Health Navigation: A Review of the Evidence

By Logan Broeckaert and Laurel Challacombe

Health navigation is an approach to improving healthcare delivery that helps individuals access the care they need. People called navigators work with each client to identify and reduce any barriers they may face that make it difficult for them to get quality, timely care. Services are tailored to each individual and may include appointment scheduling, transportation, accompaniment, referrals, health education, and counselling. The overall goal of navigation is to understand the health needs of the client and make sure that they receive optimal care regardless of their race, gender, socio-economic status and other factors that may make it harder for them to get good care.

Since the first health navigation program was established for low-income women with breast cancer in 1990, navigation programs for other cancers, diabetes, mental illness and HIV have proliferated. Navigators have become so widespread in North America because they may play a pivotal role in improved healthcare coordination.

Most of the evidence to support health navigation’s impact on care coordination and health outcomes comes from research in cancer care; however, some evidence also exists in other fields, including HIV. Health navigation is so promising that several new initiatives are taking place. The National Cancer Institute in the United States has funded large randomized control trials that will help us better understand the efficacy of these programs. In HIV care, the Centers for Disease Control and Prevention in the United States have designated navigation an effective intervention.

This evidence review will define health navigation and describe navigators, their role and the clients they serve. This review will describe the available evidence from cancer care, diabetes care and HIV care to support navigation’s impact on screening, testing and diagnosis outcomes, care outcomes, and treatment outcomes. Finally, it will also review client-reported outcomes such as satisfaction, self-reported mental health, and self-management skills.

What are the findings of the evidence review?

The available scientific literature from cancer care, diabetes care and HIV care was reviewed to support health navigation’s impact on outcomes such as testing, care and treatment. The evidence review demonstrated that:

1. **Navigation improves screening rates**: Evidence from cancer care suggests that navigation improves screening adherence by 11% to 23% (strength of the evidence is strong).

2. **Navigation improves rates of confirmatory testing**: Evidence from cancer care suggests that navigation improves confirmatory testing rates between 21% and 29% (strength of the evidence is strong).

3. **Navigation leads to earlier diagnosis**: The evidence from cancer care suggests that navigation increases rates of earlier diagnosis (strength of the evidence is limited).

4. **Navigation improves access to care**: Evidence from HIV care suggests that navigation improves access to care and also retention in care; evidence from cancer care suggests that navigation improves more timely access to care (strength of the evidence is limited).
5. **Navigation improves treatment outcomes:** Evidence from both HIV care and cancer care suggests that navigation improves treatment outcomes (strength of the evidence is limited).

6. **Clients are satisfied with navigation programs:** Evidence from cancer care suggests that between 93% and 96% of clients are satisfied with navigation (strength of the evidence is moderate).

7. **Healthcare providers are satisfied with navigation programs:** Evidence from cancer care suggests that 75% of healthcare providers who work with a navigator are satisfied (strength of the evidence is limited).

8. **Navigation has a positive impact on mental health outcomes:** Evidence from cancer care suggests that navigation programs have a positive effect on mental health outcomes (strength of the evidence is moderate).

9. **Navigation improves client self-management:** Evidence from cancer care suggests that navigation improves a client’s ability to self-manage (strength of the evidence is moderate).

Organizations considering a navigation program for HIV care may want to learn from a jurisdiction that has already implemented one. Currently, there are three navigation programs in Canada for people living with HIV: Peer Navigation Services in Vancouver, B.C.; the Chronic Health Navigation Program in Kamloops, B.C.; and the Peer-to-Peer Program in Regina, SK.

**Do people living with HIV need navigators to access care?**

We know that people living with HIV need support to link to and remain engaged in HIV care and treatment. The concept of the **HIV treatment cascade** (also known as the continuum of care) is one way to determine how well the system is doing to engage and keep people in care. The cascade is based on the successive steps that are needed for a person living with HIV to achieve an undetectable viral load, which is an optimal clinical endpoint. We know that treatment for HIV not only improves health but also quality of life.

We also know that an undetectable viral load plays a key role in the prevention of HIV transmission, meaning that keeping people in care and on treatment helps both the person living with HIV and their partners.

Health navigators have the potential to play a crucial role engaging people in HIV care across the treatment cascade. They can do this by helping people get HIV tests and diagnoses, linking clients to appropriate medical care (and other services), supporting clients while in care, helping clients access HIV treatment if and when they are ready, and supporting clients who are on treatment.

We know that many people living with HIV are not optimally engaged in care. Research tells us that individuals are lost at each step along the continuum of care. In the United States, it is estimated that between 19% and 28% of people living with HIV have an undetectable viral load. That means that up to 80% of people living with HIV in the U.S. may not be receiving optimal care because they were unable to take the necessary steps or receive the help they needed to do so. Although national data on the Canadian HIV treatment cascade is not available, we know from the numbers in Alberta (54%) and British Columbia (65%) that most people living with HIV in Canada are not receiving optimal care as measured by undetectable viral loads.

**What types of barriers to care might people experience?**

There are two kinds of barriers clients may experience when accessing health care: systems-level barriers and individual barriers. Systems-level barriers are barriers that are caused as a result of the structure of the healthcare system. Barriers such as the appointment scheduling process, fragmented service delivery, and lack of specialized local healthcare services are all systems-level barriers. Navigators can advocate for reducing these barriers over time, but for individual clients, navigators tend to find ways to reduce the immediate impact these barriers have on client care by working with clients and other service providers.

Individual-level barriers are specific to each client. A lack of access to transportation, lack of access to adequate food and lodging, insufficient finances and lack of social support are all individual-level barriers. In the case of HIV care, active substance use and mental illness may also be significant individual-level barriers to care.

Navigators work with each client to identify the potential barriers they might face, find and implement solutions to those barriers, and over time, build the capacity of the client to manage these barriers themselves. By building relationships with each client, navigators may reduce the impact of all barriers on client access to care. This may improve client engagement in care, even in the face of barriers that may make accessing care a challenge.
What is navigation?

Health navigation is an approach to improving healthcare delivery that helps individuals access the care they need. Health navigation is also known as peer navigation and patient navigation, and can share similar approaches to some care coordination and case management interventions. There is no standard definition of navigation because each navigation program targets the specific needs of clients in the local context. In this review, we use the term health navigation, or navigation, to encompass all these roles in addition to the roles of some peer educators and community health workers who may provide navigation services.

Health navigation services can be divided into two distinct categories:

1. Logistical services, where a navigator targets task-oriented barriers such as making appointments, finding transportation to appointments and offering health information.
2. Relational services, where a navigator provides emotional support, builds a relationship with the client, gains their trust and strengthens the relationship between the client and provider.

Most health navigation programs provide the following services:

1. Assistance to individuals in helping them overcome barriers to care.
2. Assistance to remedy immediate client concerns as they arise.
3. Health education across the continuum of care from prevention to treatment.
4. Psychosocial support.

Changes in navigation over time

Who is a navigator?

The first cancer navigation programs used lay community health workers, often survivors themselves, to improve access to care for other clients. The use of lay community health workers (often called peers in the HIV field) as navigators has since changed in many navigation programs. Professionals – typically nurses or social workers – are now taking on navigator roles in some programs.

Whether professionals or lay workers are used, navigators must have the appropriate cultural knowledge and language skills to work with clients, and be able to build trust with clients. Navigators should also be able to improve the capacity of clients to make health-related decisions, educate clients, and address the psychosocial issues that may arise for clients as a result of care.

Who is targeted by navigation programs?

Although most navigation programs in cancer care are targeted toward populations at higher risk for receiving inadequate care (for example, inner-city residents, Aboriginal peoples, low-income populations, minority populations and rural residents), there has been a trend toward providing navigation to all clients regardless of their need. More research is needed to determine the best populations to target for navigation.

In Canada, specific populations may be more likely than others to experience difficulty getting good care. We know that Aboriginal peoples, gay men and other men who have sex with men, people of African and Caribbean descent, and people who use injection drugs are all at higher risk of acquiring HIV and may also be less likely to receive the best care once diagnosed. These populations may benefit the most from HIV navigation services.

Lack of standardization

There is no standard model for health navigation that fits the needs of all populations, settings or systems because navigation programs are built to address the needs of the local context. Even when the approaches used vary, the goal of navigation – to increase access to care – remains the same. Navigation may be delivered in different settings (community versus hospital); to different populations; and by different workers (nurses versus peers).
Although most navigators receive some training, there is no standard approach or content. In 2012, the International Association of Providers of AIDS Care and the National Minority AIDS Council in the United States responded to the need for training materials and developed a training manual.

**Does navigation work?**

The available scientific literature was reviewed to determine if health navigation works. Details on the methodology used can be found at the end of this article.

The available scientific evidence to support each outcome was assessed and assigned an evidence rating. Although the evidence rating is somewhat flexible, ratings were based on the following criteria:

1. **Strong Evidence:** At least one systematic review or a large body of randomized control trials (and observational research) supports the ability of the intervention to impact on the outcome.
2. **Moderate Evidence:** At least one randomized control trial supports the ability of the intervention to impact the outcome. Observational research is typically also available.
3. **Limited Evidence:** Observational research supports the ability of the intervention to impact the outcome.
4. **No Evidence:** No published research exists to support the ability of the intervention to impact the outcome.

**Screening, testing and diagnosis**

Testing, or screening, for any health condition is the first step in seeking a diagnosis. In HIV care, diagnosis is the first step in the treatment cascade. We know that we need to do a better job improving the number of people who are aware they have HIV. An estimated 25% of people living with HIV in Canada are unaware of their status. Testing is important because people who know they live with HIV can seek care and treatment and improve their health outcomes. Diagnosis also has a prevention benefit. Research shows that people who know they are HIV-positive take measures to reduce the risk of passing HIV to their partners.

There is strong evidence that navigation improves screening rates. There is also strong evidence that navigation improves confirmatory testing rates. There is limited evidence that navigation impacts rates of early diagnosis.

**Screening**

In cancer care, screening is the periodic testing for cancer. Mammograms or Pap smears are two common types of screening tests. In the case of HIV, testing would include rapid or standard blood tests done at regular intervals.

There is strong evidence from two reviews in cancer care and one observational study that navigation improves screening rates. There is no evidence from HIV care or diabetes care that navigation has an impact on screening rates.

Based on a review of 45 articles from 2008 and a case control study published in 2012, the improvement in the rate of adherence to cancer screening ranged from 11% to 23% when clients who received navigation were compared to a control group. Another review of 33 articles concluded that navigation has a positive impact on cancer screening rates.

**Confirmatory testing**

In cancer care, when a screening test is abnormal, further confirmatory testing is required to determine if cancer is present. This is often called diagnostic follow-up. There is not always the same diagnostic follow-up in HIV care. It does occur when there is an inconclusive standard test result, or with rapid testing, however. When a rapid test is reactive (potential positive), clients are encouraged to get confirmatory testing. If a standard or rapid test is carried out in the window period, clients are also encouraged to retest.

There is strong evidence from a review of 45 published studies in cancer care that navigation improves diagnostic...
follow-up between 21% and 29%. There is no evidence from HIV care or diabetes care that navigation has an impact on diagnostic follow-up.

**Earlier diagnosis**

Early diagnosis of any illness may lead to improved health outcomes through earlier access to care and treatment. Early diagnosis in people living with HIV is key for optimal health. In addition, research shows that early diagnosis can have implications for prevention as well. The risk of passing HIV on to others is substantially higher during the first few months of HIV infection. Some research suggests it can increase the risk of passing HIV by as much as 2500%.

There is limited evidence from observational cancer care research that navigation leads to earlier diagnosis and no evidence from HIV care or diabetes care.

One case control study in cancer investigated navigation’s impact on time to diagnosis. This study found that after starting a navigation program, 41% of women were diagnosed with early stage breast cancer compared to only 6% prior to the start of the program. Another case control study found that navigation increased early stage cancer diagnosis from 33% of all diagnoses before navigation to 53% after navigation was introduced.

**Care outcomes**

Once diagnosed, chronic illnesses such as HIV require access to care providers to monitor health and adjust treatment. The general consensus is that people living with HIV should see their HIV primary care physician every three to six months. Going to these appointments regularly, sometimes called client retention, is crucial to ensure optimal health outcomes.

There is limited evidence that navigation improves access to care and improves the timeliness of that access. There is also limited evidence that navigation improves client retention in care.

**Access to care**

Access to care is a critical component for improved health outcomes. When in care, people living with HIV have access to medical and other supports that may help them achieve the best health outcomes. There is limited evidence from observational research in HIV that navigation improves access to care and no evidence from cancer care or diabetes care.

One case control study found that the proportion of clients with no HIV care decreased from 12% to 5% six months after starting with a navigator. Another study reported that 95% of clients enrolled in their program had a visit with a medical provider after working with a navigator.

**More timely access to care**

More timely access to care, meaning shorter times between diagnosis and treatment, may contribute to improved health outcomes by providing quicker access to treatment and other supports.

There is limited evidence from observational research in cancer and no evidence from HIV care or diabetes care that providing navigation improves timely access to care for clients.

A quality assessment study and a case control study found a reduction of five to 10 days in the average time from diagnosis to cancer treatment after navigation services were introduced. In addition, a case control study in a veterans’ hospital found that navigation reduced the number of days from suspicion of cancer to treatment by 65 days.

**Improved retention in care**
Remaining in care, which is sometimes called client retention, is key for treatment success. When clients show up for appointments at appropriate intervals, clinicians can provide optimal care and support. Retention in care can be monitored through HIV care visits, or having CD4 count or viral load blood tests.\textsuperscript{9}

There is limited evidence from observational research in HIV that navigation improves client retention.\textsuperscript{32,33,36,37,38} There is limited evidence from observational research in diabetes care that navigation improves client retention.\textsuperscript{34}

In a case control study of four sites using navigators, the number of patients with two or more HIV care visits in the past 12 months increased from 64\% before navigation was offered to 87\% with a navigator.\textsuperscript{32}

In a study that reviewed the findings from a navigation program in Louisiana, 67\% of patients had at least two HIV primary care visits within a year of working with a navigator.\textsuperscript{33}

A case control study from Washington, D.C. defined retention in care as a client having two viral load or CD4 tests within 12 months. This study showed that clinics that have navigators retain 76\% of clients compared to only 60\% of clients retained in clinics that do not have navigators.\textsuperscript{36} Navigation has also been shown to work among released prisoners,\textsuperscript{37,38} with one program demonstrating that 96\% of clients in the program were still in care after 12 months.\textsuperscript{38}

A case control study in diabetes care found that 59\% of clients attended their medical appointments in the year before they were enrolled in the navigation program compared to 73\% in the year after using a navigator.\textsuperscript{34}

**Treatment outcomes**

For health care to be effective, clients must take and respond to their treatment. When clients are ready to start HIV treatment, medicines must be taken daily for them to be effective. People living with HIV who start treatment soon after their diagnosis can expect to live almost as long as the general population.\textsuperscript{39} Viral suppression of HIV is also associated with reduced likelihood of passing HIV to others.\textsuperscript{40}

There is limited evidence that navigation supports improved treatment outcomes.\textsuperscript{1,4,32,33}

**Clinical outcomes**

Successful HIV treatment is measured by two clinical outcomes: viral load and CD4 count.\textsuperscript{41} In cancer care, fewer treatment delays and survivorship are measures of successful treatment.

There is limited evidence from observational research in HIV that health navigation is associated with lower viral load and higher CD4 cell counts.\textsuperscript{32,33} There is also limited evidence from cancer care that navigation is associated with fewer treatment delays and increased rates of 5-year survival.\textsuperscript{1,4}

A study of an HIV navigation program documented improvements in median viral load from 15,607 to 267 copies/ml and in median CD4 count from 297 to 367 (24\% improvement) after enrollment in a health navigation program.\textsuperscript{33}

In a case control study of four navigator programs in the United States, the proportion of clients who worked with a navigator and who had an undetectable viral load was 50\% greater at 12 months than when they entered the program.\textsuperscript{32}

In a case control study from cancer care that reported on treatment outcomes, on average, cancer patients who worked with a navigator had three fewer days of treatment delays than non-navigated patients,\textsuperscript{1} meaning they were treated more effectively than clients who did not work with a navigator.

Another case control study from cancer care shows that navigation improves 5-year survivorship for people diagnosed with and who have received treatment for cancer. In this study, the 5-year survival rate of clients at the hospital was 39\% before navigation but increased to 70\% after navigation was introduced.\textsuperscript{4}
Client-reported outcomes

Client-reported outcomes are a key measure of the success of navigator programs. Client dissatisfaction with navigation may suggest that programs are not meeting client needs. Client reported outcomes include satisfaction with care, mental health scores, and self-management skills.

There is moderate evidence that clients are satisfied with navigation programs. There is moderate evidence that navigation programs have a positive impact on client mental health outcomes. There is moderate evidence that navigation programs impact client self-management skills.

Satisfaction

Satisfaction with navigation is a key component of any successful program. Clients who do not like working with a navigator may not reap the potential benefits, including improved testing and diagnosis rates, improved retention in care and improved treatment outcomes.

There is moderate evidence from cancer care, including a randomized control trial and observational research that clients who have a navigator are more likely to report higher satisfaction with their overall care when compared to the satisfaction scores of clients who did not receive navigation services. There is no evidence from HIV care or diabetes care on client satisfaction with navigator services.

A randomized control trial determined that patient satisfaction with care was higher among patients who received navigation (mean satisfaction score: 4.3/5), compared to those who did not (2.9/5).

A cohort study among Aboriginal clients found that the proportion of clients who said that they received good overall care increased from 83% (before working with a navigator) to 96% (after receiving navigation).

Two studies measured satisfaction with their programs, with no comparison group. Satisfaction rates were high in both studies, ranging from 93% to 96%.

There is limited evidence from cancer care on primary care provider satisfaction with navigation programs. A study that measured the satisfaction of healthcare providers with navigation found that 75% of primary care providers gave their navigation program an overall rating of very satisfied or satisfied.

Mental health outcomes

Reducing stress, anxiety and depression associated with illness and using the healthcare system may improve the likelihood that clients will stay in care.

There is moderate evidence from cancer care that navigation has a positive impact on mental health outcomes. There is no evidence from HIV care or diabetes care that navigation impacts mental health outcomes.

Among cancer patients, research from a randomized control trial and observational research shows that navigation can reduce anxiety, improve emotional well-being, and reduce distress. One study showed that the presence of a navigator was associated with a better emotional quality of life.

Self-management

Self-management, the ability to make informed choices about care and treatment options independently, is an important skill for many clients seeking health care. Good self-management skills may increase client retention and improve treatment outcomes as clients feel more engaged in their care.

There is moderate evidence from cancer care, including a randomized control trial and observational research, that navigation programs improve a client’s ability to self-manage, as measured by improved decision-making skills. There is no evidence from HIV care or diabetes care that navigation improves self-management.
Clients in cancer care report being able to make informed choices about their options after working with a navigator. One randomized study found that 82% of women in navigation reported having a real say in their treatment options compared to 70% of women who did not have a navigator.

In research based on 18 case studies of cancer clients working with navigators in Hawaii, 17 reported that working with a navigator improved their control over and confidence in making healthcare choices.

**Summary Table: Evidence to support navigation’s impact on outcomes across the continuum of care**

<table>
<thead>
<tr>
<th></th>
<th>Strong</th>
<th>Moderate</th>
<th>Limited</th>
<th>None</th>
<th>Ineffective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening/Testing</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confirmatory Testing</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to Care</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Retention in Care</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with Care</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Physician Satisfaction with Navigation</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mental Health Outcomes</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Disease self-Management</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**What does this mean for organizations considering a health navigation program in HIV care?**

There is evidence to suggest that health navigation may be beneficial for clients seeking testing, care, and treatment for some health conditions, including HIV. Critically, there is also evidence that navigation is acceptable to clients and that they are more satisfied with their health care than clients who do not have navigators. Although there is limited evidence on the efficacy of HIV navigation from randomized control trials, there is a fair amount of evidence from observational studies. Although randomized control trials are typically seen as the best type of study, they may not be the best way to measure the success of this type of intervention. Navigation programs are diverse and it may be more appropriate at times to conduct observational studies to measure their impact on the health of people living with HIV.

There is no standard model of health navigation, as each program is tailored to the needs of the local context. Organizations considering the implementation of a health navigation program for HIV should perform a needs assessment. Such an assessment would help identify an approach to navigation that meets the needs of the community, the needs of the healthcare setting, and the type of medical system in place.

Assessments should also identify local barriers to care; the types of interventions that may help overcome these barriers; whether lay workers or professionals would be best suited to provide navigation; and identify potential community and/or clinical partners for the program.
Organizations considering a navigation program for HIV care may want to learn from a jurisdiction that has already implemented one. Currently, there are three navigation programs in Canada for people living with HIV: Peer Navigation Services in Vancouver, B.C.; the Chronic Health Navigation Program in Kamloops, B.C.; and the Peer-to-Peer Program in Regina, SK.

Methodology

This review is based on a search that included the use of PubMed, CINAHL, and The Cochrane Library. MeSH search terms included patient navigation, delivery of health care, continuity of patient care, health services accessibility, patient acceptance of health care, case management, community health workers, peer group, medication adherence, patient compliance, HIV infections, hepatitis C, diabetes mellitus, and neoplasms.

Keyword search terms included health navigation, linkage, linking, engagement, and retention. The reference lists of relevant articles were also reviewed for additional citations. The search for diabetes literature was limited to systematic reviews. The search for cancer literature focused on systematic reviews and also included other recent literature from 2010 to the present. All searches focused on North American settings.

References


26. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z


31. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

32. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

33. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

34. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

35. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

36. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

37. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

38. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

39. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

40. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

41. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

42. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

43. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

44. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

45. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

46. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

47. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

48. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

49. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

50. a b c d e f g h i j k l m n o p q r s t u v w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

About the author(s)

Logan Broeckaert holds a Master’s degree in History and is currently a researcher/writer at CATIE. Before joining CATIE, Logan worked on provincial and national research and knowledge exchange projects for the Canadian AIDS Society and the Ontario Public Health Association.

Laurel Challacombe holds a Masters Degree in Epidemiology and is currently Manager of Research and Evaluation
at CATIE. Laurel has worked in the field of HIV for more than 10 years and has held various positions in both provincial and regional organizations, working in research and knowledge transfer and exchange.
Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

CATIE provides information resources to help people living with HIV and/or hepatitis C who wish to manage their own health care in partnership with their care providers. Information accessed through or published or provided by CATIE, however, is not to be considered medical advice. We do not recommend or advocate particular treatments and we urge users to consult as broad a range of sources as possible. We strongly urge users to consult with a qualified medical practitioner prior to undertaking any decision, use or action of a medical nature.

CATIE endeavours to provide the most up-to-date and accurate information at the time of publication. However, information changes and users are encouraged to ensure they have the most current information. Users relying solely on this information do so entirely at their own risk. Neither CATIE nor any of its partners or funders, nor any of their employees, directors, officers or volunteers may be held liable for damages of any kind that may result from the use or misuse of any such information. Any opinions expressed herein or in any article or publication accessed or published or provided by CATIE may not reflect the policies or opinions of CATIE or any partners or funders.

Information on safer drug use is presented as a public health service to help people make healthier choices to reduce the spread of HIV, viral hepatitis and other infections. It is not intended to encourage or promote the use or possession of illegal drugs.

Permission to Reproduce

This document is copyrighted. It may be reprinted and distributed in its entirety for non-commercial purposes without prior permission, but permission must be obtained to edit its content. The following credit must appear on any reprint: This information was provided by CATIE (the Canadian AIDS Treatment Information Exchange). For more information, contact CATIE at 1.800.263.1638.

© CATIE

Production of this content has been made possible through a financial contribution from the Public Health Agency of Canada.

Available online at: