



Evaluation of Viral Hepatitis and Sexually Transmitted Infection Activities at the Public Health Agency of Canada 2013-14 to 2017-18

Prepared by
Office of Audit and Evaluation
Health Canada and the Public Health Agency of
Canada

March 2019



Table of Contents

Executive summary	iv
Management Response and Action Plan	viii
1.0 Evaluation purpose	1
2.0 Program Description	1
2.1 Program Context	1
2.2 Program Profile	1
2.3 Program Narrative	4
2.4 Program Resources	4
2.5 Previous evaluations	6
3.0 Evaluation Description	6
3.1 Evaluation Scope, Approach and Design	6
3.2 Limitations and Mitigation Strategies	7
4.0 Findings	8
4.1 Relevance	8
4.2 Achievement of Outcomes	12
4.2.1 From Increased Knowledge to Knowledge Application	12
4.2.2 From Building Capacity to Changing Behaviours	16
4.3 Efficiency and Economy.....	18
4.3.1 Creating Efficiency through Integration.....	18
4.3.2 Program Spending.....	20
4.3.3 Collection and Use of Performance Measurement Data	21
5.0 Conclusions	21
5.1 Relevance	21
5.2 Achievement of Expected Outcomes	22
5.3 Efficiency and Economy.....	22
6.0 Recommendations	23
Appendix 1 – Evaluation Description	25
Appendix 2 – Global Targets for STBBI	27

List of Tables

Table 1: Expenditures for the Hepatitis C Prevention, Support and Research Program	5
Table 2: Estimated Expenditure for Ongoing Viral Hepatitis and STI Activities 2013-14 and 2017-18 (\$)	5
Table 3: Limitations and Mitigation Strategies.....	7
Table 4: Rates of STBBI in Canada: Trends, modes of transmission and priority populations	10
Table 5: Variance Between Planned Spending vs Expenditure 2013-14 and 2017-18 (\$).....	20

List of Acronyms

CAF	HIV and Hepatitis C Community Action Fund
CanHepC	Canadian Network on Hepatitis C
CATIE	Canadian AIDS Treatment Information Exchange
CCDIC	Centre for Communicable Diseases and Infection Control
CIHR	Canadian Institutes of Health Research
EBP	Employee Benefits Plan
FI	Federal Initiative to Address HIV/AIDS in Canada
HIV	Human immunodeficiency virus
HPV	Human papilloma virus
HRF	Harm Reduction Fund
G&Cs	Grants and Contributions
NML	National Microbiology Laboratory
O&M	Operations and Maintenance
PHAC	Public Health Agency of Canada
PMS	Performance measurement strategy
PSPC	Public Service and Procurement Canada
STBBI	Sexually transmitted and blood-borne infections
STI	Sexually transmitted infection

Executive summary

This report presents the findings of the evaluation of the Public Health Agency of Canada's (PHAC) viral hepatitis and sexually transmitted infection (STI) activities.

Evaluation purpose and scope

This evaluation was conducted to support program planning and decision making. It covered PHAC's viral hepatitis and STI activities for the period of 2013-14 to 2017-18. These activities represented an annual investment of approximately \$12 million.

The purpose of the evaluation was to assess the overall relevance and performance (achievement of outcomes) associated with PHAC's viral hepatitis and STI activities. The evaluation focused on PHAC activities as they relate to STI, such as chlamydia, genital herpes, gonorrhoea, syphilis, human papilloma virus (HPV), as well as viral hepatitis, a group of diseases of the liver, which include hepatitis B and hepatitis C that can be transmitted sexually or through blood. The term sexually transmitted and blood-borne infections (STBBI) is often used to refer to all infections which can be transmitted sexually or through blood.¹

Human immunodeficiency virus (HIV) is also an STBBI, but this evaluation did not assess PHAC activities falling under the Federal Initiative to Address HIV/AIDS in Canada. These activities were assessed in a separate horizontal evaluation conducted concurrently with this one.

Program description

At PHAC, the Centre for Communicable Diseases and Infection Control (CCDIC) is the lead on work related to the prevention and control of viral hepatitis and STI, with the National Microbiology Laboratory (NML) having responsibilities in laboratory sciences and services related to viral hepatitis and STI.

More specifically, CCDIC has the mandate to create and share credible knowledge, such as guidance documents and surveillance reports. CCDIC also has a role in developing and communicating policy positions that facilitate coherent national action, as well as increasing the population's general awareness, thus contributing to the prevention and control of STBBI. CCDIC also administers PHAC's grants and contributions funding to support community-based interventions that help prevent and control of hepatitis C and other associated STBBI among priority populations, such as people who use drugs, and target audiences, such as health care and social service providers, public health professionals, frontline workers, and community-based organizations. Community-based interventions can include educational events for priority populations and target audiences, as well as linkages to testing and care. CCDIC also administers funding provided by PHAC for hepatitis C research through a partnership established with the Canadian Institutes of Health Research (CIHR).

The NML works to prevent the spread of STBBI by providing laboratory sciences and testing services. This includes specialized testing done in support of laboratory-based surveillance, such as testing that helps antimicrobial-resistant gonorrhoea surveillance. NML also provides leadership on laboratory activities, including networking with the various laboratories across Canada and contributing to building laboratory capacity through the provision of quality assurance programs for other laboratories.

Conclusions - Relevance

There is a continued need for activities related to viral hepatitis and STI, as they remain a persistent public health issue that disproportionately affects priority populations. Prevention, diagnosis, care, and treatment are essential for managing and controlling STBBI. Canadian rates of STI have been rising consistently since the mid-1990s. At the same time, worldwide momentum to eliminate new infections is building.

PHAC's activities are well aligned with its mandate and program responsibilities, including supporting prevention efforts for priority populations, raising awareness on infections and risks factors, building research and surveillance capacity, coordinating and conducting national surveillance, and supporting community-based interventions through the Hepatitis C Prevention, Support and Research Program. The evaluation found that this role was generally understood by external stakeholders.

Given common risk factors, transmission routes, and priority populations, PHAC has shifted to a more integrated approach in its response to addressing viral hepatitis, STI, and HIV to maximize impact and ensure an integrated response to these various infections.

Conclusions – Achievement of Outcomes

PHAC's activities have contributed to the creation and uptake of STBBI-related knowledge products. PHAC has developed and shared a variety of products, such as surveillance information, peer-reviewed journal articles, and guidance on STI.

While there has been considerable work done to generate, share, and support the application of knowledge, there are opportunities to further the application of STBBI knowledge products, such as guidelines, through enhanced outreach efforts. While PHAC knowledge products are well known and used by professionals in the field of sexual health, awareness of these products is low among general and family practitioners.

PHAC's activities have contributed to increasing the capacity and skills of audiences and populations to prevent and control viral hepatitis and STI. For example, NML has provided reliable testing services to enhance the capacity of regional, provincial, and territorial public health services, through genotyping or serological testing for diseases such as gonorrhoea, chlamydia, HPV, and herpes. Frontline health care workers are using information produced through PHAC-funded activities in their work. More precisely, they used information to educate or inform clients, colleagues, and members of the public, and to improve their own work practices.

Additionally, PHAC community-based funding recipients have worked with priority populations and target audiences to provide them with the skills and competencies to make informed decisions about their health, which in turn contributes to the adoption of behaviours that prevent infection (e.g., using clean syringes), or leads them to access services that address diagnosis, prevention, and control.

However, the limited reach to the most at-risk populations could affect the effectiveness of community-based activities. While PHAC has taken steps to address this challenge by identifying new priorities, priority populations, and eligible activities through the launch of the HIV and Hepatitis C Community Action Fund (CAF) and the Harm Reduction Fund (HRF) in 2017, caution is still needed to ensure that investments are aligned with populations with the highest burden of STBBI.

Conclusion – Efficiency and Economy

Over the five years covered by the evaluation, PHAC progressively integrated viral hepatitis and STI activities with its HIV response, including the creation of the HIV and Hepatitis C Community Action Fund (CAF) and the renewal of the TRACK biological-behaviour studies, which collected and provided information on various STBBI at the same time. Such an integrated approach appeared to have allowed for greater efficiency through collaboration. Still, there are opportunities within the integrated framework to clarify how specific federal actions will be implemented.

While PHAC has successfully implemented a comprehensive performance measurement strategy (PMS) that collects data on activities and outcomes related to all STBBI, including HIV, the use of this data for decision making appears limited, as a summary of the data has not been collated in recent years. To maximize the use of performance data, the PMS and associated tools could be streamlined to identify critically needed information.

Recommendations

The work done by PHAC over the five years of the evaluation period to address STBBI in an integrated way resulted in the release of the Pan-Canadian STBBI Framework for Action in June 2018. Through this Framework, the Government of Canada has taken a formal step in integrating its Hepatitis C and STI response with its response to HIV. Within this context, recommendations formulated below apply not only to the present evaluation, but also to the Horizontal Evaluation of the Federal Initiative to Address HIV/AIDS in Canada conducted over the same period.

Recommendation 1: Determine how federal investments will contribute to the goals outlined in the Pan-Canadian STBBI Framework for Action, including reducing STBBI-related stigma and discrimination, and aligning investments with those populations with the highest burden of STBBI. Communicate this to external stakeholders and Canadians.

The Pan-Canadian STBBI Framework for Action sets out an overarching and comprehensive approach to support and contribute to achieving global STBBI targets. While the integration of the HIV federal response with its response to other STBBI is well supported, internal and external stakeholders are unsure which actions will be taken by the federal partners within this Framework. As such, stakeholders need more clarity on what actions the federal government will take to achieve the disease-specific global targets. Additional information on addressing STBBI-related stigma and discrimination, as well as information on aligning investment to populations with the highest burden of STBBI is needed.

Recommendation 2: Explore partnerships and mechanisms to facilitate the dissemination and uptake of STBBI-related knowledge products.

Awareness and uptake of current PHAC knowledge products on STBBI by practitioners in the field of sexual health is high. Still, to increase the chances of accessing the undiagnosed, PHAC must work to achieve higher levels of awareness and uptake of its STBBI knowledge products by all intended target audiences, including primary care practitioners. PHAC should also give further consideration to how they could better support the uptake of knowledge products in areas of shared jurisdiction between federal and provincial responsibilities (e.g., access to testing technology), as there are gaps in these areas.

Recommendation 3: Enhance the use of performance information by simplifying indicators within the current performance measurement strategy to allow for annual reporting of results.

PHAC has successfully implemented an integrated PMS, which collects data on all related STBBI, including HIV. While data is being collected, its use in program monitoring and decision making appears limited, as an internal report collating the data has not been produced in recent years. Simplifying the indicators of the current PMS and ensuring that data for identified indicators exists would facilitate the production of a regular internal report and the use of performance data for program monitoring and decision making.

Management Response and Action Plan

Viral Hepatitis and Sexually Transmitted Infection Activities at the Public Health Agency of Canada

The work done by PHAC over the five years of the evaluation period to address STBBI in an integrated way resulted in the release of the Pan-Canadian STBBI Framework for Action in June 2018. Through this Framework, the Government of Canada has taken a formal step in integrating its HIV response with its response to other STBBI. Within this context, recommendations formulated below apply not only to the present evaluation, but also to the Horizontal Evaluation of the Federal Initiative to Address HIV/AIDS in Canada conducted over the same period. Although the Management Response and Action Plan (MRAP) developed by the program is common to both evaluations, accountability for actions and deliverables related to PHAC's activities on viral hepatitis and STI rests solely with PHAC's management.

Recommendations	Response	Action Plan	Deliverables	Expected Completion Date	Accountability	Resources
Recommendation as stated in the evaluation report	Identify whether program management agrees, agrees with conditions, or disagrees with the recommendation, and why	Identify what action(s) program management will take to address the recommendation	Identify key deliverables	Identify timeline for implementation of each deliverable	Identify Senior Management and Executive (DG and ADM level) accountable for the implementation of each deliverable	Describe the human and/or financial resources required to complete recommendation, including the source of resources (additional vs. existing budget)
<p>Recommendation 1:</p> <p>Determine how federal investments will contribute to the goals outlined in the Pan-Canadian STBBI Framework for Action, including reducing STBBI-related stigma and discrimination, and aligning investments with those populations with the highest burden of STBBI. Communicate this to external stakeholders and Canadians.</p>	Management agrees with the recommendation	Develop and implement the Government of Canada's Action Plan on STBBI that will outline the actions that will be undertaken by FI partners and other Government of Canada departments to contribute to the goals of the Pan-Canadian STBBI Framework.	<p>a) Federal Action Plan on STBBI</p> <p>b) Federal progress report</p>	<p>Release of Government of Canada's Action Plan on STBBI by June 2019</p> <p>June 2021</p>	<p>Lead: Vice President of IDPC DG, CCDIC, PHAC</p> <p>With support and contribution of Federal Partners</p>	Utilize existing FTEs and O&M

Recommendations	Response	Action Plan	Deliverables	Expected Completion Date	Accountability	Resources
Recommendation as stated in the evaluation report	Identify whether program management agrees, agrees with conditions, or disagrees with the recommendation, and why	Identify what action(s) program management will take to address the recommendation	Identify key deliverables	Identify timeline for implementation of each deliverable	Identify Senior Management and Executive (DG and ADM level) accountable for the implementation of each deliverable	Describe the human and/or financial resources required to complete recommendation, including the source of resources (additional vs. existing budget)
Recommendation 2: Explore partnerships and mechanisms to facilitate the dissemination and uptake of STBBI-related knowledge products.	Management agrees with the recommendation	Develop a strategy that outlines options and recommendations to enhance and facilitate the uptake of STBBI-related knowledge products, including targeted activities for different stakeholder groups, such as primary care providers, and identify key stakeholders/partners who could support the development and mobilization of key products	Knowledge mobilization strategy	December 2019	Vice President of IDPC Director General of Centre for Communicable Diseases and Infection Control	Utilize existing FTEs and O&M
Recommendation 3: Enhance the use of performance information by simplifying indicators within the PMS to allow for annual reporting of results.	Management agrees with the recommendation	Review the existing STBBI performance measurement strategy to align with the Government of Canada's Action Plan on STBBI and the agreed upon FPT STBBI Indicators Framework	a) STBBI Indicators Framework b) Revised STBBI Performance Measurement Strategy and Indicators	March 2020 March 2021	Vice President of IDPC DG, CCDIC Other federal partners	Utilize existing FTEs and O&M

1.0 Evaluation purpose

The purpose of this evaluation was to assess the relevance and performance of the Public Health Agency of Canada's (PHAC) viral hepatitis and sexually transmitted infection (STI) activities for the period of April 2013 to March 2018.

The evaluation also discusses the release of the Pan-Canadian STBBI Framework for Action in June 2018, even though it falls outside of the period of this evaluation, as this Framework sets the future of the integrated STBBI program, which will include PHAC activities related to viral hepatitis and STI.

2.0 Program Description

2.1 Program Context

The term sexually transmitted and blood-borne infection (STBBI) describes an infection that is transmitted either sexually or through blood. This includes, but is not limited to, human immunodeficiency virus (HIV), viral hepatitis, chlamydia, genital herpes, gonorrhoea, syphilis, and human papilloma virus (HPV).²

This evaluation focuses on PHAC activities as they relate to STI, such as chlamydia, genital herpes, gonorrhoea, syphilis and HPV, as well as viral hepatitis, a group of diseases of the liver, which include hepatitis B and hepatitis C.

While HIV is also an STBBI, this evaluation did not assess PHAC activities falling under the Federal Initiative to Address HIV/AIDS in Canada (FI). FI activities were assessed in a separate horizontal evaluation, which was conducted concurrently with this one. However, since PHAC has worked on integrating its HIV response with its viral hepatitis and STI response in the period covered by this evaluation, the current report discusses the integration of STBBI responses, including HIV, where appropriate. It also discusses the release of the Pan-Canadian STBBI Framework for Action in June 2018.

2.2 Program Profile

At PHAC, the Centre for Communicable Diseases and Infection Control (CCDIC) is the lead on work related to the prevention and control of viral hepatitis and STI, with the National Microbiology Laboratory (NML) having responsibilities in laboratory sciences and services related to viral hepatitis and STI.

More specifically, CCDIC has the mandate to create and share credible knowledge, such as guidance documents and surveillance reports. CCDIC also has a role in developing and communicating policy positions that facilitate coherent national action. It also works to increase the public's general awareness, thus contributing to the prevention and control of hepatitis C and other associated STBBI among priority populations, such as people who use

drugs, and target audiences, such as health care and social service providers, public health professionals, frontline workers, and community-based organizations. Community-based interventions can include educational events for priority populations and target audiences, as well as linkages to testing and care. CCDIC also administers funding provided by PHAC for hepatitis C research through a partnership established with the Canadian Institutes of Health Research (CIHR).

The NML works to prevent the spread of STBBI by providing laboratory sciences and testing services. This includes specialized testing done in support of laboratory-based surveillance, such as testing that helps antimicrobial-resistant gonorrhoea surveillance. NML also provides leadership on laboratory activities, including networking with various laboratories across Canada, and contributing to building laboratory capacity through the provision of quality assurance programs for other laboratories.

Centre for Communicable Diseases and Infection Control

CCDIC is divided into four divisions, and each division undertakes its own set of activities that contribute to the program being evaluated.

Surveillance and Epidemiology Division

The Surveillance and Epidemiology Division is responsible for national surveillance and epidemiology activities undertaken for selected communicable diseases and infections, including viral hepatitis and STI. Within the Division, there are four distinct activities: national surveillance, analysis and dissemination of surveillance results, epidemiological research, and technical epidemiological support to provincial and territorial governments by request.

Professional Guidelines and Public Health Practice Division

The Professional Guidelines and Public Health Practice Division is responsible for supporting professional public health practices in the prevention and control of communicable diseases and infections, including viral hepatitis and STI. Within the Division, there are two distinct areas of activity: development of guidance for professionals, and modeling and risk assessment.

Programs and Partnerships Division

The Programs and Partnerships Division plays a leadership role in hepatitis C and STI policy, public awareness, partnerships, and knowledge mobilization. The Division is also in charge of the administration of grants and contributions funding under the Hepatitis C Prevention, Support and Research Program. This Program supports community-based responses for the prevention and control of hepatitis C and related STBBI through grants and contributions (around \$3.4 million annually). As part of the Hepatitis C Prevention, Support and Research Program, PHAC also supports research through a five-year partnership with CIHR, covering 2015 to 2020. Under this partnership, PHAC has invested close to \$5 million over five years (through a \$900,000 annual transfer to CIHR) to support research related to hepatitis C.

In April 2017, grants and contributions funding in support of community-based interventions available through the Hepatitis C Prevention, Support and Research Program (\$3.4 million annually) and the Federal Initiative to Address HIV/AIDS in Canada (\$23 million annually) were integrated into the HIV and Hepatitis C Community Action Fund (\$26.4 million annually).

Strategic Issues and Integrated Management Division

The Division is responsible for supporting the joint planning, reporting, monitoring, and program evaluation for CCDIC.

Laboratory Science Leadership and Services

The NML's Laboratory Science Leadership and Services program informs public health action through the delivery of innovative approaches to advance laboratory science, testing services, lab-based surveillance, outbreak response, and national public health laboratory leadership.

The NML also offers specialized testing and development of innovative tools as a national service or to be transferred to provincial, territorial, and municipal governments to improve public health laboratory response capacity across Canada. The key sections and units within the NML that undertake activities that contribute to STI products and services include the following:

Viral Blood-borne Pathogens & Hepatitis Section

- Provides serological and molecular reference services for infections caused by the hepatitis A, B, C, D, and E viruses, human herpesvirus-8, as well as consultation on diagnostics issues, outbreak, and trace-back investigations, and develops tests for the detection of other potential blood-borne pathogens.
- Conducts research to address questions on hepatitis infections, including prevention, in Canada and throughout the world, with a focus on countries where viral hepatitis is endemic, in order to mitigate the risk of importation into Canada through immigration.

Viral Exanthemata & Sexually Transmitted Diseases Section

- Carries out reference and research for HPV, herpes simplex virus, human polyomavirus and other human herpesviruses, and Chlamydia.
- Activities include testing for surveillance, molecular epidemiology, genotyping and comparative genomic.
- studies of viruses, antiviral resistance, transplantation-related testing for herpesviruses, investigations of encephalitis, and serology to improve the diagnosis and treatment of viral STI.

Streptococcus and Bacterial Sexually Transmitted Infections Unit

- Provides reference diagnostics, conducts national surveillance, monitors antimicrobial susceptibilities, and provides outbreak support and research activities on bacterial sexually transmitted infections, including *Neisseria gonorrhoeae*, *Mycoplasma*, and *Ureaplasma*.
- Monitoring the incidence of diseases to provide early warning of changing disease patterns (e.g., emerging antimicrobial resistance, possible outbreaks, increases in disease prevalence).

Pathogenic Neisseria, Syphilis and Vaccine Preventable Bacterial Diseases

- Provides laboratory leadership in the detection, identification, prevention, and control of some STI (e.g., Syphilis) through reference and diagnostic services.
- Undertakes surveillance and research activities for monitoring disease incidence and patterns, detecting vaccine-resistant mutant strains, monitoring and detecting changes in molecular epidemiology, and participating in disease outbreak response.

2.3 Program Narrative

Through their respective activities, CCDIC and NML seek to support the achievement of the following outcomes, as they relate to activities on viral hepatitis and STI:

- Increased awareness and knowledge of approaches to prevent the acquisition and transmission of viral hepatitis and STI by target audiences and priority populations;
- Strengthened capacity (skills, competencies, and attitudes) of priority populations and target audiences;
- Improved uptake and application of knowledge in public health practices; and
- Increased uptake of behaviours that prevent the transmission of HIV by target audiences and priority populations.

Ultimately, these outcomes are expected to result in decreased acquisition and transmission of new viral hepatitis infections and STI.

2.4 Program Resources

Overall, PHAC's expenditures related to viral hepatitis and STI are estimated at \$56.4 million for fiscal years 2013-14 to 2017-18. Of this, \$41 million stems from the Hepatitis C Prevention, Support and Research Program (Hepatitis C Program), of which \$21 million was allocated to grants and contributions transfer payments. Table 1 presents the total expenditures associated with the Hepatitis C Program and administered by CCDIC. In addition to funding for the Hepatitis C Program, it was estimated that CCDIC allocated, over the same five-year period, an estimated \$8 million of its ongoing funding to viral hepatitis and STI activities falling outside of the Hepatitis C program. NML's contribution to viral hepatitis and STI activities was estimated at \$8.8 million over the evaluation period.

Table 1: Expenditures for the Hepatitis C Prevention, Support and Research Program

Year	Grants and Contributions (G&Cs)	Operations and Maintenance (O&M)/ Capital ^a	Salary ^b	Total
2013-2014	\$4,154,277	\$1,616,758	\$3,023,129	\$8,794,164
2014-2015	\$4,276,776	\$1,553,835	\$2,522,805	\$8,353,416
2015-2016	\$4,297,393	\$1,488,538	\$2,026,646	\$7,812,577
2016-2017	\$4,295,252	\$1,503,298	\$2,329,976	\$8,128,526
2017-2018	\$4,162,309	\$1,568,866	\$2,311,893	\$8,043,067
Total	\$21,186,007	\$7,731,293	\$12,214,449	\$41,131,749

Source: Office of Chief Financial Officer

Note: ^a O&M/Capital includes Public Service and Procurement Canada (PSPC) accommodations costs.

^b Salary includes contributions to employee benefits plan (EBP).

While the program received ongoing funding to perform its mandated activities, this core funding is not specific to viral hepatitis and sexually transmitted infections, as it also includes activities related to other diseases not covered in this evaluation. In an effort to get a sense of how much ongoing funding was associated with viral hepatitis and sexually transmitted infection activities only, CCDIC and NML both underwent a review of their finances, which was verified by PHAC's Office of the Chief Financial Officer. Table 2 presents estimated actual spending for both CCDIC and NML as it relates to their viral hepatitis and STI activities.

Table 2: Estimated Expenditure for Ongoing Viral Hepatitis and STI Activities 2013-14 and 2017-18 (\$)

Fiscal Year	O&M/Capital ^a	Salary ^b	Total
CCDIC (surveillance and guidance)			
2013-14	326,242	1,223,572	\$1,549,814
2014-15	273,658	1,584,631	\$1,858,289
2015-16	74,275	1,392,804	\$1,467,079
2016-17	70,376	1,125,317	\$1,195,693
2017-18	153,421	1,229,044	\$1,382,465
Total	897,972	6,555,368	\$7,453,340
NML (Laboratory Science Leadership and Services)			
2013-14	790,584	794,237	\$1,584,821
2014-15	630,803	876,009	\$1,506,812
2015-16	712,572	837,354	\$1,549,926
2016-17	651,217	986,601	\$1,637,818
2017-18	614,037	1,051,743	\$1,665,780
Total	3,399,213	4,545,946	\$7,945,159
Grand Total	4,297,185	13,321,577	\$17,618,762

Data Source: Office of Chief Financial Officer

Note: ^a O&M/Capital includes PSPC accommodations costs.

^b Salary includes contributions to EBP.

2.5 Previous evaluations

PHAC's activities related to viral hepatitis and sexually transmitted infections were last evaluated as part of the *Evaluation of Community Associated Infections Prevention and Control Activities at the Public Health Agency of Canada*, completed in February 2013. The evaluation recommended that PHAC do the following:

- Review collaborative activities on community-associated infections, and, where gaps in achieving PHAC outcomes were identified, develop an appropriate response to enhance coherence in prevention and control activities;
- Review internal processes to improve the timeliness of community-associated infection product distribution. Where needed, develop and implement standards to address identified gaps; and
- Develop a comprehensive and feasible performance measurement system to help support program decision making.

Program management agreed to all recommendations, and all deliverables identified in the Management Response and Action Plan were completed.

3.0 Evaluation Description

3.1 Evaluation Scope, Approach and Design

The evaluation of PHAC's viral hepatitis and sexually transmitted infections activities covered the period from April 2013 to March 2018, and included all CCIDC and NML activities conducted to prevent and control the transmission and acquisition of viral hepatitis and STI, including the Hepatitis C Prevention, Support and Research Program.

Since HPV and hepatitis B are vaccine-preventable STI, PHAC has established immunization programs for these diseases. These programs are led by the PHAC's Centre for Immunization and Respiratory Infection Diseases and have not been included in the scope of this evaluation.

This evaluation is consistent with the Treasury Board Secretariat of Canada's *Policy on Evaluation* (2016). The evaluation explored the following:

- Continued need for activities that address viral hepatitis and sexually transmitted infections, alignment with PHAC's role and responsibilities, and alignment with the Government of Canada's priorities;
- Progress toward achievement of expected outcomes of increasing knowledge, strengthening skills and capacity, improving application of knowledge, and increasing uptake of healthy personal behaviours;
- Mechanisms are in place to support collaboration with external stakeholders; and
- Use of resources, in terms of efficiency and economy.

Data for the evaluation was collected using various methods, including:

- literature review;
- document review, including performance measurement data review;
- key informant interviews; and
- financial data review.

More specific details on data collection and analysis methods are included in Appendix 1. Data was analyzed by triangulating information gathered from the different methods listed above. The use of multiple lines of evidence and triangulation was intended to increase the reliability and credibility of evaluation findings and conclusions.

3.2 Limitations and Mitigation Strategies

Most evaluations face constraints that may affect the validity and reliability of findings and conclusions. The following table outlines the limitations encountered during the implementation of the selected methods for this evaluation. Also noted are the mitigation strategies put in place to ensure that the evaluation findings can be used with confidence to guide program planning and decision making.

Table 3: Limitations and Mitigation Strategies

Limitation	Impact	Mitigation Strategy
Limited primary data was collected from direct beneficiaries of funded activities.	<ul style="list-style-type: none"> • Direct beneficiaries of funded community-based activities were not consulted as part of primary data collection. More interviews with these stakeholders could have provided greater insight into the performance of funded activities. 	<ul style="list-style-type: none"> • Triangulation methods were used to corroborate key findings (literature and document reviews, and key informant interviews).
Key informant interviews are retrospective in nature.	<ul style="list-style-type: none"> • Interviews are retrospective in nature, providing a recent perspective on past events. This can affect the validity of assessment for activities or results that may have changed over time. 	<ul style="list-style-type: none"> • Triangulation with other lines of evidence substantiated and provided further information on data captured in interviews. • Document review provided corporate knowledge.
Financial data on STI and viral hepatitis activities (falling outside of the Hepatitis C Prevention, Support and Research	<ul style="list-style-type: none"> • Analyses of planned and actual expenditures were not possible for activities falling outside of the Hepatitis C Prevention, Support and Research 	<ul style="list-style-type: none"> • Program areas worked with the Office of the Chief Financial Officer to estimate their actual expenses associated with viral hepatitis and STI activities. This allowed the evaluation to

Limitation	Impact	Mitigation Strategy
Program) were amalgamated with the activities of other infections and diseases.	Program.	compare actual spending over the years.
Since 2014-15, performance data on Hepatitis C and STI has been collected jointly with HIV and some key performance indicators were updated or changed during the evaluation period.	<ul style="list-style-type: none"> • Analysis of data specific to the individual program was not possible. • Analysis of data on some key indicators over time was not possible, which limited the capacity to evaluate if progress had been made over the years. 	<ul style="list-style-type: none"> • Analysis was done with the available data, and caution was used not to extrapolate meaning. • Where possible, information was triangulated with other lines of evidence.

4.0 Findings

4.1 Relevance

Sexually transmitted and blood-borne infections are important public health issues that require attention and action. Increasing rates of STBBI that disproportionately affect priority populations underline the need for continued public health vigilance in Canada. The evaluation found that PHAC’s role and activities are well aligned with the Government of Canada’s commitment to end viral hepatitis and sexually transmitted infections as a health concern by 2030.

Continued Need

In Canada, the number of people newly diagnosed with hepatitis C infections has remained relatively stable in recent years, though there are variations at the regional level and among specific communities. As of 2011, an estimated 221,000 to 246,000 Canadians had a chronic hepatitis C infection, with an estimated 44% being unaware of their status.³

The number of people newly diagnosed with chlamydia, gonorrhoea, and syphilis infections has increased consistently since the mid-1990s, despite numerous public health interventions designed to prevent, diagnose, and treat these infections. Between 2005 and 2014, there was a 49% increase in the reported rate of chlamydia, a 61% increase in the reported rate of gonorrhoea, and a 95% increase in the reported rate of syphilis.⁴ Table 4 presents the specific rates of infection, main modes of transmission, and priority populations associated with each STBBI.

Individuals are often unaware of their infections as they can be asymptomatic. This can result in further transmission of infection because individuals without symptoms are less likely to get tested and therefore treated. The number of people unaware of their infection is estimated as follows: 9 out of 10 people for genital herpes, 9 out of 10 people for HPV, 3 out of 4 people for chlamydia⁵, and 2 out of 5 people for hepatitis C.⁶

The evaluation found that there is international movement towards addressing STBBI in an integrated way, as opposed to in isolation,⁷ as infections share common features like modes of transmission, priority populations, risk behaviours, as well as social and structural risk factors, such as substance abuse, low income levels, and limited social support.⁸ Furthermore, synergistic interactions between these infections lead to increased transmission and poorer health.⁹

Table 4: Rates of STBI in Canada: Trends, modes of transmission and priority populations

Infection	National rate per 100,000 population	Trend	Modes of transmission	Priority population
Chlamydia	325 (in 2015)	Increase of 16.7% from 2010 to 2015	Sexual	Females, young adults aged 15-29 years
Gonorrhea	55.4 (in 2015)	Increase of 65.4% from 2010 to 2015	Sexual	Males, adolescents, 15-29 years of age; rates rising quickly in adults 60 years and older
Infectious Syphilis	9.3 (in 2015)	Increase of 85.6% from 5.0 (in 2010) to 9.3 cases per 100,000 population	Sexual and blood-borne	Males, young adults 20-39 years, sexual behaviour of men who have sex with men is a major risk factor
Congenital Syphilis	1.5 cases per 100,000 live births in 2015	Rates of congenital syphilis decreased from 2010 to 2014 (from 1.6 to 0.3 cases per 100,000 live births), however it increased to 1.5 (with 6 reported cases) in 2015.	Mother-to-child	The risk of transmission varies from 10% to over 70% depending on the mother's stage of disease.
Hepatitis B	0.5 (acute) 12.0 (chronic) (in 2014)	Appears to have reached a plateau in recent years	Sexual and blood-borne	Males 30-59 years
Hepatitis C	29.3 (in 2014)	Increase of 5% from 2012 to 2016	Blood-borne	Males 40 to 59 years and 25 to 29 years, Indigenous people, people who inject drugs
HPV ¹⁰	Not available, as this is not a nationally notifiable disease	It is estimated that 75% of sexually active Canadians will have an HPV infection at some point in their lives.	Sexual and skin-to-skin contact	In 2012, 3,760 HPV-associated cancers were diagnosed in Canada, 35% were mouth and throat cancer, and 35% were cervical cancer; two in three newly diagnosed cases of HPV-associated cancers were in women; four in five newly diagnosed cases HPV-associated mouth and throat cancers were in men.
Genital Herpes	Not available, as this is not a nationally notifiable disease	Approximately 14% of Canadian adults tested positive for genital herpes simplex virus type 2 (HSV-2) in 2009. HSV is particularly widespread among people with HIV type 1, affecting 50% to 90% of them.	Sexual and skin-to-skin contact	The Canadian Health Measures Survey found that HSV-2 was more common in people aged 35-59 (19%) than in people aged 14 to 34 (6%).

Alignment with Priorities

In May 2016, Canada signed on to the World Health Organization's first ever Global Viral Hepatitis Strategy, with the goal of eliminating viral hepatitis as a public health threat by 2030.¹¹ Canada had previously endorsed similar targets for HIV in 2015.

Since then, Canada has endorsed additional global health sector strategies aimed at addressing not only HIV and viral hepatitis, but also STI. These global strategies, led by the United Nations and the WHO, call on countries to work towards the elimination of STBBI as a health concern by 2030.¹²

Within this context, PHAC has developed, in consultation with various external stakeholders, a Pan-Canadian STBBI Framework for Action. This Framework sets out an overarching and comprehensive approach to supporting and achieving Canada's commitments towards global STBBI targets (these targets are presented in Appendix 2). Federal, provincial, and territorial ministers of health officially endorsed the Framework in June 2018.¹³

Alignment with Roles

In accordance with the *Public Health Agency of Canada Act (2006)*, PHAC is mandated to lead federal efforts and mobilize pan-Canadian action to prevent disease and injury. It is also mandated to promote and protect national public health.

Within this context, PHAC has a role in preventing and controlling infectious diseases like viral hepatitis and STI. In addition, under the Hepatitis C Prevention, Support and Research Program, PHAC is the lead in addressing hepatitis C, through activities aimed at the following:

- research and surveillance;
- care and awareness;
- prevention and community-based support; and
- management, policy, evaluation, and public involvement.

PHAC also has the authority to link its HIV response with its viral hepatitis and STI response, in order to maximize output from activities and ensure an integrated response, as these various infections share common risk factors, transmission routes, and priority populations.

Interview data indicates that PHAC's role is generally well understood by external stakeholders.

4.2 Achievement of Outcomes

PHAC is working toward decreasing the rates of viral hepatitis and STI. The first step to doing so is the creation and dissemination of knowledge to priority populations and target audiences. This knowledge should enhance awareness and the development of new skills, competencies, and attitudes that allow for behaviour changes. These behavioural changes will ultimately lead to decreasing the rates of acquisition and transmission of viral hepatitis and STI.

4.2.1 From Increased Knowledge to Knowledge Application

Increasing Knowledge

Over the last five years, PHAC has produced and disseminated STBBI-related knowledge products that are accessed by target audiences. There are opportunities to do more as some knowledge gaps remain and conflicting information has been noted.

PHAC has developed and disseminated a variety of knowledge products. These include surveillance information, guidance fact sheets, and Canada Communicable Disease Report publications. Funded organizations, such as the Canadian AIDS Treatment Information Exchange (CATIE), a national source of HIV and hepatitis C information, and other community-based organizations also produce and share knowledge products for target audiences and priority populations.

In 2013, PHAC released the Canadian Guidelines on Sexually Transmitted Infections in web format. In 2015, they were also made available through a mobile application. The mobile application was a well-received and innovative approach to knowledge sharing. The most viewed topics in the application were chlamydia, gonorrhoea, and pelvic inflammatory disease. The pages containing treatment recommendations were viewed more frequently than the pages containing descriptive information on infections.

As part of PHAC's role in surveillance, it develops knowledge products to share information with target audiences. For example, PHAC has worked with stakeholders on surveillance of antimicrobial-resistant gonorrhoea, publishing both a report on the status of the infection and a treatment guidance statement. These knowledge products were published on the PHAC website and shared with target audiences through a webinar.

PHAC also publishes research papers in academic journals. For example, NML has published 65 papers related to viral hepatitis and sexually transmitted infections over the last five years. The three-year average for number of citations of NML publications was 4,343 in 2017-18, which indicates that NML is contributing to and advancing the knowledge base around STBBI.

In addition to the work PHAC has done directly to increase knowledge related to STBBI, it also provides grants and contributions funding to support community-based organizations, CATIE, and the Canadian Network on Hepatitis C (CanHepC) through a partnership with CIHR. All of these organizations produce knowledge products and share information for target audiences and priority populations. As of March 2018, the CanHepC network had published a total of 101 research papers, 15 from investigator members and 86 from CanHepC trainees. External key informants indicated that research, including the research produced by CanHepC, has informed Canada's harm reduction programs, such as supervised consumption sites and needle exchange programs.

Similarly, CATIE has increased knowledge among priority populations and target audiences by producing and distributing information resources. In 2017-18 alone, they produced or co-produced 336 new documents, reached 4,374 people through education sessions, distributed over 500,000 resources, and had 2.9 million web page views.¹⁴

PHAC-funded organizations have also developed and shared knowledge products with priority populations and target audiences. They have created, used, and distributed a wide range of communication, education, and training materials. These materials consist of brochures, pamphlets, training manuals, videos, position papers, and other awareness products. They were shared through a variety of activities, such as social media campaigns, educational activities, including webinars and workshops, and partnerships with other organizations or health care providers.

Opportunities for Improvement

While there has been considerable work done to generate knowledge about STBBI, some gaps and conflicting information have been identified. A 2018 public opinion survey commissioned by PHAC and conducted by EKOS Research Associates Inc. found that the general population in Canada has some gaps in knowledge related to STBBI. For example, only 29% of Canadians are aware that there is a cure for hepatitis C, while 53% believe that there is a vaccine for it, when there is not. Similarly, 32% of Canadians are not aware or do not believe that there is a vaccine for hepatitis B, when one is available. The same survey also found that 50% of respondents have never been tested for an STBBI.

Several external key informants pointed to a need for more up-to-date surveillance information on epidemiological characteristics of hepatitis C. While the Canadian Notifiable Disease Surveillance System provides annual numbers of reported cases up to 2016, documents reviewed identify that the most current estimates of the prevalence and incidence rates date back to 2014 and 2011, depending on which epidemiological variable is being considered. PHAC is currently working on updating its hepatitis C estimates.

Some stakeholders identified that conflicting guidance related to hepatitis C screening by birth cohort from the Canadian Task Force on Preventive Health Care and the Canadian Association for the Study of the Liver is hindering uptake of knowledge. A few have argued

that not addressing conflicting guidance will limit Canada's ability to achieve its Hepatitis C global targets.

Applying Knowledge

PHAC activities have supported the application of STBBI-related knowledge by target audiences. Increasing the reach of various STBBI knowledge products could further enhance the application of STBBI-related knowledge.

The next step to increasing knowledge, strengthening capacity, and changing behaviours is ensuring that available knowledge is applied. PHAC has engaged in a number of activities that have contributed to the uptake of knowledge by target audiences and priority populations.

One of the key mechanisms used to share knowledge products has been webinars. Between 2013 and 2018, PHAC hosted 53 webinars on STBBI. Webinar topics have included the epidemiology of HIV and other STBBI in Canada, and strategies for the prevention of syphilis among gay, bisexual, two-spirit and other men who have sex with men. The audience for the webinars consisted of public health or health care professionals, policy analysts at the provincial, territorial, and federal levels, non-governmental organizations and community-based workers, and researchers and academics. A survey of past webinar participants conducted by PHAC in 2018 found that 82% of respondents indicated that they had applied the knowledge presented in the webinars to their work or practice.

Many of the activities to improve application of knowledge have come from community-based organizations that were funded by PHAC through grants and contributions. Data from some community-based organizations indicates that activities aimed at reducing stigma from service providers has resulted in improved practices. This includes improved counselling practices and improved awareness of available information.

Many external key informant interviewees pointed to CATIE, which is funded by PHAC as the HIV and Hepatitis C Knowledge Broker, as an important source of knowledge. Frontline organizations reported that the activities and services CATIE offers have helped them interpret new research findings. A national survey of frontline workers conducted by CATIE in 2017 showed that 97% of respondents had reported an increased knowledge in hepatitis C. The same survey indicated that 91% of respondents had used information from CATIE to educate or inform clients, health professionals, colleagues, or members of the public. The survey also reported that 77% of frontline service providers who had used CATIE's products had made changes to their work practices or programming. Specific examples of changes made include improved counselling, improved patient education, and improved communication with clients.

Since 2015, the CanHepC Network has worked closely with knowledge users, involving them at each stage of their research process to ensure that research questions were in line with their information needs. They have also organized the annual Canadian Symposium on the Hepatitis C Virus, co-held events with CATIE, and hosted webinars. For example, following the publication of a CanHepC paper on direct-acting antiviral reimbursement restrictions in Canada, CanHepC, in collaboration with CATIE, held a webinar in February 2017 to discuss “strategies to address reimbursement restrictions for Hep C treatment: Lessons from Australia”. CanHepC has also worked directly with Indigenous communities to foster knowledge translation.

Opportunities for Improvement

In 2016, PHAC conducted a survey of family physicians’ knowledge of the treatment and management of antimicrobial-resistant gonorrhoea. This followed a 2013 update to the guidance on treating gonorrhoea due to changes in antimicrobial resistance patterns for the infection. The survey asked physicians a number of questions, including how they would treat patients in three different scenarios. Survey results showed that only 13% to 30% intended to treat the patients in the scenarios with the recommended therapy outlined in the Canadian Guidelines on Sexually Transmitted Infections. It was also found that STI clinics have a high degree of adherence to treatment guidelines when compared to family physicians. This indicated that further work is needed with respect to knowledge translation and dissemination of these guidelines, in order to improve the management of gonorrhoea and limit the effects of antimicrobial resistance.

Similarly, there are challenges in applying testing guidance, even when the guidelines are well understood. A review of research related to barriers and facilitators of hepatitis C screening and testing was conducted in 2018.¹⁵ It found that the barriers for health care practitioners offering hepatitis C testing to patients include time constraints, lack of specific knowledge about hepatitis C, and discomfort in asking about risk behaviours.

External and internal key informants highlighted that the mobile application for the Canadian Guidelines on Sexually Transmitted Infections could be made more useful and interactive to guide physicians in screening. PHAC is currently studying this option.

4.2.2 From Building Capacity to Changing Behaviours

Strengthening Capacity

PHAC's activities have increased the capacity and skills of priority populations and target audiences to prevent and control STBBI. To enhance the effectiveness of community-based projects, additional work needs to be done to ensure that the most at-risk populations are reached.

The capacity and skills of target audiences have been increased through a variety of activities delivered directly by PHAC. The NML has also contributed to increasing the skills and capacity of target audiences. NML provides reliable testing services to enhance the capacity of regional, provincial, and territorial public health services. These testing services help STBBI diagnosis and surveillance. For example, the NML supports genotyping or serological testing for diseases such as gonorrhea, chlamydia, HPV, and herpes.

PHAC's funding recipients also delivered activities that increased the capacity and skills of target audiences. Community-based projects have offered STBBI-related organizational capacity development activities, such as training for staff and volunteers, partnership development, and links to other organizations. These activities are aimed at changing practices by improving knowledge of available services, risk factors, and stigma and discrimination. In 2016-17, around 89% of service providers who participated in project-led training events reported a change of practice (n=1,658).

Part of what many community-based projects offer is linkages to services for priority populations. Linking individuals to services helps them take charge of their health by seeking out testing, treatment, and other necessary services. For example, based on a sample of about 1,100 people, 83% of people living with HIV and/or hepatitis C reported increased access to diagnosis and testing options following engagement in community-based project activities.

Community-based projects have also supported increased capacity and skills of priority populations by offering various learning activities aimed at developing the skills, abilities, and competencies needed to take control of and make informed decisions about health. According to a sample of 4,400 participants, 91% reported increased capacity to manage their health following their participation in community-based activities offered in 2015-16.

The evaluation also found that, through the implementation of the HIV and Hepatitis C Community Action Fund (CAF) in 2017, PHAC is now funding more projects that address STI and sexual health. One such project is SMASH (Strength, Masculinities, and Sexual Health Project), which is a culturally responsive arts intervention program to promote positive sexual health, attitudes and behaviours among youth in Nunavut, where there are high rates of STI. There is also a social marketing campaign to increase STBBI testing among marginalized youth, which targets young gay men, LGBTQ+ youth, and youth from immigrant, racialized, and newcomer communities.

Opportunities for Improvement

Some external stakeholders noted that PHAC's activities to increase access to testing and linkages to care are impeded by issues outside of their mandate. These issues include disparities in access across Canadian jurisdictions to current testing technology and a lack of availability in Canada of new testing technology, including rapid point-of-care testing for multiple diseases, and self-testing.

Within this context, some key stakeholders highlighted the importance of PHAC bringing the best science to the forefront and, within the limit of its mandate, trying to influence external stakeholders who play a role in access to testing, in order to adopt a coherent national strategy to increase access to testing.

The effectiveness of PHAC-funded community-based interventions could also be improved by ensuring that the most at-risk populations are well reached by programs and activities. Data collected to date indicates that some of the most at-risk populations for STBBI were not well reached over the past years. For example, individuals who use injection drugs accounted for only 15% and 30% of the population reached by activities conducted in 2015-16 and 2016-17, respectively, while surveillance data from 2011 estimates that 43% of all people who are infected with hepatitis C were persons who formerly or currently injected drugs.

Through the launch of the CAF and the Harm Reduction Fund (HRF) in 2017, PHAC has taken a step to better align investment with the most at-risk populations. The CAF identified in new priorities, priority populations and eligible activities, while the HRF seeks to reduce HIV and hepatitis C among people who share injection and inhalation drug-use equipment. Interview data collected by this evaluation shows early signs of improvements to this end, as it was reported that numbers of activities aimed at the most at-risk populations were increasing.¹⁶ The HRF is providing \$30 million over five years to support community interventions to reduce HIV and hepatitis C among people who share injection and inhalation drug-use equipment. Twenty-eight projects across the country are currently receiving funding and additional projects will be announced early in 2019. Preliminary results of these projects will be available in 2019-20.

Changing Behaviours

There is evidence that PHAC activities have contributed to increased uptake of personal health behaviours that prevent the acquisition and transmission of STBBI.

Data reported by PHAC-funded community-based organizations shows that the majority of individuals from priority populations who participated in activities reported a high intention to adopt healthy behaviours as they relate to hepatitis C, HIV, and other STBBI. In particular, between 75% and 85% reported the intention to change their behaviours, depending on the year.

While participants reported positive results from attending community-based projects, the evaluation found that the overall effectiveness of these programs may have been lower than the data suggests, due to a limited reach of the most at-risk populations (e.g., people who inject drugs). As such, data collected to date on PHAC-funded community-based activities indicates that they had not, over the past few years, sufficiently reached some of the most at-risk populations.

As noted above, through the implementation of the CAF and HRF in 2017, PHAC has taken a step to better align investment with the most at-risk populations.

4.3 Efficiency and Economy

The Pan-Canadian STBBI Framework for Action, which integrates work on HIV and other STBBI, appears to have allowed for greater efficiency through collaboration. There are opportunities within the integrated Framework to clarify how specific federal actions will be implemented.

4.3.1 Creating Efficiency through Integration

Over the past five years, the Federal Initiative to Address HIV/AIDS (FI) has shifted to an integrated approach to better address HIV and other related STBBI. This includes addressing barriers to prevention, diagnosis, care, treatment, and support for persons with HIV, hepatitis C, and other STI or blood-borne illnesses. This approach was introduced in the FI *Strategic Plan* for 2015-16 to 2019-20.

PHAC has worked to advance the integration of the STBBI response, not only internally, but also externally by fostering the adoption of shared common goals with the program's external stakeholders. For example, recipients of PHAC funding were encouraged to address STBBI in an integrated manner. This integration also resulted in the implementation of the CAF in April 2017. The CAF integrates the grants and contributions available through the Federal Initiative to Address HIV/AIDS in Canada and the Hepatitis C Prevention, Support and Research Program, into one common fund.

The objectives of the CAF are to:

- increase knowledge of effective HIV, hepatitis C, and related STBBI interventions and prevention methods;
- reduce stigma and discrimination that can affect access to health and social services for priority populations;
- strengthen capacity (i.e., skills, competencies, and abilities) of priority populations and target audiences to prevent infection and improve health outcomes;
- enhance application of knowledge in community-based interventions; and
- increase uptake of personal behaviours that prevent the transmission of HIV, hepatitis C, and related STBBI.

In addition, PHAC led a series of consultations with stakeholders in 2017, including provinces and territories, and Indigenous partners to identify concrete actions to reduce the impact of STBBI. This work culminated in the release of the Pan-Canadian STBBI Framework for Action. This Framework aims at reducing the health impact of STBBI in Canada by 2030, and was officially endorsed in June 2018 by federal, provincial, and territorial ministers of health. While it is too early to see the efficiency that could result from this integrated Framework, it is expected that the adoption of this shared direction by partners and stakeholders will increase the coherence of the overall national response to STBBI and its associated results.

Another example of efficiency gained from integrating the response to HIV with other STBBI can be seen in the administration of the Tracks Enhanced Surveillance System. These behavioural and biological surveillance systems monitor not only one but several infections, such as hepatitis C, HIV, and other STBBI, as well as their associated risk behaviours among priority populations in Canada.

Almost all internal and external key informants were supportive of integrating HIV activities with those of other STBBI. They highlighted that the integrated approach acknowledges shared transmission routes for STBBI and highlights that populations at risk for HIV are also at risk for other sexually transmitted infections and hepatitis C. Some specific benefits of integration mentioned by key informants include facilitating a coherent response to co-infection, simultaneously responding to multiple factors that put people at risk for STBBI, promoting efficiency in the work being done, and supporting a “one-stop-shop” approach to prevention and testing for priority populations. Literature also supports these benefits to integration.¹⁷

The Pan-Canadian STBBI Framework for Action is a roadmap for collaborative and complementary action to reduce the impact of STBBI across multiple sectors, including governments, communities, civil society, academia and research sectors, the private sector, and frontline service providers.¹⁸ It sets out areas for action in prevention, testing, initiation of care and treatment, and ongoing provision of care. The Framework also identifies a commitment to support an enabling environment by eliminating stigma and discrimination, increasing uptake, and ensuring equitable access to, and quality of, health services.¹⁹

Opportunities for improvement

While almost all internal and external key informants acknowledged the benefits associated with an integrated approach, some expressed concerns about and a lack of clarity on how disease-specific targets would be reached through an integrated approach (these targets are presented in Appendix 2). There was some hesitation because the intricacies of specific STBBI might be lost when the work is merged, with some key informants making it clear that, although HIV is much more manageable than it was 20 years ago, it remains more complex than other infections. Stakeholders are also interested to know more about how stigma related to STBBI will be addressed by the integrated Framework.

To this end, PHAC is currently developing a Government of Canada action plan scheduled to be released in 2019. The action plan will outline specific actions the Government of Canada will take to support the Framework. Provincial and territorial governments are responsible for the implementation of the Framework in their jurisdictions.

4.3.2 Program Spending

Funding Associated with the Hepatitis C Prevention, Support and Research Program

Between April 2013 and March 2018, the total Hepatitis C Prevention, Support and Research Program investment was about \$ 41 million, which includes the research funding partnership with CIHR. Over the last five years, the Program has been spending between 90% and 99% of its allotted budgets. Table 5 presents the variance in spending over the five years covered by this evaluation.

Table 5: Variance Between Planned Spending vs Expenditure 2013-14 and 2017-18 (\$)

Fiscal Year	Planned Spending				Actual Spending				Variance	
	Salary ^a	G&Cs	O&M	Total	Salary ^a	G&Cs	O&M ^b	Total	Total	% of Planned Budget Spent
2013-14	2,962,229	4,257,242	1,680,529	8,900,000	3,023,129	4,154,277	1,616,758	8,794,164	-105,836	99
2014-15	2,962,229	4,257,242	1,680,529	8,900,000	2,522,805	4,276,776	1,553,835	8,353,416	-546,584	94
2015-16	2,962,229	4,257,242	1,680,529	8,900,000	2,026,646	4,297,393	1,488,537	7,812,577	-1,087,423	88
2016-17	2,962,229	4,257,242	1,680,529	8,900,000	2,329,976	4,295,252	1,503,298	8,128,526	-771,474	91
2017-18	2,962,229	4,257,242	1,680,529	8,900,000	2,311,893	4,162,309	1,568,865	8,043,067	-856,933	9
TOTAL	14,811,146	21,286,210	8,402,644	44,500,000	12,214,449	21,186,007	7,731,293	41,131,749	-3,368,250	92

Data Source: Office of Chief Financial Officer

Note: ^a Salary includes contributions to EBP.

^b O&M/Capital includes PSPC accommodations.

4.3.3 Collection and Use of Performance Measurement Data

Since 2014-15, performance measurement data on viral hepatitis and STI activities has been collected in an integrated way for all STBBI, through the performance measurement strategy used for the Federal Initiative to Address HIV/AIDS. While performance data on STBBI is being collected, its use is not maximized, as data is not summarized and used in a systematic way. To facilitate best use of data, the current performance measurement strategy used for STBBI could be streamlined to identify critical information needs.

Performance data associated with the grants and contributions component of the Hepatitis C Prevention, Support and Research Program has been collected over the years. Data for 2013-14 was reported in a format that only included results from the hepatitis C grants and contributions component. Data collected after that year has been reported in an integrated way with the HIV grant and contribution program. While data has been collected over the years, no annual reports that rolled up the data collected have been produced since 2014-15. While some infographics were produced by the program for monitoring purposes and to inform some decision making, this was not done in a systematic way for all the information collected.

Furthermore, several performance indicators could be streamlined to enhance efficiency, while others that have limited use could be dropped.

5.0 Conclusions

5.1 Relevance

There is a continued need for activities related to viral hepatitis and STI, as they remain a persistent public health issue that disproportionately affects priority populations. Prevention, diagnosis, care, and treatment are essential for managing and controlling STBBI. Canadian rates of STI have been rising consistently since the mid-1990s. At the same time, worldwide momentum to eliminate new infections is building.

PHAC's activities are well aligned with its mandate and program responsibilities, including supporting prevention efforts for priority populations, raising awareness on infections and risks factors, building research and surveillance capacity, coordinating and conducting national surveillance, and supporting community-based interventions through the Hepatitis C Prevention, Support and Research Program. The evaluation found that this role was generally understood by external stakeholders.

Given common risk factors, transmission routes, and priority populations, PHAC has shifted to a more integrated approach in its response to addressing viral hepatitis, STI, and HIV to maximize impact and ensure an integrated response to these various infections.

5.2 Achievement of Expected Outcomes

PHAC's activities have contributed to the creation and uptake of STBBI-related knowledge products. PHAC has developed and shared a variety of products, such as surveillance information, peer-reviewed journal articles, and guidance on STI.

While there has been considerable work done to generate, share and support the application of knowledge, there are opportunities to further the application of STBBI knowledge products, such as guidelines, through enhanced outreach efforts. While PHAC knowledge products are well known and used by professionals in the field of sexual health, awareness of these products is low among general and family practitioners.

PHAC's activities have contributed to increasing the capacity and skills of audiences and populations to prevent and control viral hepatitis and STI. For example, NML has provided reliable testing services to enhance the capacity of regional, provincial, and territorial public health services through genotyping or serological testing for diseases such as gonorrhea, chlamydia, HPV, and herpes. Frontline health care workers are using information produced through PHAC-funded activities in their work. More precisely, they used information to educate or inform clients, colleagues, and members of the public, and to improve their own work practices.

Additionally, PHAC community-based funding recipients have worked with priority populations and target audiences to provide them with the skills and competencies to make informed decisions about their health, which in turn contributes to the adoption of behaviours that prevent infection (e.g., using clean syringes), or leads them to access services that address diagnosis, prevention, and control.

However, the limited reach to the most at-risk populations could affect the effectiveness of community-based activities. While PHAC has taken steps to address this challenge by identifying new priorities, priority populations, and eligible activities through the launch of the CAF and the HRF in 2017, caution is still needed to ensure that investments are aligned with populations with the highest burden of STBBI.

5.3 Efficiency and Economy

Over the five years covered by the evaluation, PHAC progressively integrated viral hepatitis and STI activities with its HIV response, including the creation of the HIV and Hepatitis C Community Action Fund and the renewal of the TRACK biological-behaviour studies, which collected and provided information on various STBBI at the same time. Such an integrated approach appeared to have allowed for greater efficiency through collaboration. Still, there are opportunities within the integrated framework to clarify how specific federal actions will be implemented.

While PHAC has successfully implemented a comprehensive performance measurement strategy (PMS) that collects data on activities and outcomes related to all STBBI, including HIV, the use of this data for decision making appears limited, as a summary of the data has not been collated in recent years. To maximize the use of performance data, the PMS and associated tools could be streamlined to identify critically needed information.

6.0 Recommendations

The work done by PHAC over the five years of the evaluation period to address STBBI in an integrated way resulted in the release of the Pan-Canadian STBBI Framework for Action in June 2018. Through this Framework, the Government of Canada has taken a formal step in integrating its Hepatitis C and STI response with its response to HIV. Within this context, recommendations formulated below apply to the integrated Framework, which includes PHAC's HIV, viral hepatitis, and STI activities.

Recommendation 1: Determine how federal investments will contribute to the goals outlined in the Pan-Canadian STBBI Framework for Action, including reducing STBBI-related stigma and discrimination, and aligning investments with those populations with the highest burden of STBBI. Communicate this to external stakeholders and Canadians.

The Pan-Canadian STBBI Framework for Action sets out an overarching and comprehensive approach to support and contribute to achieving global STBBI targets (see Appendix 2 for disease-specific targets included in the Framework). While the integration of the HIV federal response with its response to other STBBI is well supported, internal and external stakeholders are unsure which actions will be taken by the federal partners within this Framework. As such, stakeholders need more clarity on what actions the federal government will take to achieve the disease-specific global targets. Additional information on addressing STBBI-related stigma and discrimination, as well as information on aligning investment to populations with the highest burden of STBBI is needed.

Recommendation 2: Explore partnerships and mechanisms to facilitate the dissemination and uptake of STBBI-related knowledge products.

Awareness and uptake of current PHAC knowledge products on STBBI by practitioners in the field of sexual health is high. Still, to increase the chances of accessing the undiagnosed, PHAC must work to achieve higher levels of awareness and uptake of its STBBI knowledge products by all intended target audiences, including primary care practitioners. PHAC should also give further consideration to how they could better support the uptake of knowledge products in areas of shared jurisdiction between federal and provincial responsibilities (e.g., access to testing technology), as there are gaps in these areas.

Recommendation 3: Enhance the use of performance information by simplifying indicators within the current performance measurement strategy to allow for annual reporting of results.

PHAC has successfully implemented an integrated PMS, which collects data on all related STBBI, including HIV. While data is being collected, its use in program monitoring and decision making appears limited, as an internal report collating the data has not been produced in recent years. Simplifying the indicators of the current PMS and ensuring that data for identified indicators exists would facilitate the production of a regular internal report and the use of performance data for program monitoring and decision making.

Appendix 1 – Evaluation Description

Data was analyzed by triangulating information gathered from the different methods listed below. The use of multiple lines of evidence and triangulation was intended to increase the reliability and credibility of the evaluation findings and conclusions.

Literature Review:

A review of academic, peer-reviewed publications and grey literature was conducted to support evaluation findings. Findings from the literature review informed questions related to the relevance of viral hepatitis and STI activities, including:

- Evidence on incidence and prevalence of viral hepatitis and STI and assessment of rates for priority populations in Canada;
- Evidence on the evolution of the viral hepatitis and STI epidemic and the public health response in the past five years; and
- Evidence of duplication, complementarity, and overlap between the Government of Canada’s viral hepatitis and STI activities and those that fall within the purview of provinces, territories, and other stakeholders.

Document Review:

The evaluation reviewed a series of documents to inform findings related to relevance, performance, and efficiency and economy of the program. These documents included annual reports, internal performance measurement data, communications products, and surveillance reports.

The document review also included analysis of performance data collected as part of Hepatitis C Prevention, Support and Research Program. This included some performance information obtained by grants and contributions recipients.

In total, over 400 documents, both internal and external, were reviewed in the conduct of this line of evidence.

Key Informant Interviews:

Key informant interviews were conducted to gather in-depth information related to the relevance, performance, and efficiency of the program. Interviews were conducted in a semi-structured manner based on a predetermined questionnaire. Interview questions included in each questionnaire linked directly to indicators identified in the evaluation matrix. In total, 27 individual interviews and one group interview were held with 32 key informants. Interviewees included:

- 14 interviews with PHAC employees, including 1 group interview; and
- 18 interviews with external partners, including:
 - 14 interviews with PHAC's external partners
 - 4 interviews with researchers

Key informants were located across Canada, and as such, interviews were conducted by telephone and in group settings, as needed.

Evidence collected in key informant interviews were systematically analysed using NVIVO qualitative data analysis software. Six analysts identified relevant information related to evaluation questions and, using the software, grouped information based on themes, a process called “coding”. To ensure consistency, the evaluation team conducted an inter-coder reliability assessment and generated a coding guide. After coding was completed, analysts prepared a summary of themes emerging from the interviews. Based on this information, analysts were able to draw conclusions on the strength of particular themes.

Appendix 2 – Global Targets for STBBI

HIV

By 2030:

- Zero new HIV infections
- Zero AIDS-related deaths
- Zero discrimination

By 2020:

- 90% of people living with HIV know their status
- 90% of people living with HIV who know their status are receiving treatment
- 90% of people on treatment have suppressed viral loads
- Fewer than 500,000 new HIV infections
- Elimination of HIV-related discrimination

Hepatitis

By 2030:

- 90% reduction in new cases of chronic viral hepatitis B and C infections
- 65% reduction in hepatitis B and C deaths
- 90% of viral hepatitis B and C infections are diagnosed
- 80% of eligible people receiving hepatitis B and C treatment

By 2020:

- 30% reduction in new cases of chronic viral hepatitis B and C infections
- 10% reduction in hepatitis B and C deaths
- 30% of viral hepatitis B and C infections are diagnosed
- Five million people receiving hepatitis B treatment, and three million people receiving hepatitis C treatment
- Achieve and maintain up-to-date 90% coverage for vaccination of hepatitis B vaccine (three doses)

Sexually transmitted infections

By 2030:

- 90% reduction of *T. pallidum* incidence globally
- 90% reduction in *N. gonorrhoeae* incidence globally
- 50 or fewer cases of congenital syphilis per 100,000 live births in 80% of countries
- Sustain 90% national coverage, and at least 80% in every district (or equivalent administrative unit) for countries where the human papillomavirus vaccine is part of their national immunization programme

Endnotes

- ¹ Public Health Agency of Canada. (2018). *Reducing the health impact of sexually transmitted and blood-borne infections in Canada by 2030: A pan-Canadian STBBI framework for action*. Retrieved from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/reports-publications/sexually-transmitted-blood-borne-infections-action-framework.html>
- ² Public Health Agency of Canada. (2018). *Reducing the health impact of sexually transmitted and blood-borne infections in Canada by 2030: A pan-Canadian STBBI framework for action*. Retrieved from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/reports-publications/sexually-transmitted-blood-borne-infections-action-framework.html>
- ³ Trubnikov M, Yan P, Archibald C. Estimated prevalence of Hepatitis C Virus infection in Canada, 2011. *Can Comm Dis Rep*. 2014;40(19): ISSN 1481-8531. Retrieved from: <https://www.canada.ca/en/public-health/services/reports-publications/canada-communicable-disease-report-ccdr/monthly-issue/2014-40/ccdr-volume-40-19-december-18-2014/ccdr-volume-40-19-december-18-2014-2.html>
- ⁴ Public Health Agency of Canada. (2018). *Reducing the health impact of sexually transmitted and blood-borne infections in Canada by 2030: A pan-Canadian STBBI framework for action*. Retrieved from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/reports-publications/sexually-transmitted-blood-borne-infections-action-framework.html>
- ⁵ Sante et Service Sociaux Québec. *STD, STI, STBBI... I don't see the difference!* Retrieved from: <http://www.itss.gouv.qc.ca/std-sti-stbbi.dhtml>
- ⁶ Government of Canada. (2018). *Surveillance of Hepatitis C*. Retrieved from: www.canada.ca/en/public-health/services/diseases/hepatitis-c/surveillance-hepatitis-c.html
- ⁷ Singer, M., Bulled, N., Ostrach, B., Mendenhall, E. (2017). Syndemics and the biosocial conception of health. *The Lancet* 389(10072), DOI: [https://doi.org/10.1016/S0140-6736\(17\)30003-X](https://doi.org/10.1016/S0140-6736(17)30003-X)
- ⁸ Centre for Communicable Diseases and Infection Control. (2018). A summary of the Pan-Canadian framework on sexually-transmitted and blood-borne infections. *Can Commun Dis Rep*. 44(7/8):179-81. <https://doi.org/10.14745/ccdr.v44i78a05>
- ⁹ CATIE. *HIV in Canada: a primer for service providers - Sexually Transmitted and Blood-Borne Infection*. Retrieved from <https://www.catie.ca/en/hiv-canada/3>
- ¹⁰ Mahboob, T. (2016). *Infographic: mouth and throat cancers caused by HPV on the rise*. Retrieved from: <https://www.ctvnews.ca/health/infographic-mouth-and-throat-cancers-caused-by-hpv-on-the-rise-1.3120382>
- ¹¹ CATIE. *Canada takes a stand against Viral Hepatitis*. Retrieved from: <https://www.catie.ca/en/news/canada-takes-stand-against-viral-hepatitis>
- ¹² Public Health Agency of Canada. (2018). *Reducing the health impact of sexually transmitted and blood-borne infections in Canada by 2030: A pan-Canadian STBBI framework for action*. Retrieved from: <https://www.canada.ca/en/public-health/services/infectious-diseases/sexual-health-sexually-transmitted-infections/reports-publications/sexually-transmitted-blood-borne-infections-action-framework.html>
- ¹³ Centre for Communicable Diseases and Infection Control. (2018). A summary of the Pan-Canadian framework on sexually-transmitted and blood-borne infections. *Can Commun Dis Rep*. 44(7/8):179-81. <https://doi.org/10.14745/ccdr.v44i78a05>
- ¹⁴ CATIE. (2018). *Bridging the Gap – Annual Report, 2017-2018*. Retrieved from: <https://www.catie.ca/sites/default/files/catie-ar-2018-en.pdf>

- ¹⁵ Shehata, N., Austin, T., Ha, S., Timmerman, K. (2018). Barriers to and facilitators of hepatitis C virus screening and testing: A scoping review. *Can Commun Dis Rep* 44(7/8):166-72.
<https://doi.org/10.14745/ccdr.v44i78a03>
- ¹⁶ Public Health Agency of Canada. (2018). *Harm Reduction Fund: Preventing transmission of HIV and hepatitis C from sharing drug injection and inhalation equipment*. Retrieved from:
<https://www.canada.ca/en/public-health/services/funding-opportunities/harm-reduction-fund.html>
- ¹⁷ Steen, R., Wi, T.E., Kamali, A. & Ndowa, F. (2009). “Control of sexually transmitted infections and prevention of HIV transmission: mending a fractured paradigm.” *Bulletin of the World Health Organization* 87(11): 858-865. Retrieved from <https://www.who.int/bulletin/volumes/87/11/08-059212/en/>
- ¹⁸ Centre for Communicable Diseases and Infection Control. (2018). A summary of the Pan-Canadian framework on sexually-transmitted and blood-borne infections. *Can Commun Dis Rep*. 44(7/8):179-81.
<https://doi.org/10.14745/ccdr.v44i78a05>
- ¹⁹ Centre for Communicable Diseases and Infection Control. (2018). A summary of the Pan-Canadian framework on sexually-transmitted and blood-borne infections. *Can Commun Dis Rep*. 44(7/8):179-81.
<https://doi.org/10.14745/ccdr.v44i78a05>