.

There is evidence that NSP generally are cost effective; for instance, NICE have considered the evidence on cost effectiveness of NSP and concluded that for a relatively small investment, of £200 per annum for a person who injects drugs, there is the potential to avoid estimated £10-42,000 future healthcare costs. Plus there may be savings in wider societal costs, such as crime.[44]

However, the evidence for peer-based NSP is less conclusive; Vickerman et al (2008) concluded that there is high potential for NSP-related interventions to be cost-effective but insufficient evidence for conclusions related to specific types of NSP and, therefore, the cost-effectiveness of peer-based NSP was not determined[45]. Similarly, an Australian cost-effectiveness study found that NSP in Australia have led to substantial public health benefits and cost savings, but there was no specific analysis of peer-based NSP[46].

Practicalities of setting up a peer-based HR service

The following sections draw out the available evidence on the practicalities of setting up a peer-based HR service. It is important to note, several of the authors reflected that although peer-based HR is becoming recognized as an important strategy, the evidence to guide the development of such services is limited[16,29,47].

Models of peer-based HR

This review has identified different models for peer-based HR which generally highlight a distinction between being user-led or service-led. For instance, Crawford & Bath (2013) found models fell into two categories - community-controlled, which are implemented by peer-based drug user organizations in partnership with local service providers, and service-generated[48]. A similar conclusion was made regarding models of peer-to-peer naloxone distribution by a European drug users network[18]. However, the Hepatitis C Awareness Through to Treatment (HepCATT) model delivered by the Hepatitis C Trust, a UK charity, sits somewhere between these two categories[49] and the Correlation Network similarly describes a third category which is a collaboration of both approaches[18].

In terms of which types of HR services could be peer-based, a Canadian review of the literature identified five categories for the role of peers; harm reduction education, direct harm reduction, support/counseling, research assistance and advisory committee participation[50]. Whilst a New York based toolkit describes four types of peer delivered NSP – storefront, street-based, social network and delivery[35].

The providers consulted for this review shared their insight and expanded on this list of what services a peer-based HR intervention could provide; they mentioned NSP, provision of information on

reducing injecting risks, collecting drugs litter, naloxone provision, social support, referral to other services (e.g. HCV testing and treatment, wound care) and COVID safety advice/supplies.

Barriers and facilitators

The Correlation Network handbook describes factors that need to be addressed when developing peer-based HR services including stigma, lack of organisational commitment and legal barriers[11]. Additionally, the challenges presented by the conflict between a HR focus and a recovery focus was frequently mentioned by the providers and in the included evidence[18,49].

Figure 2 summarises the obstacles to peer involvement identified in a Canadian systematic review as well as ways of overcoming them. These facilitators include providing appropriate training and supervision for peer workers (which is covered in more detail below) and putting in place supports that acknowledge broader social determinants of health.[50]

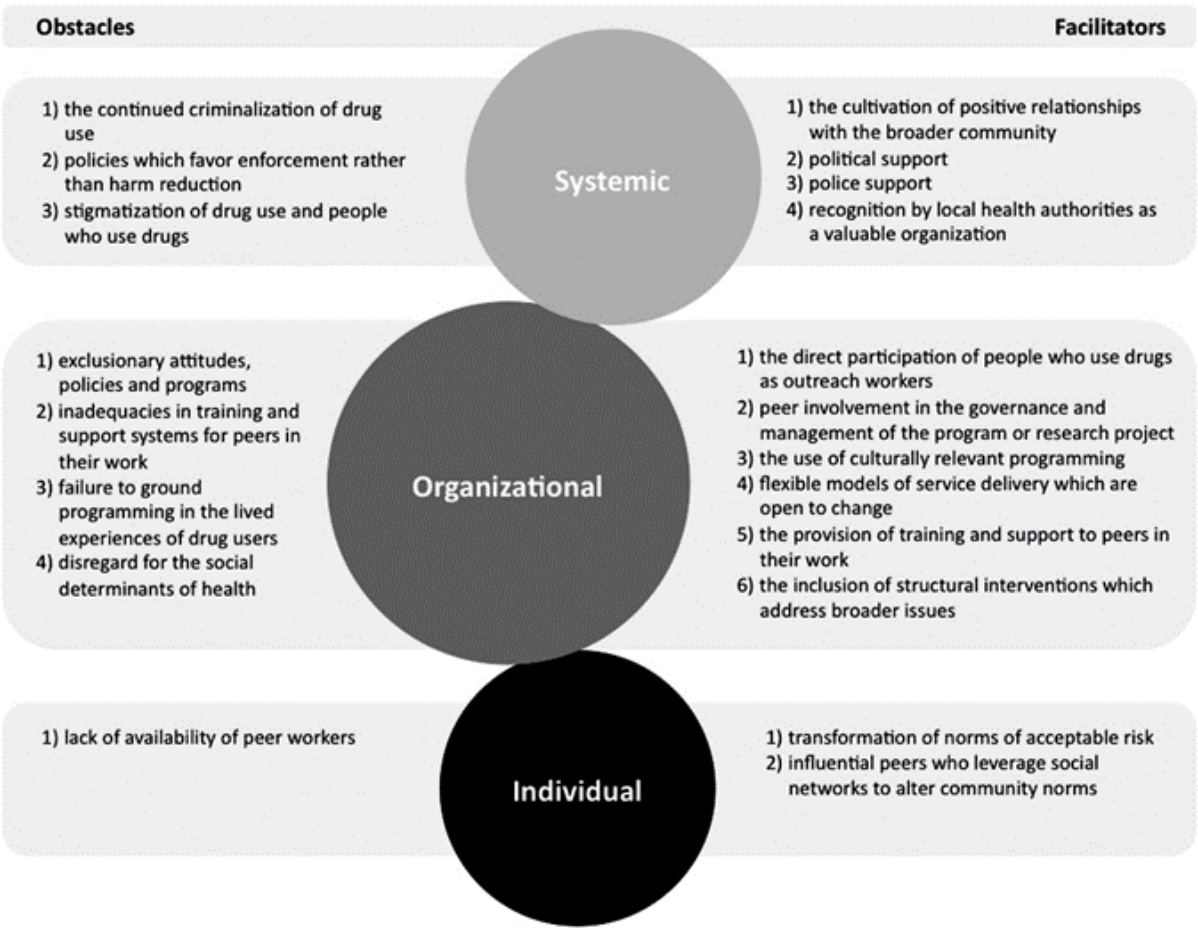

Figure 2: Obstacles and facilitators to peer roles in harm reduction initiatives (from Marshall et al 2015[50])

The systemic facilitators in Figure 2, which focus on developing collaborations, are also mentioned in other literature as a crucially important[11]. For instance, this recognition of different perspectives was the conclusion of the UK study of the HepCATT programme[49]. Also, the providers spoken to for this

review emphasied the importance of getting different partners on board, particularly, the police and existing HR organisations and staff.

Involving peers in designing the intervention is also considered by many as key to its success[51,52]. Evidence from Canada concludes that co-design fosters communication, builds trust, increases knowledge and reduces stigma thus increasing utilization of HR services[5]. A recent UK based systematic review of peer-based interventions at the intersection of homelessness and substance misuse, concluded that the operating model needs to be such that peers feel valued by their colleagues and the organization[31]. Additionally, by involving peers, the operating model can be tailored to suit local circumstances (e.g. local injecting culture)[37,51].

Recruitment process

The Correlation Network handbook makes recommendations for the peer recruitment process, such as striving for diversity (including by gender, age, ethnicity and sexual orientation)[11] and evidence from Australia recommends recruiting from wide geographical areas[36].

Providers consulted for this review suggested that existing drugs services would know which of their clients would be most suited to peer work; this targeted approach was mentioned in other evidence too[11,51]. However, the providers did warn that open recruitment for peers is needed to ensure equity. The Correlation Network suggests this should be done by putting notices where potential peer workers spend time, such as drop-in centres and street corners[11].

Who to recruit?

There is general recognition in the included evidence that personality types, of both the peer workers and service staff, are important to the success of a peer-based HR intervention[11,26,51]. However, what is more controversial is whether it should be former or current PWID who are recruited for HR work; Table 2 summarises Correlation Network's reasons for and against recruiting from these two groups.

Table 2: Reasons for and against recruiting current and former PWID as peer HR workers (adapted from the Correlation Network 2011[11])

Current PWID		Former PWID	
For	**Against**	**For**	**Against**
In touch with the local drug scene, therefore, more likely to be trusted by the drug using community	Being a current drug user can be like having a full-time job. There is not much time left to do anything else and they may not be stable enough to take on the tasks required	They have been on both sides of the fence so programmes can learn and benefit from their experiences	Exposure to the local drug scene could increase the chance of relapse
As peer workers, current PWID can be seen as role models and sources of inspiration by others	May use any payment to purchase drugs which could impact on public relations for the service	Their involvement can increase the continuity of the project	They may have difficulty teaching less risky ways of using drugs and want to recruit drug users to stop use
			Former PWID are not subjected to the same daily struggles that current PWID are and, therefore, may not be able to relate as well
			May not be part of the local drug scene anymore

The Correlation Network's balance of arguments in favour of recruiting current PWID is reflected in much of the other included evidence. For instance, the risks for former PWID from immersing themselves in the local drugs scene are often highlighted[31,51] and the providers consulted in this review felt that current PWID would have the most to offer because of their knowledge of the current drug scene and their existing networks. They also felt that former PWID might put too much emphasis on recovery rather than HR. This is echoed in the toolkit from New York which explains former users may be somewhat removed from current drug use trends and may have certain biases about the best strategies for making changes to drug use from their own personal experience[35]. Similarly, a briefing from a European network of drug users describes how peer workers who are active drug users have open access to the drug scene at times when drugs are being bought and used[18].

However, the complexities of working with current PWID are highlighted in a Welsh study which describes their complicated needs, how their perceived importance of the project may vary with other factors in their lives and how their focus may change due to their recent use of opiates or due to withdrawal symptoms[51].

In a Russian peer educator network intervention, participants had to have injected within the last 3 months[13]. However, the evidence suggests it is more common for organizational policies to hinder recruitment of current PWID[49] as many factors, such as having a criminal record, are logistical barriers.

The providers also warned that it can be difficult to get approval for working with current PWID. The included evidence did not suggest any strategies for addressing such organizational difficulties.

Payment

The evidence contained much debate about whether peer work in HR is most appropriate as a voluntary or a paid role. The providers consulted in this review felt strongly that peers should be compensated for their time, with expenses at least being paid. They also warned that the process for recouping expenses should not be cumbersome as this could prevent peers from claiming and thus threaten their engagement in the work.

The New York toolkit for developing peer delivered NSP similarly declares that compensating peers for their work is essential but also suggests that penalties for missed meetings and workshops should be considered[35].

The handbook produced by the Correlation Network summarises the arguments for and against payment of peers (see Table 3). Other included evidence confirms some of these points; for instance, in the qualitative HepCATT study in the UK, the voluntary nature of the peers seemed to hinder their acceptance as 'workers'[49].

Table 3: Arguments for and against payments of peers in HR work (adapted from the Correlation Network 2011[11])

For	Against
Fair compensation – peers' time is as valuable as anyone else's	Self-interest – why pay PWID as peers when the work of other interest groups is not paid?
General interest – drug service workers would get paid for doing the same job so peers should too	Undermines credibility – i.e. the peers who are paid may no longer be seen as trustworthy by the drug using community
Sound employment practice	Loss of independence – the peer workers may have to conform to the dictates of their funding organisation
Sustainability – peers are more likely to continue with the work	Financing drug use – might result in issues if not addressed well
Acknowledgement of the peers as competent and professional workers	Can affect State benefits
	The peer workers may require additional support in dealing with bank accounts, income tax etc

In response to the argument that payment may be used to finance drug use, the Correlation Network handbook recommends effective communication of the fact that the funding agency is not liable or otherwise responsible for the spending of the payment on illicit drugs[11]. In a Ukrainian study the rewards paid to the peers were nominal and described as insufficient to alter the course of the recipient's drug habit even for a day[37].

A UK based systematic review concluded that there must be transparency in terms of compensation for the services provided so that peers can make informed choices regarding the terms and conditions

of their work. They also state that there must be recognition of the complexity regarding compensation and social welfare issues, and that low waged work should be challenged as peer roles can be demanding and complex.[31]

There were various examples of the types of payments made to peers in the included evidence. For instance, in Vancouver pairs of peer workers worked 4-h shifts and received a small volunteer stipend ($20 CAD)[38] whereas in the USA the Risk Avoidance Partnership provided Peer Health Advocacy Training in 10 two-hour long sessions for which participants received an incentive of $20[12]. In a Welsh study of peer educators, they were paid a small sum for each intervention cycle they engaged with[51] whilst a peer-delivered naloxone programme in the USA rewarded peers with a round-trip MetroCard (worth $4.50) for taking part in the required training session[53].

One provider suggested an alternative to payment of forming a partnership with a local university or college to allow peers to receive education and training in return for their services, explaining that this would offer them an onwards career pathway. Similarly, a UK based systematic review of peers working with homelessness and substance use, recommended training and development opportunities be available to ensure career progression[31].

Providers also explained other expenses made to facilitate the peer workers in delivering HR services; these included T-shirts/hoodies with messages explaining their HR role, back-packs to carry needles/syringes/naloxone kits, refreshments for during meetings, tablets for recording monitoring data and non-cash rewards such as cinema vouchers.

Supervision

Various reasons for peer worker supervision, usually by existing HR staff, are identified in the literature including performance[11], administration and skills development[35]. However, the most important reason, cited by much of the included evidence, is for the support and wellbeing of the peer worker themselves[11,26,30,31,33,35]. The providers consulted emphasized the importance of this support due to the difficult and potentially distressing roles the peer workers are fulfilling.

The Correlation Network handbook describes some important issues around supervision, such as the timings for peer work being different from the hours the supervisor may work meaning it could be difficult to find a mutually agreeable time to meet[11].

Other practical arrangements

Some of the included evidence describes other aspects of the practical arrangements for peer-based HR services. For instance, there is a recommendation for clear job descriptions to prevent peer workers from taking on too much[31] and for working hours that accommodate other obligations, such as shelter curfews and OST committments[35]. In terms of how the peer-based service should operate, the New York toolkit describes the pros and cons of going out alone, going with another peer or going with a staff member[35].

A Canadian qualitative study of the working conditions for peer HR workers found many negatives such as informal arrangements, lack of benefits or rights, and intermittent periods of joblessness leading to a high degree of insecurity. However, sometimes these aspects were viewed positively, for instance the flexibility of informal work.[54]

Some of the providers consulted for the review recommended that peer workers are given a formal identification card to carry in case they are stopped by the police. This was also advocated in some of the included evidence[35]; for instance the Risk Avoidance Partnership in USA provides a certificate and an ID card with the title of 'Peer Health Advocate' for use when conducting the intervention in the community[12].

There were no findings specific to the practicalities of implementing a peer-based HR service during a global pandemic, such as COVID-19. However, providers gave mixed responses when asked about this; some felt that peer-based services were subject to exactly the same disruptions as other services whereas others felt peer workers could be trained to operate safely and to deliver pandemic advice and supplies (such as hygiene packs) to PWIDs.

Training

Some of the included evidence gives very detailed descriptions of the training given to peer workers. Although not summarised here, this could be considered in a supplementary review in order to inform implementation of peer-based HR interventions.

Sustainability

There were numerous indications within the included evidence that peer-based HR services may not be sustainable in the medium to longer term. Reasons given for this include the peer workers moving on (e.g. to paid employment)[30,33,49], peer workers wanting to dissociate from drug using networks[12] and insecure funding[26]. The providers consulted also highlighted the fact that, in the UK, drug services provider organisation change regularly which can be a problem for peer-based HR services if they are hosted by them.

Strategies to improve sustainability can be very resource intensive. For instance, an intervention in New York to train Puerto Rican drug service users to conduct HIV-focused community outreach required great effort on the part of project staff, such as frequent follow-up phone calls and letters, in order to maintain just half of the peer workers[30]. Similarly a Welsh study managed to maintain peer educators over a period of 18-months but only through using significant resource including one research co-ordinator, support from three drug workers, input from a research colleague with extensive experience of peer research in an urban environment and payment for the peer educators[51]. Sustainability of a peer-based HR service may require booster sessions[23] and training of new peers.

Ethical & other considerations

The literature reviewed highlights two key ethical principles, beneficence (i.e. doing good) and non-maleficence (i.e. avoiding harm), as particularly relevant to peer-based HR interventions[33]. A study of the Risk Avoidance Partnership in the USA reported on the potential harm that the peers themselves face, related particularly to the relapse risk for former PWID, and recommended that options are available to reduce that risk of harm[40].

A study from the USA suggests that peer-delivered naloxone raises many ethical dilemmas because peer workers are tasked with saving the lives of their community, with no established consequences if they fail[53].

Confidentiality is another important ethical consideration; this includes the peer worker divulging information about themselves and also divulging information about their peers to services[26] (see further consideration under 'Monitoring and evaluation' below).

On the issue of equity, a qualitative study from Canada concludes that overcoming engrained inequities, related to the social positioning of PWID, requires peer-based HR interventions to be viewed through an 'equity lens'[54].

Monitoring and evaluation

A range of process, output and outcome measures were used in the included evidence; these covered interactions with the peer-based HR service[23,38], injecting risk behaviours such as sharing of syringes [12,14,28,51] and BBV testing/treatment/incidence[34,42].

One of the providers described the practicalities of recording monitoring information for a peer-based NSP and naloxone service. They used an online 'Needle Exchange Database' which peers could access via tablets provided to them specifically for this work. This meant that personal data about their clients was more secure than if recorded on paper. It also streamlined evaluation as could be easily linked with other data (such as use of naloxone kits).

Discussion

This rapid evidence review identified 47 pieces of evidence for inclusion which, although not subject to a robust quality assessment, were found to represent a range of study types across the hierarchy of evidence and included grey literature such as guidance and toolkits. The majority of the evidence, however, would be considered low quality and this should be given due consideration when drawing conclusions from the results. To supplement the evidence on the practicalities of developing peer-based HR services, the views of five providers of such services were also explored.

Overall, the included evidence suggests a range of positive outcomes from peer-based HR interventions plus an underpinning theoretical basis. However, some of the highest quality evidence failed to demonstrate statistically significant effectiveness. Similarly, although the included evidence suggests peer-based HR is cost-effective, a definitive conclusion cannot be drawn because of a lack of robust economic analysis of this specific type of HR intervention. Importantly, the evidence indicates that peer-based HR is effective at reaching and engaging with the most marginalized PWID, although the translation of this engagement into positive outcomes is less conclusive.

The limited evidence available on the practicalities of setting up a peer-based HR service suggests involvement of PWID in the design of the service is essential and collaboration with stakeholders, particularly the police, is also critical. A service model that is both user-led and service-generated is recommended and this formal establishment of a peer-based HR service (compared with upskilling PWID and relying on social norms to take effect) fits with the evidence by enabling provision of appropriate support for peer workers and making them feel valued. However, there would appear to be a risk in hosting peer-based HR wholly within a drug service provider organization due to frequent commissioning changes and potential over-emphasis on recovery. A collaborative and partnership approach will foster a 'shared purpose' which is central to managing the change required in setting up a peer-based HR service (see Appendix 3 for the application of NHS England's Change Model[55] to peer-based HR).

The remit of the peer-based service could incorporate a range of HR activities such as mentoring, education, NSP, naloxone provision and drug litter collection. However, there is no indication from the included evidence of which, or which combination, of activities are most likely to produce the greatest benefits so this may be best determined through local consultation.

Recruiting the right peer workers is crucial and the evidence suggests existing services may be best placed to identify individuals with suitable personal attributes and whose lifestyles could accommodate this work. However, open advertising is also advised to ensure equity of opportunity. There is a debate in the evidence as to whether peer workers should be current or former PWID but, on balance, the arguments favour recruiting active drug users who will have current knowledge of the local drugs scene, know the community and can act as role models.

It is acknowledged that peer-based HR, and the recruitment of PWID in particular, may encounter organizational barriers and be controversial amongst stakeholders. To address these issues, solutions will need to be found and agreed by the partners involved, and the service promoted through carefully considered communication and engagement (see the Change Model in Appendix 3 for details of motivation and aligning drivers for change).

Reward or payment of peer work is another controversial issue highlighted within the evidence; however, the consensus is in favour of compensating peers for their time. Failure to do this further exacerbates the notion of PWID as 'second class citizens', could hinder their status as 'workers', gives them little incentive to participate and may result in any involvement being short-lived. However,

direct payment of peer workers may be problematic because of the impact on state benefits and the perceptions of other stakeholders (including the PWID with whom they seek to engage). Therefore, the design, implementation and communication of the reward process needs to be given serious consideration in collaboration with partners, particularly the local community of PWID.

The review also identified other practical issues for developing a peer-based HR service including formalities such as job descriptions and providing suitable supervision/support for the peer workers. This latter point has serious resource implications which should not be under-estimated when developing such a service.

Another important practical consideration is a means for the peer workers to identify themselves to the police; this could take the form of an ID card but, whatever strategy is used, it should be agreed in advance with the local police force and communicated effectively with officers on the street and other community safety workers.

It was clear from the included evidence that the sustainability of peer-based HR services is a significant issue. This is often related to peers moving on to other things, such as paid employment, but may also be due to their drug use meaning consistent engagement is difficult or due to curtailment of funding. It is morally correct to design, from the outset, a pathway to education or paid employment for the peer workers but, at the same time, it is also crucial that a means of sustaining the service is devised. Strategies to consider include working with local higher educational institutions to secure places for peer workers and incorporating recruitment and training of new peers as part of the peer workers job descriptions.

Some of the ethical considerations highlighted in the evidence have already been mentioned, such as support for peers to avoid the risk of harm and ensuring an on-going career pathway. A further issue concerns confidentiality of information about both the peer worker and the PWIDs with whom they engage. There are ways to mitigate the risk of inappropriate disclosure such as using secure electronic means to store data and obtaining consent to share details with other agencies. Data protection concerns should not be a reason to avoid collecting data for monitoring and evaluation purposes.

With limited evidence on the effectiveness and best practice for peer-based HR interventions, it is vital that any future interventions are robustly evaluated. In the UK particularly, formal peer-based HR services are scarce, therefore, areas that are innovative and establish such services should make sure monitoring and evaluation is incorporated from the outset (Appendix 3 details the way that monitoring facilitates the change process for establishing a new service). Linking with local academic institutions and making use of resources available from Public Health England[56] and the National Institute of Health Research[57,58] will facilitate robust evaluation.

Limitations

As previously mentioned, this was a rapid review of the available evidence which did not include a robust quality assessment of the included studies. However, by extracting key details a limited assessment was done based on type of study. Any future reviews should include robust quality appraisal and could usefully summarise the data according to the focus of the peer-based HR interventions (e.g. BBV, naloxone provision, NST).

It is a consequence of timing that this review was unable to find evidence relating to implementing peer-based HR during a global pandemic and, therefore, it is unclear whether the current findings are applicable to such an unprecedented scenario.

The searches were restricted to middle/high income countries and to English language which may have excluded useful evidence from Eastern Europe. Additionally, the majority of the evidence was from outside the UK which has implications for the applicability of the findings for English local authorities. The providers consulted were based in large UK cities and it should be acknowledged that each of these areas will have a specific context meaning the providers' perspectives may not be generalizable to other local authority areas.

It is also important to acknowledge that the searches, screening and data extraction were all done by just one member of the review team which, although ensures consistency, does risk bias in terms of what was included and excluded.

Recommendations for implementing peer-based HR services

Although evidence of effectiveness of peer-based HR interventions is not conclusive, there is a strong enough suggestion of positive outcomes to advocate establishing such a service in areas with high levels of harms from injecting drug use.

Based on the available evidence, Figure 3 sets out recommended actions at the various stages of developing and implementing a peer-based HR service. This is further supported by the change model presented in Appendix 3.

Preparation

- Set up steering group to include commissioners, providers, police, PWID, HE establishments
- Steering group to guide design of service (including the HR activities to be included)
- Communications to wider stakeholders and the public
- Use change model to guide implementation (see Appendix 3)
- Establish evaluation framework making use of available resources and local academics as appropriate
- Identify and secure recurrent funding and other resources (such as staff time)

Implementation

- Agree and develop job descriptions with steering group
- Targeted recruitment of suitable services users as peer workers, plus open recruitment of other current PWID
- Establish sufficient supervision and support systems
- Agree and establish systems for reward/compensation
- In partnership with police, design system for identification of peer workers and ensure this is communicated to the wider community safety workforce
- Set up secure systems and start collecting monitoring data

On-going

- Establish pathways to education or employment for peer workers who want to develop their career
- Regularly check that recurrent funding for service is available and seek new funding sources if necessary
- Actively recruit new peer workers
- Set up system of cascade training and mentoring for new peer workers
- Carry out interim evaluation and use results to make any necessary changes to the service

Figure 3: Recommendations for implementing a peer-based HR service

Conclusions

Although high quality evidence of effectiveness and cost-effectiveness is lacking, peer-based HR interventions should be implemented as they appear to have positive outcomes and, importantly, seem able to reach the most marginalised PWID. Thus, peer-based HR could potentially address the risk of widening inequalities from the shift to remote services during the COVID-19 pandemic.

Although potentially controversial, evidence on the practicalities of implementing peer-based HR suggests that current PWID should be recruited as peer workers and that they should be rewarded for their time. There are a multitude of other ethical issues associated with this type of service, but these can be addressed through careful design and implementation; such as facilitating onward career pathways for the peer workers if desired. Additionally, PWID and other key partners should be actively involved in designing the service; this collaborative approach is central to developing the shared vision necessary to manage such a change to service provision.

Sustainability of peer-based HR services is a challenge and should be addressed from the outset, such as by identifying recurrent funding and setting up systems of cascade training for newly recruited peer workers.

Finally, with high quality UK evidence particularly lacking, any local authority establishing a peer-based HR service should draw on available resources to set up robust monitoring and evaluation that will contribute to the evidence base and reassure stakeholders that any unintended consequences will be identified and managed.

Appendices

Appendix 1: Details of searches

Date	Database	Search terms	No. of hits	No. eligible after initial screen
02/11/2020	Prospero	(P* who inject drugs OR PWID* OR Substance misuse* OR Inject* drug use* OR Substance abuse*OR Substance use*) AND (Peer* OR Peer led OR Peer-led) AND (Harm reduct* OR Harm min* OR Needle syringe Provi* OR Injecting Equipment Provi* OR Opiate Substitution Therapy OR Blood borne virus OR BBV OR Hepatitis C OR HCV OR HepC OR HIV)	206	4
03/11/2020	Cochrane	P* who inject drugs OR PWID* OR Substance misuse* OR Inject* drug use* OR Substance abuse*OR Substance use* in Record Title AND Peer* OR Peer led OR Peer-led in Record Title AND Harm reduct* OR Harm min* OR Needle syringe Provi* OR Injecting Equipment Provi* OR Opiate Substitution Therapy OR Blood borne virus OR BBV OR Hepatitis C OR HCV OR HepC OR HIV in Record Title	13	10
03/11/2020	TRIP	substance use peer harm reduction	960	4
03/11/2020	Medline EBSCO	TI (P* who inject drugs OR PWID* OR Substance misuse* OR Inject* drug use* OR Substance abuse*OR Substance use*) AND TI (Peer* OR Peer led OR Peer-led) AND TI (Harm reduct* OR Harm min* OR Needle syringe Provi* OR Injecting Equipment Provi* OR Opiate Substitution Therapy OR Blood borne virus OR BBV OR Hepatitis C OR HCV OR HepC OR HIV)	38	34
03/11/2020	PsycInfo EBSCO	TI (P* who inject drugs OR PWID* OR Substance misuse* OR Inject* drug use* OR Substance abuse*OR Substance use*) AND TI (Peer* OR Peer led OR Peer-led) AND TI (Harm reduct* OR Harm min* OR Needle syringe Provi* OR Injecting Equipment Provi* OR Opiate Substitution Therapy OR Blood borne virus OR BBV OR Hepatitis C OR HCV OR HepC OR HIV)	24	22
03/11/2020	Web of Science	TI Peer inject	45	36
04/1102020	PubMed	peer harm reduction inject	151	25
05/11/2020	OpenGrey	Various combinations of peer, harm reduction, drug, inject	Various	0
05/11/2020	PLOS	Various combinations of peer, harm reduction, drug, inject	Various	0
05/11/2020	Google Scholar	peer harm reduction inject	34,000	17

Appendix 2: Details of included evidence

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
4	03/11 /2020	Medline EBSCO	Garfein RS; Golub ET; Greenberg AE; Hagan H; Hanson DL; Hudson SM; Kapadia F; Latka MH; Ouellet LJ; Purcell DW; Strathdee SA; Thiede H	A peer-education intervention to reduce injection risk behaviors for HIV and hepatitis C virus infection in young injection drug users.	2007 Sep 12	AIDS (London, England)	https://journals.lww.com/aidsonline/Fulltext/2007/09120/A_peer_education_intervention_to_reduce_injection.12.aspx	Study	RCT		USA
5	03/11 /2020	Medline EBSCO	Hoffman IF; Latkin CA; Kukhareva PV; Malov SV; Batluk JV; Shaboltas AV; Skochilov RV; Sokolov NV; Verevochkin SV; Hudgens MG; Kozlov AP	A peer-educator network HIV prevention intervention among injection drug users: results of a randomized controlled trial in St. Petersburg, Russia.	2013 Sep	AIDS and behavior	https://link.springer.com/article/10.1007/s10461-013-0563-4	Study	RCT		Russia
9	03/11 /2020	Medline EBSCO	Mackenzie S; Pearson C; Frye V; Gómez CA; Latka MH; Purcell DW; Knowlton AR; Metsch LR; Tobin KE; Valverde EE; Knight KR	Agents of change: peer mentorship as HIV prevention among HIV-positive injection drug users.	2012 Apr	Substance use & misuse	https://www.tandfonline.com/doi/full/10.3109/10826084.2012.644122?needAccess=true	Study	Qualitative		USA
10	03/11 /2020	Medline EBSCO	Convey MR; Dickson-Gomez J; Weeks MR; Li J	Altruism and peer-led HIV prevention targeting heroin and cocaine users.	2010 Nov	Qualitative health research	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3566981/	Study	Mixed methods		USA
12	05/11 /2020	Google Scholar	Kanna Hayashi, Evan Wood, Lee Wiebe, Jiezhi Qi, Thomas Kerr,	An external evaluation of a peer-run outreach-based syringe exchange in Vancouver, Canada,	2010	International Journal of Drug Policy	https://www.sciencedirect.com/science/article/pii/S0955395910000563	Study	Observational (Prospective cohort study)		Canada

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
14	05/11 /2020	Google Scholar	Martin Bouchard, Sadaf Hashimi,Kristen Tsai,Hugh Lampkin,Ehsan Jozaghi	Back to the core: A network approach to bolster harm reduction among persons who inject drugs	2018	Publicatio n: Internatio nal Journal of Drug Policy	https://www.sciencedirect.com/science/article/pii/S0955395917303262	Study	Survey to map the netwo rk of PWID		Canada
15	04/11 /2020	Pubmed	Henderson C, Madden A, Kelsall J.	Beyond the willing & the waiting' - The role of peer-based approaches in hepatitis C diagnosis & treatment.	Jul-05	Int J Drug Policy.	https://www.sciencedirect.com/science/article/pii/S0955395917302633?via%3Dihub	Expert opinion		Provid er/Aca demic	Australia
24	05/11 /2020	Google Scholar	Kimber, J. and Palmateer, N. and Hutchinson, S.J. and Hickman, M. and Goldberg, D.J. and Rhodes, T.	Harm reduction among injecting drug users - evidence of effectiveness.	2010	Harm reduction: evidence, impacts and challenges EMCDDA	https://strathprints.strath.ac.uk/25573/	Evidence Review	Revie w of revie ws		Scotland
25	02/11 /2020	Prospero	Rebecca Wilkinson, Lindsey Hines, Adam Holland, Jo Kesten	Harm reduction interventions and messaging for people who inject drugs (PWIDs) during periods of major service disruption, such as during the COVID pandemic	2020	Pre-print in Harm Reduction Journal	https://www.researchsquare.com/article/rs-97738/v1	Evidence Review	Raid eviden ce revie w		UK
26	03/11 /2020	Medline EBSCO	Kikvidze T; Luhmann N; Avril E; Butsashvili M; Labartkava K; Etienne A; Le Pluart D; Inaridze I; Gamezardashvili A; Kharshiladze D; Bouscaillou J	Harm reduction-based and peer-supported hepatitis C treatment for people who inject drugs in Georgia.	2018 Feb	The Internatio nal journal on drug policy	https://www.sciencedirect.com/science/article/pii/S0955395917303432	Study	Descri ptive		Georgia

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
27	05/11 /2020	Google Scholar	Hay Bianca, Henderson Charles, Maltby John, Canales Juan J.	Influence of Peer-Based Needle Exchange Programs on Mental Health Status in People Who Inject Drugs: A Nationwide New Zealand Study	2017	Frontiers in Psychiatry	https://www.frontiersin.org/articles/10.3389/fpsyt.2016.00211/full	Study	Survey		New Zealand
28	05/11 /2020	Google Scholar	Carla Treloar, Jeanne Abelson	Information exchange among injecting drug users: a role for an expanded peer education workforce,	2005	International Journal of Drug Policy	https://www.sciencedirect.com/science/article/abs/pii/S0955395904000696	Study	Mixed methods		Australia
29	03/11 /2020	Web of Science	Higgs, P; Cogger, S; Kelsall, J; Gavin, N; Elmore, K; Francis, P; Dietze, P	It stops with us: Peer responses increase availability of sterile injecting equipment	Jul-05	INTERNATIONAL JOURNAL OF DRUG POLICY	https://www.sciencedirect.com/science/article/pii/S0955395915003734	Expert opinion		Provider/Academic	Australia
32	03/11 /2020	Web of Science	Des Jarlais, DC; Hammett, TM; Wei, L; Van, LK; Meng, DH; Ngu, D	Opiate agonist maintenance treatment for injecting drug user peer educators	2004	ADDICTION	https://onlinelibrary.wiley.com/doi/full/10.1111/j.1360-0443.2004.00883.x	Expert opinion		Provider/Academic	International
33	03/11 /2020	Medline EBSCO	Weeks MR; Li J; Dickson-Gomez J; Convey M; Martinez M; Radda K; Clair S	Outcomes of a peer HIV prevention program with injection drug and crack users: the Risk Avoidance Partnership.	2009	Substance use & misuse	https://www.tandfonline.com/doi/full/10.1080/10826080802347677?needAccess=true	Study	Mixed methods		USA
35	03/11 /2020	Medline EBSCO	Kostick KM; Weeks M; Mosher H	Participant and staff experiences in a peer-delivered HIV intervention with injection drug users.	2014 Feb	Journal of empirical research on human research ethics : JERHRE	https://journals.sagepub.com/doi/pdf/10.1525/jer.2014.9.1.6	Study	Qualitative		USA

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
37	05/11 /2020	Google Scholar	Jamee Newland &Carla Treloar	Peer education for people who inject drugs in New South Wales: Advantages, unanticipated benefits and challenges	2013	Drugs: Education, Prevention and Policy	https://www.tandfonline.com/doi/abs/10.3109/09687637.2012.761951	Study	Mixed methods		Australia
38	05/11 /2020	Google Scholar	Alissa M. Greer, Serena A. Luchenski, Ashraf A. Amlani, Katie Lacroix, Charlene Burmeister & Jane A. Buxton	Peer engagement in harm reduction strategies and services: a critical case study and evaluation framework from British Columbia, Canada	2016	BMC Public Health	https://link.springer.com/article/10.1186/s12889-016-3136-4#citeas	Study	Qualitative		Canada
44	03/11 /2020	Medline EBSCO	Broad J; Mason K; Guyton M; Lettner B; Matelski J; Powis J	Peer outreach point-of-care testing as a bridge to hepatitis C care for people who inject drugs in Toronto, Canada.	2020 Jun	The International journal on drug policy	http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=32416538&site=ehost-live	Study	RCT		Canada
46	03/11 /2020	Medline EBSCO	Crawford S; Bath N	Peer support models for people with a history of injecting drug use undertaking assessment and treatment for hepatitis C virus infection.	2013 Aug	Clinical infectious diseases : an official publication of the Infectious Diseases Society of America	https://academic.oup.com/cid/article/57/suppl_2/S75/396876	Study	Qualitative		Australia
48	03/11 /2020	Medline EBSCO	Goutzamanis S; Doyle JS; Horyniak D; Higgs P; Hellard M	Peer to peer communication about hepatitis C treatment amongst people who inject drugs: A longitudinal qualitative study.	2020 Oct 22	The International journal on drug policy	https://www.sciencedirect.com/science/article/pii/S0955395920303212	Study	Qualitative		Australia

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
49	03/11 /2020	TRIP	Ashford RD, Curtis B, Brown AM.	Peer-delivered harm reduction and recovery support services: initial evaluation from a hybrid recovery community drop-in center and syringe exchange program.	2018	Harm Reduct J.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6198436/	Study	Cross sectional		USA
50	03/11 /2020	Medline EBSCO	Aitken CK; Kerger M; Crofts N	Peer-delivered hepatitis C testing and counselling: a means of improving the health of injecting drug users.	2002 Mar	Drug and alcohol review	https://onlinelibrary.wiley.com/doi/epdf/10.1080/09595230220119327?saml_referrer	Study	Quantitative survey		Australia
51	05/11 /2020	Google Scholar	Jozaghi, E., Lampkin, H. & Andresen, M.A.	Peer-engagement and its role in reducing the risky behavior among crack and methamphetamine smokers of the Downtown Eastside community of Vancouver, Canada.	2016	Harm Reduct J	https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-016-0108-z	Study	Qualitative		Canada
52	03/11 /2020	Medline EBSCO	Marshall Z; Dechman MK; Minichiello A; Alcock L; Harris GE	Peering into the literature: A systematic review of the roles of people who inject drugs in harm reduction initiatives.	2015 Jun 01	Drug and alcohol dependence	http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=25891234&site=ehost-live	Evidence Review	Evidence review		Canada
53	03/11 /2020	Cochrane	Ward, K; Sulkowski, MS; Falade-Nwulia, O; Moon, J; Sutcliffe, C; Brinkley, S; Haselhuhn, T; Thomas, DL; Katz, S; Herne, K; Arteaga, L; Mehta, S	Randomized controlled trial of cash incentives or peer mentors to improve HCV linkage and treatment among HIV/HCV coinfected persons who inject drugs: the CHAMPS Study	2017	Hepatology (baltimore, md.)	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6488268/	Study	RCT		USA
54	03/11 /2020	Medline EBSCO	Madray H; van Hulst Y	Reducing HIV/AIDS high-risk behavior among injection drug users: peers vs. education.	2000	Journal of drug education	http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=10920599&site=ehost-live	Study	Non-ramdomised trial		USA

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
55	05/11 /2020	Google Scholar	Noel Craine,A. Mark Walker,Sian Williamson &Tim Bottomley	Reducing the risk of exposure to HCV amongst injecting drug users: Lessons from a peer intervention project in Northwest Wales	2006	Journal of Substance Use	https://www.tandfonline.com/doi/abs/10.1080/14659890500520936	Study	Quantitative survey		UK
56	03/11 /2020	Medline EBSCO	Smyrnov P; Broadhead RS; Datsenko O; Matiyash O	Rejuvenating harm reduction projects for injection drug users: Ukraine's nationwide introduction of peer-driven interventions.	2012 Mar	The International journal on drug policy	https://www.sciencedirect.com/science/article/pii/S0955395912000023	Study	Cross sectional		Ukraine
58	03/11 /2020	Medline EBSCO	Purcell DW; Latka MH; Metsch LR; Latkin CA; Gómez CA; Mizuno Y; Arnsten JH; Wilkinson JD; Knight KR; Knowlton AR; Santibanez S; Tobin KE; Rose CD; Valverde EE; Gourevitch MN; Eldred L; Borkowf CB	Results from a randomized controlled trial of a peer-mentoring intervention to reduce HIV transmission and increase access to care and adherence to HIV medications among HIV-seropositive injection drug users.	2007 Nov 01	Journal of acquired immune deficiency syndromes (1999)	http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=18089983&site=ehost-live	Study	RCT		USA
63	04/11 /2020	Pubmed	Bonnington O, Harris M.	Tensions in relation: How peer support is experienced and received in a hepatitis C treatment intervention.	2017	Int J Drug Policy.	https://www.sciencedirect.com/science/article/pii/S0955395917301354?via%3Dihub	Study	Qualitative		UK
64	03/11 /2020	Medline EBSCO	Norman J; Walsh NM; Mugavin J; Stoové MA; Kelsall J; Austin K; Lintzeris N	The acceptability and feasibility of peer worker support role in community based HCV treatment for injecting drug users.	2008 Feb 25	Harm reduction journal	https://harmreductionjournal.biomedcentral.com/articles/10.1186/1477-7517-5-8	Study	Qualitative		Australia

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
66	03/11 /2020	Medline EBSCO	Mihailovic A; Tobin K; Latkin C	The influence of a peer-based HIV prevention intervention on conversation about HIV prevention among people who inject drugs in Baltimore, Maryland.	2015 Oct	AIDS and behavior	http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=25845530&site=ehost-live	Study	RCT		USA
67	03/11 /2020	Web of Science	Small, W; Wood, E; Tobin, D; Rikley, J; Lapushinsky, D; Kerr, T	The Injection Support Team: A Peer-Driven Program to Address Unsafe Injecting in a Canadian Setting	2012	SUBSTANCE USE & MISUSE	https://www.tandfonline.com/doi/full/10.3109/10826084.2012.644107?needAccess=true	Study	Qualitative		Canada
68	04/11 /2020	Pubmed	Weeks MR, Dickson-Gomez J, Mosack KE, Convey M, Martinez M, Clair S.	The Risk Avoidance Partnership: Training Active Drug Users as Peer Health Advocates.	2006	J Drug Issues.	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2662598/	Study	Mixed methods		USA
70	05/11 /2020	Google Scholar	Rachel Faulkner-Gurstein,	The social logic of naloxone: Peer administration, harm reduction, and the transformation of social policy,	2017	Social Science & Medicine	https://www.sciencedirect.com/science/article/pii/S0277953617301594	Study	Qualitative		USA
71	03/11 /2020	Medline EBSCO	Tobin KE; Kuramoto SJ; Davey-Rothwell MA; Latkin CA	The STEP into Action study: a peer-based, personal risk network-focused HIV prevention intervention with injection drug users in Baltimore, Maryland.	2011 Feb	Addiction (Abingdon, England)	http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=21054614&site=ehost-live	Study	RCT		USA
72	03/11 /2020	Medline EBSCO	Guarino H; Deren S; Mino M; Kang SY; Shedlin MG	Training drug treatment patients to conduct peer-based HIV outreach: an ethnographic perspective on peers' experiences.	2010 Feb	Substance use & misuse	https://www.tandfonline.com/doi/pdf/10.3109/10826080903452439	Study	Qualitative		USA

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
74	03/11 /2020	Medline EBSCO	Jacob J; Ti L; Knight R	Will peer-based interventions improve hepatitis C virus treatment uptake among young people who inject drugs?	2020 Sep 16	Canadian journal of public health = Revue canadienne de sante publique	http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=32936434&site=ehost-live	Expert opinion		Academic	Canada
75	03/11 /2020	PsycInfo EBSCO	Markwick, Nicole; Ti, Lianping; Callon, Cody; Feng, Cindy; Wood, Evan; Kerr, Thomas	Willingness to engage in peer-delivered HIV voluntary counselling and testing among people who inject drugs in a Canadian setting.	20140701	Journal of Epidemiology and Community Health	http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2014-27492-008&site=ehost-live	Study	Cross sectional		Canada
76	09/11 /2020	Citation searching	Miler J, Carver H, Foster R & Parkes T	Provision of peer support at the intersection of homelessness and problem substance use services: a systematic 'state of the art' review.	2020	BMC Public Health	https://dspace.stir.ac.uk/bitstream/1893/30880/1/s12889-020-8407-4.pdf	Evidence Review	Systematic review		UK
77	12/11 /2020	Citation searching	A.Greer, V.Bungay, B.Pauly & J.Buxtond	'Peer' work as precarious: A qualitative study of work conditions and experiences of people who use drugs engaged in harm reduction work	2020	Int J. of Drug Policy	https://www.sciencedirect.com/science/article/pii/S0955395920302619	Study	Qualitative		Canada
78	19/11 /2020	Expert advice	National Harm Reduction Coalition	PEER DELIVERED SYRINGE EXCHANGE (PDSE) TOOLKIT	2020	Nigel Brunston	https://harmreduction.org/issues/syringe-access/pdse-toolkit/?fbclid=IwAR1O_2T4CMQLxC67fcaqwkb67CHDPI-fTcxODlIToS2Y2oUzCBSE3Q6bQxI	Guidance			USA

Ref no	Date added	Database /Source	Authors	Name of evidence	Date	Journal/ Source	Hyperlink	Type of evidence	Study design	Type of expert	Country
79	19/11 /2020	Expert advice	Australian Injecting and Illicit Drug Users League	Needle and Syringe Programs in Australia: Peer-led Best Practice (the Guide)	2018	Nigel Brunston	http://aivl.org.au/resource/needle-and-syringe-programs-in-australia-peer-led-best-practice-the-guide/?fbclid=IwAR3c66TFdWTjOFA4DeBYZwoXlrjh2b0W8KT5CGEPMhzLRGIXUBie8P5TS8A	Guidance			Australia
80	19/11 /2020	Expert advice	EUROPEAN NETWORK OF PEOPLE WHO USE DRUGS	PEER-TO-PEER DISTRIBUTION OF NALOXONE (P2PN): technical Briefing	2019	Mat Southwell	https://static1.squarespace.com/static/58321efcd1758e26bb49208d/t/5cc1d2ddec212dfb576a2c36/1556206418155/EuroNPUD_Technical_Briefing_P2P_Naloxone_web1.pdf	Guidance			Internati onal
81	20/11 /2020	Expert advice	Correlation Network	Manual on peer involvement	2011	Adam Holland	http://www.peerinvolvement.eu/index.php	Guidance			Europea n
82	24/11 /2020	Expert advice	Glasgow City Health and Social Care Partnership	City Wide Naloxone Peer Training & Supply Volunteer Pilot	2017	Jason Wallace		Guidance			Scotland

Appendix 3: Applying NHS England Change Model[55] to implementation of a peer-based HR intervention

Our shared purpose

To reduce harms from injecting drug use in the local area. These include direct harms to PWID, such as blood borne viruses and drug related deaths, and also harms to the wider population, including drugs litter and community safety.
A collaborative approach to the design of the intervention will reinforce this shared purpose.

Leadership by all

Create a collaborative approach to designing and implementing the peer-based HR service through establishment of a steering group. Membership of the group to include commissioners, providers, police, PWID, HE establishment, elected members.

Spread and adoption

An evidence-based approach, and applying good practice from elsewhere, can be achieved through an evidence review and consultation with providers of similar services in other local authorities.
Use established networks to identify areas of good practice. Share learning from own area.
Ensure PWID are representing on steering group and also consult with PWID more widely to ensure all views are heard.

System Drivers

System drivers are the incentives and penalities that drive change; it is important to identify these for all partners. This should be done in one of the initial steering group meetings. Partners should identify objectives and targets within their own organisation that a peer-based HR service could impact on. Individuals should also be encouraged to share their personal motivations for establishing the peer-based HR service.

Improvement tools

The design and implementation of the peer-based HR service should follow the 'Plan, Do, Study, Act' improvement cycle which incoprorates other aspects of the change model as follows:-
Plan- collaboratively through a multi-agency steering group
Do – implement the service
Study – monitor and evaluate
Act – make changes to the service in response to the evaluation finding

Motivate and mobilise

Key stakeholder organisations will have representation on the steering group but there may need to be wider engagement with exisiting HR services staff and PWID to help them understand the change in service provision and to feel motivated and empowered to support it.

Measurement

Strategies for the secure collection of data by peer workers need to be established (e.g. providing tablets for recording data online rather than on paper).
The approporiate consent needs to be obtained for collecting individual's data.
Resource to help analyse the data needs to be identified.

Project and performance management

Use of an evaluation framework at the outset will help define key indicators of success of the HR intervention. This is an essential part of the improvement cycle described above and will help reassure stakeholders that the impacts of the new service are being monitored so that they can be acted upon.

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