HIV in Toronto: Closing the Diagnosis Gap

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<th>February 20, 2015</th>
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<td>Board of Health</td>
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<td>Medical Officer of Health</td>
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**SUMMARY**

Tremendous advances have been made in the treatment and prevention of the Human Immunodeficiency Virus (HIV) since the virus was discovered in the early 1980s. At one time, Acquired Immunodeficiency Syndrome (AIDS) developed in almost all patients infected with HIV. In the last 20 years, cases of AIDS have declined by over 90% in Canada, largely as a result of effective treatment advances including the introduction of highly active antiretroviral therapy (HAART).\(^1\) Despite advances in therapy, HIV is still associated with a large health burden, ranking 6th in terms of infectious disease burden in Ontario.\(^2\)

HIV is a slow acting virus and individuals can be infected for several years with no symptoms or signs of their infection. Untreated, it can take about 10 years to go from initial infection to the development of AIDS. During this time, the diagnosis is made by testing for HIV, most commonly through a blood test. Also during this time, damage that occurs to the immune system can lead to serious health outcomes and multiple health care visits. Infected persons who are unaware of their diagnosis may spread the infection unknowingly to sexual partners. Although at-risk groups are encouraged to be screened or tested, patients and health care providers experience barriers and missed opportunities for testing. It is estimated that as many as 15% to 25% of persons infected with HIV in Toronto are unaware of their diagnosis and an additional 30% are diagnosed late in the course of their illness.\(^3,4\)

There is a "diagnosis gap" if persons are infected and unaware of their diagnosis and furthermore, diagnosed late in the course of their infection. This is important because it affects the overall burden of the infection, in terms of health outcomes, ongoing transmission, and health care costs. In recognition of the current gaps in traditional testing strategies for HIV, jurisdictions across Canada and internationally have moved to recommend more routine offers of HIV testing in addition to augmenting strategies to
increase testing for high risk populations. An upfront investment in reducing the diagnosis gap of HIV infections is an evidence based and cost-effective strategy to reduce the overall burden of HIV in our community.

RECOMMENDATIONS

The Medical Officer of Health recommends that:

1. The Ministry of Health and Long-Term Care implement an expanded testing strategy for HIV in line with current best practices to ensure earlier and more comprehensive diagnosis in Ontario including:
   a. Pilot projects for routine testing in higher prevalence health service settings and acute care settings in higher prevalence areas
   b. Increased targeted testing to reach higher burden populations at earlier stages of infection
   c. An educational strategy for health care providers to increase awareness and promote expanded HIV testing
   d. Support for linkages to care, care retention, and access to treatment for newly diagnosed people with HIV
   e. Monitoring and evaluation

2. The Ministry of Health and Long-Term Care develop materials to support expanded HIV testing, including clear guidelines for a pre-test informed consent discussion, separate from prevention counselling, and consistent with best practices in other jurisdictions.

3. Toronto Public Health work with local partners to implement pilot projects and support evidence-based expanded HIV testing in Toronto.

Financial Impact
There are no financial implications for the City of Toronto arising from this report.

ISSUE BACKGROUND
HIV infections and AIDS cases are reportable to the Medical Officer of Health under the Health Protection and Promotion Act. HIV is spread through sexual and blood-to-blood (parenteral) contact. After initial infection with HIV, up to 60% of people will develop a flu-like illness lasting a week or two. Infected persons can then be asymptomatic for years. HIV is a slow acting virus that affects and ultimately destroys the immune system. The virus preferentially infects immune system cells, (particularly CD4 lymphocytes). Blood tests can be used to diagnose HIV, to measure the amount of HIV in the blood, and count CD4 cells. In the absence of treatment, HIV infected persons become more susceptible to common infections (opportunistic infections). As the infection progresses, HIV can also cause cancers unique to those with severe immunosuppression. A range of opportunistic infections or cancers along with evidence of HIV infection constitute an AIDS diagnosis. In the absence of treatment, 90% of HIV cases will develop AIDS.
Untreated, death ensues within 3-5 years from AIDS.\textsuperscript{5} Prior to the availability of effective treatment; a person diagnosed with HIV could live for up to 12 years on average. Today, a person diagnosed with HIV in their 20s, treated appropriately, is expected to live a near normal lifespan.\textsuperscript{6}

Treatment has dramatically affected the course of the AIDS epidemic through reductions in morbidity and mortality. In addition, HAART use suppresses HIV viral loads and is linked to decreased risks of onwards transmission. As a result, it is now believed that bringing treatment to all people who need it is a critical pathway to end the AIDS epidemic. To get there, health care systems need a robust infrastructure including:

1. Improved detection of infections at all stages;
2. Universal access to treatment; and
3. High levels of treatment adherence.\textsuperscript{7}

This has led to target setting by many jurisdictions, including the UNAIDS 90-90-90 goal: By 2020, 90\% of HIV infected persons will be diagnosed, 90\% will be on treatment and 90\% will be virally suppressed.\textsuperscript{8}

Jurisdictions in Canada, including the City of Toronto, are not meeting these targets, mainly because it's estimated that too many persons infected with HIV are not diagnosed in a timely way. However, we have a critical opportunity to learn from what's working well here and in other jurisdictions. With the right strategies, the City will be able to reduce this diagnosis gap and make significant improvements on the burden of HIV.

**COMMENTS**

**The Burden of HIV Infection in Toronto**

Toronto Public Health received 400 reports of newly diagnosed HIV infections in 2013; more than one person a day being given a diagnosis of HIV in the City. Almost half of the cases reported in Ontario were from Toronto. 89\% of the HIV cases reported were male and the age at diagnosis ranged from 6 to 76 years of age.\textsuperscript{9}

HIV infections continue to be concentrated in certain populations. Of the males diagnosed with HIV in 2013, 79\% were men who have sex with men (MSM). Other groups that face a higher burden of HIV infection include injection drug users, Aboriginal persons, and persons who come from areas of the world where HIV infection is more common. Over the past decade, the rates of HIV infection have been declining. Prevention efforts including condom distribution programs, harm reduction (needle exchange services), education, as well as the expanded use of effective treatment have played a significant role in the decline of new cases. Despite this, Toronto's rate is still substantially higher than the national and provincial rates. The rate of HIV infection in Toronto was 14.3 cases per 100,000 persons, compared with the Provincial and Canadian rates of 6.1 and 5.9 cases per 100,000 respectively. This may be explained by having greater numbers of at-risk populations in the City.\textsuperscript{10}
HIV surveillance is important to help direct prevention strategies; however it reveals little of the overall burden of this infection. There is no cure for HIV currently and people undergoing lifelong treatment are more vulnerable and affected by other illnesses such as depression, neurological illnesses and cardiovascular illnesses. Other markers of morbidity from HIV, as discussed above, are the illnesses that arise from immunosuppression from the virus itself. Persons infected with HIV can present to health care providers with "stubborn" infections, recurring fevers and weight loss. Some are only diagnosed at later stages of infection with AIDS-defining illnesses (includes certain cancers and opportunistic infections). TPH received 39 reports of individuals with AIDS in 2013. Although the time from HIV to AIDS can take approximately 10 years, people are sometimes diagnosed with AIDS without a previous diagnosis of HIV infection.

**The Burden of Undiagnosed and Late Diagnosed HIV Infections**

As HIV can be asymptomatic for years, there is no way to measure directly how many people are infected and unaware of their diagnosis. However, this has been estimated by researchers. The Public Health Agency of Canada (PHAC) estimates that 25% of HIV infected persons in Canada do not know their status and Ontario and Toronto estimates range from 15% to 25%. Some of these patients may be in the "window period" (time between infection and when the HIV test would give a positive result), some are at-risk individuals who have not been tested, and some are unaware of their risk.

HIV infected persons can also be diagnosed late in the course of infection. Researchers can look at the CD4 count at the time of diagnosis as an indicator of late diagnosis. From these data, PHAC estimates that 50% of HIV diagnoses occur after immunodeficiency has already been established. Data from Ontario HIV cases in specialty care show that almost 1 in 3 cases are diagnosed late in the course of their illness, including approximately 10% who are diagnosed with HIV and concurrent AIDS-defining illnesses. Considering that it can take several years to go from HIV to AIDS, there is an important period of time when HIV can be diagnosed but for a significant percentage of HIV infected cases, it is not. This diagnosis gap continues to contribute to the burden of HIV.

**DIAGNOSIS GAPS AND TRANSMISSION**

It is estimated that almost half of new HIV infections are caused by transmission from individuals who are unaware that they are infected. Awareness of HIV status is linked to decreased risks of transmission. People who know they are HIV positive are more likely to take measures to reduce the risk of transmission to others. Further, diagnosis is the only gateway to care and to treatment. Several studies have now demonstrated that appropriate treatment can reduce viral loads, which is subsequently linked to reductions in transmission risk by over 90%. Persons who are undiagnosed, or who are diagnosed late, may be unknowingly transmitting HIV infection, are unable to take advantage of treatment, and are less likely to take advantage of the prevention measures available.
**DIAGNOSIS GAPS AND HEALTH**

As mentioned previously, diagnosis is the only way individuals with HIV can be linked to care and treatment. Treatment is the single most important reason why there has been a significant reduction in AIDS cases and reductions in HIV-related death and diseases. Increasingly, the health burden related to HIV has shifted to persons diagnosed late who cannot take advantage of treatment before the immune system becomes compromised.\(^\text{18}\) For persons starting therapy very late or diagnosed first with AIDS, there is up to a 50% reduction in life expectancy compared to persons who start treatment earlier.\(^\text{19}\) Several studies support starting therapy before a patient would be symptomatic from their infection.\(^\text{20-21}\) The large estimates of the undiagnosed and late diagnosed in Toronto represent missed opportunities for starting treatment earlier, preventing the progression of HIV to advanced disease and preventing the transmission of infection.

**DIAGNOSIS GAPS AND COST**

The costs of lifetime HIV treatment are significant. However, the costs of treatment and care for late-diagnosed individuals are considerably higher due to increased medical care utilization (i.e. hospitalization).\(^\text{22}\) Persons diagnosed late have a worse prognosis, increased risk of mortality, and in addition may be transmitting the infection unknowingly. When one factors in the effects on a person's health and potential reductions in transmission and new infections, the upfront financial investment to diagnose cases earlier is cost-effective for health care systems when compared to many other accepted health care interventions.\(^\text{23}\)

**Current Testing and Diagnosis Strategy in Ontario**

In Ontario, physicians, nurse practitioners and midwives can order an HIV test. Testing normally occurs under the following scenarios: 1. Patient initiated – patient is concerned because of a potential exposure or risk and requests testing. 2. Provider initiated - the health care provider may recommend an HIV test in the context of investigating a patient's signs and symptoms, because of risk factors identified, or if the patient is pregnant. With the exception of Ontario's prenatal testing program, testing is promoted primarily for populations most at risk of getting HIV.

Groups at risk of HIV can face stigmatization and discrimination, and an HIV diagnosis can also be stigmatizing. As a result, several options are available in Ontario to reduce the fear of getting tested such as non-nominal (a code is used so that those processing the test cannot link the name to the diagnosis) and anonymous testing (performed at designated sites; only the patient is aware of the results and there is no identifying information to link to the test results). Both non-nominal and anonymous testing make reporting to public health challenging (and with the latter, reporting is precluded). There has also been expansion of rapid / point of care testing to get results immediately in certain higher risk situations. Over 400,000 HIV tests are performed annually in the Province as part of the targeted strategy. Over 100,000 HIV tests are performed annually as part of the routine prenatal testing strategy.
CONSENT AND COUNSELLING
In Ontario, informed consent for HIV testing can be given verbally, and as per the Province's testing guidelines, participation in pre-test counselling is implied consent. Ontario's current pre-test counselling guidelines include discussion of risks and benefits of testing, risk assessment and prevention and harm reduction counselling. The pre-test counselling session as currently outlined by the Province can take up to 15 to 20 minutes to complete appropriately, but can also be tailored based on needs of the individual.24

Challenges with the Current Risk Based Testing Approach
Studies have documented barriers associated with risk assessments and risk-based testing for HIV. On the individual level, many studies have shown patients belonging to at-risk groups may not perceive themselves to be at risk and therefore are less likely to get tested. The issue is even more complicated when the health care system tries to identify people as belonging to a certain higher burden population. For example, people who have sex with the same sex may self-identify as being "straight" and be missed by targeted testing campaigns or persons may not want to disclose a risk factor to their health care provider which in turn hampers the risk assessment.25,26 Other jurisdictions have found persons who identify their risk exposure as heterosexual are more likely to be diagnosed later in the course of their infection.27,28

PRENATAL TESTING
In the mid-90s, the reduction of maternal transmission of HIV to children became possible through strategies such as treating HIV-positive pregnant women and using C-section for delivery. However, jurisdictions failed to identify all pregnant women infected with HIV mainly because a risk factor approach was used for testing and thus, cases of preventable maternal to child transmission continued to occur. Physicians failed to ask patients about risk factors for HIV due to their discomfort or time constraints and patients felt stigmatized for being singled out for testing. Provinces implemented routine testing recommendations for all pregnant women, regardless of risk factors. Health care providers now consider HIV testing part of the "routine" management of pregnancy. Over 90% of pregnant women are tested and maternal transmission of HIV has been significantly reduced in Ontario.

Other challenges with HIV testing are not unique to a risk based strategy. People may not get tested because they are afraid of the results and afraid of a diagnosis that is associated with discrimination and stigmatization. There also are gaps in information and knowledge at both the patient and healthcare provider level. At the provider level, there are gaps in knowledge of the symptoms of HIV, and barriers due to cumbersome consent procedures and time constraints with performing pre-test counselling.29,30

MISSED OPPORTUNITIES
People with HIV may come from marginalized communities and some may have poor access to medical care due to social and mental health issues. This may be a reason some are diagnosed later. However, several retrospective studies have found that many HIV positive patients have had prior interactions with the health care system, including having
had blood testing done, but were not offered testing for HIV despite many having a risk factor for infection or presenting with an HIV-related illness. 31,32

**Jurisdictional Scan**

Because of the challenges outlined above, and because getting to a 90% target for HIV diagnosis is a global challenge, many developed countries have begun looking closely at their HIV testing strategies. Modelling studies have shown testing in low risk populations can be a cost-effective adjunct strategy to risk based testing. 33,34 Recommendations for more routine offers of HIV testing in some or all health care settings in combination with continued risk based testing have been released (see Appendix A). Some of the guidelines tie the implementation of routine testing to the local diagnosed prevalence of HIV while others are more general. A few examples are highlighted below.

**UNITED STATES**

The US Centers for Disease Control and Prevention (CDC) released guidelines in 2006 which endorse routine voluntary HIV testing for all persons aged 13 to 64 irrespective of risk factors. 35 The CDC recommended health care providers implement routine testing and only stop if they demonstrated that they were not finding undiagnosed cases at a rate to make it cost-effective (1 case per 1000 tested). When the CDC released its recommendations, the estimated effect of early diagnosis on reduced transmission risks (a key parameter that makes it cost-effective) was controversial. Studies after 2006 have demonstrated the potential benefits of early treatment on transmission and several national associations in the US have since endorsed routine HIV testing in the more general population.

**RESULTS FROM U.S. PILOT STUDIES**

Several U.S. studies have evaluated how the CDC recommendations have been implemented and their effectiveness. Settings have included urgent care settings, emergency room departments and primary care health groups. In these settings, routine voluntary testing has been found to increase the yield of positive diagnoses and meet cost-effectiveness thresholds in high prevalence settings. 36,37 Enablers cited included institutional policy changes, health care provider training and use of electronic records to flag reminders for testing.

**UNITED KINGDOM**

The British HIV Association released revised testing guidelines in 2008. Routine testing is recommended in general health care settings (hospital admissions, primary care) when the local diagnosed HIV prevalence is greater than 0.2%. Routine testing is also encouraged in places that are thought to be high prevalence health care settings such as addiction services clinics, and sexually transmitted infection clinics. 38 In addition, an educational campaign to raise awareness for health care providers of the importance of early diagnosis and HIV indicator illnesses was undertaken.
RESULTS FROM UK PILOT STUDIES
The English Department of Health funded 8 pilot projects after the U.K. guidelines were published. The goal of the pilot projects was to assess whether routine testing would be feasible (i.e. can the routine offer of HIV testing be implemented in an emergency room?), acceptable (will low risk patients accept the offer for testing?), and effective (does routine testing in this setting detect enough cases to make this testing strategy cost-effective?). In general, routine testing in a variety of health care settings was feasible, acceptable and cost-effective when implemented in higher prevalence areas. Recommendations include routine testing of hospital admissions be prioritized and testing by general practitioners be widely promoted. 39

CANADA
In 2013, in an effort to mitigate the "diagnosis" gaps and barriers to testing, the Public Health Agency of Canada released revised HIV Screening and Testing Guidelines. 40 A key aspect of these guidelines is reducing barriers to testing through "normalizing" HIV testing. The guidelines recommend that testing should be performed in those at higher risk as well as anyone who has been sexually active and never had an HIV test. In practice, this means a health care provider should be comfortable discussing testing with all sexually active adults without a detailed risk assessment and should make an HIV test part of periodic routine medical care. High risk populations would be encouraged to be tested more frequently. The PHAC Guidelines promote the streamlining of pre-test information and verbal consent processes to help facilitate more routine offers by health care providers.

RESULTS FROM CANADIAN PILOT STUDIES
Starting in 2010, as part of the Vancouver Coastal Health STOP HIV/AIDS pilot project, acute care hospitals in Vancouver recommended HIV testing as part of all medical admissions and emergency department visits. Although clinicians’ offer of the test was suboptimal initially (at 43%), patient acceptance was very high (at 92%) and diagnostic yield exceeded the U.S cost effectiveness threshold. 41 British Columbia subsequently revised its testing guidelines to include a routine offer of HIV testing to all sexually active adults in addition to targeted testing for high risk groups and testing for patients presenting with HIV indicator illnesses.

Further modelling studies as part of the STOP pilot emphasize the importance of balancing testing approaches between risk based testing and universal testing. 42 In 2011, Ontario ran an innovative testing campaign, including sites in Toronto, designed to increase testing in gay males. Using certain community venues for testing and offering increased access to testing were important variables cited in the evaluation of the campaign. 43

A Recommended Approach for Ontario
In translating Canadian national guidance recommendations to practice, pilot projects in other jurisdictions provide useful lessons. The PHAC guidelines explicitly do not supersede Provincial testing guidelines. Furthermore, to implement PHACs guidance, several supports need to be put in place for health care providers and patients. No single
testing strategy will be an optimal solution on its own and all strategies need to consider the judicious use of resources, including laboratory capacity for expanded testing. Ultimately, to make progress, a multi-pronged testing strategy will need to be utilized in Ontario that includes:

1. Giving health care providers the tools they need to test patients earlier,
2. Implementing routine testing in higher prevalence areas, and
3. Increasing targeted testing for higher burden populations.

The testing strategy should include indicators for monitoring and evaluation to ensure the optimal use of resources.

1. HEALTH CARE PROVIDER TOOLS

EDUCATION

Broad education of health care providers is needed to implement expanded testing. This requires a culture shift in the health care community – an understanding of the importance of early diagnosis, the barriers to testing and that testing of sexually active adults can be cost-effective. There is a generation of new physicians that may be less familiar with HIV and the signs and symptoms that are associated with the infection at various stages of infection. Inherent to PHAC’s guidelines, is health care provider normalization of testing. This must be supported by a revised informed consent process and clear guidance about testing recommendations.

PRE-TEST DISCUSSION GUIDELINES

Traditional pre-test counselling for HIV has been identified as a barrier to testing by health care providers due to time constraints and skill level in discussing topics that may be considered "best practices" for counselling. Most jurisdictions have disentangled risk assessment and prevention counselling from the counselling that needs to occur for the purposes of informed consent for HIV testing. The latter has been termed a pre-test discussion and in many places, can be augmented by written materials that communicate information about HIV testing. In other jurisdictions which have expanded HIV testing, more comprehensive risk assessment and prevention counselling is recommended for persons presenting to health care settings already assessing risk behaviours routinely (i.e. STI clinics). However, in most health care settings, a simple discussion to ensure voluntary, informed consent has become the standard of practice.

In order to reduce barriers to testing, Ontario needs to develop pre-test discussion guidelines for HIV testing which are separate from risk assessment and prevention counselling guidelines.

2. ROUTINE TESTING IN HIGH PREVALENCE AREAS

Implementing pilot projects for routine testing in acute care settings in higher prevalence areas and in health care settings that serve higher prevalence populations such as sexual health clinics and harm reduction clinics will help refine the overall HIV testing strategy in Ontario. Pilot projects help support the institutional changes that are needed in hospital settings and routine testing in these settings has been demonstrated to be a cost
effective, feasible and acceptable strategy to diagnose HIV-infected persons earlier in the
course of illness.

LINKAGES TO CARE
As more health care providers and institutions test for HIV, it is essential to provide
support to providers to link patients to care. It is only through diagnosis and linkage to
care that programs will see significant changes in health outcomes from HIV infection.
Given public health's mandate in reducing blood borne infections, local public health
units can play a significant role in supporting providers who are testing by providing
additional support for post-test counselling, partner notification and linking patients to
care.

INNOVATIVE STRATEGIES FOR BLOODBORNE DISEASES
Incorporating a more routine approach to testing is a strategy that lends itself to other
high burden, asymptomatic infections. Recent advances in the treatment of Hepatitis C
infection (another chronic bloodborne infection) offer high cure rates for patients.
Considering hepatitis C can lead to liver failure and liver cancer, patients can be
asymptomatic for many years, and because there are effective treatments for some, the
US has recommended routine testing ("screening") for persons born between 1945 and
1965 regardless of risk factors for hepatitis C infection.48 The rationale is analogous to
the rationale for expanding HIV testing. Hepatitis C and HIV depend on blood tests for
diagnosis, both can be asymptomatic and yet, the course of illness can be improved with
early diagnosis and treatment. Implementing changes for HIV testing could complement
educational and testing changes that may be recommended for Hepatitis C in Ontario in
the near future.

3. INCREASING TARGETED TESTING

Innovative strategies for risk-based targeted testing are being used here and
internationally to help diagnose people early in their infection. Improving access to
testing (not needing a booked appointment, offering increased hours for clinic testing)
has demonstrated improvements on testing rates.49 Using the internet to reach out to
higher burden populations is also an area of expanded interest. Augmenting targeted
testing strategies may be particularly important for diagnosing persons in the early stages
of HIV infection, a period of time when people are most infectious, and yet more likely to
be unaware of their infection.50 Strategies being looked at include increasing awareness
of the symptoms and signs of early infection in high-risk persons, and optimizing the
frequency of testing guidelines for at-risk persons. In order to reach all persons at earlier
stages of infection, a combination of increased targeted testing for higher burden
populations and more routine testing in higher prevalence areas is being used in most
jurisdictions that have expanded their testing strategies.

Stigma, Discrimination and Criminalization

Giving health care providers the tools they need to test patients earlier, implementing
routine testing in higher prevalence areas, and increasing targeted testing for higher
burden populations will go far in reducing the diagnosis gap for HIV infection. However,
there may still be people afraid to test due to stigma, discrimination and the fear of criminalization associated with HIV infection. The PHAC guidelines are aspirational in their goals of normalizing HIV testing however; a positive HIV diagnosis can have many unintended consequences beyond the infection. As a health care system, we need to work across systems to support individuals living with HIV and who are living in fear of this diagnosis. Resources that are targeted toward reducing stigma, discrimination and the inappropriate use of criminalization for HIV will also help reduce the diagnosis gap.

HIV treatment and prevention strategies have progressed since the discovery of AIDS. With these advancements, there is now significant potential to reduce the burden due to HIV infection in individuals and in the overall population. Key to reducing the burden from HIV infection is reducing the number of people who are infected and unaware of their diagnosis and reducing the number of people who are diagnosed late. Several jurisdictions have implemented expanded testing programs aimed at these goals and have shared findings from ongoing evaluations of expanded testing. Toronto Public Health is seeking a renewed focus on evidence-based HIV testing strategies that build on lessons learned elsewhere in order to strengthen HIV treatment and prevention in Ontario.

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SIGNATURE

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Medical Officer of Health

ATTACHMENT
Appendix 1: Jurisdictional Scan
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<th>Association or Organization</th>
<th>Testing Recommendations</th>
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<tr>
<td>Public Health Agency of Canada&lt;sup&gt;11&lt;/sup&gt;</td>
<td>HIV testing should be considered as a component of routine care, test those at increased risk as well as individuals who are/have been sexually active and have never been tested for HIV</td>
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<tr>
<td>B.C. 2014 Health Ministry&lt;sup&gt;20&lt;/sup&gt;</td>
<td>Offer routinely, every five years, to all patients aged 18-70 years, routinely, every year, to all patients aged 18-70 years who belong to populations with a higher burden of HIV infection Once at age 70 or older if the patient’s HIV status is not known</td>
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<tr>
<td>Saskatchewan –HIV Provincial Leadership Team&lt;sup&gt;33&lt;/sup&gt;</td>
<td>All patients aged 13 to 64 receiving primary or emergency health care who do not know their HIV status or who are sexually active and have not had an HIV test in the last 12 months</td>
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<tr>
<td>Manitoba HIV Program&lt;sup&gt;33&lt;/sup&gt;</td>
<td>The Manitoba HIV program strongly encourages increased HIV screening. In particular, adults who are sexually active are advised to make HIV testing a normal part of their health care. Health care professionals are also encouraged to make HIV testing a routine part of their medical practice</td>
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<tr>
<td>Ontario&lt;sup&gt;24&lt;/sup&gt;</td>
<td>documents focus on Ontarians who are at greatest risk of acquiring HIV</td>
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<tr>
<td>CDC&lt;sup&gt;39&lt;/sup&gt;</td>
<td>Routine voluntary HIV screening in all adolescents and adults aged 13 to 64 years regardless of risk factors unless prevalence of undiagnosed HIV infection has been documented to be less than 0.1%</td>
</tr>
<tr>
<td>U.S. Preventative Services Task Force&lt;sup&gt;55&lt;/sup&gt;</td>
<td>Clinicians screen for HIV infection in adolescents aged 15 to 65 years. Grade A recommendation (high certainty that net benefit is substantial)</td>
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<tr>
<td>Infectious Diseases Society of America&lt;sup&gt;56&lt;/sup&gt;</td>
<td>Routine screening for all sexually active adults</td>
</tr>
<tr>
<td>American Academy of Pediatrics&lt;sup&gt;57&lt;/sup&gt;</td>
<td>Offer routine HIV testing to all adolescents at least once by age 16 to 18 years when HIV prevalence is greater than 0.1%</td>
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<tr>
<td>International Antiviral Society – USA HIV Prevention Recommendations&lt;sup&gt;14&lt;/sup&gt;</td>
<td>All adults and adolescents should be offered HIV testing at least once</td>
</tr>
<tr>
<td>British HIV Association&lt;sup&gt;38&lt;/sup&gt;</td>
<td>routine HIV testing in general healthcare settings when local diagnosed HIV prevalence &gt;0.2% in 15-59 year olds</td>
</tr>
<tr>
<td>France&lt;sup&gt;36&lt;/sup&gt;</td>
<td>Routine HIV testing for 15 to 70 year olds</td>
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<tr>
<td>European Centre for Disease Prevention and Control&lt;sup&gt;19&lt;/sup&gt;</td>
<td>Testing strategy depends on the national data about the epidemic</td>
</tr>
<tr>
<td>UN / AIDS WHO 2007</td>
<td>For concentrated, low level epidemics, do not routinely recommend HIV testing to all persons attending all health facilities</td>
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<tr>
<td>UN / AIDS 2012&lt;sup&gt;39&lt;/sup&gt;</td>
<td>Model for HIV testing should be based on the nature of the epidemic, cost-effectiveness, equity of access, resources available</td>
</tr>
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12. Ibid 3.


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29. Ibid 19.


32. Ibid 23.


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51. Office of the Provincial Health Officer (2014), HIV testing guidelines for the Province of British Columbia.

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