Evidence Brief

Preventing and Managing Infectious Diseases Among People who Inject Drugs in Ontario

28 February 2019

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McMaster Health Forum
The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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KEY MESSAGES

What's the problem?

- The challenges associated with preventing and managing infectious diseases among people who inject drugs include:
  - injection drug use being associated with increased risk of a range of infectious diseases;
  - stigma and discrimination experienced by people who inject drugs may reduce timely access to care and supports;
  - limited education/training and lack of clear guidelines make the delivery of appropriate care and supports challenging;
  - fragmentation in system arrangements within and between health and social systems constrains person-centred care.

What do we know (from systematic reviews) about three elements of a potentially comprehensive approach to addressing the problem?

- Element 1 – Strengthen efforts to prevent infectious diseases among those who inject drugs
  - This element could include efforts to prevent or help people to stop injecting drugs, efforts to reduce the risk of infection (e.g., needle-exchange programs, safe consumption/injection sites, and opioid analgesic therapy) and enhancing education efforts for people who inject drugs (e.g., to minimize risk of infectious diseases, identify early symptoms of infectious diseases, and know where to seek treatment when needed).
  - Generally, the evidence for this element supported the use of educational approaches and harm-reduction approaches such as needle-exchange programs, opiate substitution and safe consumption sites to reduce the risk and transmission of infectious diseases and, in select cases, to reduce injection drug use more generally.
- Element 2 – Enhance the infection-management capacity of community points of contacts for people who inject drugs
  - This element could include providing 'low-barrier' access points for comprehensive medical services for infectious diseases at common community points of contact for people who inject drugs, training for staff in community points of contact to recognize, manage and treat infectious diseases (including role expansion and task-shifting for some health professionals), and enhancing the coordination of care for additional treatment through community 'hubs'.
  - Evidence for this element focused largely on task-shifting in community care (to nurses) and using patient navigators and peers to help coordinate care across the continuum and between systems, which were found to be effective, but also carry the risk of burnout for community providers such as nurses.
- Element 3 – Strengthen patient-centred treatment in specialty/acute-care settings
  - This element could include developing and implementing clinical-practice guidelines for infectious diseases that are tailored for use with people who inject drugs, providing comprehensive and integrated approaches to treatment for infectious diseases and for addiction and mental health, developing innovative approaches to coordinate follow-up in the community, and providing training to hospital staff in how best to provide care to a highly marginalized and stigmatized group.
  - Evidence for this element focused on models of follow-up such as appointment accompaniment, peer outreach, peer counselling at the point of antiretroviral-therapy delivery, directly observed treatment, and multi-service agencies providing case management, some of which were found to be effective.

What implementation considerations need to be kept in mind?

- Key barriers to implementing the elements include the complexity in achieving coordination among the many different groups that need to be involved to provide comprehensive person-centred care, overcoming the stigma and discrimination related to people who inject drugs, and addressing the many social determinants of health that contribute to injection drug use (e.g., poverty and lack of stable housing).

- A potential window of opportunity for implementing many of the components of the elements is the province's recent announcement that the safe consumption/injection sites will be retained, but with a focus on treatment, which could support a greater focus on preventing and managing infectious disease both in these sites and in collaboration with other points of contact in the health system.

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REPORT

Injection drug use (IDU) has emerged as not only a pressing issue in Ontario given the spike in the overdose rate,(1) but also as a highly complex issue, given the need for coordinated responses that include those providing:

- services and supports that reduce risk among people who inject drugs (PWID) (e.g., to prevent overdoses as well as the transmission of infectious diseases);
- medical care (e.g., critical/emergency care providers and surgeons for treating life-threatening infectious diseases such as endocarditis); and
- supports to address the array of concomitant challenges related to the social determinants of health (e.g., housing, income, employment, and supports in transitioning from the justice system) that PWID often face.

In addition to the urgent need to prevent overdoses, IDU poses significant risk for infectious disease that range from being:

- not immediately life-threatening (e.g., skin and soft tissue infections) that can potentially lead to more serious infections if not treated;
- curable but longer-term and/or hard-to-diagnose infections (e.g., hepatitis C);
- chronic and incurable infections (e.g., HIV); to
- life-threatening (e.g., endocarditis, osteomyelitis and invasive group A streptococcus).

This points to a need for a person-centred approach across health and social systems (i.e., cross-sectoral, collaborative and interdisciplinary) to support the prevention and coordinated treatment of infectious diseases among PWID through: 1) common community points of contact (i.e., low-barrier access points that focus on reducing the risks associated with IDU, and can also engage and retain people in care and refer them to additional treatment supports); and 2) providers and settings that offer specialized and integrated treatment for infectious diseases, addictions and/or concurrent mental health problems.

Such an approach will require action within the health system (e.g., between community-based providers of services and those providing more specialized medical care) and between health and social systems to address these challenges. The time appears right for action on these fronts given the importance and prominence of the issue (e.g., as a result of the continued increases in

Box 1: Background to the evidence brief

This evidence brief mobilizes both global and local research evidence about a problem, three elements of a potentially comprehensive approach for addressing the problem, and key implementation considerations. Whenever possible, the evidence brief summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies and to synthesize data from the included studies. The evidence brief does <u>not</u> contain recommendations, which would have required the authors of the brief to make judgments based on their personal values and preferences, and which could pre-empt important deliberations about whose values and preferences matter in making such judgments.

The preparation of the evidence brief involved five steps:
1) convening a Steering Committee comprised of representatives from the partner organizations (and/or key stakeholder groups) and the McMaster Health Forum;
2) developing and refining the terms of reference for an evidence brief, particularly the framing of the problem and three elements for addressing it, in consultation with the Steering Committee and a number of key informants, and with the aid of several conceptual frameworks that organize thinking about ways to approach the issue;
3) identifying, selecting, appraising and synthesizing relevant research evidence about the problem, options and implementation considerations;
4) drafting the evidence brief in such a way as to present concisely and in accessible language the global and local research evidence; and
5) finalizing the evidence brief based on the input of several merit reviewers.

The three approach elements for addressing the problem were not designed to be mutually exclusive. They could be pursued simultaneously or in a sequenced way, and each approach element could be given greater or lesser attention relative to the others.

The evidence brief was prepared to inform a stakeholder dialogue at which research evidence is one of many considerations. Participants' views and experiences and the tacit knowledge they bring to the issues at hand are also important inputs to the dialogue. One goal of the stakeholder dialogue is to spark insights – insights that can only come about when all of those who will be involved in or affected by future decisions about the issue can work through it together. A second goal of the stakeholder dialogue is to generate action by those who participate in the dialogue and by those who review the dialogue summary and the video interviews with dialogue participants.

overdoses in the province) and the window of opportunity for change that has been created through the province's announcement that funding for consumption and treatment services will continue, but with a greater focus on treatment and rehabilitation.

The purpose of the evidence brief is to review the best available data and research evidence on preventing and managing infectious diseases among PWID, three elements of a potentially comprehensive approach to addressing this problem and its causes, and key implementation considerations related to each of the elements.

The preparation of the evidence brief has been guided by a decision to give primary attention to the prevention, treatment and ongoing management of infectious diseases. While there is a considerable amount of literature dedicated to the primary and secondary prevention of IDU, including evidence that addresses the underlying social determinants of health of PWID, we have chosen to only include this literature when it related directly to the prevention, treatment or management of relevant infectious diseases. This decision was made to keep a focus on short-term actionable changes rather than more aspirational, longer-term policy options. With that said, the elements of a comprehensive approach discussed in the evidence brief should be considered within a broader vision for the prevention of IDU. A part of this vision should include the synthesis of the available research evidence on primary prevention initiatives, given the recent attention from the opioid and overdose crisis.

In addition, as noted in Box 2, while this brief strives to address all PWID, where possible it also gives particular attention to people who are homeless or marginally housed, and people living with concurrent mental health problems.

THE PROBLEM

The challenges associated with preventing and managing infectious diseases among people who inject drugs (PWID), include:

- injection drug use being associated with increased risk of a range of infectious diseases;
- stigma and discrimination experienced by people who inject drugs may reduce timely access to care and supports;
- limited education/training and lack of clear guidelines make the delivery of appropriate care and supports challenging; and

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Box 2: Equity considerations

A problem may disproportionately affect some groups in society. The benefits, harms and costs of a potentially comprehensive approach to address the problem may vary across groups. Implementation considerations may also vary across groups.

One way to identify groups warranting particular attention is to use "PROGRESS," which is an acronym formed by the first letters of the following eight ways that can be used to describe groups†:
- place of residence (e.g., rural and remote populations);
- race/ethnicity/culture (e.g., First Nations and Inuit populations, immigrant populations and linguistic minority populations);
- occupation or labour-market experiences more generally (e.g., those in "precarious work" arrangements);
- gender;
- religion;
- educational level (e.g., health literacy);
- socio-economic status (e.g., economically disadvantaged populations); and
- social capital/social exclusion.

The evidence brief strives to address all Ontarians, but (where possible) it also gives particular attention to two groups:
- people who are homeless or marginally housed; and
- people living with concurrent mental health problems.

Many other groups warrant serious consideration as well, and a similar approach could be adopted for any of them.

† The PROGRESS framework was developed by Tim Evans and Hilary Brown (Evans T, Brown H. Road traffic crashes: operationalizing equity in the context of health sector reform. *Injury Control and Safety Promotion* 2003;10(1-2): 11–12). It is being tested by the Cochrane Collaboration Health Equity Field as a means of evaluating the impact of interventions on health equity.

- fragmentation in system arrangements within and between health and social systems constrains person-centred care.

We describe each of these factors in turn below based on data and evidence we identified from our searches, as well as from insights we identified through the key informant interviews we conducted during the preparation of this evidence brief.

Injection drug use is associated with increased risk of a range of infectious diseases

Statistics about injection drug use (IDU) in Canada are incomplete and inconsistent, but the most recent estimates from 2014 show that 89,855 people (0.3% of the population over 15 years of age) inject drugs.(2) As noted earlier, in addition to the risk of life-threatening overdose, IDU is associated with increased risk of a range of infectious diseases, including:

- non-life-threatening infections (e.g., skin and soft tissue infections) that can potentially lead to more serious infections without being addressed;
- curable but long-term or hard-to-diagnose infections (e.g., hepatitis C);
- chronic and incurable infections (e.g., HIV); and
- life-threatening infections that require timely intervention with antibiotics or surgery (e.g., endocarditis, osteomyelitis and serious complications from invasive group A streptococcus).

For example, HIV estimates in Canada have found that PWID are 59 times more likely to contract HIV than people who do not inject drugs. In 2014 the national incidence rate of HIV was 439 per 100,000 PWID compared to 7.5 per 100,000 among those who do not inject drugs. Rates of HIV in PWID also appear to have increased since 2014, with 2016 estimates indicating 244 new infections compared to 219 in 2014. Similarly, PWID comprise almost half (43%) of all antibody-positive cases of hepatitis C.(3) The risk of co-infection of hepatitis C and HIV is also a significant concern among PWID with estimates from the Centre for Disease Control in the U.S. estimating that approximately one-third of PWID are co-infected with HIV and either hepatitis B or C. Not only does co-infection place the individual at significantly higher risk for mortality and morbidity, it complicates the treatment of each infection, given the concern of medication interactions.(4)

The risk of infection among PWID substantially increases through the sharing of syringes, with individuals placing themselves at risk of using dirty equipment as well as infections transmitted by blood such as HIV and hepatitis C. The most recent estimates from I-Track (the surveillance system that monitors HIV and hepatitis C as well as the associated risk behaviours among PWID in Canada) from 2012 found 15.5% of PWID reported injecting with used needles or syringes in the six months prior to the interview. However, this rate increased to just over one-third when other paraphernalia were included, such as water, filters, cookers, tourniquets, swabs, spoons and acidifiers.(5)

Recently, significant changes have been observed in the drug market, with one study documenting a movement away from cocaine and heroin towards prescription opioids in urban centres in Canada.(6) This transition in the market has significant effects on how injection drugs are used and, as a result, the risk of

infection. While exact numbers of non-medical prescription-opioid users (i.e., those using prescribed opioids without a prescription) remain largely unknown, a recent cohort study from Montreal found users of prescription opioids displayed a higher number of infections than those using other drugs.(7) The cohort study found prescription-opioid users had greater numbers of high-risk behaviours such as syringe sharing, frequency of injection and injection in public spaces than other PWID. It is thought that this may be a result of a greater number of steps that expose the individual to infection when injecting prescription opioids. For example, the larger amounts of water needed to dissolve tablets or capsules often means users are injecting more than once in an episode of use, in turn increasing the likelihood of re-using contaminated syringes, cotton or cookers and increasing their risk for infection.(8) This same pattern may be partly driving increases in other types of infections (e.g., invasive bacterial infections such as endocarditis, osteomyelitis, and skin and soft tissue infections) that have been found in areas with increased use of opioids.(9-12)

In addition to the choice of drugs, co-occurring mental health and addiction problems such as psychological distress and depression have also been associated with increased risky behaviours, particularly needle sharing, among those who inject drugs, leading to higher rates of infectious disease such as hepatitis C and HIV among these individuals.(6)

Stigma and discrimination experienced by people who inject drugs may reduce timely access to care and supports

PWID experience significant stigma and discrimination (13) and this can take shape in a number of ways. For example, experiencing stigma and discrimination can lead individuals to internalize these feelings and cause them to feel ashamed or blame themselves for their behaviours. Internalized stigma can have a significant effect on an individual's injection behaviours as well as their willingness to seek care. One study of internalized stigma among PWID in New York City found an association between high levels of internalized stigma and high-risk behaviour, including less frequent use of community supports such as needle-exchange programs. The study also found those who reported internalized stigma were more likely to hide their drug use from family, friends and partners, limiting potential points of intervention. Internalized stigma for drug use may also be compounded with other types of stigma and discrimination further reducing potential access to supports and services.

PWID also report experiencing stigma from health professionals at all levels of the system, with experiences that range from receiving 'looks' or overhearing discussions about them to receiving medical care they believed was substandard due to their categorization as a PWID. One systematic review found that negative attitudes of health professionals lead to poor communication between professional and patient, diminished therapeutic alliance, and misattribution of physical illness symptoms to substance-use problems.

At the societal level, the fact that drug use and possession is criminalized in Canada creates an environment where the use of drugs is stigmatized which in turn has a significant impact on whether PWID feel safe openly discussing their use of injection drugs, their ability to use safe injecting practices and accessing medical and social supports in a safe community environment. This is particularly salient among smaller, rural and/or northern communities, where PWID may be more easily recognizable and as a result may be isolated from the rest of the community if a stigmatized view has been adopted. Public perception and ideologies also play a key role in mediating the extent to which services are available in the community. In particular, if the general population ascribes negative stereotypes to PWID, those who set regulations and provide funding and services may be unlikely to prioritize the implementation of supports and services for them, and/or do so in a way that creates a safe environment for them to be engaged in the care and supports they need.

Limited education/training and lack of clear guidelines make the delivery of appropriate care and supports challenging

As noted above, accessing supports and services needed for preventing, treating and providing ongoing management of infectious diseases is often challenging for PWID due to a number of structural factors. However, limited education and training for health professionals about how to prevent, treat and provide ongoing management for infectious diseases makes the delivery of appropriate care and supports challenging and inconsistent. For example, while public health physicians are provided with some training in designing community supports for PWID (e.g., supporting the implementation of harm-reduction initiatives), other professionals are not always attuned to the complexities of providing treatments for this population and, as a result, may miss opportunities to prevent or manage infection. Similarly, in acute-care settings, health professionals may not recognize the signs of withdrawal or overdose, or prioritize substance use as important to address in the context of other significant clinical challenges, which often leads to patients leaving against medical advice and further exacerbating their infection(s). In addition, during interactions between health professionals and PWID, there is an opportunity to provide education to PWID about safe injecting practices (e.g., using clean syringes, not sharing equipment and cleaning the site of injection with alcohol swabs) and what to look for to identify possible infections, and what to do as infections emerge. However, if health professionals do not have sufficient information and education themselves, supporting best practices in self-management is extremely challenging.

Further, while there have been recent efforts by researchers to determine what models of care are well suited to support complex patients, there have been few systematic efforts to educate and train health and social-care professionals in concepts of person-centred care, wrap-around care (i.e., care that is cross-sectoral, collaborative and interdisciplinary, and that focuses on the full range of challenges driving infectious diseases, addiction and mental health) and/or trauma-informed care. These models of care may help health professionals realize the many interacting factors that contribute to injection drug use, recognize signs and symptoms of trauma, and to respond appropriately using multi-faceted interventions that are attuned to each individual's unique circumstances. However, despite the increase in literature about implementing these models of care for complex patients, including those with concurrent mental health and addictions problems, practical examples of these models are limited and structures to support their implementation have not been widely implemented.

Finally, complicating the ability to deliver appropriate care are conflicting guidelines on how to treat serious bacterial infections for PWID or people with a history of injecting drugs. For example, one enduring issue is the appropriate discharge of patients with peripherally inserted central catheter (PICC) lines that have been treated for serious infections such as endocarditis. In these situations, some professionals emphasize the moral imperative to provide the standard of care regardless of whether someone injects drugs, while others do not see the provision of PICC lines as medically appropriate given the perceived harms that could ensue.

Fragmentation in system arrangements within and between health and social systems constrains person-centred care

Delivery arrangements

Efforts to prevent and manage infectious disease among PWID (and efforts to provide health and social services more generally) are uncoordinated and fragmented across:
- systems (e.g., between health and social systems);
- different sectors within systems (e.g., community care, primary care, specialty care and public health in the health system);
- different sites/organizations operating within these sectors (e.g., community health centres, emergency departments in hospitals, inpatient care in hospitals and public health units); and

- providers working within these sites/organizations (e.g., outreach workers, primary-care providers, emergency-department clinicians and specialists in infectious diseases).

Significant variation also exists across the province with respect to the coordination of existing harm-reduction services and comprehensive efforts for preventing, managing and treating infectious diseases in Ontario. Given the recent rise in overdose deaths from the opioid crisis, many community-based programs and services are focused on preventing overdose through the implementation of overdose-prevention sites and supervised-consumptions sites. Although these initiatives may help to prevent infectious diseases by providing safe locations and sterile equipment for injecting, many do not (or are not able to due to funding/resource constraints) concurrently focus on more comprehensive and coordinated efforts to identify, treat and manage infectious diseases. In addition, many of these programs are not able to (or are not given governance and/or financial constraints) take full advantage of the position they occupy as hubs for PWID, which could be leveraged to improve access to care and continuity. Instead, the significant fragmentation means that many PWID do not access health and social services when they need it or experience limited to no follow-up (e.g., after discharge from hospital) when they do receive care. This creates a significant challenge with respect to maintaining continuity of care, which is critical for ensuring effective prevention and management of infectious disease. However, the recent government decision to prioritize the coordination of these services with substance use and treatment services may reduce some of this fragmentation.

While a systematic process of joining up the delivery of care for PWID has not happened, there are a few examples of strong coordination efforts in the province such as the Ottawa Public Health sites which provide integrated services including connections to substance-use and treatment services, mental health services and social supports on site. This and other examples of local solutions can be looked to as models to tailor and adopt to address the unique challenges faced by PWID in different communities.

Financial arrangements

There is also significant fragmentation in the funding for programs and services for PWID which both complicates any efforts to collaborate across the health system and offers little incentive for interdisciplinary care. In many urban centres, funding is spread across a number of different actors including local public health agencies that often do some prevention work, community agencies doing prevention and harm-reduction services, primary care and emergency departments for more routine care, and select social services for supports to address challenges related to the social determinants of health. Improved coordination in the financial arrangements associated with harm reduction, prevention and treatment has the potential to incentivize those involved in delivery to combine resources to provide more efficient and effective care, and to encourage the sharing of lessons learned about best practices for PWID. However, compounding these coordination challenges, financial resources are not equally distributed across the province with some rural and northern communities reporting a lack of financial capital to ensure that services are available to cover the full continuum of care described above, let alone begin discussions of how to enhance coordination of care.

In addition, until recently there was significant uncertainty in the province regarding funding for existing supervised-consumption sites and for new or planned sites. In mid-October the government announced that under the drug consumption and treatment strategy existing sites would continue to operate while applying for permanent status. Supporting the coordination of services described above, permanent status will only be granted to those sites that connect PWID with mental health treatment and addiction services, and a cap will be placed at 21 permanent sites (there are currently 19 operating in the province) with no funding provided to 'temporary' initiatives such as the pop-up overdose prevention tents that were created in Toronto in 2016-17.(14)

Governance arrangements

Governance arrangements for programs and services for PWID are similarly complex, with roles for each of the municipal, provincial and federal governments. The municipal and provincial governments share responsibility for public health, the provincial government governs the delivery of health and social supports, while services for on-reserve Indigenous peoples are under federal jurisdiction. In addition, the federal government retains control over exemptions to the Controlled Drugs and Substances Act. Even without considering the many governance arrangements that exist within each of the municipal, provincial and federal health and social systems, this complex mosaic of players makes building agreement on integrated and coordinated policy and programmatic approaches difficult.

A separate but significant challenge is the lack of comprehensive, timely data about injection drug use and infectious diseases. While some data is collected at both the provincial and federal levels about injection drug use and by public-health agencies on specific infectious diseases, the coordination and integration of provincial and national data sets has proven difficult and there is a significant time lag in providing access to data, often taking years before it is available. For example, the most recent data we were able to obtain about rates of injection drug use were from 2014. This significant time lag in making data available is made even more pronounced given how quickly the opioid crisis has escalated in recent years. This lack of timely data makes it difficult to respond rapidly to emerging issues in provinces, regions and communities and can leave decision-makers not being able to discern the true magnitude of the problem before deciding on whether and how to take policy and programmatic actions. However, the opioid crisis has forced some improvements at the federal and provincial levels in collecting reliable data around overdoses, but the same effort has not been matched for infectious diseases.

Additional equity-related observations about the problem

As noted in box 2 and in the accompanying text on the same page, this brief gives particular attention to those with concurrent mental health problems and those who are homeless or marginally housed, which may include those staying in emergency shelters or those who are provisionally accommodated in interim or transitional housing.(15)

While injection drug use is associated with a wide range of physical comorbidities including the infections described in the problem section, those with addictions have much higher rates of mental illness than the general population, with estimates ranging between 50% and 80% among those who use illicit drugs.(16) Generally, this comorbidity has been found to be bi-directional, whereby mental illness exacerbates addiction and vice-versa. This is likely a combination of associations with similar genetic vulnerabilities and environmental influences such as trauma and chronic stress for both mental illness and addictions.(17) In addition, while the literature on concurrent injection drug use and mental health conditions is limited, there is evidence to suggest that the presence of mental health conditions is associated with risky behaviour, including needle-sharing and use in public spaces. For example, one older systematic review found that on average 50% of individuals with concurrent mental health conditions reported needle sharing in the past year, increasing the likelihood of infection.(18) There is also a significant association between IDU, mental health conditions and commercial sex work, which again increases the risk of transmission of certain infections including HIV and potentially hepatitis C. These intersecting factors significantly increase the complexity of preventing and managing infections and require adaptations to current practices to: 1) avoid adverse effects on existing mental health conditions; and 2) retain people in care given the range of social challenges (e.g., poverty and homelessness) and/or stigma and discrimination they face.

To complicate matters further, the challenges described in the problem section above, particularly those related to lack of access to care, stigma and discrimination, limited training/education and fragmented care, are compounded by the presence of concurrent mental health problems which brings their own challenges of stigma, misdiagnosis and limited availability of mental health services. This then makes accessing and receiving appropriate treatment and management of infections even more difficult. Beyond the treatment

and management of infectious diseases, there has been a tendency towards the separation of care for mental health and addictions in the Ontario health system, whereby few organizations in the province will provide concurrent treatment for both conditions, which further fragments care and reduces the likelihood that patients receive effective support for either condition.

Another subset of PWID who may experience differential access to care and treatment are people who are homeless or marginally housed. There is a significant amount of literature that details the association between homelessness and IDU, including some evidence to show a temporal linkage between homelessness and the initiation of IDU. This literature posits that IDU may be used as a coping strategy for untreated mental illness, poor living conditions and adverse life events such as trauma earlier in life or previous incarceration.(19) In addition, one recent study found homelessness or marginal housing for more than one month was associated with a relapse into IDU and increased high-risk behaviour including daily injection, equipment sharing, and being in relationships with PWID.(19) These findings are of particular concern for inpatient discharge to the community for patients who are homeless or marginally housed, given the likelihood of continued high-risk behaviour and risk of readmission. However, they also have important implications for access to care for infectious diseases at all levels. Specifically, those who are homeless or marginally housed often have difficulty affording transportation to and from points of access for health and social services, lack the identification needed to access health and social services, and regularly move locations where they may not know how to access care, which may disrupt any trust or continuity in care that has been established with a previous provider. Finally, as noted earlier, those who are homeless or marginally housed face additional stigma that may be compounded by stereotypes about injection drug use that further limit access to care.

Citizens' views about key challenges related to preventing and managing infectious diseases among people who inject drugs in Ontario

A citizen panel was convened in Hamilton (Ontario) on 8 February 2019. A total of 11 ethnoculturally and socio-economically diverse panellists were recruited either randomly through Asking Canadians or were referred to us from members of our steering committee or key informants. Panellists had lived experience through personal experience with injecting drugs or through having friends or family members who were currently or had previously injected drugs. In addition, some panellists were peer-outreach workers who had personal experience with injecting drugs and who work in community settings such as supervised-consumption sites where they provide support to people who inject drugs.

During the deliberation about the problem, panellists agreed with many of the points raised in the citizen brief about what is driving the problem. However, in deliberating they distinguished between structural factors that drive the challenges encountered in providing effective prevention, treatment and management of infectious diseases and a range of specific challenges that are encountered in getting what's needed from health and social systems. With respect to the former, panellists strongly emphasized two structural factors as being central to the challenge:
1) the broad range of complex and inter-related driving factors that contribute to addiction and the risks associated with injecting drugs; and
2) the enduring stigma in health and social systems in society related to using drugs that creates barriers to accessing needed care and supports for addiction and for infectious disease, as well as to developing and implementing programs and policies that are needed to strengthen health and social systems.

Table 1: Summary of citizens' views about and experiences with the problem

Type of challenge	Challenge	Description
Structural	Broad range of complex and inter-related driving factors that contribute to addiction and the risks associated with injecting drugs	• Panellists identified both structural and programmatic factors that contribute to addiction. • For structural factors, many pointed to the complex interplay of underlying factors that drive addiction such as trauma, mental health issues and physical pain, along with social determinants of health such as housing. • Some panellists indicated that these factors create a situation that is difficult to address without supports that are appropriate for each individual's unique situation (e.g., those that focus on reducing harm for people who are not yet willing or able to stop using drugs and those that provide addiction treatment for those who are willing and ready to stop using). • In relation to programs, all panellists described the lack of programs and supports that exist to address these factors, and some provided examples such as a lack of private insurance for dental care, needed pharmaceutical treatments and addictions treatment.
	Enduring stigma within health and social systems and in society related to drug use creates barriers to accessing needed supports for addiction and for infectious diseases	• All panellists felt strongly that stigma was a significant barrier to accessing needed health and social services, with many stating that they received worse care from health professionals as someone who injects drugs than other members of the public. • In particular, many described how stigma associated with injection drug use (and drug use more generally) resulted in them being labelled as an addict and an assumption that they were displaying "drug-seeking behaviour" when seeking care for important health needs. • One panellist expressed how this challenge was compounded by living in a rural area where they were more likely to be seen and recognized by the same health professionals who would make it continually difficult to get access to the care they needed. • Panellists also described how enduring stigma limited the development and implementation of programs and policies needed to strengthen health and social systems.
Specific challenges related to the prevention, treatment and management of infectious diseases	Services and supports have not been designed with the needs of those who inject drugs in mind	• Throughout the deliberations about the problem most panellists described how services and supports had generally not been designed with the needs of people who inject drugs in mind, including when services are available, where they are provided, and unique considerations of those who use drugs that should be included in the design of supports and services. • Several panellists noted that harm reduction and community-based services often operated from nine to five, but that those who inject drugs require services or support beyond "business hours." • Many panellists described how services and supports were often provided in one area of the city rather than being mobile, with one panellist remarking that those who inject drugs may move around to different "hot spots" and may not travel to one location, potentially reducing the effectiveness of the services. • One panellist remarked that many hospitals are reluctant to provide inpatients with drugs to keep them comfortable which results in individuals going through withdrawal and often leaving against

Type of challenge	Challenge	Description
		medical advice, resulting in them not being able to finish needed treatments for infectious disease. • Several panellists expressed frustration with the change in prescription guidelines that occurred in 2013, noting that they forced health professionals to restrict the quantity of opioids being prescribed and forced individuals to low doses too quickly, resulting in many individuals having to find alternative sources on the street. • A few panellists also had a related discussion about the structure of methadone services, describing that while they were first designed to support those who inject drugs to slowly reduce their intake, panellists felt that this had been lost, with one panellist stating they felt "as though they were running on a treadmill that wouldn't end." • Panellists also noted the disconnect between methadone clinics and the rest of the health system, which creates challenges in accessing care when a dose is missed. • Building on this point, panellists described the fragmentation between services such as harm reduction services, methadone clinics, primary care and more specialized services such as Rapid Access Addictions Management Clinics. In particular, two panellists shared their experience with this type of fragmentation when their family physician, who was familiar with the type of care they needed, retired and was not able to direct them to other services and supports.
	Services are not standardized across the province	• In deliberating about the problem and describing the services available in each of their communities, several panellists expressed frustration about services not being standardized across the province in terms of what is available or how they have been implemented. • One reason for this, which was brought up by two panellists, is the different amount of resources invested in communities across the province, with some noting that services were significantly underfunded compared to the magnitude of the problem.
	Peers are not consistently engaged in the design and delivery of services	• Panellists overwhelmingly agreed that peers were not sufficiently engaged in the design or delivery of services, with many questioning why they were not more frequently engaged in a broader array of care settings, such as in hospitals where they could help build trust between health professionals and people who inject drugs who need specialized care. • In addition, several panellists highlighted that engaging peers could help to improve the use and effectiveness of services by helping individuals who inject drugs to identify services and seek care from health professionals who can be trusted. • Lastly, two participants who were peer-support workers expressed frustration about not being allowed to be engaged in steering committees that design and implement services in the community and are instead limited to a narrow service-delivery role.

THREE ELEMENTS OF A POTENTIALLY COMPREHENSIVE APPROACH FOR ADDRESSING THE PROBLEM

Many approaches could be selected as a starting point for deliberations about preventing and managing infectious disease among people who inject drugs in Ontario. To promote discussion about the pros and cons of potentially viable approaches, we have selected three elements of a larger, more comprehensive approach to optimizing programs and services. The three elements were developed and refined through consultation with the Steering Committee and key informants who we interviewed during the development of this evidence brief.

The three elements focus on what might be needed to adopt a person-centred, 'complete care' or 'wrap-around care' approach (i.e., cross-sectoral, collaborative and interdisciplinary and that focuses on the full range of challenges driving infectious diseases, addiction and mental health):

1) strengthen efforts to prevent infectious diseases among people who inject drugs;
2) enhance the infection-management capacity of community points of contacts for people who inject drugs; and
3) strengthen patient-centred care in specialty/acute-care settings.

These elements are interdependent in many ways. For example, integrated treatment for infectious diseases, addictions and concurrent mental health problems will need to be addressed collaboratively between low-barrier community points of contact and specialized/acute-care settings. Moreover, such treatment of communicable diseases supports prevention of transmission.

The principal focus in this section is on highlighting the citizens' values and preferences in relation to the elements, and on what is known about these elements based on findings from systematic reviews. We present the findings from systematic reviews along with an appraisal of whether their methodological quality (using the AMSTAR tool) (9) is high (scores of 8 or higher out of a possible 11), medium (scores of 4-7) or low (scores of less than 4) (see the appendix for more details about the quality-appraisal process). We also highlight whether they were conducted recently, which we define as the search being conducted within the last five years. In the next section, the focus turns to the barriers to adopting and implementing these elements, and to possible implementation strategies to address the barriers.

> **Box 4: Mobilizing research evidence about elements for addressing the problem**
>
> The available research evidence about elements of a potentially comprehensive approach for addressing the problem was sought primarily from Health Systems Evidence (www.healthsystemsevidence.org), which is a continuously updated database containing more than 8,200 systematic reviews and more than 2,600 economic evaluations of delivery, financial and governance arrangements within health systems. The reviews and economic evaluations were identified by searching the database for reviews addressing features of each of the approach elements.
>
> The authors' conclusions were extracted from the reviews whenever possible. Some reviews contained no studies despite an exhaustive search (i.e., they were 'empty' reviews), while others concluded that there was substantial uncertainty about the approach element based on the identified studies. Where relevant, caveats were introduced about these authors' conclusions based on assessments of the reviews' quality, the local applicability of the reviews' findings, equity considerations, and relevance to the issue. (See the appendices for a complete description of these assessments.)
>
> Being aware of what is not known can be as important as being aware of what is known. When faced with an empty review, substantial uncertainty, or concerns about quality and local applicability or lack of attention to equity considerations, primary research could be commissioned, or an element could be pursued and a monitoring and evaluation plan designed as part of its implementation. When faced with a review that was published many years ago, an updating of the review could be commissioned if time allows.
>
> No additional research evidence was sought beyond what was included in the systematic review. Those interested in pursuing a particular approach element may want to search for a more detailed description of the option [or approach element] or for additional research evidence about the approach element.

Citizens' values and preferences related to the three approach elements

An overview of citizens' values and preferences about the elements is provided in Table 2, with more specific findings included in the section for each element. An important theme from the citizen panel that permeated

all of the deliberations about the elements was the need to prioritize the engagement of peers in all facets of initiatives to address the challenges. Panellists specifically emphasized peers as being critical to any policy and programmatic action because of the trust that they are uniquely poised to build with people who inject drugs. Given the pervasive stigma associated with injection drug use, panellists viewed this ability to build trust and rapport as being essential to help engage and retain people in the care they need, especially in settings (e.g., hospitals) where there are often many challenges in doing so. Moreover, several participants also emphasized the importance of peers not only being engaged in care and service delivery, but also in processes to develop and implement policies and programs.

Table 2: Summary of citizens' values and preferences related to the three approach elements

Element	Values expressed	Preferences for how to implement the element
Strengthen efforts to prevent infectious diseases among those who inject drugs	• Empowerment of the public with information and of individuals who inject drugs with education about how to prevent infection • Expertise and lived experience of peers in educating individuals who inject drugs to reduce the risk of infection • Trusting relationships between individuals who inject drugs and peers, and professionals to discuss some of the underlying reasons for injecting drugs	• Create targeted educational materials for individuals in different age groups • Use public-service announcements to reduce public stigma about injection drug use • Provide education for those who inject drugs about how to reduce the risk of infection • Involve those with lived experience in education efforts • Work with professionals to determine and address underlying reasons for drug use and injection
Enhance the infection-management capacity of community points of contacts for people who inject drugs	• Access to care and support in navigating the health system • Trusting and respectful relationships between individuals who inject drugs and health professionals • Expertise in providing care to individuals who inject drugs • Collaboration of peers and professionals in decision-making and design of services	• Improving access to care by providing outreach and mobile services • Provide navigation support to improve access • Ensure open-minded and trusting relationships with health professionals in the community • Provide training and education to health professionals without experience in providing care to individuals who inject drugs • Involve a peer in the delivery of care in the community • Collaborate with peers and persons with lived experience to help tailor services in the community, and involve them in decision-making and design of services
Strengthen patient-centred care in specialty/acute-care settings	• Excellent patient outcomes through coordinated care • Collaboration between health professionals, peers and individuals to support understanding of unique considerations • Choice in one's own care	• Coordinating specialty and community care through the implementation of transition services such as wellness checks or transitional housing • Encourage collaboration between health professionals, peers and individuals to cultivate an understanding among health professionals of an individual's unique circumstances • Involve individuals in their own care and in the development of their care plan

Evidence >> Insight >> Action

Element 1 – Strengthen efforts to prevent infectious diseases among those who inject drugs

This element focuses primarily on the prevention of infection among PWID rather than examining the significant changes that could be made in the health, social and legal systems to prevent injection drug use more broadly. We have (where relevant) examined and included literature focused on connecting people to social-system supports that are an important component of addressing addictions, but given how expansive this literature is we have been selective rather comprehensive in this area. Finding and using the evidence from this literature will be an important component to inform complimentary initiatives to infection-focused prevention.

Possible sub-elements could include:
- Enhancing efforts that:
  - prevent or reduce injection drug use (e.g., coordinated efforts to connect people to social-system supports such as housing that are an important component of addressing addiction), and
  - reduce the risk of infectious diseases among people who inject drugs (e.g., needle-exchange programs, safe consumption/injection sites, opioid analgesic therapy); and
- Investing in education efforts among PWID that focus on:
  - how to minimize risk of infection and the resources available to support risk reduction,
  - what early symptoms of infection to look for and the consequences of delayed treatment, and
  - what services for reducing risk and treatment are available and where they can be accessed.

Key findings from citizen panel

There were three main values-related themes that emerged during the discussion about element 1:
- empowerment of the public with information and of individuals who inject drugs with education about how to prevent infectious diseases;
- expertise and lived experience of peers in educating individuals who inject drugs to reduce the risk of infectious diseases; and
- trusting relationships between professionals, peers and individuals to discuss some of the underlying reasons for injecting drugs.

For first theme of empowerment, panellists identified the need for education at multiple levels within and beyond the health system, suggesting targeting education efforts for different stages including in elementary and high-school curriculums, public-service announcements for families and even information for seniors who may be using pain medications. In particular, they suggested using public-service announcements and other communication tools to reduce public stigma about injection drug use and to combat negative stereotypes about individuals who use drugs. Panellists also spoke to the theme of empowerment when describing the need to educate individuals who inject drugs about how to reduce their risk of infectious diseases. Weaved into this discussion was the theme of expertise, with panellists noting the potential to leverage the lived experience of peers to inform individuals on safe injection practices and ways to reduce the risk of infectious diseases.

Finally, panellists all spoke about the importance of trusting relationships between health professionals, peers and those who are injecting drugs. Panellists emphasized the many driving forces of injection drug use and the need to identify and begin addressing these underlying factors to prevent injection over the long term.

Key findings from the literature

We found 19 systematic reviews (three recent high quality, five older high quality, three recent medium quality, five older medium quality, and three older low quality) and one overview of reviews that address the three sub-elements. A summary of the key findings from the synthesized research evidence is provided in Table 3. For those who want to know more about the systematic reviews contained in Table 3 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 1.

For the first sub-element, we identified one recent medium-quality review on peer-based behaviour modification, including skill building for avoiding injection, education, group discussion and access to addiction programs, which found a reduction in injection drug use and in initiation into injection drug use among intranasal heroin users.(20)

We found a substantial amount of literature on harm-reduction approaches that reduce the risk of infectious diseases among people who inject drugs and reduce injection drug use. The majority of the literature focused on harm-reduction initiatives including needle- or syringe-exchange programs, opiate substitution, and safe injection or safe-consumption sites. Six reviews (three older high quality, two medium quality, and one older low quality) and one overview of reviews examined needle and syringe exchanges and generally found an association with reduced transmission of HIV and a reported reduction in shared needles, but little effect on hepatitis C transmission rates.(21-25) However, the combination of needle- and syringe-exchange programs with other interventions appears to be effective.(26; 27) For example, one older high-quality review found that the combined delivery of needle and syringe exchange and methadone treatment was associated with an 80% reduction in the incidence of hepatitis C.(27) Similarly, one older high-quality review found the combined delivery of needle-exchange programs and health services (or the delivery of needle-exchange programs within a health setting) increased the use of health services by PWID, reduced the use of emergency departments and in one included study reduced rates of injection drug use.(21)

Five systematic reviews (one recent high quality, one older high quality, two recent high quality and one medium quality) found that opiate substitution therapy reduced HIV transmission, needle and equipment sharing, and in three of the reviews was associated with a reduction in injection drug use over the short and medium term.(26; 28-31) However, methadone detoxification was found to have no association with a reduction in injection drug use.(28)

One recent high-quality review found safe-injection sites effective at promoting safe conditions for injection and was associated with a significant reduction in public injection.

With regards to the second sub-element - invest in education efforts among PWID - we identified four systematic reviews ranging in quality and recency that generally supported the use of educational interventions.(32-35) While the interventions included in the reviews varied significantly, with two reporting on multi-component interventions, three of the four reviews found reductions in one or more of public injection, needle sharing, injection drug use or deaths from opioid overdose.(32; 33; 35)

Table 3: Summary of key findings from systematic reviews relevant to Element 1 – Strengthen efforts to prevent infectious diseases among those who inject drugs

Category of finding	Summary of key findings

Benefits	• **Enhance efforts to reduce injection drug use and the risk of infectious diseases among people who inject drugs**
	  o One older high-quality review found that the site of delivery of needle-exchange programs had no effect on risk behaviour, however it found that mobile vans tended to attract younger users and those with higher risk profiles.(21)
	  o One recent high-quality review and meta-analysis found opiate-substitution therapy among injection drug users was associated with a 43% reduction in hepatitis C risk.(26)
	    ▪ The same meta-analysis found no association between high-coverage needle- and syringe-exchange programs and reduced rates of HCV, but was associated with a 76% reduction in HCV risk when combined with opiate-substitute therapy.(26)
	  o One recent high-quality review found that methadone maintenance treatment for incarcerated and recently incarcerated men lowered the incidence and frequency of drug injection as well as reducing sharing of IDU equipment over the short and medium term.
	  o One older high-quality review found that needle-exchange programs delivered alongside health services or in health settings (e.g., hospitals or as an accompanying healthcare van) increased PWID access and use of health services, and in one study reduced the use of emergency-department visits.
	    ▪ In addition, one study included in the review found that the delivery of opioid-substitution therapy alongside needle-exchange programs reduced the number of individuals injecting drugs, sharing needles and developing hepatitis C or HIV.(21)
	  o One recent medium-quality review found supervised-consumption sites are effective at promoting safe conditions to inject drugs, providing access to primary care and reducing overdoses.
	    ▪ The same review found lower levels of public drug injections and dropped syringes.
	  o One older overview of reviews found that PWID reported needle- and syringe-exchange programs to help them avoid street-based drug environments, support safer injecting habits and provide links to needed health and social services.
	  o Two older quality reviews, one of medium quality and one of high quality, found needle- and syringe-exchange programs were found to reduce HIV transmissions and injecting risk behaviour, but there was insufficient evidence to support its effects on hepatitis C.(22)
	    ▪ The older medium-quality review also found that opiate-substitution treatment programs reduced HIV transmission and injecting risk behaviour, but found only a tentative level of evidence to support its effect of hepatitis C transmission.(30)
	  o One recent high-quality review found that there are significant public-health benefits from needle- and syringe-exchange programs when 50% of the injecting population in a community has access to 10 or more sterile syringes in a year.(23)
	  o One older medium-quality review found full harm reduction, including both opiate-substitution treatment and needle- and syringe-exchange programs, was associated with up to an 80% reduction in new hepatitis C infections and a 48% reduction in self-reported needle sharing, as well as a frequency in injection.(27)
	  o One older medium-quality review found that those using needle and syringe programs reported a higher incidence of HIV seroconversion and tentative evidence to support the effectiveness of needle and syringe programs in reducing HIV transmission, and tentative evidence to support the effectiveness of needle and syringe programs in reducing HIV transmission.(24)
	  o One older low-quality review found syringe vending machines did not result in a

Category of finding	Summary of key findings
	substantial reduction in the number of discarded needles, however the review did find an increase in sterile needle equipment.(36) o One older medium-quality review found needle-exchange programs were associated with a decline in risky drug preparation, but had no effect on risky contextual variables. However those using syringes were less likely to report reusing syringes.(25) o One older high-quality review found that methadone maintenance treatment was associated with a 54% reduction in the risk of HIV infection among people who inject drugs, and weak evidence that the longer exposure incurred a greater benefit.(28) o One recent medium-quality review found peer-based behaviour-modification programs (including skill building for avoiding injection, education and group discussions) and access to addiction programs decreased injection drug use and initiation into injection among intranasal heroin users.(20) • **Invest in education efforts among people who inject drugs** o One older medium-quality review examining a range of behavioural interventions found that those that included interpersonal education and training specific to safer needle use reduced injection drug use and persisted one year after the intervention.(32) o One older high-quality review examining multi-session psychosocial interventions (including HIV education and skills training) significantly reduced risk behaviour among PWID. ▪ However, no significant difference was found between multi-session education, standard education and self-help booklets.(33) o One older low-quality review on HIV-prevention programs for young adults who inject drugs found that a range of programs including educational sessions, needle exchange and safe-injection kits, and contact with peer-outreach workers were all beneficial, however different interventions and methodologies used in the studies limited comparing effectiveness between interventions.(34) o One recent medium-quality review found that training PWID to recognize the signs of overdose and infection reduced the number of unsafely discarded needles, public injecting, needle sharing and deaths due to overdose.(35)
Potential harms	• **Enhance efforts to reduce injection drug use and the risk of infectious diseases among people who inject drugs** o Two studies included in a recent medium-quality review found increased legal repressiveness was associated with increased HIV prevalence among PWID.(20)
Costs and/or cost-effectiveness in relation to the status quo	• None identified
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no systematic reviews were identified o None identified • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review o None identified • No clear message from studies included in a systematic review o One older high-quality review found substitution with methadone was associated with reductions in injection drug use and illicit opioid use, however the extent that the reduction can be associated to substitution is unclear.(31)
Key elements of the policy option if it was tried elsewhere	• None identified
Stakeholders' views and experience	• None identified

Element 2 – Enhance the infection-management capacity of community points of contacts for people who inject drugs

This element focuses on strengthening and enhancing the capacity of community points of contact and primary health services to address the unique needs of PWID. In particular, sub-elements of this approach element could include:
- increasing the availability and accessibility of medical services for infectious diseases at common community points of contact for PWID (e.g., community health centres, primary-care practices and public-health units) in order to provide a 'low-barrier' access point for comprehensive ongoing care;
- training staff in these community points of contact to recognize, manage and treat infectious diseases among PWID (which could also include role expansion or task-shifting for select health professionals); and
- enhancing coordination of care and links to additional treatment through 'hubs' located in common community contact points for PWID, which could include:
  - safe interim discharge environments for ongoing addiction treatment and continued safe management of infectious diseases and associated complications, and
  - outreach by community organizations for PWID who require follow-up after discharge from hospital).

Key findings from the citizen panel

Four main values-related themes emerged during the discussion about element 2:
- access to care and support in navigating the health system;
- trusting and respectful relationships between health professionals and individuals;
- expertise in providing care to individuals to inject drugs; and
- collaboration of peers and professionals in decision-making and design of services.

The first theme highlighted by all panellists was the need for better access to health services in the community. Importantly, panellists noted that improved access meant proactively providing care to where individuals are, rather than relying on them to seek out care. One example provided by three panellists was the use of mobile vans to deliver health services. Similarly, panellists described how someone in a navigator role could help to connect individuals to services and improve access to care.

Building on the discussion of stigma identified in the problem section, panellists recognized the importance of trusting relationships between health professionals and those who they provide care to, emphasizing that professionals should be open-minded and treat individuals with respect. Closely related to this is the third theme of expertise. Many panellists expressed that they valued having health professionals who had experience providing care to people who inject drugs, noting that this made them more attuned to their unique circumstances. Panellists emphasized that another way of achieving this expertise could be through training and education for the professional or through the involvement of a peer.

The last theme, collaboration of peers and professionals in decision-making and design of services, was discussed by two peer-outreach workers who felt that involving peers and persons with lived experience alongside health professionals had the potential to better tailor services to the needs of individuals who use injection drugs.

Key findings from the literature

We identified 14 systematic reviews (one older high quality, eight recent medium quality, three older medium quality, and two recent low quality) that address these three sub-elements.(37-49) A summary of the key findings from the synthesized research evidence is provided in Table 4. For those who want to know more about the systematic reviews contained in Table 4 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 2.

For the first sub-element – increase the availability and accessibility of medical services for infectious diseases at common community points of contact for PWID – a significant amount of the literature focused on the potential use of nurses to provide 'low-barrier' care for individuals in the community. Two reviews (one recent and one older medium quality) described positioning nurses and community health workers in common points of contact for PWID, including in or near shelters, harm-reduction and needle-exchange programs, or in community clinics located near high-use areas.(37; 39) One of the reviews found that care provided to vulnerable populations was best delivered as a team with nurses acting as the most responsible provider, delivering comprehensive packages of care that include screening and diagnostic tests, cleaning wounds, prescribing medications, and assessing social issues and counselling patients.(37) However, the review also noted the potential for burnout among nurses working with complex patients, suggesting that support from management and monthly one-to-one and group supervisions may help.(37) Other examples of 'low-barrier' care suggested in the literature include mobile screening for infections such as HIV and hepatitis C,(39) while case management, peer navigation, patient outreach and including peers as part of the care team were all found to be effective strategies to reduce structural and system barriers to care.(37; 38)

We did not identify any reviews specific to how to train staff in community points of contact to recognize, manage and treat infectious diseases among PWID (sub-element 2), however we did identify two reviews (one older high quality and one recent low quality) which found that people living with HIV who receive care from providers with experience and expertise in HIV had better viral load control, were more likely to be on antiretroviral therapy, were less likely to seek care in an emergency room, and had higher retention rates in care.(40-42) However, a recent medium-quality review also found that people with HIV frequently reported negative interactions with health professionals including interactions that were impersonal, rushed, discriminatory and judgmental.(41) The review suggested that providing health professionals with sensitivity training and education in treating and managing HIV may help to create a trusting and safe environment for people living with HIV.(41)

With respect to the final sub-element – enhancing coordination of care and links to additional treatment through 'hubs' located in common community contact points for PWID – one recent medium-quality review found that HIV treatment programs that address both health and social services increased retention in care, reduced mortality and reduced substance use over the first six-months.(47) However, two medium-quality reviews (one recent and one older) found that while the coordination of care between the health and social system may improve care for chronic conditions, the full extent of benefits are rarely realized in practice.(48; 50) The reviews note barriers at the system, organizational, and interpersonal levels including funding and resource availability, a lack of a common agenda, limitations in information sharing, and uncertainty about roles and responsibilities.(48)

However, three recent-medium quality reviews found coordination using case managers, nurse navigators, active referrals, and peer advocates and supporters improved the completion of disease screening for HIV and hepatitis C, adherence to follow-up care and patient reported outcomes including physical and mental well-being.(39; 43; 45)

Finally, one recent low-quality systematic review identified three financial mechanisms to support intersectoral collaboration: dedicated earmarked funding, delegated financing and joint budgeting.(46) However, the review noted that negotiating joint budgets following a single budget cycle may pose a sustainability challenge.(46)

Table 4: Summary of key findings from systematic reviews relevant to Element 2 – Enhance the infection-management capacity of community points of contacts for people who inject drugs

Category of finding	Summary of key findings

Benefits	• **Increase the availability and accessibility of medical services for infectious diseases at common community points of contact for PWID in order to provide a 'low-barrier' access point for comprehensive ongoing care**
	  o One recent medium-quality review identified changes to the roles of nurses, including giving them autonomy as independent providers with roles similar to those of physicians in, for example, conducting screening and diagnostic tests, cleaning wounds, prescribing medication, and assessing social issues and counselling patients, improved outcomes for vulnerable populations.(37)
	    ▪ The same review highlighted strategies to optimize nurses' performance and workload, including employing health support workers to support nurses in changing dressings and taking over administrative work and data collection.(37)
	  o One older medium-quality review found that case management, peer navigation and including peers as part of the healthcare team, interventions that help to reduce structural- and system-level barriers, and having clinics actively reach out to patients were all effective at improving retention in primary care for HIV patients.(38)
	  o One recent medium-quality systematic review found that task shifting to health workers in the community increased the range of HIV knowledge in the community and reduced HIV-related stigma, however the review noted that it must be accompanied by clear administrative plans.(39)
	    ▪ The same review noted that mobile testing was reported to decrease travel barriers that often hinder prompt care, while mobile outreach was found to reduce the stigma associated with accessing HIV services.(39)
	• **Train staff in community points of contact to recognize, manage and treat infectious diseases among PWID**
	  o One older high-quality review found HIV-positive patients cared for by physicians with HIV/AIDS expertise had better viral load control, were more likely to be on highly active antiretroviral therapy and were less likely to seek additional outpatient care or care in an emergency room than those seeing physicians without additional training.(40)
	  o One recent medium-quality review found that individuals with HIV frequently reported negative interactions when trying to access care, including finding health professionals impersonal, rushed, discriminatory, and judgmental. The review suggested that specific changes through staff and provider training are essential to create a safe environment.(41)
	  o One recent low-quality review found care provided by clinicians with experience in treating HIV had higher rates of retention and increased antiretroviral use than among those being cared for by generalists.(42)
	    ▪ Though not specific to PWID, the review did include five studies (of 13) specific to HIV and IDU.(42)
	• **Enhance coordination of care and links to additional treatment through 'hubs' located in common community contact points for PWID**
	  o One recent medium-quality review found that case managers and nurse navigators were essential to address the socio-structural barriers faced by those with HIV.(43)
	    ▪ The review also found that peer advocates, peer supporters and peer engagement in the design and delivery of services were facilitators of high-quality care for those with HIV, whereas at a structural level the review identified the presence of health insurance, patient and physician information and education provision, and low HIV-related stigma in the interaction as other facilitators of high-quality care.(43)
	  o One recent medium-quality review examined the implementation of the chronic-care model for coordination in primary care and generally found the model to be acceptable among patients, however a range of factors were identified that influence patient engagement with the model, including patient support, information dissemination, and acknowledgement of patient differences.(44)

Category of finding	Summary of key findings
	o One recent medium-quality review found patient navigators improved the completion of disease screening/testing and adherence to follow-up procedures as well as increasing patient-reported outcomes including physical and mental health status. However the review was unable to find an association between patient navigators and primary health outcomes.(45) ▪ A number of studies included in the review found improved outcomes when they employed patient navigators who identified with the patient population.(45) o One recent medium-quality review found that integration of HIV-specific interventions with primary care, active referrals, case management and peer support were all acceptable and effective strategies for improving the coordination of care for those with HIV.(39) ▪ Importantly, the review noted that confidentiality concerns, comfort in interaction with the health professional and continuing use of drugs may mediate the effectiveness of these interventions.(39) o One recent low-quality review identified three financial mechanisms to support intersectoral collaboration on the social determinants of health: dedicated earmarked funding, delegated financing and joint budgeting. ▪ However, the sustainability of joint budgets (e.g., from different ministries or departments) following a single budget cycle was identified as a potential challenge.(46) o One recent medium-quality review found HIV treatment programs that provided both health and social services increased retention in care, reduced mortality and reduced substance use over the first six months.(47)
Potential harms	• **Increase the availability and accessibility of medical services for infectious diseases at common community points of contact for PWID in order to provide a 'low-barrier' access point for comprehensive ongoing care** o One recent medium-quality review found that an over-reliance on nurses to treat vulnerable populations led to burnout in two studies, however the presence of management at a weekly handover meeting to provide supervision, and monthly one-to-one and group supervisions were found to help in one study.(37)
Costs and/or cost-effectiveness in relation to the status quo	• None identified
Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no systematic reviews were identified o None identified • Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review o None identified • No clear message from studies included in a systematic review o None identified
Key elements of the policy option if it was tried elsewhere	• **Increase the availability and accessibility of medical services for infectious diseases at common community points of contact for PWID in order to provide a 'low-barrier' access point for comprehensive ongoing care** o One recent medium-quality review found care for vulnerable populations was best delivered as a team, with nurses acting as the most responsible provider. ▪ However, the review found that when beginning work as a team, communication between professionals was difficult, but improved when professionals became aware of each other's roles and skills. o The review stressed that inclusion of the patient as a member of the care team was critical for the delivery of culturally competent care, particularly when working with Indigenous groups.(37) • **Enhance coordination of care and links to additional treatment through 'hubs' located in common community contact points for PWID** o One older medium-quality review found that while the integration of primary care and public health offered improvements for chronic disease management, communicable

Category of finding	Summary of key findings

	disease, and improved maternal and child health, the review reported that the benefits were rarely realized in the studies included.(50)
	o The same review identified a number of barriers at the system, organizational and interpersonal level, including:
	   ▪ at the systems level: policy and fit with local needs, funding and resources, and education and training of professionals that are complimentary;
	   ▪ at the organizational level: lack of a common agenda, knowledge and resource limitations, geographic proximity to partners, and limitations in information sharing; and
	   ▪ at the interpersonal level: a lack of clearly defined roles and responsibilities and a lack of shared purpose or common vision.(50)
	o One recent medium-quality review found reported barriers to the coordination of care between the health and social systems included challenges with interprofessional communication due to professional tribalism, organizational structures, uncertainty about knowledge and roles.(48)
	o One older medium-quality review included case studies of intersectoral government action to address determinants of health, and found the majority of cases focused on midstream factors such as health behaviours or downstream factors such as service accessibility issues, whereas relatively few addressed upstream determinants of health such as social disadvantage, risk exposure or social inequalities.

Stakeholders' views and experience	• None identified

Element 3 – Strengthen patient-centred care in specialty/acute-care settings

This element focuses on strengthening patient-centred treatment in specialty and acute-care settings, and connecting these services with appropriate follow-up care in the community. In particular, this element considers the evidence on existing acute-care practices and innovative approaches to retain those who inject drugs in follow-up care once discharged to the community. Sub-elements of this approach element could include:

- developing and supporting the implementation of clinical practice guidelines specifically designed to provide guidance for treating infectious diseases among PWID and the unique health and social challenges that need to be considered to provide optimal care and supports;
- providing comprehensive and integrated approaches to treatment for:
  - infectious diseases (e.g., through the types of safe interim discharge environments included in element 2),
  - addiction (e.g., through rapid addiction access management clinics and enhanced community access to methadone and buprenorphine/naloxone), and
  - concurrent mental health problems (to support recovery from trauma that can lead to addiction);
- developing and implementing innovative approaches to coordinate follow-up care in the community to retain PWID in the care they need to provide optimal treatment for infectious diseases (e.g., coordinating with community points of contacts by placing trained health professionals - such as nurses - to provide follow-up care for infections and to check PICC lines, or involving peers in the delivery and coordination of follow-up care); and
- providing training to hospital staff in how best to provide care to a highly marginalized and stigmatized group (e.g., using trauma-informed approaches to care and anti-oppression training) in order to prevent and treat infectious disease among PWID in a way that is sensitive to their unique needs and circumstances.

Key findings from the citizen panel

There were three values-related themes that emerged during the discussion about element 3:
- excellent patient outcomes through coordinated care;
- collaboration between health professionals, peers and individuals to support understanding of unique considerations; and
- choice in one's own care.

Panellists focused on excellent patient outcomes by emphasising the need for coordinated care between specialty and community services, in particular suggesting the implementation of wellness checks on individuals who had been released from hospital to ensure they were regularly accessing community health services and had somewhere safe to live. Other examples of services to support excellent patient outcomes include the need for connections to transitional housing for those seeking rehabilitation and Rapid Access Addictions Management clinics.

The second theme of collaboration was consistently emphasized across all three elements. In this case, the importance of collaboration between health professionals, peers and individuals was described as a means for professionals to better understand the unique considerations of people who inject drugs. Panellists expressed that if health professionals had a better understanding of the PWID experience, they may be able to tailor the care provided and in turn increase adherence to needed care and treatments. Finally, the third theme of choice was discussed in the context of involving each individual in their own care and in the development of their care plan, providing them with choices about the types of services they would like to receive and from whom.

Key findings from the literature

We identified nine systematic reviews (one recent high quality, five recent medium quality, one older medium quality, one recent low quality, and one older low quality) that addressed these four sub-elements.(16; 35; 51-56) A summary of the key findings from the synthesized research evidence is provided in Table 5. For those who want to know more about the systematic reviews contained in Table 5 (or obtain citations for the reviews), a fuller description of the systematic reviews is provided in Appendix 3.

We did not identify any systematic reviews relating to the implementation of clinical practice guidelines specific to treating infectious diseases among PWID. However, it has been found that the absolute effects of interventions to support change in clinical practice range from 2% to 12%,(57) and subsequently it was identified that the likely effects of interventions vary based on the degree to which the causal mechanisms of action address the specific barriers to practice change.(58) Therefore, maximizing the effects of such interventions requires a data and theory-driven approach to diagnose the underlying challenges related to clinical behaviour change, select one or more interventions best suited to address the identified barriers to behaviour change, and iteratively refine and tailor the intervention(s) in a way that maximizes impact.(59)

Two recent systematic reviews (one high quality and one medium-quality) addressed the integrated delivery of care for comorbid addiction and infectious disease.(35; 51) One review found that providing people with HIV with group-based psychosocial supports improved depression scores and mental well-being. The other systematic review examined the use of concomitant opioid-replacement therapy alongside hepatitis C treatment, finding higher rates of treatment completion among those receiving opioid-replacement therapy.

Five systematic reviews (two recent medium quality, one older medium quality, one recent low quality, and one older low quality) focused on the implementation of innovative approaches to coordinate follow-up care in the community (sub-element three). Reviews identified appointment accompaniment, peer outreach, peer counselling at the point of antiretroviral delivery, directly observed treatment and multi-service agencies providing case management as effective models for coordinating follow-up care.(16; 38; 56) Three reviews identified facilitators of patient retention in follow-up care, which include: care engagement and a strong understanding of the condition; culturally competent care; the involvement of peers as advocates and workers on patient's care team; and access to resources such as job assistance, transportation, and shelter.(16; 52; 55) All three reviews stressed the need for health professionals and health workers providing follow-up care to understand the patient population and suggested the employment of peers in follow-up care.(16; 52; 55) Demonstrating the importance of this knowledge, one study included in a recent medium-quality review noted that side effects from hepatitis C treatment mimic withdrawal symptoms, which may trigger injection drug use and non-adherence to the treatment regimen.(52)

Finally, though we did not identify any reviews on training of staff in specialty or acute sectors in how to best provide care to highly marginalized groups, we did identify one recent medium-quality review reporting patient values in receiving HIV treatment which could guide the focus of professional training programs.(53) The systematic review reported valuing professionals who provided emotional support, empathy, demonstrated an understanding of the condition, enabled patient discussions, and made explicit efforts to involve patients in their care decisions.(53)

Table 5: Summary of key findings from systematic reviews relevant to Element 3 – Strengthen patient-centred care in specialty/acute-care settings

Category of finding	Summary of key findings

Benefits	• **Provide comprehensive and integrated approaches to treatment**
	  o One recent high-quality review found that providing HIV patients with group-based psychosocial interventions improved depression scores and mental well-being 15 months post-intervention.(51)
	  o One recent medium-quality review found that providing concomitant opioid-replacement therapy alongside hepatitis C treatment resulted in higher rates of treatment completion.(35)
	• **Develop and implement innovative approaches to coordinate follow-up care in the community to retain PWID in the care they need to provide optimal treatment for infectious diseases**
	  o One recent low-quality review assessed factors critical for patient retention at each the intrapersonal, social and cultural level.
	    ▪ At the intrapersonal level: an individuals' psychological state, care engagement and understanding of the condition were mediators of retention, while patient education was a significant facilitator to care.
	    ▪ At the social level: the extent of partnership between patient and health professional and the support of family and friends were mediators of retention in care.
	    ▪ At the cultural level: life demands, previous experiences with the healthcare system and structural factors such as community beliefs, all effected whether individuals continued to seek care.(55)
	  o One older medium-quality review found that retention strategies that focused on engaging and retaining patients (e.g., addressing structural barriers to care), rather than targeted multiple broader issues were more successful.
	    ▪ In particular, the review found the following interventions to be effective in retaining HIV patients for follow-up: appointment accompaniment, transportation support, peer outreach, culturally competent care, sending appointment reminders, and involving peers as advocates and workers on a persons' care team.(54)
	  o One older low-quality review found that peer counselling at the point of antiretroviral-therapy delivery, case management and nurse counselling, integrated care, directly observed treatment, and incentives or contributions towards food and transportation costs helped to retain PWIDs in ART treatment.(56)

Potential harms	• None identified
Costs and/or cost-effectiveness in relation to the status quo	• None identified

Uncertainty regarding benefits and potential harms (so monitoring and evaluation could be warranted if the option were pursued)	• Uncertainty because no systematic reviews were identified
	  o None identified
	• Uncertainty because no studies were identified despite an exhaustive search as part of a systematic review
	  o None identified
	• No clear message from studies included in a systematic review
	  o None identified

Key elements of the policy option if it was tried elsewhere	• **Provide comprehensive and integrated approaches to treatment**
	  o One recent high-quality review found integration of HIV and mental health services can occur at any of a macro-, meso- or micro-level, and that single-site integration enhances collaboration and decreases access barriers for patients, but noted that the collaborative network that emerges from a multi-site integration may better support those with comorbid conditions.(51)
	    ▪ The same review found integrated mental health and HIV care using case-managers may help to support continuity of care, but requires specialized training and support case managers.(51)

Category of finding	Summary of key findings

	• **Develop and implement innovative approaches to coordinate follow-up care in the community to retain PWID in the care they need to provide optimal treatment for infectious diseases**
	  ○ One recent medium-quality review identified the need for six key supports to help in the transition of homeless individuals out of hospital: a respectful and understanding approach to care; housing assessments; patient navigators; complex medication management; resources to cover basic needs; and transportation.
	    ▪ The review found individualized low-barrier services and multi-service agencies that provide integrated case management and mental health are potential solutions, and other studies included in the review identified the coordination of housing (using housing assessments) at both intake and discharge could help to retain patients in follow-up care.(16)

Stakeholders' views and experience	• **Develop and implement innovative approaches to coordinate follow-up care in the community to retain PWID in the care they need to provide optimal treatment for infectious diseases**
	  ○ One recent medium-quality review identified the need for consideration of financial and medical supports both within and outside of the health system to facilitate treatment adherence by PWID who have been diagnosed with hepatitis C, including job assistance, transportation services and shelter outside of the healthcare system, and flexible clinic hours and non-judgmental phlebotomists within the health system.
	    ▪ The same review identified that having clinical staff familiar with people who used to inject drugs promoted an increase in patient knowledge and retention in care.(52)
	    ▪ Finally, the review identified the need for health professionals to understand PWID, reporting that the side effects from hepatitis C treatment mimic opioid withdrawal symptoms leading to a desire to continue to inject, and that the use of alternative medications to suppress the withdrawal symptoms could support treatment adherence.(52)
	• **Provide health providers and staff at hospitals with training in how best to provide care to a highly marginalized and stigmatized group**
	  ○ One recent medium-quality review found that professionals who were valued provided emotional support, empathy, understanding and enabling of patient discussions, had specialist knowledge in HIV prevention and treatment, were able to clearly present information to patients, and made explicit efforts to involve patients in their care decisions.(53)

Additional equity-related observations about the three approach elements

In our review of the synthesized research evidence included in the brief, we found some insights into how the three elements should be tailored to meet the needs of the prioritized groups (i.e., individuals with concurrent mental health problems and individuals who are homeless or marginally housed).

With respect to the first element – strengthen efforts to prevent infectious diseases among those who inject drugs – we found one recent primary study that found that providing housing supports to PWID who are homeless or marginally housed reduced both the risk of IDU as well as risky behaviours.(19) In addition, while not focused specifically on PWID, a recent and high-quality systematic review of 152 studies found that while unstable or inadequate housing is a significant barrier to optimal care for people living with HIV (e.g., access to medical care, access and adherence to medications, viral suppression and risk of transmission), improved housing was found (in the included randomized trials and observational studies) to enhance access and retention in care and clinical outcomes.(60)

We also found some evidence that pertains to both equity groups for the second element - Enhance the infection-management capacity of community points of contacts for people who inject drugs. One primary study identified success factors for community care for homeless or marginally housed individuals such as ensuring services were expedient and mobile.(61) Participants in the study noted that services which provided material goods such as blankets, toiletries or transportation to appointments or between services, as well as

those which assisted with the coordination of housing and food acquisition, were viewed as being especially helpful.(61) In addition, participants in the study noted that successful services relied on professionals who are well trained and educated in IDU as well as on the complex issues that intersect with drug use.(61) While we didn't find any additional information on training professionals to meet these needs, one example of a program from the literature that may be of use to train professionals in caring for individuals with concurrent conditions is 'Beyond the Label,' a program from The Centre for Addictions and Mental Health that provides an educational kit to professionals that includes 10 group activities and information on concurrent disorders and stigma.(61) In addition, two systematic reviews were included in the summary of the evidence on element 2 which found the use of case managers and patient navigators to be effective in coordinating care.(43; 45) These resources may prove to be especially important for those with concurrent conditions given the extreme fragmentation within the health system generally, as well as specifically between services for mental health and for addictions.

Finally, for the third element – strengthen patient-centred treatment in specialty/acute-care settings – we found literature related to providing comprehensive and integrated approaches to treatment and for developing and implementing innovative approaches to coordinate follow-up care in the community. Findings from a recent scoping review suggest there is significant evidence supporting the use of collaborative-care approaches to provide comprehensive care for those with concurrent mental health and addictions conditions.(62) Specifically, the scoping review found that these approaches, which use an interdisciplinary team to integrate care, are more effective than usual care in managing both conditions, particularly when they involve a mental health specialist working alongside a care team that the individual has an existing relationship with.(62) In addition, we identified one medium-quality systematic review focused on coordinating follow-up care following inpatient admissions for those who are homeless.(16) The review found six key supports for enabling the transition out of hospitals back to the community: a respectful, understanding approach to care; housing assessments; communication and navigation; supports for after-care; complex medical care and medication management; and support for basic needs and transportation.(16) Elaborating on two of these supports, the review found the coordination between the health and housing sector by conducting housing assessments at both intake and discharge was an effective strategy for enabling transitions out of hospital.(16) In addition, the review found that a weekly nurse visit to shelters was an effective method to assist with medication management for follow-up care for PWID who are also homeless.(16)

IMPLEMENTATION CONSIDERATIONS

A number of barriers might hinder implementation of the three elements of preventing and managing infectious diseases among people who inject drugs, which needs to be factored into any decision about whether and how to pursue any given element (Table 6). Key barriers to implementing the options include the complexity in achieving coordination among many different groups who need to be involved to provide comprehensive person-centred care, overcoming the stigma and discrimination related to people who inject drugs, and addressing the many social determinants of health that contribute to injection drug use (e.g., poverty and lack of stable housing).

Table 6: **Potential barriers to implementing the elements**

Levels	Element 1 – Strengthen efforts to prevent infectious diseases among people who inject drugs	Element 2 – Enhance the infection-management capacity of community points of contacts for people who inject drugs	Element 3 – Strengthen patient-centred care in specialty/acute-care settings
Patient/individual	• Individuals may be reluctant to access new services or to seek treatment for fear of stigmatization	• Individuals in areas surrounding the development of new community clinics or hubs serving people who inject drugs may resist their implementation for fear of increasing injection drug use • Individuals seeking to use health services may not trust professionals working at new 'hubs,' thereby reducing their potential effectiveness	• Failure to sufficiently engage peers and PWID in the design of follow-up care and comprehensive-care models may reduce their effectiveness • Patients who are accustomed to care using particular approaches may resist transitions to new guidelines or best practices
Care provider	• Community-based providers may lack the infrastructure, resources and/or experience to educate PWID on infectious diseases	• Professionals may not be willing to take on additional training if they already feel overburdened • Professionals may have a negative attitude towards PWID and may be unwilling to take on additional training • Professionals working in interprofessional teams may resist initial integration with sectors outside of the health system	• Professionals may not be willing to take on additional training if they already feel overburdened • Professionals working in emergency departments may resist the adoption of new models of care if they are likely to take more time to deliver
Organization	• Organizations may be interested in implementing community-based services focused on reducing the risk of infectious diseases among PWID and/or to prevent or reduce injection drug use, but are unable to given lack of resources or regulatory approval for such work	• Organizations such as Community Health Centres that are well positioned to increase the availability and accessibility of medical services for PWID are unable to do so without additional funding, which may be difficult to obtain in a time of budgetary uncertainty	• Networks and organizations may be hesitant to adapt existing approaches or care pathways (e.g., due to need for additional investment which may not be budgeted for) • Organizational funding is not currently arranged in a manner that incentivizes coordinated and integrated care between sectors (e.g., between community and specialty care)

System	• Enduring stigma and discrimination related to PWID may inhibit efforts to improve care for this population • Government may resist assigning public servants as stewards for harm reduction initiatives while it remains so politically charged • Coordinating funding arrangements across ministries to support efforts to reduce the risk of injection drug use may be difficult • A focus on short-term politically driven investments may overshadow other evidence-informed prevention efforts	• Enduring stigma and discrimination related to PWID may inhibit efforts to improve care for this population • Creation of community 'hubs' will likely require additional investment in primary and community-based care which may be difficult to attain given the current fiscal climate in the province • Sharing of patient information across health and social systems to enable coordination of care may present a significant challenge	• Enduring stigma and discrimination related to PWID may inhibit efforts to improve care for this population • System-level funding is not currently arranged in a manner that incentivizes coordinated and integrated care between sectors (e.g., between community and specialty care)

There are also some potential windows of opportunity that could be leveraged for implementing the elements, which we summarize in Table 7. Perhaps the most significant is the province's recent announcement that the supervised consumption/injection sites will be retained, but with a focus on treatment, which could support a focus on preventing and managing infectious diseases both in these sites and in collaboration with points of contact in the system.

Table 7: Potential windows of opportunity for implementing the elements

Type	Element 1 – Strengthen efforts to prevent infectious diseases among people who inject drugs	Element 2 – Enhance the infection-management capacity of community points of contacts for people who inject drugs	Element 3 – Strengthen patient-centred care in specialty/acute-care settings
General	• Sustained focus on the opioid crisis at all levels of government could lend itself to considering how to better care for PWID at all levels of the health system and on primary prevention of IDU • Government focus on ending hallway medicine and on achieving efficiencies in the health system lends itself well to investing in the types of activities in each of the three elements which would help PWID be retained in care and avoid frequent readmissions for infectious disease		
Element-specific	• None identified	• Recent provincial announcement that the overdose-prevention and supervised-consumption sites will shift towards a focus on treatment which could support a focus on preventing and managing infectious diseases both in these sites and in collaboration with other points of contact in the system	• Many provinces and territories have been piloting comprehensive approaches to care and models of care that are integrated across sectors, and adapting these models for PWID may make some 'quick wins' possible

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APPENDICES

The following tables provide detailed information about the systematic reviews identified for each option. Each row in a table corresponds to a particular systematic review and the reviews are organized by element (first column). The focus of the review is described in the second column. Key findings from the review that relate to the option are listed in the third column, while the fourth column records the last year the literature was searched as part of the review.

The fifth column presents a rating of the overall quality of the review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial, or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered "high scores." A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8.

The last three columns convey information about the utility of the review in terms of local applicability, applicability concerning prioritized groups, and issue applicability. The third-from-last column notes the proportion of studies that were conducted in Canada, while the second-from-last column shows the proportion of studies included in the review that deal explicitly with one of the prioritized groups. The last column indicates the review's issue applicability in terms of the proportion of studies focused on preventing and managing infections.

All of the information provided in the appendix tables was taken into account by the evidence brief's authors in compiling Tables 3-5 in the main text of the brief.

Appendix 1: Systematic reviews relevant to Element 1 - Strengthen efforts to prevent infectious diseases among those who inject drugs

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
Enhance efforts that reduce the risk of infectious diseases and injection drug use	To review quantitative studies of behavioural interventions aimed at reducing the risk of HIV infection (32)	The review included 37 randomized controlled trials of 40 independent interventions that evaluated a behavioural intervention aimed at preventing HIV infection among people who inject drugs. Eighty-eight per cent of interventions were conducted in cities in the U.S. Most participants were middle-aged African American men, and 88% of participants injected drugs in the three months preceding the intervention. The studied interventions were fairly evenly split between being group- or individual-based interventions. Ninety per cent of interventions included a HIV/AIDS education component; 69% included condom education; 57% included self-management skills; 35% of interventions included drug treatment, the provision of bleach, or the provision of condoms. Seventy per cent of interventions included both sex- and drug-related risk-reduction measures. Meta-analysis of 30 studies found that these interventions significantly reduced injection drug use. Meta-analysis of 11 studies found significant reduction in non-injection drug use. Meta-analysis of six studies found significant increases in entry to drug treatment. Meta-analysis of 16 studies found increases in condom use. Finally, analysis of four studies found that behavioural interventions reduced the frequency of sex work for drugs. HIV risk-reduction interventions had no effect on the following outcomes: frequency of needle sharing, frequency of bleaching injection equipment, frequency of unprotected sex. Three sample and intervention features were positively associated with reduced injection drug use: more non-Caucasian participants, equivalent drug- and sexual-related HIV risk-reduction content, and interpersonal skills training on safer needle use. Having two facilitators lead sessions was associated with more success in increasing condom use. There was no decay of intervention effects for injection drug use outcomes, but effects on condom use did slightly decrease with time.	2004	5/11 (AMSTAR rating from McMaster Health Forum)	Not reported	Not reported	37/37
	To review HIV prevention programs' effects on the risk behaviours of	The review included five studies from Australia and the United States. The studied interventions had varying definitions of young people, and these definitions (on aggregate) included those from 12 to 26 years old. Some studies targeted those at risk of commencing injection, while others targeted those	2004	1/9 (AMSTAR rating from McMaster	0/5	0/5	5/5

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
	young people who inject drugs (34)	actively injecting drugs. Finally, the targeted groups (cultural and/or socio-economic) varied between studies. All five studies measured different outcomes, which made it impossible to make specific conclusions. However, the authors noted that all studies reported generally positive HIV-related outcomes. Examples of the outcomes measured in one or more of the included studies include: injection risk practices; blood-borne virus knowledge; sexual risk practices; HIV-related health referrals; and participants' perceptions of these programs. Furthermore, none of the included studies measured biological outcomes, such as HIV sero-status, that could serve as objective measurements of the programs' success. The authors noted that the lack of cost-benefit data and random sampling limited the validity and policy-relevance of the findings.		Health Forum)			
	To determine the organizational characteristics of needle and syringe programs that help improve effectiveness (21)	The review included 16 studies that looked at the effectiveness of various sites and settings of needle and syringe programs, as well as their policies on disbursing and returning needles. Furthermore, the effectiveness of needles and syringe programs improve when offered alongside harm reduction and opiate-substitution therapy services. Two randomized controlled trials found that needle and syringe program setting had no impact on injection risk behaviours. These studies looked at pharmacy-, hospital-, and community-based needle and syringe programs. Three studies found that mobile van services and vending machines attract younger users and users with higher risk profiles. Three studies based in the United States looked at dispensation policies. These policies tended to fall into three categories: one-for-one (where one used syringe is traded for one new syringe); one-for-one plus (where one used syringe is traded for more than one new syringe); and distributive (where clients are given the number of syringes they request irrespective of the number they return). The policies were not found to have an impact on syringe sharing, but did affect re-use. Generally, syringe re-use was lower when clients could obtain more syringes (i.e., when there were more generous limits on the number of syringes they could request). One study found that clients who attended hospital-based needle and syringe programs had better access, and more use of, healthcare services, when compared to clients using community-based needle and syringe programs.	2008	9/10 (AMSTAR rating from McMaster Health Forum)	2/16	0/16	16/16

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Evidence >> Insight >> Action

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		One randomized controlled trial found that case management for needle and syringe program clients who express interest in drug treatment improves their likelihood of entering treatment, when compared to passive referral. The reason for this difference was suspected to be the transportation to the treatment program offered to those in the case-management group. Another randomized controlled trial found no differences in drug treatment entry or retention for needle and syringe program clients who received motivational interviewing, job readiness interviewing, or a standard referral. Finally, a cohort study found that a Community Health Care Van (which provided tuberculosis and sexually transmitted infection diagnosis and treatment, as well as vaccinations) that accompanied a needle and syringe program outreach van significantly reduced emergency-room use. With respect to needle and syringe programs delivered alongside opiate substitution therapy, there were two studies that looked at methadone maintenance alongside needle and syringe programs. One study of two low-threshold methadone maintenance programs delivered by needle and syringe programs found that the number of participants injecting drugs, sharing needles, and sharing equipment declined at six months follow-up. Another study from the Netherlands looked at the "completeness" of harm reduction that participants received and their HIV and hepatitis C outcomes. Those receiving more than 60 mg of daily methadone and who obtained all their needles from needle and syringe programs were found to have a lower incidence of HIV and hepatitis C than those who received no harm reduction. However, those who received "incomplete" harm reduction (defined as a daily methadone dose of less than 60 mg or inconsistent use of needle and syringe programs) were found to have a non-significant reduction in HIV incidence and a non-significant increase in hepatitis C incidence. The authors noted that choices regarding study design may have limited the validity of some findings, but this is difficult to reconcile given the ethics of public-health interventions. Furthermore, there is insufficient evidence that included non-opiate injectors, for example steroid users. Finally, the high concentration of studies conducted in the United States may limit generalizability.					
	To identify efficacious interventions for reducing HIV risk that are based in	The review included 18 studies from the United States that were conducted from 2000 to 2004. Not all the studies targeted drug users. Four studies targeted people living with HIV. The studies' interventions involved at least one behavioural change theory or model. The most commonly used models were (in order of decreasing use)	2005	4/10 (AMSTAR rating from McMaster	0/18	2/18	2/18

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
	the United States (63)	Social Cognitive Theory, Social Learning Theory, AIDS Risk Reduction Model, Information-Motivation-Behaviour Model, and the Theory of Gender and Power. Intervention settings included research sites, community areas, healthcare and HIV/sexually transmitted disease clinics, and community-based agencies. The content of the interventions differed, but they typically included elements of technical, personal, and interpersonal skill building. Technical skills building mostly focused on using male condoms, but some interventions also addressed female condoms. Ten interventions included decision-making and problem-solving skill building. Six interventions involved some sort of stress management component. Sixteen interventions involved risk reduction goal setting and plan development. Nine interventions addressed how to manage triggers for unsafe sex, and five interventions involved some sort of group support. Most interventions were found to reduce unprotected sexual intercourse. Three interventions targeted at men who have sex with men significantly reduced unprotected anal intercourse. Eight interventions were found to increase condom use, and three interventions reduced numbers of sexual partners. Of the five interventions focused on drug users, four were able to reduce sexual risk behaviours while three were able to reduce injection-related risk behaviours.		Health Forum)			
	To assess the effectiveness of multi-session psychosocial interventions for reducing injection- and sexual-related risk behaviour (33)	The review included 35 randomized and quasi-randomized controlled trials. Twenty-eight trials compared multi-session psychosocial interventions and standard education. Five trials compared multi-session psychosocial interventions with providing a self-help booklet. Six trials compared standard education and a self-help booklet. Twelve trials incorporated participants involved in drug treatment, while the remaining 23 did not include people in drug treatment. Multi-session psychosocial interventions were defined as interventions of at least three sessions that incorporate HIV education and skills training to reduce sexual- and injection-related risk behaviours. Standard education was defined as interventions of one or two sessions with similar content to the multi-session interventions. The results from these trials did not reveal any significant differences between the effects of multi-sessions, standard education, or self-help book interventions. It is worth noting that even though a comparison of interventions did not show significant effects, all interventions did show significant effect on	2006	9/11 (AMSTAR rating from McMaster Health Forum)	0/35	0/35	11/35

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		risk behaviours in a pre-post comparison. The authors suggested that the differences between intervention and comparison groups may have been greater if there had been needs assessments prior to implementing interventions.					
	To assess the effectiveness of needle and syringe programs and opiate-substitution therapy, alone and in combination, for preventing hepatitis C acquisition (26)	The current review included 28 studies that had participants with varying degrees of injection drug use. Twenty-one studies looked at opiate-substitution therapy, while 17 studies assessed needle and syringe programs. Random-effects meta-analysis of multivariable estimates with 12 studies involving 6,361 participants showed that opiate-substitution therapy was associated with a 50% reduction in the risk of hepatitis C infection. Random-effects meta-analysis of 16 studies that presented unadjusted estimates found that current opiate-substitution therapy was associated with a 43% reduction in hepatitis C risk. Overall, there was a strong intervention effect for opiate-substitution therapy, though evidence quality was low. Meta-analysis of five studies found weak evidence that high-coverage needles and syringe programs are not associated with reduced risk of hepatitis C. However, two studies from Europe found that high-coverage needle and syringe programs are associated with a 76% reduction in hepatitis C risk. Three studies from North America found no effect of needle and syringe programs. Studies of low-coverage needle and syringe programs also found no effects on hepatitis C risk. Three studies of combined opiate-substitutions therapy and high-coverage needle and syringe programs found that this combination was associated with a 76% reduction in hepatitis C infection risk. Combined opiate-substitution therapy and low-coverage needle and syringe programs showed weaker evidence of effectiveness. The authors noted that the overall quality of the evidence was low. There were no randomized controlled trials included which further diminished assessment quality.	2015	11/11 (AMSTAR rating from McMaster Health Forum)	5/28	0/28	28/28
	To assess interventions aimed at preventing the initiation of injection drug use (20)	The current review included eight studies that assess four types of interventions: social marketing, peer-based behaviour modification, addiction treatment, and deterrent/enforcement-based interventions. One study looked at a social marketing intervention. This intervention involved the distribution and use of posters conveying messages about injection-related harm. There was a focus on targeting street youth. The study reported that the campaign penetration was high and that most participants (the criteria for a	2012	5/10 (AMSTAR rating from McMaster Health Forum)	1/8	0/8	3/8

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		participant was undefined) thought that the posters prevented young people form initiating injection. Three studies looked at peer-based behaviour modification. Two of these studies evaluated a "Break the Cycle" program; these programs engaged those who inject drugs to prevent them from exposing injection-naïve individuals to injection practices. These two studies found that people who injected drugs reported lower rates of helping others initiate injection following the intervention. The third study targeted intranasal heroin users with an intervention that included group discussions, informational materials, skill-building for avoiding injection, and AIDS education. This study found that twice as many participants in the control group, exposed only to AIDS education and HIV antibody test counselling, initiated injection within nine months, when compared to the intervention group. One study looked at addiction treatment for intranasal heroin users. This study found that access to addiction treatment can decrease the likelihood of initiating injection. Two studies found that increased legal repressiveness (more drug-related arrests, more police officers per capita) did not have an impact on injection drug use. Increased legal repressiveness was associated with increased HIV prevalence among people who inject drugs. One study from Australia found that decreased availability of heroin due to supply-reducing enforcement prevented between 2,745 and 10,560 people form initiating injection; however, this may have been offset by an increase in new injection amphetamine users.					
Enhance training and capacity of those working at points of community contact for people who inject drugs to promote risk reduction	Examining the association between housing status, medical care, and health outcomes among people with HIV (60)	This review of 152 studies explored the relationships between housing status, medical care, and health outcomes among patients with HIV. Specifically, six outcome domains were examined: 1) HIV healthcare access and utilization; 2) adherence to antiretroviral treatment; 3) HIV clinical health outcomes; 4) other health outcomes; 5) emergency department (ED) and inpatient use; and 6) HIV risk behaviours. Of the 152 included studies, 35 examined housing status and HIV healthcare access or utilization. The majority of these studies reported statistically significant associations between housing instability and not receiving appropriate HIV care.	2014	7/9 (AMSTAR rating from McMaster Health Forum)	27/152	10/152	8/152

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		Thirty articles examined housing status and antiretroviral-therapy adherence. Of these, 24 studies reported lower adherence among those facing housing instability. Of the 27 articles examining HIV-related clinical health outcomes, 20 found that unstable housing status was associated with poorer health outcomes for people living with HIV. Other health outcomes related to physical or mental health functioning and quality of life were assessed in 27 articles. Twenty-five of these studies showed that homelessness or housing instability was associated with significantly worse outcomes on one or more of these indicators. Twelve out of the 13 studies assessing acute-care services identified that HIV-infected individuals facing unstable living conditions had higher utilization rates of hospital-based emergency department or inpatient care than those with HIV who had stable housing. Finally, 18 of 22 included studies exploring housing status and sexual or drug risk behaviours detected significant associations between housing instability and risk behaviours for continued transmission of infection. Overall, this review found strong evidence for the relationship between housing insecurity and inappropriate HIV care management. However, the findings of this review should be interpreted with caution due to several methodological limitations, such as the inclusion of studies based only in high-income countries.					
	To examine the impacts of providers' HIV/AIDS training and experience on patient outcomes (40)	The review included four studies. Three studies were based on findings from an outpatient setting, while one was based on findings from an inpatient hospital setting. One study found that patients cared for by self-reported "expert generalists" and infectious disease specialists had better plasma viral RNA load control than those cared for by generalists. Providers' HIV/AIDS caseload was not found to have an impact on their patients' plasma viral RNA load control. One randomized controlled trial found that patients cared for by infectious-disease specialists, "expert generalists", and generalists all had similar rates of being on indicated opportunistic infection prophylaxis. Three studies found that patients cared for by providers with more HIV/AIDS expertise and experience were more likely to be on highly active antiretroviral therapy, and more likely to	2009	8/10 (AMSTAR rating from McMaster Health Forum)	0/4	1/4	0/4

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		receive new treatments sooner, when compared to patients treated by generalists with less HIV/AIDS experience. One study found that patients in general medicine and infectious-disease clinics had similar self-rated Health Related Quality of Life scores. Patients cared for at general medicine clinics and/or by generalists were found to have sought out more outpatient care. Furthermore, patients cared for in general medicine clinics were significantly more likely to visit an emergency room, and they had longer hospital stays, when compared with patients cared for in infectious-disease clinics.					

Appendix 2: Systematic reviews relevant to Element 2 - Enhance the infection-management capacity of community points of contacts for people who inject drugs

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
Increase the availability and accessibility of medical services for infectious diseases at common community points of contact for PWID	Synthesizing the perspectives of people living with HIV on access to healthcare (64)	This scoping review and framework synthesis included 64 articles that examined the perspectives of people living with HIV on access to healthcare. The goal of the review was to provide an evidence-based and patient-informed framework to facilitate healthcare planning decisions by policymakers. The review surveyed existing literature on the insights from people living with HIV and highlighted relevant recurring themes. The 64 articles meeting inclusion criteria presented a total of 326 different areas of concern or topics from the perspectives of people living with HIV. Four areas of concern or topics in particular were found to be reported frequently in the literature: 1) staff treatment; 2) wait times; 3) lack of financial resources; and 4) fear of disclosure of positive HIV sero-status. Among these four topics, the most frequently identified within the literature was insights on staff treatment of people living with HIV. Multiple studies identified staff members (both administrative and healthcare providers) to be "impersonal, rushed, discriminatory and/or judgmental" in the eyes of those living with HIV. Review authors connected initial concepts identified in the literature to 10 final themes that stakeholders should consider when planning for effective care of those with HIV. The final themes, with the predominant related initial concept in adjacent parentheses, were: 1) acceptability ("staff doesn't treat patients well";2) availability ("long wait times"); 3) affordability ("low resources/difficulty with payments"); 4) accessibility ("difficulty accessing transportation"); 5) other barriers ("stigma/discrimination"); 6) satisfaction ("high satisfaction"); 7) communication ("good patient-provider relationship"); 8) accommodation ("inconvenient"); 9) preferences ("specific services are wanted/needed"; and 10) equity in access ("inequity between people living with HIV and other patients"). Studies included in the review noted that large clinics may be perceived as intimidating or confusing, and that operating hours that were inconvenient, or the inability to bring children to appointments, may be a barrier to access. Further, a poor location for a treatment centre may exacerbate the barrier to access already posed by high transportation costs and difficulty accessing transportation. It was also found that people living with HIV wish to have care providers with relevant HIV-specific training.	Not reported	7/9 (AMSTAR rating from McMaster Health Forum)	4/64	2/64	1/64

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
	Assessing patient and primary care health outcomes for adults living with HIV (65)	The review examined 13 studies in order to assess patient and primary-care health outcomes for adults living with HIV across a number of care delivery models in the United States. Combination antiretroviral therapy has significantly improved the life expectancy for people living with HIV, but connecting patients to care and managing chronic disease are key challenges in care provision. In response, various HIV care delivery models have been recommended. The current review examined four types of care delivery models for people living with HIV: 1) specialty-based care; 2) advanced practitioner-based care; 3) team-based care; and 4) shared care. The results of this review suggest that specialty-based care supported improved clinical outcomes, as did greater clinician experience with HIV care. Patients were more likely to continue receiving care when their care provider was more experienced in HIV care, or when the patients were enrolled in a care coordination program. In addition, eight of the included studies found that greater clinician experience with HIV care was associated with higher rates of antiretroviral use among people living with HIV. There are significant workforce challenges posed in the management of HIV, and this review found that delivery reform is needed. Specifically, the review identified declining numbers of infectious-disease medical specialty trainees, as well as legal, logistical and policy-based difficulties specific to nurse practitioners who wish to provide care. In addition, reviewers note that persons at risk for HIV exposure are often cared for by primary care physicians, who may be more hesitant to prescribe pre-exposure prophylaxis compared to infectious-disease specialists, since doing so is outside the scope of a primary-care physician's usual practice. Primary-care physicians were also found to often be unaware of the current HIV testing recommendations provided by the Centre for Disease Control suggesting the need for greater educational outreach. Similar to the challenges primary-care physicians face with HIV-specific care, the review found that HIV specialists practising in infectious-disease clinics were less comfortable managing HIV-related comorbidities (such as depression, hypertension, diabetes and hyperlipidemia) compared to primary-care physicians. As a result, reviewers suggest that "mutual discomfort in providing care outside their respective areas of expertise suggests the need for new models of HIV care that promote collaborative arrangements between HIV specialists and primary care physicians."	2015	3/9 (AMSTAR rating from McMaster Health Forum)	0/13	0/13	5/13
	Determining the features of care that support access to	This review included 44 articles that identified features of care, including interventions, providers, care models, and programs, that facilitate access to comprehensive primary care for women living with HIV. Across the 44 studies,	2017	4/9 (AMSTAR rating	5/44	0/44	1/44

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
	comprehensive primary care for women living with HIV in high-income settings (66)	13 themes emerged, which were then categorized into three domains: care providers; clinic care environment; and social and institutional factors. The quality and types of relationships with care providers served as the most dominant theme present in the majority of the articles. Most studies focused on the nature of patient-physician relationships, attributing improved care to the quality of this relationship, the female gender of the provider which increased women's sense of safety and comfort, as well as the facilitation of comprehensive primary care by certain provider specialties (e.g., gynecologist and primary-care providers). Several articles also emphasized the essential role of case managers and nurse navigators in addressing socio-structural barriers to HIV care. Furthermore, peer advocates, peer supporters, and peer engagement in the design and delivery of services were deemed to be facilitators of HIV care by several women. Components of the clinical-care environment (e.g., organization of care, transportation to clinics, and the scheduling of appointments) were highlighted in 23 of the studies. At this level, facilitators to care, as identified by female service users, included appointment reminder systems, clinic signs, women and family spaces, transportation services, and coordination of care to meet women's HIV, comorbidity, and reproductive healthcare needs. Broader institutional and societal factors influencing access to care were discussed in 22 of the studies. Across these studies, social and institutional factors included healthcare insurance, patient and physician information and education provision, as well as eliminating HIV-related social stigma. This review presents several features of care that are important to the care experiences of women living with HIV in high-income areas. However, the authors noted several study limitations, including the challenges associated with isolating particular factors that are most effective in improving care access from multi-faceted improvement studies.		from McMaster Health Forum)			
	To identify nursing and midwifery policy, staffing, education and training interventions, collaborative efforts, and strategies that have	This review included 36 papers identified through a systematic review. A majority of the included papers focused on high-income countries (25 papers) and on nursing settings (32 papers) rather than midwifery, however, among included papers four were focused on midwife-led interventions and their subsequent outcomes. Identified midwifery interventions were antenatal, intrapartum, and postnatal, though findings were limited. Eleven papers examined leadership and governance approaches. These studies identified policies at both the national and state levels aimed at increasing both	2015	5/9 (AMSTAR rating from McMaster Health Forum)	4/36	4/36	2/36

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
	supported nurses and midwives in reducing healthcare disparities at the primary-healthcare level (37)	the supply and scope of practice of nurses and midwives. Special attention was paid to the success of initiatives in Canada championed by government and the Canadian Nurses Association to better involve nurse practitioners in the provision of healthcare. In the context of HIV, authors identified efforts by the Ministry of Health in Rwanda to delegate particular HIV-related tasks to optimize nurse performance while experiencing chronic workforce shortages. Two papers noted that collaboration across the public health sector was essential for ensuring that efforts to deliver nurse-led HIV care were coordinated and well supported. In England, it was found that "strong leadership" on the part of the Public Health Nurse Facilitator was an essential factor in increasing the amount of nursing care to marginalized areas, and in New Zealand, nurse-led clinics that were supported and funded by government resulted in significant reductions in eczema severity in children, a decreased number of child hospitalizations, and a large reduction in the amount of antibiotics being used by families of low socio-economic status. In 27 of the included papers, suggestions were made related to human resource strategies that facilitated greater roles for nurses and midwives. Many of the identified human resource management strategies discussed task shifting or sharing. In one study, administrative work, counselling, and care that did not necessitate the skills of a nurse (e.g., dressings) were shifted to other staff members such as health support workers and counsellors. The review also found specific tasks undertaken by nurses and midwives that were associated with improved outcomes for marginalized or vulnerable populations. Among the most frequently noted of these tasks were taking patient histories, surveillance of physical signs and symptoms, performing diagnostic tests, infection control, cleaning wounds, screening for side effects, prescribing medication, assessing social issues, screening new patients, patient education/counselling, and creating contracts with patients to manage relevant health issues. One paper noted that assigning nurses to roles that were narrowly-defined was associated with nurses "feeling ambivalent" about their involvement. Conversely, one study found that the adoption of a community health team focusing on vulnerable populations was viewed as "additional work" by participating nurses, raising concerns about financial compensation. Burnout in nurses working extensively with vulnerable groups was also discussed. Scheduled rotations away from the vulnerable group, the presence of management at weekly handover meetings, and a combination of one-to-one and group supervision were identified as means to combat burnout.					

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		Authors concluded that nursing and midwifery initiatives were fruitful for vulnerable groups (including PWID) and that substantial long-term investment in these initiatives were associated with success.					
	To identify HIV risk-reduction interventions for adults in incarceration and community settings (29)	This systematic review included 67 papers reporting on 37 separate trials examining outcomes in risk-reduction interventions for adults who have been involved with the criminal justice system. Between the 37 included trials, 12,629 participants were included. Of the interventions, 27 involved psychosocial treatment, seven included pharmacologic opioid-substitution therapy, and three were HIV-screening programs. Results were promising for some, but not all, of the trials.

None of the included studies that analyzed HIV-infection outcomes found that the intervention was associated with decreases in HIV infection at short term follow-up (no medium- or long-term follow-up was pursued). Similarly, none of the interventions were associated with decreases in sexually-transmitted infection rates at short-, medium-, or long-term follow-up.

Three of the interventions were found to reduce injection drug use (out of 17 studies that reported IDU incidence or frequency). Two of the successful interventions included multimodal therapy in a population of incarcerated men. Another intervention found that those who took part in six months of case management after they had been arrested were less likely to self-report injection drug use at short-term follow-up compared to a control group who had viewed an educational video, and a control group who had viewed an educational video and received one counselling session. However the benefit was not present upon medium-term follow-up.

Of six interventions that were aimed at increasing HIV testing, four were found to have a significant benefit at short-term follow-up. These interventions included on-site testing at probation offices, offering immediate or next-day testing for men upon entering jail (compared to offering one-week postponed testing), and offering next-day testing to women upon entering jail (compared to offering immediate or one-week postponed testing). | 2014 | 10/10 (AMSTAR rating from McMaster Health Forum) | 0/37 | 0/37 | 17/37 |
| Enhance coordination of care and links to additional treatment | Understanding the barriers and facilitators to implementation of a chronic-care model (44) | The review examined 38 articles in order to understand the barriers and facilitators to chronic-care model implementation in primary care, according to healthcare providers.

The chronic-care models included in this review had to include at least two of eight elements. The first four elements were geared towards patient needs: 1) facilitation of community support; 2) facilitation of informal family support; 3) | 2013 | 5/10 (AMSTAR rating from McMaster Health Forum) | Not reported in detail | Not reported | Not reported |

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
through 'hubs' located in common community contact points for PWID		enhancement of health professional case management; and 4) self-management support. The remaining elements were geared towards provider needs: 5) organizational change; 6) delivery system design; 7) decision support; and 8) clinical information systems. Four synthesized findings emerged from this review of the literature. First, the acceptability of chronic-care model interventions was found to be largely reported from the view of the healthcare provider. The helpfulness of the model and positive impact on patient health were cited as facilitators to implementation. Studies examining patient perspectives found that chronic-care models were acceptable. However, response was mixed with one study reporting patient empowerment, but also inefficiencies. Second, factors preparing healthcare providers for a chronic-care model included sufficient information delivery, skilled and experienced staff, and the support of strong leaders and champions. Third, this review identified a range of factors that influenced patient engagement with chronic-care models. These factors included patient support, information dissemination, and acknowledgment of patient differences. Last, resources for implementation and sustainability were found to include time and effort, information and communication systems, and funding. Ongoing quality improvement was key to the sustainability of chronic-care models. This review found that the acceptability of chronic-care models to both providers and patients was an important factor for success. Factors such as preparing providers for change, providing support for patients, providing appropriate resources and engaging stakeholders are all key factors in implementing the model.					
	Evaluating patient-navigator programs in people with a broad range of chronic illnesses (67)	This review examined 67 studies that summarized the evidence for patient-navigator programs compared to usual care for patients with any one of a defined set of chronic diseases. In terms of intervention characteristics, most navigator programs employed lay persons trained for the role. The main method of communication was by phone. Patient navigators were responsible for a wide range of activities, including care facilitation and appointment scheduling. Furthermore, navigators also helped to address patient barriers by influencing patient attitudes and beliefs, providing appointment reminders, offering health literacy support and delivering practical assistance. Many studies also reported employing patient navigators who identified with the patient population in terms of ethnicity, or who practised culturally tailored education and communication approaches. The frequency of	2017	7/10 (AMSTAR rating from McMaster Health Forum)	3/67	0/67	0/67

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		contact between navigators and patients varied widely from only one contact to 'as needed' throughout the study period. Primary outcomes were most commonly process measures, which included completion of disease screening and adherence to follow-up procedures. Of the 67 studies identified in this review, 45 showed a statistically significant improvement in one or more primary outcomes. The results of this review did not identify an association between any program characteristics and the detection of a statistically significant improvement in a primary outcome. Secondary outcomes more frequently included patient-reported outcomes such as physical and mental health status, quality of life, and psychological distress. In terms of secondary outcomes, no studies demonstrated a negative impact from the patient navigator intervention. The findings from this review suggested that patient-navigator programs may improve care processes. However, the authors acknowledged the presence of several study limitations, including the inclusion of heterogeneous intervention designs and reported outcomes.					
	Evaluating the state of knowledge for integrating the social determinants of health into comprehensive shared-care plans (68)	This review included seven studies that evaluated the current state of knowledge for the integration of social factors into comprehensive shared-care plans. The following key themes emerged from the evaluation: 1) integrating health and social sectors; 2) interoperability; 3) standardizing ontologies and interventions; 4) process implementation; 5) professional tribalism; and 6) patient centredness. For example, in 1996, a meeting was convened with national leaders from several countries across the European Union to reach a consensus for the development of a model for the integration of health and social care needs to promote aging in place. From this meeting, it was suggested that care planning be patient centred and supported by health information systems that facilitate the collection and dissemination of social-status information. Similar consensus-building meetings of interdisciplinary leaders were convened across Europe from 2011 to 2015, which highlighted using informatics to support health and social-care integration. The stakeholders also highlighted that this integration necessitates identifying needs for information exchange, standardizing ontologies and standards, improving information access, and empowering citizens. One study identified interprofessional communication as a potential barrier to collaboration due to professional tribalism. Other barriers that emerged from this study's findings included organizational structures and geographical distance, uncertainty about knowledge and different value systems, and respecting other people's unique knowledge and experiences.	2016	4/9 (AMSTAR rating from McMaster Health Forum)	1/7	0/7	0/7

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		Finally, several studies recommended placing the care recipient at the centre of planning to facilitate effective interprofessional communication and social factor integration. The findings of this study highlight that care transitions can be complicated by chronic comorbidities, low socio-economic standing, and aging processes, which supports the importance of integrating the social context into comprehensive shared-care plans. However, this study also illustrates the fact that the current state of knowledge of incorporating the social determinants of health into these care plans are still emerging.					
	Synthesizing evidence on linkage to care interventions for people living with HIV (69)	This review included 25 articles that described linkage to care interventions for individuals living with HIV. From these studies, five intervention-specific themes and seven major cross-cutting themes were identified. In terms of intervention-specific themes, several key findings were noted. Task-shifting was identified as effective in increasing linkage to care among people living with HIV in four studies. Furthermore, three studies highlighted community-based mobile outreach testing and linkage programs as facilitators of linkage to care. Two studies examined interventions targeting integration of HIV-specific and primary medical care. These studies found that the integration of HIV care into primary health services was acceptable and feasible to people living with HIV and care providers. In addition, two studies demonstrated that provider-initiated testing, counselling, and linkage facilitated linkage to care for people living with HIV. However, these studies also highlighted challenges that prevented the scaling up of interventions beyond individual settings. Finally, providing cessation support for people living with HIV who use drugs was a necessary precursor before effective linkage to care implementation. In addition to intervention-specific themes, seven major cross-cutting themes were identified. Ten studies reported on providers' experiences with linkage to care interventions, which yielded diverse provider feedback for intervention implementation, facilitators and barriers. Furthermore, five studies suggested that the confidentiality concerns of people living with HIV negatively influenced the effectiveness of linkage interventions. The theme of active referral systems was reported in 12 studies. These studies showed that active referral processes were effective in linking people living with HIV into the care pathway, with active referrals being favoured over non-active or no referrals. Eight studies reported that case management and support teams for coordinating linkage to services facilitated efficient linkage. Moreover, nine studies emphasized that persistent	2015	7/9 (AMSTAR rating from Program in Policy Decision-making)	1/25	1/25	3/25

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		problems present before and after linkage interventions, which in turn impaired linkage to care programs. Ten studies examined the importance of receiving support from family members, friends, and peers from the local community as enabling interventions, by prompting people living with HIV to enrol in HIV-specific services. Lastly, the importance of positive interactions with health workers and case managers was highlighted in 12 studies. In these papers, it was found that healthcare providers and other support workers improved linkage interventions. Overall, this review found that certain community and individual level factors may improve the effectiveness of HIV linkage to care initiatives. However, several limitations, including the exclusive inclusion of cross-sectional data which may have introduced recall bias, should be considered when interpreting the findings of this paper.					
	Examining different financial mechanisms to facilitate inter-sectoral collaboration for health promotion (70)	Collaboration between sectors such as health, social welfare, education and labour can influence the social determinants of health. This review identified 51 documents that described the use of different financial mechanisms to facilitate inter-sectoral collaboration for health promotion. Three major financial mechanisms that support inter-sectoral collaborative health-promotion activities emerged from this review: dedicated earmarked funding; delegated financing; and joint budgeting. Dedicated earmarked funds were provided and controlled by one ministry or agency in charge of health at the national level. At a local level, funds are typically under the control of regional or municipal administrations. Increased flexibility in funds earmarked for inter-sectoral collaboration can maximize opportunities for collective action. Delegated financing involves allocating funding to an independent statutory organization such as a health-promotion agency or organization. Funds can be administered to this agency from several different sources in addition to health budgets. This form of financing also signals the decentralization of power to prioritize initiatives away from the government. However, the degree to which delegated financing can support inter-sectoral collaboration depends on the amount of flexibility in funding use. Finally, joint budgeting is an approach to funding inter-sectoral activity in which two or more sectors share their resources to address a particular health-promotion problem. Joint budgets can also improve mutual understanding across different sectors and support flexibility in how funds are distributed. However, one key challenge is sustaining the partnerships emerging from these joint budgets.	2016	3/9 (AMSTAR rating from McMaster Health Forum)	4/51	0/51	0/51

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		This paper outlined the main financing mechanisms that have been employed to support inter-sectoral health-promotion activities. However, the authors noted several review limitations, including the absence of any evaluations of the equity implications of various financing mechanisms.					
	Identifying different concepts and frameworks to characterize inter-sectoral processes (71)	This review included papers that explored different concepts and frameworks to describe inter-sectoral processes. Conceptual definitions were proposed for four key terms: 1) inter-sectoral action; 2) inter-sectoral action for health; 3) inter-sectoral collaboration; and 4) inter-sectoral policy. Conceptual frameworks for inter-sectoral processes were also reviewed for potential use. Fifteen references provided a definition of the term 'inter-sectoral action'. The majority of the definitions characterized inter-sectoral action as a process, a practice, a collaboration, a coordination, or an interaction. Interestingly, only one of the definitions highlights the importance of the conditions and leadership skills required to achieve inter-sectoral action. Due to the heterogeneous nature of the examined definitions, the authors devised a unified definition: Working with more than one sector to address an issue of shared interest to achieve better results than those obtained working independently. Fourteen references provided a definition of the term 'inter-sectoral action for health'. The following definition was presented most frequently: An established relationship between components of the health sector and components of another sector that has been formed to address a health issue, in a way which is more advantageous than single-sector action. Eleven different references reported a definition of the term 'inter-sectoral collaboration'. Across the literature, however, the term 'inter-sectoral action for health' seemed to be used interchangeably with 'inter-sectoral collaboration'. Thus, the authors proposed their own definition building on a concept analysis approach: Working with more than one sector of society to take action on an area of mutual interest to achieve better results than those realized working independently. With respect to 'inter-sectoral policy', only one definition was identified: Policies concerning health that affect sectors external to health services, but typically developed in collaboration with the health sector. No comprehensive conceptual frameworks emerged from the included articles.	2011	3/9 (AMSTAR rating from McMaster Health Forum)	Not reported	0/9	0/9

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		Overall, this project gleaned several key definitions to be used for the terms: 'inter-sectoral action', 'inter-sectoral action for health', 'inter-sectoral collaboration', and 'inter-sectoral policy'. However, the authors noted the absence of a comprehensive, conceptual model for inter-sectoral processes.					
	Identifying and describing global cases of inter-sectoral action for health equity featuring a central role for governments (72)	This scoping review included 128 articles that examined global cases of inter-sectoral action for health equity involving governments.	2010	4/9 (AMSTAR rating from McMaster Health Forum)	Not reported	0/9	0/9
		The findings of this review suggested that inter-sectoral action was frequently implemented with cooperation and/or coordination occurring between different government sectors. The majority of the included case articles also highlighted some description of why government sectors reached decisions about the initiation and/or implementation of inter-sectoral action.					
		Fewer than a quarter of the case articles described government-centred inter-sectoral activities addressing upstream determinants of health. However, the majority appeared to focus on midstream factors such as health behaviours or life circumstances, and/or downstream determinants including service accessibility issues.					
		Over half of the case articles described some form of evaluation in response to inter-sectoral initiatives. However, less than half of the included case articles described the use of specific tools, such as Health Impact Assessment tools, for the purpose of impact assessment in implementing inter-sectoral initiatives which address health inequities.					
		In general, a high proportion of case studies did not report enough information to confirm the period of initiation of various initiatives, the involvement of non-governmental sectors, whether evaluations were performed, and processes of inter-sectoral collaboration. Thus, improvements in such reporting in future publications are needed.					
	Examine policies and programs that provide out-of-facility health services to marginalized young people at risk for HIV and reproductive	The systematic review included 20 studies, of which 10 presented comparative data. The aim of the review was to identify strategies to reach young people with out-of-facility HIV-related and other sexual health services. Results were mixed and tended to vary depending on the study's setting and the modality of out-of-facility treatment.	2010	8/10 (AMSTAR rating from McMaster Health Forum)	1/20	2/20	0/20
		One study examined the addition of reproductive health services to the basket of services provided by a youth centre (including vocation, educational, and recreational activities) in an urban Mexican setting, and found that in combination with community outreach (including health education), the initiative led to a					

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
	health-related problems (73)	significant increase in contraceptive usage. A state-wide initiative in Louisiana that focused on high-risk neighbourhoods (including those with large proportions of PWID) used street outreach staff to provide condoms and distribute health education messages. Subsequent analysis found that people in the neighbourhoods with the intervention were 37% more likely to have used a condom upon last sexual intercourse. Mail-based strategies were found to be effective by reviewers, who cited the success of mail-based chlamydia and gonorrhea screening programs in Denmark and the Netherlands. The mail-based interventions were more frequently utilized when a screening kit was sent directly to a young adult, rather than when an invitation to request a kit was sent to a young adult. In Rotterdam, roughly 40% of youth who received a screening kit used it, and among those who tested positive for chlamydia or gonorrhea, a treatment rate of 91% was achieved. Pharmacy-based sexually transmitted infection screening programs were met with challenges. Only 25% of pharmacists in Manchester elected to offer chlamydia screening kits to young women (to be mailed to a laboratory), compared to 73% of pharmacists in Amsterdam. In addition, only 8% of women in Manchester and 21% of women in Amsterdam who were offered the kits elected to take one and successfully return-mailed the kit.					
	Examine strategies to improve retention in HIV primary care (54)	This review examined 13 papers in addition to three conference presentations with the goal of identifying evidence-informed retention strategies for HIV primary care. Authors found that keeping people living with HIV in primary care is a national priority in the U.S., given that many HIV-diagnosed persons struggle with consistently receiving primary care, or fall out of care entirely. However there is a paucity of evidence on the subject. Ten of the 13 included studies found some amount of benefit in primary-care retention from an intervention compared when to control. Of these, the strongest evidence is provided by the Antiretroviral Treatment and Access Study. The intervention utilized a strengths-based case management program. Authors described the intervention as encouraging clients to "use their own internal abilities to access resources and solve problems," and found that 64% of participants in the intervention group had continued care visits compared to 49% of participants who received only a passive referral. Various other strategies for primary-care retention among people with HIV were supported by studies in the review, though these studies were often methodologically weak. Evidence was found to suggest that case management,	2012	5/10 (AMSTAR rating from McMaster Health Forum)	0/16	1/16	1/16

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		appointment coordination, outreach, co-location of medical and social services, posters/brochures explaining importance of continued care, peer navigation (and including peers as part of the healthcare team), and having clinics stay in more frequent contact with patients were all effective ways to increase primary-care retention among people with HIV.					
	Identify "best practices" in HIV care (47)	This systematic review included eight publications focused on "best practices" in relation to HIV care. Authors note the limitations of their findings due to the arbitrary use of the term best practices in the literature, and inconsistencies in reporting across the included studies. The review found that there were two prevalent themes among the included studies: the importance of connecting those with a newly-received HIV diagnosis to care; and the benefit of providing comprehensive and integrated services to people living with HIV. Authors highlighted the importance of timely linkage to care upon receiving an HIV diagnosis. Included studies found that receiving an HIV diagnosis is a destabilizing event, and can be associated with significant rejection, trauma and stigma. As a result, best practices for HIV care not only included a timely connection to care following diagnosis, but also the provision of social care (e.g., food, employment, housing, finances) as a way of ensuring stability that will allow for continued treatment. The components of comprehensive care that authors identified included harm-reduction services, mental healthcare, and addiction treatment. One program examined combined integrated HIV-relevant medical and social services in one location to target hard-to-reach people with HIV (including those with mental health/addictions issues and those who were homeless). Positive outcomes were obtained: wait times were reduced, and HIV treatment compliance and program efficiency increased. There was success in reducing addictions issues through this program. Among patients who used substances, 37% were substance-free at six-month follow-up. The provision of social care also reaped benefits, with 60% of people who entered the program unemployed finding a job within six months of treatment in the program.	2013	7/9 (AMSTAR rating from McMaster Health Forum)	0/8	1/8	0/8
	Identify key themes and strategies in collaboration between primary care and public health (50)	This scoping literature review included 114 articles focusing on collaboration between primary care and public health. Authors note that effective collaboration between public health and primary care can facilitate better population- and individual-level services than either public health or primary care could provide alone. The review identified multiple system-level factors that can have an effect on collaboration between public health and primary care. These factors included	2008	4/9 (AMSTAR rating from McMaster Health Forum)	Not reported	Not reported	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		education and training, government involvement, funding and other resource factors, policy/amount of fit with local needs, and issues surrounding control and authority. In the U.K. and Canada particularly, it was found that government-issued mandates for the formation of teams and partnerships across primary care and public health were important factors in potentiating collaboration. Similarly, the review found that endorsement and coordination of this collaboration by different levels of government was a key facilitator. The review also identified multiple organizational and interpersonal factors that affect collaboration between public health and primary care. Generally, effective collaboration was associated with organizational support and resources, whereas competing/dominating agendas or lack of a common vision were barriers to collaboration. Other relevant organizational and interpersonal factors that were identified included knowledge/resource limitations, geographic proximity of organizational partners, information sharing, shared purpose/philosophy/beliefs, effective decision-making strategies, and clear roles. Authors conclude that collaboration across public health and primary care can have multiple benefits, including in the management of chronic and communicable disease, however care must be taken to avoid negative impacts. Authors found risks to collaboration such as spreading public-health resources too thinly, and potential demoralization when incentives for health promotion conflict with professional philosophies.					

Appendix 3: Systematic reviews relevant to Element 3 - Strengthen patient-centred treatment in specialty/acute-care settings

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
Provide comprehensive and integrated approaches to treatment for infectious diseases and addiction	Evaluating programs or services that seek to integrate HIV and mental health services in adult populations (74)	This review included 45 studies that described and evaluated programs and services seeking to integrate HIV and mental health services in adult populations. One integration program was identified at the macro-level. Three models of integration were identified at the meso- and micro-levels: single-facility integration, multi-facility integration, and integrated care coordinated by a non-physician case manager. Of the 45 papers, only two described macro-level integration. Both of these articles summarized the Indiana Integration of Care Project, a project that integrated mental health services with Indiana's HIV and AIDS service delivery system. One of these papers included an analysis of the linkages between community mental health providers and primary care and HIV providers. The other study aimed to examine the effect of mental health centre staff turnover on HIV and AIDS service-delivery integration. The latter study showed that staff turnover rates did not negatively affect integration, except when HIV was integrated within the mental health system itself. Two integration models were identified from 31 papers describing interventions in which integration occurred both at the meso- and micro-levels: integration in a single-facility and integration across multiple facilities. Single-site integration enhances interdisciplinary collaboration and decreases access barriers for patients. However, the practicality of providing comprehensive care for patients with complex needs is debatable. Furthermore, the collaborative network of specialized centres that emerges from multi-facility integration may support those with multiple comorbid conditions, but fragmented and uncoordinated care can pose additional barriers. Twelve papers described interventions that integrated services only at the micro-level by using case managers. Integrated care coordinated by an individual case manager can support continuity of care for patients, but warrants specialized training and support for case managers. The findings of this review identified several promising integration models involving HIV and mental health services. However, the authors acknowledged a need for higher quality evaluative studies, particularly in low- and middle-income countries with high HIV and AIDS burden.	2015	8/9 (AMSTAR rating from McMaster Health Forum)	1/45	Not reported	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
	Assessing the impact of psychosocial group interventions on psychological well-being of adults living with HIV/AIDS (75)	The review examined 19 articles in order to assess the impact of psychosocial group interventions on psychological well-being among adults living with HIV/AIDS. A diagnosis of HIV has significant psychological effects. Psychosocial group interventions aim to improve psychological well-being among patients. The primary outcome of interest in the current review was improved psychological well-being of people living with HIV, as measured by decreases in depression scores. Secondary outcomes of interest were measures of anxiety, stress and coping. This review found that group-based psychosocial interventions that were based on cognitive-behavioural therapy reduced depression scores. This effect was seen up to 15 months post-intervention. There was no clear evidence on the effect of the interventions on the secondary outcomes of interest (anxiety, stress and coping). Overall, this review found that group psychosocial interventions have a positive impact on depression scores among adults living with HIV/AIDS. However, more than half of the included trials had participant baseline scores that fell within the normal range, meaning that these participants were not depressed. As such, the observed effect was small and future trials should include people with signs of depression, stress or poor coping at baseline.	2016	10/11 (AMSTAR rating from McMaster Health Forum)	1/19	1/19	0/19
Develop and implement innovative approaches to coordinate follow-up care in the community to retain PWID in the care they need to provide optimal treatment for infectious diseases	Evaluating the linking and retaining of patients with HIV to care (76)	The review examined 69 articles in order to evaluate the linkage and retainment of patients in HIV care. The ability to link and retain patients in HIV care is crucial for treatment efficacy and reduction of transmission. In order to carry out effective care, barriers and facilitators to engagement must be understood. Findings from this meta-synthesis explored the complex constellation of elements that affect a patient's relationship with the community and healthcare system. In order to illustrate this complexity, the review presented the factors through an adaptation of the Theory of Triadic Influence which breaks care engagement into three streams: intrapersonal stream; social stream; and cultural-attitudinal stream. The intrapersonal stream encapsulates individual traits that affect one's efficacy to perform a behaviour. This review found that an individual's psychological state upon HIV diagnosis was an important factor in care engagement. Shame, shock, issues with self-esteem, uncertainty, fear, stigma and mental fatigue all contributed to care disengagement. Informational challenges, such as unfamiliarity with transmission and diagnosis, presented a barrier to care.	2013	3/9 (AMSTAR rating from McMaster Health Forum)	Not reported	Not reported	Not reported

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Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		Patient education was a significant facilitator to care, and post-test counselling and ongoing education accommodated patients' psychological reactions and supported HIV literacy. The social stream encompasses the social surroundings of a patient. Collaborative partnership between providers and patients resulted in supportive care and treatment, while condescending attitudes had a negative impact on patient trust and experience. The reaction of family and friends to a patient's HIV diagnosis was found to have an impact on linkage and retention in care, with supportive networks encouraging engagement through means such as financial support, transportation, and psychological support. Negative reactions impeded connection to care. Challenges were reported most often by women who were at risk of spousal and family rejection. Experiences with stigma in the past resulted in difficulty seeking care. Finally, the cultural-attitudinal stream refers to broader elements that influence behaviour through engrained mechanisms, such as policy. Life demands, such as family commitments and work, presented significant barriers to care. Experiences with the healthcare system had an impact on engagement, and linkage to care was more successful when mediated by an engaged professional. The location and hours of clinics was an important factor for care engagement, as travel far from home posed significant barriers. Other structural factors such as community beliefs in health and threats to safety posed significant challenges. The findings of the review have implications on a number of levels. Patient-focused recommendations include psychological counselling, active referrals and case management, stigma management, and exploration of gender and power inequities among patients. Provider-focused recommendations focus on the success of providers who are caring, trustworthy, competent, encouraging and collaborative. Poor patient-provider relationships had a negative impact on treatment linkage and retention and may be addressed through education. Providers must also demonstrate cultural competency and explore patient beliefs and values. Finally, system-level recommendations focus on education, structural support, streamlined clinical operations, alternative care sites, and an increased number of healthcare providers.					
	Assessing strategies for promoting retention in HIV primary care (77)	The review examined 13 studies in order to assess strategies for promoting retention in HIV primary care. This review found that successful interventions focused on engaging and retaining patients, rather than targeting multiple broader issues. However, using	2012	5/10 (AMSTAR rating from McMaster Health Forum)	0/13	2/13	1/13

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		multiple intervention strategies within a study was found to be necessary to address barriers to care. Interventions that build on patient strengths and assist with care navigation were beneficial in retainment. Reducing barriers through appointment accompaniment, transportation support, outreach, and culturally competent care reduced barriers in interventions. These strategies assist patients who have more than one diagnosis and/or are highly marginalized. Sending appointment reminders and involving peers as advocates and workers on a person's care team were crucial components to care retention. This review also identified room for improvement among existing intervention strategies. For example, most strategies targeted individuals. Structural and system-level barriers must be understood to improve care. Few interventions were implemented in non-medical settings, which may play a significant role in connecting and retaining patients in care. Finally, this review found a lack of interventions that addressed providers and significant others of the patient. This review identified a number of strategies contributing to the retainment of patients in HIV care. Future studies should examine the development of interventions that are specifically focused on retention, and that address multi-level factors.					
	Determining aspects of healthcare that are valued by people living with HIV (78)	The review examined 23 studies in order to determine the aspects of healthcare that are valued by people living with HIV. In examining the aspects of care that are valued by patients, seven themes emerged: 1) relationships with providers of care; 2) provider expertise; 3) practical considerations; 4) support and information; 5) coordination of services; 6) confidentiality/stigma; and 7) patient involvement in decisions about treatment. Nineteen studies included in the review reported value in the relationship between patients and healthcare providers. Important factors included professionalism, emotional support, empathy, understanding and enabling of patient discussion. Trust was a key factor in the development of positive relationships, and care, compassion, support and respect were among the valued qualities of healthcare providers in this context. The expertise of providers was valued by patients, including specialist knowledge, knowledge of prevention, and knowledge of current treatment.	2015	7/9 (AMSTAR rating from McMaster Health Forum)	3/23	1/23	1/23

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		Primary-care physicians were perceived as having insufficient expertise, and this review found that HIV training should be given to primary-care physicians in rural settings to counter stigma and isolation. Easy access to healthcare services was important, as patients valued the ability to contact care reliably. Being able to make an appointment and travel with ease, as well as have enough time to discuss with providers, were important factors in service access. The ease and clarity of information dissemination was important to patients, and understanding provider instructions was associated with satisfaction. Having enough time to discuss as well as having additional support, such as in financial planning and informal support, were valued by patients. Patients reported fragmented care between primary providers, HIV clinics and other hospital departments, highlighting the importance of communication between services. While the sharing of health information was viewed as important by patients, there were also concerns about the security of this system – sometimes stemming from a fear about employers learning of a person's HIV status. Confidentiality was a concern of patients, and fear of disclosure was found to play a major role in the decision not to access care. HIV-related stigma was a significant issue for patients when new technology was introduced. Six studies demonstrated the importance of involving patients in care decisions. Greater satisfaction resulted from involvement, which included collaborating and partnering with healthcare providers. Having been diagnosed with HIV for longer was associated with a greater feeling of empowerment and control, compared to people who had received a more recent diagnosis. The review highlights aspects of care that are valued by persons living with HIV. These values should be incorporated into interventions and services to enhance outcomes.					
	Examining health supports needed for homeless persons transitioning from hospitals. (16)	Thirteen articles were included in the scoping review. The insufficient discharge coordination between the hospital and other shelter settings has resulted in unnecessarily delayed care. To better support the transitioning of homeless people from hospitals, several health supports were identified: 1) a respectful and understanding approach to care; 2) housing assessments; 3) communication/coordination/navigation; 4) supports for after-care; 5) complex	2017	7/10 (AMSTAR rating from McMaster Health Forum)	2/13	12/13	0/13

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		medical care and medication management; and 6) basic needs and transportation. The literature identified various healthcare barriers, including a lack of training in strengthening cultural competence and the understanding of trauma-informed care among providers. A lack of access to specialty health services and affordable or appropriate accommodation/step-down care further resulted in a lack of comprehensive resources for discharge. Individualized and low-barrier services (e.g., long-term services showing "rapid results") and multi-service agencies that provide integrated case management and mental health care were offered as possible solutions. In one municipality, short-term treatment with a longer-term follow-up care was cited to be successful. Additionally, stable housing conditions were critical in promoting follow-up. A collaborative, integrated network of service providers was recommended to coordinate the healthcare and shelter/housing sectors, while housing assessments were suggested to take place at both intake and discharge due to the change in patients' status while at the hospital. The implementation of a weekly nurse visit to shelters has been supported as a method to assist with medication management (typically lost, stolen, or unaffordable) and other broader supports.					
	Examining patient and provider experiences and perspectives on linkage and retention in HIV care (55)	The review included 287 articles. Out of that, 69 studies focused on linkage and retention in HIV care. Major influences on barriers and facilitators of HIV linkage and retention were categorized through the Triadic Streams of Influence Framework: intrapersonal stream (psychological state of an individual and their access to knowledge); social stream (one-on-one interactions with providers and immediate community); and cultural-attitudinal stream (structural barriers). A distinct psychological impediment to care retention was the mental fatigue found within those with a long history of diagnosis. As indicated by patient and provider reports, feelings of improvement and lack of HIV symptoms resulted in the decreased attendance to medical appointments and thus care disengagement. Misinformation and unfamiliarity with clinics further prevented care-seeking responses. Patient education, through extended post-test counselling, was dramatically linked to care.	2013	3/9 (AMSTAR rating from McMaster Health Forum)	0/69	Not reported	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		The ability of providers to establish rapport and collaborative partnerships encouraged care engagement. Structural factors, such as active referrals and case management were found to be positively linked to patient retention. The linkage was more successful in cases when patients had someone, such as testing counsellors, peer navigators, or healthcare staff, to actively assist with the initial clinic appointments. Additionally, case managers, who work with patients to prioritize their needs and introduce available resources, were strong facilitators to linkage and retention. Other factors, including clinical hours, location, and long queues also had implications for care engagement. The study recommended the shift of attention and resources to a structural level from individual-level factors.					
	Examining the facilitators of hepatitis C treatment adherence among people who inject drugs (52)	Ten studies were included in this systematic qualitative review to examine factors of hepatitis C virus (HCV) treatment adherence among people who inject drugs (PWID). From the study, three overarching themes for patient adherence emerged: 1) logistical support for patients; 2) positive interactions with support staff; and 3) understanding the drug-user identity. Logistical support: The consideration of financial and medical needs, both within and outside the healthcare system, was cited to be of high importance when ensuring high levels of adherence. Outside the healthcare system, supports such as job assistance and transportation services were identified to be critical aspects of ensuring the attendance of patients at appointments. For homeless patients, access to shelter services and long-term housing was proposed as a solution to the identified barrier of treatment retention. Within the healthcare system, flexible clinic hours and accessible, well-trained, non-judgmental phlebotomists were seen to be beneficial, especially for patients with ongoing substance use. Positive interactions with support system: Many studies identified the significant relationship between patients' perception of their support systems and treatment adherence. People who inject drugs preferred clinical staff familiar with the population over general staff, as they were seen to be more compassionate and approachable. The ability of sharing the experience with other people who inject drugs, through support groups, counselling sessions, and family support, was found to promote knowledge which was associated with a higher retention rate.	2015	5/9 (AMSTAR rating from McMaster Health Forum)	0/10	0/10	4/10

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		Understanding drug-user identity: Patients commonly reported their main priority as avoiding relapse, followed by maintenance of HCV treatment as the secondary aim. The HCV treatment itself has often been identified as a "trigger", with side effects resembling opioid withdrawal and the addicting act of injecting interferon. The use of alternative treatment delivery methods and medications, such as cannabis, to minimize withdrawal symptoms, were mentioned as facilitators to treatment adherence.					
	Examining facilitators and barriers in HIV linkage to care interventions (39)	Twenty-five studies were included in this review to examine linkage interventions for people living with HIV. The facilitators of linkage to care interventions were categorized into community- and individual-level factors. The study identified some key barriers that have an impact on linkage for people living with HIV, including the perceived inability of providers to maintain confidentiality, difficulty navigating appointments across disparate facilities, and limited access to resources. Task-shifting, mobile outreach, integrated HIV, and primary-care services were highlighted as facilitators. Task-shifting, the process of relocating tasks to health workers with 'shorter training and fewer qualifications', was found to increase the range of responsibilities of community health workers and HIV knowledge in the community, reducing HIV-related stigma. However, elaborate and clear administrative plans must be implemented for task-shifting to be effective. The intervention of community-based outreach, consisting of home-based and workplace-based voluntary testing and intervention, was reported to decrease the travel barriers that often hinder prompt care. Mobile outreach services helped to reduce the stigma associated with HIV services. Additionally, findings indicate the feasibility and acceptance of integrating HIV-specific care into primary care services.	2015	7/9 (AMSTAR rating from McMaster Health Forum)	3/25	0/25	0/25
Provide health providers and staff at hospitals with training in how best to provide care to a highly marginalized and stigmatized group	Examining inclusion health: effective interventions for marginalized and excluded populations (35)	Seventy-seven studies were included in this review to examine inclusion health, an approach addressing health and social inequalities and effective interventions for marginalized and excluded populations, such as the homeless. Individuals with substance-use disorders, dual diagnosis (mental illness and substance-use disorders), and infectious disease experience a number of barriers to treatment engagement and adherence. For the homeless population, material incentives were found to be effective in generating short-term adherence. Additionally, case management, consisting of assessment, planning, linking health and social services, monitoring, and advocacy, was associated with	2015	5/10 (AMSTAR rating from McMaster Health Forum)	11/77	15/77	Not reported

Sub-element	Focus of systematic review	Key findings	Year of last search	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada	Proportion of studies that deal explicitly with the prioritized groups	Proportion of studies that focused on IDU
		improvements in mental health symptoms and substance-use disorders. For people who inject drugs, pharmacological interventions such as providing concomitant opioid replacement therapy with hepatitis C infection treatment resulted in higher rates of treatment completion. The prevention of infection among PWID consisted primarily of harm-reduction interventions. Multi-component harm-reduction programs, such as needle and syringe programs and syringe disinfection, were effective in reducing the risk of hepatitis C infection up to 75%. The implementation of supervised-injection sites and training of PWID to recognize signs of overdose reduced the number of unsafely discarded needles, public injecting and needle sharing, in addition to deaths due to overdose. Other interventions, such as respite care reduced the number of hospital readmissions. In terms of psychosocial interventions, motivational interviewing, contingency management (e.g., vouchers or incentives), and cognitive behavioural therapy were shown to have some benefit for substance-use disorders. Lastly, the delivery of effective coordinated care, including longer-term continuity of care, requires the formation of cross-location healthcare partnerships. To ensure the inclusion of all populations, healthcare providers need to be aware of the realities and needs of marginalized populations. Those with specialized training are encouraged to engage in outreach positions.					

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