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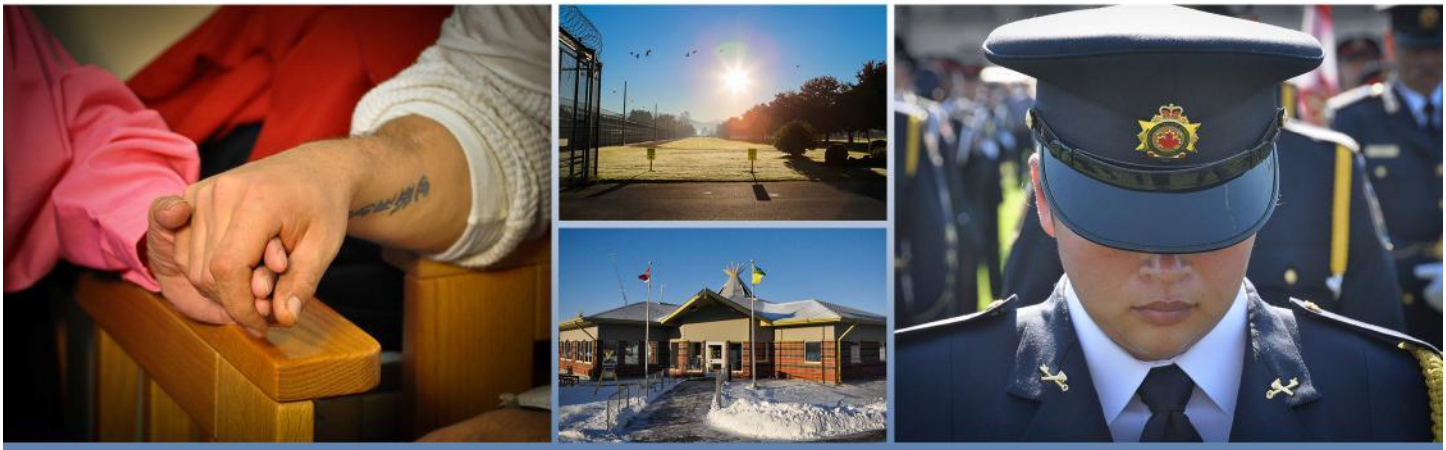

RESEARCH REPORT

Infectious Diseases, Risk Behaviours, and Harm-reduction Approaches: A Summary of Findings from the 2022 National Health Survey

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Infectious Diseases, Risk Behaviours, and Harm-reduction Approaches: A Summary of Findings from the 2022 National Health Survey

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2024

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Executive Summary

Key words: *infectious diseases, risk-behaviours, harm reduction, health survey, tattooing, drug use, needle sharing, unprotected sex*

This study provides an overview of self-report responses from the 2022 National Health Survey, which also included an examination of serological data to determine prevalence estimates of infectious diseases, such as Human Immunodeficiency Virus (HIV), Hepatitis C Virus (HCV), and syphilis. Responses were used to examine factors that can increase risk for these infections, such as engagement in risk-behaviours (tattooing, drug use, and unprotected sex), as well as awareness of, and access to, harm reduction services. Participants included 1,404 federally incarcerated individuals across all regions; 88.1% self-identified as male, 8.8% as female.

Results indicated that 1.6% of participants self-reported that they had been diagnosed with HIV at some point in their lives, while self-reported rates for HCV were 17.6%, and 4.5% for syphilis. Through serological information, HIV antibodies were detected for less than 1% of participants, HCV antibodies were detected for 22.0%, with 3.6% of participants found to have an active HCV infection, and syphilis antibodies were detected for 4.7% of participants. Over two-thirds of participants indicated that they had not been tested for HIV, HCV, and/or syphilis within the past six months while in federal prison.

Under half of participants (44.6%) reported getting a tattoo while in a federal prison, of which 24.7% either used a device that was used by someone else first or were unaware of whether the device had been used by someone else first. Over 90% of participants who got a tattoo within the past six months indicated that they would use a safer tattooing program if one were set up in their institution. Of those who reported injecting drugs within the past six months (3.6% of the entire study sample; $n = 51$), 47.1% reported using a previously used needle to inject and 52.9% reported passing their needle to someone else after they injected drugs. Most participants indicated that they have not had sex within the last six months (85.8%); however, among those who did, 11.4% reported exchanging sex for other goods (money, tobacco, etc.).

Few participants reported having issues accessing harm reduction supplies, such as dental dams, condoms, and lubricant. However, those who had issues accessing these supplies indicated that it was due to insufficient quantities or being unable to locate the supplies. Importantly, 80.0% of participants did not know that pre-exposure prophylaxis (PrEP) was available in federal prison and 78.9% did not know post-exposure prophylaxis (PEP) was available in federal prison.

Overall, prevalence rates of HIV, HCV, and syphilis in federal prison are elevated in comparison to the general population; however, rates of infection have decreased in federal institutions since the early 2000s. Findings suggest that several risk-behaviours may be contributing to the current prevalence rates including needle-sharing in prison for the purpose of drug use and/or tattooing and engaging in unsafe sex. Results from this study can be used to help improve harm reduction strategies and harm prevention practices.

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Introduction

The prevalence of sexually transmitted and blood borne infections (STBBI), including Human Immunodeficiency Virus (HIV), Hepatitis C Virus (HCV), and syphilis, as well as the prevalence of risk-behaviours that can result in blood borne and sexually transmitted infections (STIs) remain higher among people in Canadian federal prisons compared to the general Canadian population (Kronfli et al., 2018). For instance, previous research has indicated that the rate of infection of HCV is 3.2% in federal prisons (as of 2021; Thompson & Gendron, 2022), compared to 0.6% in the general population (based on national estimates from 2011; Canadian AIDS Treatment Information Exchange [CATIE], 2019). The prevalence of HIV is also higher among people in federal prisons at 0.9% in 2020 (Thompson & Gendron, 2022) compared to 0.2% for the general population in 2020 (CATIE, 2023). Similarly, syphilis prevalence has also been found to be higher in federal prisons, with a rate of 80.0 per 100,000 population (Zakaria et al., 2010a), versus 24.7 per 100,000 in the general population (Aho et al., 2022).

Studying the prevalence of infectious diseases such as HIV, HCV, and syphilis as well as risk-taking behaviours and harm reduction services and strategies are important for optimizing the health and treatment of infections among those who are incarcerated. Ensuring that appropriate services and programs are targeting incarcerated individuals who have an infectious disease, or who are at risk for contracting an infectious disease is essential, as most people who are incarcerated will eventually return to the community, thus having a direct impact on community health and safety (Kouyoumdjian et al., 2016). Enhancing evidence-based prevention programs in prison contribute to reducing the population-level burden of these infections, consistent with ongoing national and global work, such as advancing progress on the Global AIDS Strategy (Bartlett et al, 2018; Correctional Service Canada [CSC], 2021; Joint United Nations Programme on HIV and AIDS [UNAIDS], 2021).

The Joint United Nations Programme on HIV and AIDS (UNAIDS) has detailed a new Global AIDS Strategy (2021–2026), which aims to reduce inequalities that continue to lead the AIDS epidemic and end AIDS as a public health risk by 2030 (UNAIDS, 2021). Within this strategy, key targets are outlined including the UNAIDS 95-95-95 target, which aims to: 1) diagnose 95% of all HIV-positive persons, 2) provide antiretroviral therapy (ART) for 95% of those diagnosed, and 3) achieve viral suppression for 95% of those treated by 2025 (Frescura et

al., 2022; Public Health Agency of Canada [PHAC], 2022). To assist with providing information on these targets, CSC in partnership with PHAC, used biological sampling to provide an estimate of seroprevalence within the federal in-custody population, which was used to compare to rates of self-report diagnosis (i.e., those aware of their status). Further, CSC obtained self-report information from people who were incarcerated on their access and barriers to treatment and/or harm reduction services. The results of this research allows for a better understanding of the health needs of the federal in-custody population and helps inform effective health service program delivery within federal prisons.

Risk-Taking Behaviour in Federal Correctional Institutions

Risk-taking behaviours, including needle sharing and unsafe sexual practices, are typically more common in correctional settings than in the community (Poulin et al., 2007; Wood et al., 2005). Research has found that needle-sharing in prisons is often due to the lack of available needles, thus resulting in the reuse of needles between people, posing serious health hazards (Small et al., 2005). Research suggests that a high percentage of injection drug users who inject in correctional settings share (borrow and/or lend) needles and other injecting equipment (PHAC, 2006). For example, one study conducted by Poulin et al. (2007) found that among 60 men who engaged in injection drug use within prison, 38 reported engaging in needle sharing (63.3%). However, these findings were from a study focusing on Quebec provincial prisons. In contrast, based on information stemming from research conducted at CSC, the 2007National Inmate Infectious Diseases and Risk-Behaviours Survey found that 16% of males and 15% of females who were federally incarcerated reported injecting drugs while in custody and 7% of males and 5% of females reported sharing needles while incarcerated (Zakaria et al., 2010b). Notably, a more recent study that focused on Quebec's provincial prisons reported that needle-sharing among men within prison had decreased from 66.7% (of those who injected drugs) in 2003 to 44.8% in 2014/2015 (Courtemanche et al., 2018). The authors suggest that this reduction in needle-sharing has, in part, resulted in lower rates of HIV and HCV in 2014/2015 in comparison to previous estimates from 2003 (Courtemanche et al., 2018). However, this study did not focus on the federally incarcerated population.

Research has found that tattooing in prison settings is also associated with HCV (Vescio et al., 2008). In fact, while research has found that injection drug use is the most probable mode of transmission for HCV, among those who do not inject drugs, tattooing is the most likely mode

of transmission of HCV (Butler et al., 2004; Hellard et al., 2004; Stone et al., 2018). Moreover, there is evidence to suggest that needle-sharing is common among those who get a tattoo in prison (Tran et al., 2018). For example, research has found that across seven detention centres in Quebec, 37% of men and 4% of women have gotten tattoos, and of those who have gotten a tattoo, about 13% of men and 56% of women reported using unsterile equipment (Poulin et al., 2018). However, updated information on tattooing and device sharing specific to the federally incarcerated population is needed.

Engaging in risky sexual behaviour is also common in correctional institutions. For example, Poulin et al. (2007) found that among men who engaged in either anal sex or sex for money or drugs while in prison, over 80.0% did not use protection. A systematic review examining various correctional populations globally found that unprotected sexual practices was more common in prison settings than in the general population (Seal, 2005). In fact, compared to the general Canadian population, the rate of engaging in unprotected sex is higher among people who are federally incarcerated (PHAC, 2008). Although harm reduction measures such as condoms, lubricant, and dental dams are available at correctional institutions, a study conducted by Thompson et al. (2010) found that over a third of people who were incarcerated reported having trouble accessing these harm reduction supplies primarily due to maintenance issues (i.e., broken or empty dispensers or providing damaged items) which may have led to unprotected sex in these settings. Given that engaging in unprotected sexual practices increases the chance of acquiring an STI, such as syphilis (PHAC, 2023), it is important to study the rate of infection and risk-taking behaviours within the incarcerated population in order to develop and improve harm reduction strategies and encourage prevention practices.

Harm Reduction Education, Services, and Practices in Federal Corrections

Education and providing harm reduction services are important in correctional facilities as they may help to reduce the risks associated with certain behaviours and actions (such as needle-sharing, injection drug use, and having unprotected sex). Additionally, researchers have suggested that time in custody provides an effective opportunity to intervene and provide support to individuals who have infectious diseases or who are at risk for contracting an infectious disease (Chacowry Pala et al., 2018; DeGroot et al., 2006; Godin et al., 2021; Kronfli et al., 2019). This may be particularly important, as these individuals may have limited resources to rely on while in the community (Strock et al., 2009). In addition, previous research demonstrates

that the availability of harm reduction services which are easily accessible in prison settings results in better health outcomes, including significantly reduced rates of HIV and HCV (Sander et al., 2016). In an effort to reduce the risk of contracting infectious diseases within the federal in-custody population, CSC offers various health promotion and harm-reduction programs (CSC, 2022) including Pre-exposure prophylaxis (PrEP[1]), Post-exposure prophylaxis (PEP[2]), and access to harm reduction supplies (e.g., condoms, lubricant, dental dams, and bleach), as well as a suite of substance use services including health promotion, treatment, and harm reduction. This includes a Prison Needle Exchange Program (PNEP;[3] implemented at nine federal institutions at the time of data collection), Overdose Prevention Service (OPS;[4] currently operating in three federal institutions), and Opioid Agonist Treatment (OAT[5]: Methadone, Suboxone, or Sublocade).

Importantly, Prison Needle Exchange Programs (PNEPs) have been found to be effective across various correctional facilities. A systematic review conducted by Dolan et al. (2003) found that within correctional facilities with a PNEP, drug use decreased over time, along with needle-sharing. Another evaluation of a needle exchange program in Spain found that HCV prevalence decreased from 40% at baseline to 26% at a 10-year follow up, and HIV prevalence decreased from 21% at baseline to 8% at a 10-year follow up (Ferrer-Castro et al., 2012). This study also found that the needle exchange program was perceived as beneficial by most of the incarcerated population and staff (Ferrer-Castro et al., 2012). Overall, research consistently shows that PNEPs contribute to the prevention of HIV and HCV transmission among the incarcerated population (Lazarus et al., 2018).

In addition to PNEPs, studies have found support for other harm reduction services, including methadone maintenance treatment (no longer available; was replaced by OAT), PrEP, PEP, and access to harm reduction supplies. A study conducted by Dolan et al. (2005) that

[1] PrEP: Medication taken to help prevent HIV before engaging in risk-behaviours (PHAC, 2019).
[2] PEP: Medication taken to help prevent HIV after engaging in risk-behaviours (PHAC, 2019).
[3] PNEP: Program providing people in custody who inject drugs with sterile needles and other clean and sterile injection and drug preparation equipment (CSC, 2021).
[4] OPS: Program providing people in custody a safe space to use drugs while under medical supervision and with sterile and clean equipment (CSC, 2019). At the time of data collection, only one institution had an OPS (Drumheller Institution – Medium); however, at the time of writing, the program has since been expanded to two other CSC institutions (Springhill Institution and Collins Bay Institution).
[5] OAT is a medical treatment that can help individuals make positive changes in their lives related to problematic opioid use. This treatment can help dimmish cravings and other associated withdrawal symptoms. (CSC, 2020).

investigated the long-term impact of methadone maintenance treatment found that participation in the program was associated with reduced rates of HCV infection. Further, within correctional settings, research has found that the use of PrEP is effective at preventing HIV transmission for men who have sex with men (Grant et al., 2014; McCormack et al., 2016), vaginal intercourse (Murnane et al., 2013), and injection drug use (Choopanya et al., 2013). Similarly, a systematic review found that when PEP is administered rapidly (within two to 72 hours), it is effective in preventing HIV (DeHaan et al., 2020).

Further to harm reduction programs, previous research conducted by CSC found that access to harm reduction supplies (such as condoms and dental dams) reduced the transmission of sexually transmitted infections (Thompson et al., 2010). However, it is imperative for these harm reduction supplies to be accessible and readily available for incarcerated individuals to utilize. For example, a 2010 report conducted by CSC found that 57% of people in custody who were sexually active reported a demand for at least one harm reduction item, of which 35% reported problems accessing these items (Thompson et al., 2010). Taken together, these findings suggest that in order for an effective and safe transition back to the community to occur, it is essential to provide and promote harm programs and services within correctional facilities, as they have been identified as key settings to implement micro-elimination strategies[6] (Godin et al., 2021; Kronfli et al., 2018).

Current Study

This project focuses on updating health estimates obtained in the National Inmate Infectious Diseases and Risk-Behaviours Survey conducted by CSC in 2007 (see Zakaria et al., 2010b for a summary of findings). Estimates to be updated include the prevalence of STBBI such as HIV, HCV, and syphilis (using biological sampling to determine seroprevalence), as well as the prevalence of risk-behaviours while in federal custody that can result in STBBI. Additionally, this study examines factors that can increase risk for infection, such as engagement in risk-behaviours (tattooing, drug use, needle-sharing, and unprotected sex), as well as awareness of harm reduction programs. The following are the key research questions examined in this report:

[6] Micro-elimination strategies: Identifying groups of individuals wherein treatment options and prevention measures can be implemented efficiently. These individual groups can be specified by geography, setting (e.g., a prison), age range, demographic, or other common factors that allow for a targeted effort. (Roma et al., 2023).

1. What is the prevalence of HIV, HCV, and syphilis among people housed in Canadian federal institutions?
2. What is the prevalence of behaviours and practices in Canadian federal prison that increase the risk for blood-borne infections and sexually transmitted infections? This includes an examination of tattooing practices, drug use and device-sharing, and unprotected sexual practices in federal prison.
3. What is participants' knowledge of, and access to, STBBI prevention and harm reduction services and supplies?
    a. Are there challenges accessing harm reduction supplies (such as condoms, lubricant, and dental dams)? If so, what are the challenges they face?
    b. What is the prevalence of awareness of, and use of pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) among incarcerated individuals?

Method

The survey consisted of two parts: 1) an anonymous, confidential paper and pencil questionnaire and, 2) the collection of a finger-prick blood sample to test for HIV, HCV, syphilis, and SARS-CoV-2 (COVID-19) antibodies.[7] This study was approved by the Health Canada Research Ethics Board, by the Correctional Service Canada, and by the University of Ottawa Research Ethics Board.

Questionnaire Development

In order to obtain data that meets the study objectives, a project team drawn from multiple institutions,[8] including federal government departments and a Canadian University, opted to use a self-administered paper and pencil questionnaire to collect data from federally incarcerated individuals, which also aligned with previous iterations of this survey (see Zakaria et al., 2010b). The project team developed the study based on previous CSC studies[9] and focused

[7] For the purpose of this report, SARS-CoV-2 antibodies serological results will not be presented. This information can be found in RIB-23-31 (Filoso & Wanamaker, 2023a) and RIB-23-32 (Filoso & Wanamaker, 2023b).
[8] The study team were comprised of individuals from the following institutions: the School of Epidemiology and Public Health at the University of Ottawa; the National HIV and Retrovirology Laboratory at the Public Health Agency of Canada; the Health Services Sector and the Research Branch at the Correctional Service Canada; and the Centre for Communicable Diseases and Infection Control at the Public Health Agency of Canada.
[9] See Zakaria, D., Thompson, J. M., Jarvis, A., & Borgatta, F (2010). *Summary of Emerging Findings from the 2007 National Inmate Infectious Diseases and Risk-Behaviours Survey*. http://www.csc-scc.gc.ca/005/008/092/005008-

on important content areas relevant for planning for – and ultimately improving – health services for those who are federally incarcerated. To assist with questionnaire development, the project team piloted an early version of the questionnaire in two federal correctional institutions in Quebec with a total of 10 participants to discuss questionnaire language, content, and flow. Participants were asked about ease of understanding, comprehensiveness, and length; feedback provided by participants was largely positive. Although there were concerns around the length of the questionnaire, there were no concerns raised regarding the language used or comprehensiveness of the survey. As such, efforts were made to ensure that the questionnaire was not burdensome for participants.

To assist with minimizing participant response burden, and because the PNEP and OPS are not available at all sites in CSC institutions, three versions of the questionnaire were developed. This allowed for differing questions to be asked (directly about program experience and awareness) to participants at sites with and without the two programs—PNEP and OPS. The first version is referred to as the 'General Questionnaire'. This version was distributed to and completed by individuals at the 33 sites that did not have an OPS or a PNEP in operation at the time of data collection. The second version is referred to as the 'PNEP Questionnaire'. This version was distributed to the nine institutions that had a PNEP in operation at the time of data collection. The third version is referred to as the 'OPS Questionnaire', which was distributed to Drumheller Institution, the only institution to have an OPS in operation at the time of data collection.[10] The final General Questionnaire was 20 pages in length, whereas the final OPS and PNEP Questionnaires were each 23 pages in length, due to the additional questions about the two programs. All three questionnaire versions captured information on participant demographics, infectious disease testing, tattooing, drug use, sexual behaviour, access to harm reduction supplies, harm reduction and treatment, and attitudes towards CSC's OPS and PNEP. However, for the PNEP and OPS versions, more detailed questions about the two programs were also asked (including open-ended questions). It was estimated to take 25-45 minutes to complete the questionnaire and participants had the option of completing it in French or English. Notably, there were reminders throughout the questionnaire that indicated participant responses are

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[10] At the time of data collection, only Drumheller Institution had an OPS; however, at the time of this writing, the program has been expanded to Springhill and Collins Bay Institutions (Taekema, 2023).

anonymous and confidential.

Measures

The sections of the 2022 Health Survey questionnaire that are relevant to this report include infectious disease testing, risky behaviour, and harm reduction awareness and access.[11] See Appendix A for the complete 2022 Health Survey (General Version) questionnaire.

Infectious Disease Testing.

The questionnaire included nine questions pertaining to infectious disease diagnoses and testing. For HIV, HCV, and syphilis specifically, participants were asked whether they have ever been diagnosed with these infectious diseases, whether they were ever tested for these diseases while in federal prison, and whether they were tested within the last six months while in federal prison. For each of these questions, participants could answer 'Yes', 'No' or 'Unsure'. For those who indicated that they were diagnosed with an infectious disease in the past, they were also asked about whether they had received treatment or not. Those who indicated that they did not get tested were asked a follow-up question about why.

In-Prison Tattooing, Drug Use, and Sex.

The questionnaire contained three sections that asked about risk-behaviours while in prison, including tattooing, drug use, and unprotected sex. The tattooing section contained nine questions that asked about whether the participant had gotten a tattoo within the last six months in federal prison, followed by the types of devices that were used, whether the devices and/or ink were used by someone else first, and whether the participant would use a safer tattooing program if one were available in their institution.

The drug use section consisted of 24 questions. Drugs were defined as consisting of:

- street drugs (e.g., heroin, fentanyl, crack, etc.);
- medications that were not prescribed (e.g., using someone else's methadone or suboxone); and
- medications that were prescribed, but were taken in a way other than prescribed, such as snorting/injecting a tablet that was supposed to be swallowed or taking multiple doses at

[11] Note that questions pertaining to the PNEP and the OPS (and data pertaining to the PNEP and OPS) will be examined by Dr. Lynne Leonard from the School of Epidemiology and Public Health at the University of Ottawa. Specifically, she will analyze attitudes towards, access to, and experience with the PNEP and OPS. This includes specifically assessing perceptions about the programs and participation intention amongst those who report substance use-related risk-behaviours.

one time.

Questions asked whether participants used drugs in the past six months while in federal prison, followed by the method of drug use—smoke, snort, or inject. Participants were also asked about the frequency of drug use, the device(s) used, whether the device(s) were used by someone else, whether the device was cleaned prior to use, the types of drugs, and the method of ingestion.

Finally, the sex section consisted of five questions that asked participants about whether they had sex within the past six months while in federal prison (including oral, vaginal, and/or anal), whether they had sex with a man or a woman, whether there was protection used, and whether the participant exchanged sex for drugs, money, or for some other item/reason. These questions were used to gauge the types of risk-taking behaviour the participant engaged in within the last six months within federal prison. Note that there were no questions in these sections that were open-ended; rather, there were dichotomous 'yes/no' and 'check all that apply' types of questions.

Harm Reduction Knowledge and Access to Harm Reduction Supplies and Treatment.

The questionnaire contained two sections pertaining to access to harm reduction supplies, as well as harm reduction and treatment. This consisted of asking participants whether they had access to harm reduction supplies, such as condoms, lubricant, and dental dams, within the past six months in federal prison and the reasons why they may not have had access. Questions pertaining to harm reduction and treatment examined participants' knowledge of, and access to PrEP and PEP, as well as attitudes towards drug use and access to treatment for substance use disorders. Additionally, participants were asked about whether they were currently receiving help or treatment for addiction or substance use and whether they were on the OAT program (Methadone, Suboxone or Sublocade) offered through CSC. Note that there were no questions in these sections that were open-ended; rather, there were 'yes/no', 'check all that apply', and Likert scale questions (e.g., responses ranging from *Strongly disagree* to *Strongly agree*). See Appendix A for the complete 'General Version' questionnaire.

Sampling

Study population.

The study population comprised people who were housed in Canadian federal correctional institutions who met three eligibility criteria. To be included in the study, the individual must have consented to participate, been able to participate in French or English, and

must have been continuously incarcerated in a federal institution for at least six months prior to the start of the study. Additionally, only those housed in CSC-operated institutions and CSC-operated healing lodges were eligible to participate; individuals housed in Indigenous healing lodges under section 81 of the *Corrections and Conditional Release Act* (CCRA, 1992)[12] were not eligible to participate, nor were individuals serving provincial/territorial sentences but housed in federal institutions.

Sample Size Estimation.

To be considered for study recruitment, participants had to be incarcerated at a federal prison for at least six months, resulting in a total of 9,714 people who were incarcerated who met this criterion (9,299 in men's institutions and 415 in women's institutions) prior to the beginning of data collection.[13] This number, however, did not account for those who were unable to understand English or French. Given the relatively small number of individuals incarcerated in women's federal prisons, all people housed in women's institutions who met the above eligibility criteria were invited to participate. It was determined that a sample of approximately 3,000 individuals housed in men's institutions would be sufficient. This estimated sample was based on: the confidence level (the percentage of all possible samples that can be expected to include the true population proportion) set to 95%, the margin of error (the expected difference between the true population proportion and a sample estimate of that proportion) set to +/- 2%, and the proportion (the expected true proportion in the population) expected to be 2% for HIV. Additionally, to determine the sample at each men's institution, randomization was used to provide a list of individuals at each site that were stratified by four ethnocultural groups: White, Black, Indigenous, and other ethnocultural.[14] For each site, the sample size of individuals in men's institutions in each ethnocultural category reflected the population proportions in order to generate a representative sample. The final sample size estimate for the entire federally

[12] Section 81 of the Corrections and Conditional Release Act (CCRA) allows an Indigenous community to provide correctional services to Indigenous people who are incarcerated. A Section 81 facility incorporates Indigenous values, traditions, and beliefs in their program design as well as Indigenous concepts of justice and reconciliation. Programs include guidance and support from Elders and Indigenous communities.

[13] This number was based on information from the Reports of Automated Data Applied to Reintegration (RADAR) as of August 16th, 2022. RADAR is a collection of up-to-date reports pulled from the OMS and provides a high-level summary of information.

[14] The ethnocultural group is based on information entered in the Offender Management System. "Indigenous" includes those who identify as First Nations, Inuit, or Metis. "Black" includes those who identify as Black. "White" includes those who identify as Caucasian. All other individuals are classified as "other ethnocultural".

incarcerated population, including individuals from both men's institutions and women's institutions, was 3,415 people.

Participant Lists.

Using CSC administrative Offender Management System (OMS) data extracted by Performance Measurement and Management Reports (PMMR), which identified all federally incarcerated people who had been in custody for at least six months and who understood French or English, participant lists were created for each institution by security level and ethnocultural grouping (for men's institutions). As such, each men's institution had four participant lists (one for White individuals, one for Black individuals, one for Indigenous individuals, and one for individuals who were part of an other ethnocultural group), and if relevant, for each security level. Each list consisted of randomly sorted incarcerated individuals who met the eligibility criteria and who belonged to that specific ethnocultural subgroup. Note, if an individual refused to participate, that person was then replaced with the next individual on the list, until the target number of participants was reached. Participant lists were updated roughly every two weeks, depending on the resources available to extract the updated data. Participant lists were shared with study coordinators from each site via a secure shared drive internal to CSC, where only those who had access to their specific institutional folder could access the participant lists. It is important to note that, the study team from the Research Branch at National Headquarters (NHQ) at CSC did not know the identities of those who participated and those who did not participate in the 2022 National Health Survey, as all data entered on the shared drive with NHQ was de-identified. Only the study coordinators at each correctional institution who were distributing the questionnaires and conducting the finger-prick blood sample knew who did and did not provide consent to participate; however, the study coordinators were not made aware of anyone's survey responses or serological findings.

Survey Implementation

Selection and Training of Survey Coordinators.

In the month prior to the study launch, each site identified one or more Health Services staff to lead the study administration in the facility. The study team provided virtual training sessions for these site study coordinators on how to administer the questionnaire and finger-prick blood samples. In total, there were six virtual training sessions that took place throughout the month of September 2022—one for each of the regions, plus an extra training session for those

who could not attend their regional session. Study coordinators were able to attend the session that best fit their schedule. Two of the training sessions were in French (Quebec and Atlantic regions) and four were in English (Ontario, Prairie, and Pacific, as well as the extra session). However, training materials were provided in both official languages to all site study coordinators for reference purposes.

Preparing for Survey Implementation.

The week leading up to survey roll-out, each site received box(es) of questionnaires, information and consent forms, short pencils, envelopes, study posters, Dried Blood Spot (DBS) cards, and coin envelopes from Health Services at NHQ, CSC. Sites also received equipment to complete the collection of a finger-prick blood sample from the National Sexually Transmitted and Blood-Borne Infections Laboratory at PHAC.

Site study coordinators were responsible for displaying study posters throughout their institution that promoted awareness and summarized the purpose of the study. The posters specified that approximately 3,000 men and nearly all women would be eligible to participate, provided an explanation of the benefits of participation, and guaranteed that all responses would remain confidential (see Appendix B for the poster). Additionally, to prepare for the implementation of the survey, site study coordinators met with the Institutional Management Team[15] and the Inmate Committee[16] to inform them of the upcoming survey. The site study coordinators also worked with Institutional Operations to determine where and when data collection would take place at the site (depending on site-specific needs—such as distributing to cells on an individual basis versus completing in a group setting).

Participant Recruitment.

To recruit participants, site study coordinators approached possible participants in the order that they appeared on the participant lists. If a person agreed to participate, a date and time was coordinated for their participation—including DBS collection and responding to the questionnaire. If a person declined to participate, institutional staff proceeded to ask the next person on the participant list. This process was repeated until the institutional sample size was

[15] The Institutional Management Team is responsible for planning, organizing, directing and analysing the performance of all institutional activities. Membership includes the Warden, Deputy Warden, all Assistant Wardens or equivalents, the Operational Manager CORCAN and the Chief Health Care.

[16] An inmate committee is a forum for engagement among those who are federally incarcerated and through which they are able to provide input on institutional operations except for those relating to security matters. For more information, see Commissioner's Directive (CD) 083 (CSC, 2023a).

reached, or until the participant list was exhausted (i.e., no more individuals agreed to participate). In some cases, where additional support was needed, Health Services staff from NHQ assisted with participant recruitment, including assisting with DBS collection and/or coordinating and administering questionnaires.

Informed Consent.

Individuals invited to participate were informed that they had been selected to participate in the study, answer questions, and complete a finger-prick blood sample. Site study coordinators (institutional Health Services staff) provided all potential participants with a copy of the Information and Consent Form (see Appendix C) and ascertained whether they would prefer to read the form on their own, or have the form read out to them. The consent form included a unique study identification number matching the questionnaire and blood sample. Once the individual reviewed the consent form (either on their own or with support from a study coordinator), the study coordinator obtained verbal consent from each participant. Participants had to agree to complete the questionnaire in order to participate but could refuse to provide a finger-prick blood sample. The study coordinator would then signed the consent form to indicate that they had obtained consent from each participant. Participant names were not recorded to ensure that the study team at NHQ did not know the identity of those who participated in the study. As part of the information and consent process, the site study coordinator also offered each participant the opportunity to schedule an appointment with Health Services staff to discuss testing.

Data Collection and Entry

Data collection commenced between Friday, September 30th, 2022, and Friday, October 14th, 2022. Sites ended data collection between December 22nd, 2022 and January 27th, 2023 depending on their capacity to meet the research requirements (which was impacted by various challenges including staffing levels, lock downs, and COVID-19 outbreaks). Participants were permitted to complete the questionnaire in a group or individual setting, depending on institutional security, routine, and norms. The questionnaire could also be administered via study coordinator if the participant had low literacy. In that case, study coordinators were asked to check the box on the front page of the questionnaire which indicated that the survey had been interviewer-administered. Once completed, participants were instructed to place their questionnaire in a sealed envelope and return it to the study coordinator. Sealed envelopes were

then placed in a designated survey box, which was stored in a locked filing cabinet. Site coordinators mailed any survey boxes weekly to CSC's Research Branch.

In addition to completing the questionnaire, participants were invited to provide a DBS to test for infectious diseases. If consent was provided, institutional Health Services staff collected the DBS samples. Using a single-use lancet, a small slice was made across the participant's fingerprint, usually on the middle or ring finger. To help collect an adequate volume of blood, and to allow for re-testing of the DBS samples when required, Health Services staff were asked to completely saturate five dotted circles with blood on a Whatman 903© DBS card. Once the blood sample was collected, the DBS specimen cards were placed in a vertical position on a drying rack for at least three hours at room temperature. This entire procedure was conducted sanitarily, with staff disinfecting the tabletop, washing/sanitizing their hands, and disposing of all single-use materials in a biohazard container in between participants.

Once the blood samples were adequately dried, each DBS card was placed in its own individually labelled small envelope. Between five and ten envelopes were then placed in an impermeable Bitran bag, which was sealed closed with one desiccant pack and one humidity indicator card facing outwards. The Bitran bags were then stored at four degrees Celsius in a designated specimen fridge. To prepare for shipping, one to two Bitran bags were placed in a clear biohazard shipping bag, which was in turn placed into a white sealed Tyvek bag. One-to-three-Tyvek bags were placed into a shipping box, along with the sample inventory sheet, and mailed to the PHAC National Microbiology Laboratory in Winnipeg, Manitoba for analysis.

Data Entry.

Given that the questionnaire was administered by paper, a team of four researchers in the Research Branch at CSC manually entered the questionnaire data into the Statistical Package for the Social Sciences (SPSS; IBM Corp, 2017). For the serological data, upon completion of the analysis by the National HIV and Retrovirology Laboratory at PHAC, the findings were entered into a Microsoft Excel spreadsheet. The PHAC staff then emailed the protected serology results to the study team in the Research Branch in NHQ at CSC. The spreadsheet contained the unique numeric identifier assigned to each participant so that the serology results could be linked to the questionnaire responses. From there, the serological data were merged into the SPSS database that contained the entered questionnaire data.

Serological Analysis Conducted on DBS.

The PHAC staff conducted the HIV, HCV, syphilis and SARS-CoV-2 serology testing[17]. The screening assay that was used for HIV testing was the Bio-Rad GS HIV Antigen/Antibody Combo. Confirmatory assays were performed on those samples positive from the screen, using the Avioq HIV-1 Microelisa System. It is important to note that the sensitivity[18] and specificity[19] values seen with DBS-based samples are similar to those achieved with plasma (97% and 100% respectively). The screening assay that was used for HCV testing for DBS specimens was the Ortho HCV Version 3.0 ELISA Test System, with confirmatory testing on screen-positives using the Hologic Panther Aptima HCV Quant Assay. For these tests, both sensitivity and specificity are 100% for DBS samples, as with plasma. A Bio-Rad Syphilis Total Antibody screen test was used for DBS-based syphilis testing with 98.4 % sensitivity (vs. 99.2% for plasma-based samples) and 100% specificity. Finally, specific to SARS-CoV-2 serology, DBS eluents were run on the Bio-Rad BioPlex 2200 system for the determination of antibodies to S1 (spike), RBD (spike) and NC nucleocapsid, normalized to the World Health Organization (WHO) standard for COVID-19 serology. Notably, in the event that not enough blood spots were obtained to complete all four tests (for HIV, HCV, syphilis, and COVID-19), the tests were prioritized as follows: HCV, HIV, syphilis, and then COVID-19.

Analytic Approach and Data Analysis

Prior to analyzing the data, approximately 10% of cases (150 questionnaires) were randomly selected to ensure that all data were entered correctly and consistently across the different members of the research team who entered the questionnaire data. Upon completion of these data checks, it was determined that data were entered reliably and consistently across time and team members (less than a 3% error rate across all variables). Any inconsistencies were corrected in the dataset. Given the high accuracy in data entry, additional questionnaires were not selected for data checks.

In addition to this, data screening/cleaning was conducted, which included examining the prevalence of missing data, examining missing response patterns, examining the range of responses on each question, checking for outliers (where appropriate), analyzing response

[17] Note: the laboratory methods are surveillance standard but are not approved for diagnostic purposes.
[18] Sensitivity: A measure of how well a test can identify an infectious disease (i.e., the test's ability to avoid false negatives; Government of Canada, 2020).
[19] Specificity: A measure of how well a test can identify the absence of an infectious disease (i.e., the test's ability to avoid false positives; Government of Canada, 2020).

patterns across cases, and examining any issues with following the various skip logic patterns throughout the questionnaire. Data cleaning decisions were made in consultation with CSC Health Services and on a case-by-case basis. All decisions were recorded in a data cleaning decision log to ensure consistency.

This omnibus report describes the frequency distribution of responses and proportions (presented in percentages) for all questions in the questionnaire for the entire sample. For serological data, the prevalence and 95% confidence intervals were calculated for HIV, HCV, and syphilis. Serology findings pertaining to the prevalence of SARS-CoV-2 (COVID-19) antibodies are reported in Filoso and Wanamaker (2023a; 2023b).

Statistical Procedures for Complex Sample Surveys.

As previously described, potential participants were selected using stratified random sampling, whereby the population of interest was divided into different subgroups (i.e., strata), based on pre-selected shared characteristics (e.g., ethnocultural group, gender, etc.). The target sample size for each stratum was determined based on statistical calculations to maintain similar proportions to that of the federal in-custody population. This approach was selected to ensure diversity within the sample that was proportionate to the diversity within the federal in-custody population. For the current survey, everyone housed in a women's institution who met the eligibility criteria could be included in the sample; however, for those housed in men's institutions, random sampling occurred using the following strata: ethnocultural group (White, Black, Indigenous, other ethnocultural) by institution (total of 54 institutions, as multi-level sites were further broken down by security level where possible), which resulted in 216 different strata. Unfortunately, due to operational challenges, resource challenges, and lockdowns related to COVID-19, the target sample size for most strata was not obtained. Additionally, there were several institutions that were not able to sample any eligible participants. Due to missing data across multiple strata and the reduced sample size, it was not advisable to incorporate the use of statistical weights to the sample data, as it would not have improved the representation of the sample. Specifically, weighting data may introduce additional biases, particularly if there are cases that have missing data on the weighting variables, if there are a large number of weighting variables (i.e., as the number of weighting variables increases, there is a greater risk that the weighting of one variable will obscure or interact with the weighting of another variable), and if there are categories or groups within the weighting variable that have no data (e.g., institutions in

which no individuals completed the survey).

Question Non-Response and Small Subpopulations.

Question non-response is a limitation of most self-report surveys, especially among those that probe personal or private information such as sexual behaviour and drug use. Although sophisticated procedures exist for addressing low response rates, this report used a similar approach to other studies in the survey literature, including the previous Infectious Diseases Survey (Zakaria, 2010b) whereby on any given question it was assumed that non-responders and responders share similar characteristics. When item non-response exceeded 50% (i.e., true missing responses), the reporting of estimates was suppressed. For reasons of confidentiality and privacy, estimates where there were fewer than five participants sharing a characteristic were not reported/supressed as well.

Results

Sample Demographics

The final sample consisted of 1,404 federally incarcerated individuals who had been in federal custody for at least six months and who had completed the questionnaire. This consisted of 1,285 people housed in men's institutions and 119 people housed in women's institutions. Just under three quarters of participants completed the questionnaire in English (*n* = 1,050; 74.8%) with the remainder completing the questionnaire in French (*n* = 354; 25.2%). Very few participants were from an institution with an OPS (*n* = 26; 1.9%), whereas 16% of participants were from an institution with a PNEP (*n* = 224). In terms of institutional security level, just under half of participants were housed in a medium security unit (*n* = 670; 47.7%), 15.5% were housed in a minimum security unit (*n* = 218), 13.5% were housed in a maximum security unit (*n* = 190), and the remainder were housed in a multi-level or clustered site (*n* = 326; 23.2%). The largest proportion of participants came from the Quebec region (*n* = 466; 33.2%), followed by the Ontario region (*n* = 330; 23.5%), the Prairie region (*n* = 244; 17.4%), the Pacific region (*n* = 213; 15.2%), and the Atlantic region (*n* = 151; 10.8%). When comparing these numbers to the in-custody population as of the 2022/2023 fiscal year end (FYE; *N* = 13,054)[20], the Quebec (*n* = 2,794; 21.4%) and Prairie (*n* = 3,778; 28.9%) regions are over- and underrepresented, respectively (see Table 1 for a comparison of all regions).

Table 1 also details the self-identified demographic information from the participants and includes comparisons, where applicable, to the in-custody population as of the 2022/2023 FYE. Most participants in the sample self-identified as male (*n* = 1,237; 88.1%), with just under 10% of the sample self-identifying as female (*n* = 123; 8.8%) or another gender (*n* = 12; 0.9%). The average age of participants was 43.9 years old (*SD* = 13.5; *Median* = 42.0 years old), with ages ranging from 17 to 94. Participants were asked to identify which ethnocultural groups they belonged to.[21] Participants' self-reported ethnocultural groups were largely consistent with the

[20] Population information comes from CSC's (2023b) Corporate Reporting System—Modernized (CRS-M).
[21] Ethnocultural groups were defined based on Statistics Canada's Population Group Reference Guide (2022). In instances where someone selected an "Other" racial/ethnic group *and* provided an open-ended response, they were systematically assigned to at least one of the closed-end response categories (when the provided information made it possible to do so). This was done by two members of the research team as part of a data cleaning exercise. For example, open-ended responses such as "Native", "Ojibway", and "Cree" were assigned to the "Indigenous" response category, and open-ended responses such as "Scottish", "Portuguese", and "Italian" were assigned to the

in-custody population. More specifically, the largest proportion of participants self-identified as White (*n* = 585; 41.7%), followed by Indigenous (*n* = 516; 36.8%).[22]. When looking at the total time spent federally incarcerated, it was found that just over a quarter of the sample reported spending 16 years or more in a federal prison (*n* = 359; 25.6%), and 27.1% reported spending two years or less in a federal prison (*n* = 381). See full breakdown of time spent in federal prison in Table 1.

"White" category. Open-ended responses that were vague (e.g., "Canadian", "African") or left blank were not assigned to a response category and were instead left as "Other". For additional information on racial and ethnic groupings, please refer to Statistics Canada's Population Group Reference Guide (2022).

[22] Note that Indigenous categories are not mutually exclusive with 10 participants selecting more than one Indigenous group (First Nations, Métis, and Inuit or Inuk).

Table 1

Sample Demographic Information Compared to Population Information as of 2022/2023 FYE

	Sample (*N* = 1,404)	Population (*N* = 13,054)
Demographic Variable	% (*n*)	% (*n*)
Region		
Atlantic	10.8 (151)	9.1 (1,194)
Quebec	33.2 (466)	21.4 (2,794)
Ontario	23.5 (330)	27.8 (3,628)
Prairie	17.4 (244)	28.9 (3,778)
Pacific	15.2 (213)	12.7 (1,660)
Gender[a]		
Male	88.1 (1,237)	95.0 (12,407)
Female	8.8 (123)	4.9 (645)
Other	1.0 (12)	--
Age[b]		
<18 to 30	17.7 (248)	24.1 (3,141)
31 to 40	26.7 (375)	31.2 (4,072)
41 to 50	20.4 (287)	20.0 (2,613)
51 to 60	17.7 (248)	14.6 (1,903)
61 to 70	10.0 (140)	7.5 (976)
71 to 80	2.5 (35)	2.4 (309)
81 and above	0.4 (5)	0.3 (40)
Ethnocultural group[c]		
White	41.7 (585)	47.2 (6,161)
Indigenous[d]	36.8 (516)	32.4 (4,223)
First Nations	50.2 (259)	70.2 (2,964)
Métis	31.8 (164)	26.8 (1,132)
Inuit/Inuk	1.9 (10)	3.0 (127)
Black	7.3 (102)	8.3 (1,089)
Other Ethnocultural[e]	13.5 (189)	12.1 (1,581)
Total time in federal prison[f]		
Less than 1 year	7.2 (101)	--
1-2 years	19.9 (280)	--
3-5 years	18.2 (255)	--
6-10 years	16.3 (229)	--
11-15 years	10.5 (147)	--
16 or more years	25.6 (359)	--

Note: [a]Gender for the current sample was based on self-report information. Missing data on gender for 32 cases (2.3%). 'Other' gender information is not available in CRS-M. [b]Missing data on age for 66 cases (4.7%). [c]Missing data on race for 12 cases (0.9%). Four ethnocultural groups (White, Indigenous, Black, and Ethnocultural) are mutually exclusive. [d]Indigenous category includes anyone who self-identified as First Nations, Métis, Inuit, or other Indigenous. Indigenous group breakdown is not mutually exclusive (Twelve participants from the sample selected more than one Indigenous group and many did not indicate which Indigenous group they identified as). [e]Other Ethnocultural group includes the following response options on the questionnaire: South Asian, Chinese, Filipino, Arab, Latin American, Southeast Asian, West Asian, Korean, Japanese, mixed race, or other, as well as those who selected multiple race groups and were considered biracial or multiracial. However, individuals who identified as 'Indigenous', even if other response options were selected (i.e., biracial or multiracial), were included in the Indigenous category. Percentages may not add to 100 due to rounding and/or missing data. [f]Missing data on time in federal prison for 33 cases (2.4%). Population information for total time spent in federal prison is not available in CRS-M. Cell counts less than 5 are suppressed, denoted by '--'

Infectious Diseases: HIV, HCV, and Syphilis

Self-Reported Diagnosis and Testing.

Participants were asked questions about testing and diagnosis of three infectious diseases—HIV, HCV, and syphilis. It was found that 19.4% of the sample (*n* = 272) reported being diagnosed with one of these three diseases, and 2.0% (*n* = 29) reported being diagnosed with at least two of these three infectious diseases. Twenty-two participants (1.6%) self-reported that they had been diagnosed with HIV at some point in their lives, of which 40.9% (*n* = 9/22) indicated that they were currently receiving treatment. A larger proportion of the sample self-reported that they had been diagnosed with HCV at some point in their lives (*n* = 247; 17.6%), of which about 5% indicated that they still currently have HCV (*n* = 12/247; 4.9%). With respect to syphilis, 4.5% of the sample indicated that they had been diagnosed with the disease at some point in their lives (*n* = 63). Of those who self-reported being diagnosed with syphilis, 61.9% (*n* = 39/63) indicated that they had received or are currently receiving treatment. See Table 2 for further details pertaining to infectious disease diagnoses.

Table 2

HIV, HCV, and Syphilis Diagnoses Based on Self-Report Questionnaire Information

Infectious Diseases Diagnoses	Sample (N = 1,404)
	% (n)
Ever diagnosed with HIV?[a]	
Yes	1.6 (22)
Currently receiving treatment	40.9 (9)
Not currently receiving treatment	31.8 (7)
Missing response	27.3 (6)
No	96.4 (1,354)
Unsure	0.5 (7)
Ever diagnosed with HCV?[b]	
Yes	17.6 (247)
Still have HCV	4.9 (12)
No longer have HCV	78.9 (195)
Missing response	16.2 (40)
No	78.4 (1,101)
Unsure	1.8 (25)
Ever diagnosed with syphilis?[c]	
Yes	4.5 (63)
Received or receiving treatment	61.9 (39)
Not treated or missing response	38.1 (24)
No	91.1 (1,279)
Unsure	2.1 (29)

Note: [a]Missing responses for 21 cases (1.5%). [b]Missing responses for 31 cases (2.2%). [c]Missing responses for 33 cases (2.4%).

Participants were also asked about infectious disease testing while in federal prison. It was found that over 55% of the sample reported having been tested for HIV and HCV while in federal prison (n = 788 for both HIV and HCV), whereas just over 30% of the sample reported having been tested for syphilis while in federal prison (n = 445). However, there was a number

of participants who indicated that they were unsure if they had been tested for syphilis while in federal prison (*n* = 164; 11.7%). Among those who indicated that they had not been tested for these infectious diseases, the three most common reasons for not being tested included: *I've already been tested and I know I don't have it* (HIV = 35.4%; HCV = 29.0%; syphilis = 12.6%), *I don't think I'm at risk* (HIV = 29.0%; HCV = 27.9%; syphilis = 34.8%), and *I haven't been offered a test* (HIV = 18.3%; HCV = 17.0%; syphilis = 27.0%).

Participants were asked whether they had been tested for infectious diseases within the past six months while in federal prison. For HIV, 18.9% (*n* = 265) of the sample said yes, whereas 5.3% (*n* = 75) said they were unsure. For HCV, 22.7% (*n* = 319) of the sample said yes, whereas 6.3% (*n* = 89) said they were unsure. Finally, for syphilis, a slightly smaller proportion of participants indicated that they have been tested for the disease within the past six months (14.4%; *n* = 202), and a slightly larger proportion indicated that they were unsure (8.9%; *n* = 125). Among those who indicated that they had not been tested within the past six months, the three most common reasons for not being tested were: *I've already been tested and I know I don't have it* (HIV = 27.0%; HCV = 25.1%; syphilis = 15.0%), *I don't think I'm at risk* (HIV = 30.5%; HCV = 29.0%; syphilis = 33.5%), and *I haven't been offered a test* (HIV = 21.6%; HCV = 21.6%; syphilis = 25.1%). See Table 3 for further details pertaining to infectious disease testing and see Table 4 for a breakdown of responses around why participants did not get tested for infectious diseases.

Table 3

HIV, HCV, and Syphilis Testing in Federal Prison

Infectious Disease Testing in Federal Prison	HIV	HCV	Syphilis
	% (*n*)	% (*n*)	% (*n*)
Ever tested while in federal prison?[a]			
Yes	56.1 (788)	56.1 (788)	31.7 (445)
No	34.6 (486)	34.7 (487)	52.6 (738)
Unsure	5.8 (82)	5.8 (82)	11.7 (164)
Tested in the past six months?[b]			
Yes	18.9 (265)	22.7 (319)	14.4 (202)
No	72.7 (1,021)	67.9 (953)	73.3 (1,029)
Unsure	5.3 (75)	6.3 (89)	8.9 (125)

Note: [a]Missing responses for: 48 cases (3.4%) for HIV, 47 cases (3.3%) for HCV, and 57 cases (4.1%) for syphilis.
[b]Missing responses for: 43 cases (3.1%) for HIV, 43 cases (3.1%) for HCV, and 48 cases (3.4%) for syphilis.

Table 4

Self-report reasons why participants have not been tested for HIV, HCV, and syphilis

Reason for not being tested	HIV	HCV	Syphilis
	% (*n*)	% (*n*)	% (*n*)
Not tested: Last six months	**(*N* = 1,021)**	**(*N* = 953)**	**(*N* = 1,029)**
Don't think I'm at risk	30.5 (311)	29.0 (276)	33.5 (345)
Don't want to know status	0.8 (8)	0.8 (8)	-- (--)
Haven't been offered a test	21.6 (221)	21.6 (206)	25.1 (258)
I know I don't have it	27.0 (276)	25.1 (239)	15.0 (154)
I know I have it	1.0 (10)	1.8 (17)	1.0 (10)
Afraid of being treated differently by other inmates	0.6 (6)	0.5 (5)	-- (--)
Afraid of being treated differently by correctional staff	1.1 (11)	0.9 (9)	0.5 (5)
Other	5.7 (58)	5.5 (52)	5.0 (51)
Not tested: Ever	**(*N* = 486)**	**(*N* = 488)**	**(*N* = 738)**
Don't think I'm at risk	29.0 (141)	27.9 (136)	34.8 (257)
Don't want to know status	1.0 (5)	-- (--)	0.7 (5)
Haven't been offered a test	18.3 (89)	17.0 (83)	27.0 (199)
I know I don't have it	35.4 (172)	29.1 (142)	12.6 (93)
I know I have it	1.6 (8)	1.4 (7)	-- (--)
Afraid of being treated differently by other inmates	-- (--)	-- (--)	-- (--)
Afraid of being treated differently by correctional staff	1.2 (6)	-- (--)	-- (--)
Other	3.7 (18)	3.9 (19)	3.4 (25)

Note: Listed reasons are not mutually exclusive; participants were asked to select all that apply (thus percentages will not add up to 100%). Cell counts less than 5 are suppressed, denoted by '--'.

Serology Results.

In addition to self-report responses on the questionnaire regarding infectious disease diagnoses, serological data providing information on prevalence of infection was also obtained through DBS collection. Overall, 861 participants had valid DBS information. However, the

number of participants with valid DBS information to analyze the presence of antibodies[23] varied by infectious disease type, due to DBS cards not containing adequate blood spots to test for antibodies for each infectious disease—HIV, HCV, and syphilis.[24] For instance, to examine prevalence rates of HCV antibodies, all 861 participants were included, whereas to examine the prevalence rates of HIV antibodies, 856 participants had sufficient DBS information for inclusion. In contrast, to examine syphilis prevalence, 837 participants had sufficient DBS information for inclusion.

It was found that over one quarter of participants had antibodies for at least one of these infectious diseases (n = 220/861, 25.5%), with 1.6% (n = 14) having antibodies for at least two of these infectious diseases. For HIV, there were five cases that were removed from analyses as the DBS test did not have sufficient quantity for assay. As such, of the 856 participants with valid serological information for HIV, the presence of antibodies was detected for less than 1% of participants (0.7%, 95% CI [0.3%, 1.5%]; n = 6/856). For syphilis, 24 cases were removed from analyses as the DBS test had insufficient quantity for assay. As such, of the 837 participants with valid serological information for syphilis, the presence of antibodies was detected for 4.7% of participants (95% CI [3.3%, 6.3%]; n = 39/837). For HCV, serology information was used to examine for the presence of antibodies, as well as rate of active infection. To examine presence of HCV antibodies all 861 cases were used; however, to examine rate of current infection, 11 cases were removed from analyses as the DBS test had insufficient quantity for assay. For HCV, 22.0% (95% CI [19.2%, 24.9%]; n = 189/861) tested positive for antibodies. In contrast, 3.6% (95% CI [2.4%, 5.1%]; n = 31/850) were found to have an active HCV infection.[25]

Tattooing in Federal Prison

Participants were asked a number of questions about their engagement in risk-behaviours. The first group of questions were about tattooing in federal prison. It was found that 44.6% (n = 626) of all participants reported getting a tattoo while in a federal prison. However, of those who had gotten a tattoo in federal prison, 186 reported getting a tattoo in federal prison within the last

[23] The number of individuals who have positive antibodies reflect the number of individuals who have a lifetime (i.e., past or active infection) for that particular infectious disease. Note: for HCV, findings are presented for both lifetime and active infection.
[24] Note: Ten participants who had available DBS findings did not complete the 2022 National Health Survey questionnaire (98.8%, n = 851/861 participants had both available questionnaire and DBS data).
[25] For the purpose of this report, concordance rates between self-report diagnosis and serology information will not be presented. This information can be found in RIB-23-33 (Coles, 2023).

six months (29.7%). Notably, responses for 210 of the 626 (33.5%) participants (who indicated that they got a tattoo while in federal prison) were considered 'Not Stated' due to inconsistencies in responding.[26] As such, for the tattooing section these responses were not included in the subsequent analyses. Among those who indicated getting a tattoo in the last six months while in a federal prison, 63.4% (*n* = 118/186) used a modified tattoo gun (i.e., a device made out of different materials), 34.4% (*n* = 64/186) used a beading needle, 32.8% (*n* = 61/186) used a sewing needle, 16.7% (*n* = 31/186) used a tattoo gun, 12.4% (*n* = 23/186) used a staple, 11.8% (*n* = 22/186) used a guitar string, and 3.8% (*n* = 7/186) reported using a needle used for injections. In addition, 9.1% (*n* = 17/186) reported using a different device to get a tattoo, which included a metal spring, a tack, or a motor from a stereo. When asked about device and ink sharing, it was found that 66.7% of participants indicated that the device was never used by someone else prior to their tattoo (*n* = 124/186). However, 13.4% (*n* = 25/186) of participants indicated that the device was always used by someone else before them and 11.3% (*n* = 21/186) of participants indicated that the device was sometimes used by someone else first. In contrast, 82.8% (*n* = 154/186) of participants indicated that the ink was never used by someone else prior to their tattoo, whereas 3.2% (*n* = 6/186) of participants indicated that the ink was always used by someone else first and 4.3% (*n* = 8/186) of participants indicated that in some instances the ink was used by someone else first. Participants who indicated that they got a tattoo within the last six months while in federal prison were also asked questions specifically about the last time they got a tattoo in prison. In terms of devices used, similar trends were found whereby the largest proportion of participants indicated using a modified tattoo gun (*n* = 117/186; 62.9%), followed by over a third of participants who indicated that they used a beading needle (*n* = 64/186; 34.4%). When asked about the last time getting a tattoo in federal prison, 21.5% of participants indicated that the device was used by someone before them (*n* = 40/186) and 10.8% of participants indicated that they did not know whether someone had used the device before them (*n* = 20/186). Additionally, 4.8% of participants indicated that the ink was used by someone

[26] 'Not Stated' in this case refers to individuals who answered inconsistently across the tattooing section. This includes: 1) participants who said they did not get a tattoo within the last six months, but then who went on to answer all follow-up questions about tattoos they received over the last six months (*n* = 8), 2) participants who indicated they did not get a tattoo within the last six months, but then only answered follow up questions about the last time they got a tattoo (*n* = 116), which likely indicates that they were referring to a tattoo they received outside of the six month timeframe of interest, and 3) participants who said they did not get a tattoo within the last six months, but answered *some* follow-up questions about tattooing practices (*n* = 84).

before them (*n* = 9/186), and 10.8% of participants indicated that they did not know whether someone had used the ink before them (*n* = 20/186). See Table 5 for a breakdown of findings for those who have gotten a tattoo in federal prison within the last six months.

When asked about safer tattooing programs (i.e., a professional, sterile tattoo service), the majority of participants who got a tattoo over the last six months in federal prison indicated that they would use this program if it were set up in their institution (*n* = 168/186; 90.3%). Only 4.8% (*n* = 9/186) of the sample indicated that they would not use this program, with the remainder of participants indicating that they were unsure or did not answer the question entirely.

Table 5

Participants' Use of Tattooing Devices in Federal Prison (N = 186)

Tattooing in Federal Prison	All tattoos within the last six months	Last tattoo within past six months
	% (*n*)	% (*n*)
Device used for tattoo[a]		
Modified tattoo gun	63.4 (118)	62.9 (117)
Beading needle	34.4 (64)	34.4 (64)
Sewing needle	32.8 (61)	26.3 (49)
Tattoo gun	16.7 (31)	14.5 (27)
Staple	12.4 (23)	11.8 (22)
Guitar String	11.8 (22)	14.0 (26)
Other	9.1 (17)	5.4 (10)
Needle used for injections	3.8 (7)	-- (--)
Was the device used before you?		
Yes[b]	24.7 (46)	21.5 (40)
No	66.7 (124)	64.5 (120)
Don't know or missing	8.7 (16)	14.0 (26)
Was the ink used before you?		
Yes[c]	7.5 (14)	4.8 (9)
No	82.8 (154)	81.2 (151)
Don't know or missing	9.7 (18)	14.0 (26)

Note: Cell counts less than 5 are suppressed, denoted by '--'. [a]Participants were instructed to check all devices that apply. Percentages will not add up to 100%. [b]Yes = comprised of "Always" and "Sometimes" responses for question asking about the sharing of devices for tattoos within the last six months. [c]Yes = comprised of "Always" and "Sometimes" responses for question asking about the sharing of ink for tattoos within the last six months.

Drug Use in Federal Prison

Among the 1,404 participants with valid questionnaire data, 991 (70.6%) indicated that they had not used drugs while in federal prison within the last six months. As such, these participants' data were not further analyzed. Three-hundred and seventy-six participants (26.8%) indicated that they had used drugs in federal prison within the last six months, and 37 participants (2.6%) had data that were 'Not Stated'[27] regarding institutional drug use within the last six months. To avoid data loss, results in this section are reported from the combined 413 participants who said "Yes" to drug use within the last six months and among participants who have 'Not Stated' data.

Among these 413 participants, 4.4% (*n* = 18) indicated that they had not consumed drugs using any of the three ingestion methods (i.e., smoke, snort, or inject); it is likely that these participants swallowed their drugs or used some other ingestion method (e.g., huffing). However, 47.5% (*n* = 196/413) indicated that they had used only one of the specified ingestion methods, 38.5% (*n* = 159/413) indicated that they had used two of the specified ingestion methods, and 9.7% (*n* = 40/413) indicated that they had used all three drug ingestion methods. The rest of this section will be presented in sub-sections based on the three different drug ingestion methods: smoking, snorting, and injecting.

Drug use via smoking.

Three-hundred and twenty-three participants (out of 413; 78.2%) said that they had smoked drugs in prison within the last six months, representing just under a quarter of the entire sample (23.0%). In terms of frequency of smoking drugs, just under one-third (*n* = 102/323; 31.6%) reported smoking every day, 11.8% (*n* = 38/323) reported smoking four to six days a week, 11.5% (*n* = 37/323) reported smoking two to three days a week, 7.4% (*n* = 24/323) reported smoking about one day a week, 16.7% (*n* = 54/323) reported smoking one to three days

[27] 'Not Stated' data consists of participant responses that were inconsistent but may be indicative of institutional drug use within the last six months. Decisions were made to include participants' data as 'Not Stated' on a case-by-case basis, with a set of established decision rules, and in consultation with Statistics Canada and project stakeholders.

a month, and 18.0% (*n* = 58/323) reported smoking less than one day a month.[28] Participants were also asked whether the device or tool they had used to smoke drugs had been used by someone else before them. Just over half of the 323 participants who smoked (*n* = 167/323; 51.7%) reported that they 'never' used a device that was previously used by somebody else, or that they 'did not know' whether the device had previously been used by somebody else. However, 32.2% (*n* = 104/323) said that they 'sometimes' engaged in this practice, and 13.0% (*n* = 42/323) said that they 'always' engaged in this practice.[29] Similarly, participants were asked whether they had passed on the device or tool they used to smoke drugs to someone else after they had used it. Just over half (*n* = 165/323; 51.0%) reported that they 'never' passed on a device or tool to someone else after they had used it, or that they 'did not know' whether they had passed on a device or tool to someone else after they had used it. Just under one-third (*n* = 105/323; 32.5%) said that they 'sometimes' engaged in this practice, and 13.6% (*n* = 44/323) reported that they 'always' engaged in this practice.[30]

In addition to asking about device sharing, participants were asked to think about the last time they smoked drugs and to check off the device(s) or tool(s) that they had used to smoke their drugs, which included: foil, a pipe, a glass tube, a metal tube, a pen shaft, or another device. Because participants were able to select multiple devices or tools, the results presented do not add up to 100%. Among the provided response options, the largest proportion of participants reported smoking drugs using a pen shaft (*n* = 200/323; 61.9%), another device (e.g., paper, batteries; *n* = 100/323; 31.0%), and/or foil (*n* = 78/323; 24.1%). Table 6 reports the proportion and frequency of the sample that selected each type of device/tool to smoke drugs in federal prison within the last six months.

[28] Ten (3.1%) participants had missing data on this question; the numbers do not add up to 100%.
[29] Ten (3.1%) participants had missing data on this question; the numbers do not add up to 100%.
[30] Nine (2.8%) participants had missing data on this question; the numbers do not add up to 100%.

Table 6

Tools Used to Smoke Drugs in Federal Prison within the Last Six Months

The last time you smoked drugs, which device or tool did you use to smoke your drug(s)?[a]	Sample (N = 323)
	% (n)
Pen Shaft	61.9 (200)
Other	31.0 (100)
Foil	24.1 (78)
Pipe	7.7 (25)
Glass Tube	7.7 (25)
Metal Tube	1.9 (6)

Note: [a]Because participants were able to select multiple devices or tools (select all that apply), the results do not add up to an *n* of 323 or 100%.

When referring specifically to the *last time* within the past six months that participants smoked drugs in federal prison, over one half (*n* = 181/323; 56.0%) indicated that they had not used a device or tool to smoke their drugs that had previously been used by someone else; however, 31.9% (*n* = 103/323) indicated that they did engage in this practice, and 5.9% (*n* = 19/323) indicated that they did not know whether their device had previously been used by someone else.[31] Similarly, participants were asked whether they had passed on the device or tool they had used to smoke drugs to someone else after they had used it. Just over one half (*n* = 171/323; 52.9%) indicated that they had not engaged in this practice, 39.9% (*n* = 129/323) indicated that they had engaged in this practice, and 2.5% (*n* = 8/323) did not know.[32]

Drug use via snorting.

Among the 413 participants who used drugs in federal prison within the past six months (or who had 'Not Stated' data), 260 (63.0%) specified that they had snorted drugs, representing 18.5% of the entire sample. The frequency with which participants snorted drugs varied: 16.5% (*n* = 43/260) reported snorting drugs every day, 7.7% (*n* = 20/260) reported snorting four to six days a week, 16.2% (*n* = 42/260) reported snorting two to three days a week, 11.9% (*n* = 31/260) reported snorting about one day a week, 22.7% (*n* = 59/260) reported snorting one to three days a

[31] Twenty (6.2%) participants had missing data on this question; the numbers do not add up to 100%.
[32] Fifteen (4.6%) participants had missing data on this question; the numbers do not add up to 100%.

month, and 20.4% (*n* = 53/260) reported snorting their drugs less than one day a month.[33]

Participants were also asked whether, over the past six months, the device or tool they had used to snort drugs had been used by someone else before them. Nearly half (*n* = 116/260; 44.6%) reported that they 'never' used a device that was previously used by someone else. However, 34.2% (*n* = 89/260) said that they 'sometimes' engaged in this practice, 15.0% (*n* = 39/260) said that they 'always' engaged in this practice, and 1.9% (*n* = 5/260) indicated that they 'did not know' whether their device(s) had been used by someone else beforehand.[34] Similarly, participants were asked whether, over the past six months, they had passed on the device or tool they had used to snort drugs to someone else after they had used it. Nearly half (*n* = 119/260; 45.8%) reported that they 'never' passed on a device or tool to someone else after they had used it. Just over one-third (*n* = 87/260; 33.5%) said that they 'sometimes' engaged in this practice, 14.6% (*n* = 38/260) said that they 'always' engaged in this practice, and 2.7% (*n* = 7/260) said that they 'did not know' whether they had passed on their device(s) or tool(s) after using them.[35]

In addition to asking about device sharing, participants were asked to check off the device(s) or tool(s) that they had used to snort their drugs, which included: a straw, foil, rolled up paper (e.g., money, post-it notes, etc.), or another device. Because participants were able to select multiple devices or tools, the results presented do not add up to 100%. Among the provided response options, participants most frequently snorted drugs using some form of rolled up paper (*n* = 169/260; 65.0%) or a straw (*n* = 97/260; 37.3%). Table 7 reports the proportion and frequency of the sample that selected each type of device/tool to snort drugs in federal prison within the last six months.

[33] Twelve (4.6%) participants had missing data on this question; the numbers do not add up to 100%.
[34] Eleven (4.2%) participants had missing data on this question; the numbers do not add up to 100%.
[35] Nine (3.5%) participants had missing data on this question; the numbers do not add up to 100%.

Table 7

Tools Used to Snort Drugs in Federal Prison within the Last Six Months

The last time you snorted drugs, which device or tool did you use to smoke your drug(s)?[a]	Sample (N = 260)
	% (n)
Rolled up paper, money, or post-it notes	65.0 (169)
Straw	37.3 (97)
Other	28.5 (74)
Foil	5.4 (14)

Note: [a]Because participants were able to select multiple devices or tools (select all that apply), the responses do not add up to an *n* of 260 or 100%.

The final set of questions in the snorting section asked participants to think specifically about the *last time* within the past six months they snorted drugs in federal prison. Just over one half (*n* = 148/260; 56.9%) indicated that they had not used a device or tool to snort their drugs that had previously been used by someone else; however, 35.8% (*n* = 93/260) indicated that they did engage in this practice, and 3.5% (*n* = 9/260) indicated that they did not know whether their device had previously been used by someone else.[36] Similarly, participants were asked whether they had passed on the device or tool they had used to snort drugs to someone else after they had used it. Approximately one half (*n* = 132/260; 50.8%) indicated that they had not engaged in this practice, 41.5% (*n* = 108/260) indicated that they had engaged in this practice, and 3.8% (*n* = 10/260) did not know.[37]

Injection drug use.

Among the 413 participants who used drugs in federal prison (or who had 'Not Stated' data), 51 (12.3%) specified that they injected drugs within the past six months. Among the overall sample of people who had valid survey data (*N* = 1,404), this is a small percentage (3.6%). The frequency with which participants injected their drugs varied: 19.6% (*n* = 10/51) reported injecting drugs every day, 9.8% (*n* = 5/51) injected drugs four to six days a week, 25.5% (*n* = 13/51) injected drugs about one to three days a week, 15.7% (*n* = 8/51) injected one

[36] Ten (3.8%) participants had missing data on this question; the numbers do not add up to 100%.
[37] Ten (3.8%) participants had missing data on this question; the numbers do not add up to 100%.

to three days a month, and 25.5% (*n* = 13/51) injected less than one day a month.[38] In addition, participants were asked about how many times *within a day* they typically injected drugs. The lowest proportion of participants (*n* = 8/51; 15.7%) indicated that they typically injected four or more times in one day, whereas 45.1% (*n* = 23/51) typically injected two to three times in one day, and 37.3% (*n* = 19/51) typically injected once throughout an entire day.[39]

Participants were asked, within the general timeframe of the previous six months, whether someone else used the following items before them: a needle, the object they used to tie off the vein (e.g., tie, belt), the object they used to mix their drug (e.g., cooker, spoon), filter, water, and/or acidifier (e.g., Vitamin C). Among the provided response options, participants most frequently reported using a previously used needle (*n* = 24/51; 47.1%). In addition, participants were asked whether they had passed any of the above-mentioned items on to someone else after they had used it. Once again, the largest proportion of participants indicated that they had passed on a needle to someone else after they had used it (*n* = 27/51; 52.9%). Importantly, 58.8% (*n* = 30/51) of participants engaged in some form of needle sharing (either *using* a previously used needle or *sharing* their needle with someone else), of which almost half were engaging in both behaviours; that is, they used a previously used needle *and* shared their needle with someone else after using it (*n* = 21/51; 41.2%. This represents 1.5% of the entire study sample). Additionally, of those who injected drugs within the past six months, 78.4% (*n* = 40/51) shared at least one item (including using an item after someone else or sharing an item with someone else after they had used it), including a needle, the object they used to tie off the vein (e.g., tie, belt), the object they used to mix their drug (e.g., cooker, spoon), filter, water, and/or acidifier (e.g., Vitamin C). Importantly, when participants were asked questions specifically about the last time they had injected drugs in prison within the last six months, similar results emerged. Table 8 describes the proportion and frequency of participants who have shared various tools/devices used for injecting drugs within the last six months and the last time they injected drugs within the last six months.

[38] Two (3.9%) participants had missing data on this question; the numbers do not add up to 100%.
[39] One (2.0%) participant had missing data on this question; the numbers do not add up to 100%.

Table 8

Injection Devices Shared within Federal Prison within the Last Six Months

Device sharing within the past six months[a]	Sample (N = 51)	
	Last Six Months % (n)	**Last Time[c]** % (n)
Did someone else use any of the following items before you?		
Needle	47.1 (24)	47.1 (24)
Item used to tie off your vein (e.g., tie, belt)	39.2 (20)	39.2 (20)
Item used to mix drug in (e.g., cooker, spoon)	29.4 (15)	23.5 (12)
Filter	17.6 (9)	21.6 (11)
Water and/or Acidifier (e.g., Vitamin C)[b]	15.7 (8)	17.6 (9)
Did you pass any of the following items to someone else after you used it?		
Needle	52.9 (27)	47.1 (24)
Items used to tie off your vein (e.g., tie, belt)	49.0 (25)	49.0 (25)
Items used to mix drug in (e.g., cooker, spoon)	35.3 (18)	35.3 (18)
Filter and/or Acidifier (e.g., Vitamin C)[b]	19.6 (10)	21.6 (11)
Water	19.6 (10)	19.6 (10)

Note: [a]Because participants were able to select multiple devices or tools (select all that apply), the results do not add up to an n of 51 or 100%. [b]These response categories combine data from responses of 'Filter' and 'Acidifier (Vitamin C)' to avoid data suppression of categories with less than 5 values. [c]Last time refers to last time within the last six months while in federal prison.

The last set of questions related to the last time participants engaged in injection drug use asked participants if they cleaned their needle or rig and if so, how. Just over two-thirds (n = 35/51; 68.6%) indicated that they did indeed clean their needle or rig; however, 11.8% (n = 6/51) said that they had not cleaned their needle or rig, and an additional 11.8% (n = 6/51) said that they did not know if the needle or rig that they used was cleaned before using it.[40] Among the participants who said that their needle or rig had been cleaned before using it, 77.1% (n = 27/35) said that they cleaned it with bleach, 65.7% (n = 23/35) said that they cleaned it with hot water, and 14.3% (n = 5/35) said that they cleaned their needle in some other way (not specified).[41]

[40] Four (7.8%) participants had missing data on this question; the numbers do not add up to 100%.
[41] Participants were able to select multiple cleaning methods; the numbers do not add up to 100%.

Sex in Federal Prison

Participants were asked about whether they had sex over the last six months while in federal prison and whether various harm reduction supplies were used (including dental dams, condoms, and lubricant). Overall, most participants indicated that they did not have sex within the last six months (*n* = 1,204/1,404; 85.8%). However, responses were missing from 77 participants (5.5%), thus resulting in 123 (8.8%) participants who indicated that they had sex (oral, vaginal, and/or anal) in the last six months while in federal prison. Follow-up responses from these 123 participants are described below.

Participants who indicated having had sex while in prison within the last six months were asked whether they had sex with a man, of which 26.0% (*n* = 32/123) said yes.[42] Among those 32 participants, 28.1% (*n* = 9/32) indicated that they rarely or never used a condom when having vaginal sex, and 65.6% (*n* = 21/32) indicated that they never or rarely used a condom or dental dam when having anal sex or oral sex. In contrast, when asked about whether they had sex with a woman, 70.7% (*n* = 87/123) of participants said yes.[43] Among these 87 participants, 57.5% (*n* = 50/87) indicated that they rarely or never used a condom or dental dam when having vaginal sex or oral sex, and 34.4% (*n* = 30/87) of participants indicated rarely or never using a condom during anal sex.

Participants were also asked about whether anyone had paid them with either money, drugs, or other items (such as canteen, tobacco, a needle, etc.) in exchange for sex within the last six months in federal prison. Overall, 14 participants indicated that they had exchanged sex for other goods in federal prison (*n* = 14/123; 11.4%); however, responses were missing from 10 of the 123 participants (8.1%). Among the 14 participants who indicated having exchanged sex for goods over the past six months in federal prison, eight participants indicated that this occurred frequently (57.1%). Six participants indicated that this *sometimes* or *rarely* occurred (42.9%).

Access to Harm Reduction Supplies

Among the 1,404 participants with valid questionnaire data, 53.6% (*n* = 753) did not try to access any harm reduction supplies.[44] As such, these participants will not be considered

[42] Fifteen (12.2%) participants were missing responses on this question.
[43] Seven (5.7%) participants were missing responses on this question.
[44] Participants did not try to access harm reduction supplies as they indicated it was not applicable to them. Just under a fifth of participants (*n* = 277; 19.7%) had missing data on this question; the numbers do not add up to 100%.

further in this section. Conversely, 21.7% (*n* = 304/1,404) indicated that they were able to access the harm reduction supplies they needed (condoms, lubricant, or dental dams),[45] and 5.0% (*n* = 70/1,404) reported having difficulty accessing what they needed.

For the 70 participants who reported having difficulty accessing harm reduction supplies, one of the biggest issues faced was an insufficient quantity of supplies (see Table 9). More specifically, 40.0% (*n* = 28/70) indicated that when they went to obtain condoms, there were none left. Similarly, 35.7% (*n* = 25/70) experienced this problem when they tried to access lubricant, and 17.1% (*n* = 12/70) experienced this when they tried to access dental dams. Besides a quantity issue, 20.0% (*n* = 14/70) also did not know where to find condoms, 17.1% (*n* = 12/70) did not know where to find lubricant, and 12.9% (*n* = 9/70) did not know where to find dental dams. Furthermore, participants were also worried/afraid that other people in custody could see them obtaining these supplies. Specifically, 18.6% (*n* = 13/70) were worried/afraid that others could see them obtaining condoms, 20.0% (*n* = 14/70) were worried/afraid that others could see them obtaining lubricant, and 11.4% (*n* = 8/70) were worried/afraid that others could see them obtaining dental dams.

The least prevalent issue faced by participants within the last six months regarding accessing harm reduction supplies was the quality of the supplies (see Table 9). Specifically, 7.1% (*n* = 5/70) reported that at least one of the items they tried to obtain (i.e., condoms, lubricant, and/or dental dams) were damaged or useless. Besides quality, 7.1% (*n* = 5/70) reported that other incarcerated individuals stopped them from obtaining lubricant and 10% (*n* = 7/70) reported that other incarcerated individuals stopped them from obtaining condoms and/or dental dams. Some participants also indicated that they had difficulty accessing harm reduction supplies for reasons other than what was suggested in the questionnaire. In this case, participants provided a range of open-ended responses regarding issues with supplies, which included: having allergies, general poor access, sizing issues, experiencing or hearing comments from staff, and previous experiences with having harm reduction supplies confiscated by correctional staff.

[45] Just under a fifth of participants (*n* = 277; 19.7%) had missing data on this question; the numbers do not add up to 100%.

Table 9

Issues Accessing Harm Reduction Supplies in Federal Prison

Issues with Accessing Harm Reduction Supplies (within the last six months)	Sample (N = 70)		
	Condoms % (n)	Lubricant % (n)	Dental Dams % (n)
When I went to get some, there weren't any left	40.0 (28)	35.7 (25)	17.1 (12)
I didn't know where to find them	20.0 (14)	17.1 (12)	12.9 (9)
I was worried/afraid inmates could see me getting them	18.6 (13)	20.0 (14)	11.4 (8)
I had to ask staff to get some	17.1 (12)	11.4 (8)	8.6 (6)
Other inmates control the supply	14.3 (10)	11.4 (8)	8.6 (6)
Other	14.3 (10)	10.0 (7)	8.6 (6)
Other inmates stopped me from getting any	-- (--)	7.1 (5)	-- (--)
The items were damaged or useless	-- (--)	-- (--)	-- (--)

Note: Cell counts less than 5 are suppressed, denoted by '--'. Participants could select all reasons that apply; thus, percentages will not add up to 100%.

Harm Reduction and Treatment

Pre-exposure Prophylaxis (PrEP) Treatment.[46]

Among the 1,404 participants with valid questionnaire data, 80.0% (n = 1,123/1,404) indicated that they did not know that PrEP was available in federal prison. However, 8.7% (n = 122/1,404) indicated that they were aware that they could access PrEP in federal prison;[47] these participants are included in the subsequent analyses. Among the 122 participants who were aware of PrEP's availability in federal prison, 77.0% (n = 94/122) indicated that they have never been on PrEP while in federal prison. Among these 94 participants, 51.6% (n = 63/94) indicated that they had not been on PrEP because they did not need it, or they did not believe they were at risk for HIV. A very small number of participants (n < 5) also reported that they have not been on PrEP while in federal prison because they: 1) did not want to be stigmatized by others, and/or

[46] PrEP: Medication taken to help prevent HIV before engaging in risk-behaviours (PHAC, 2019).
[47] Note that 159 (11.3%) participants had missing responses on the question asking about whether they knew they could get PrEP in federal prison, hence why the numbers do not add up to 100%.

2) they did not want to talk to their doctor about it. Furthermore, among the 122 participants who were aware of PrEP's availability in federal prison, 8.2% (*n* = 10/122) said they have been on PrEP in federal prison, of which 50.0% (*n* = 5/10) indicated that they had been on it within the last six months. Of the 122 participants who were aware that they could access PrEP in federal prison, 18 (14.8%) did not provide a response on whether they accessed PrEP or not.

Post-exposure Prophylaxis (PEP) Treatment.[48]

Among the 1,404 participants with valid questionnaire data, 78.9% (*n* = 1,108/1,404) indicated that they did not know PEP was available in federal prison, whereas 7.1% (*n* = 100/1,404) indicated that they knew PEP was available in federal prison.[49] Among the 100 participants who were aware of PEP's availability in federal prison, 81.0% (*n* = 81/100) said they have never been on PEP in federal prison.[50] Among these participants, 69.1% (*n* = 56/81) indicated that they have not been on PEP because they did not need it, or they did not believe they were at risk for HIV. A very small number of participants (*n* < 5) also reported that they have not been on PEP while in federal prison because they either: 1) did not want to be stigmatized by others, and/or 2) they did not want to talk to their doctor about it. Finally, among the 100 participants who were aware that PEP is availability in federal prison, only 11.0% (*n* = 11/100) had *ever* been on it while in federal prison. Less than five participants reported being on PEP within the last six months.

Attitudes Towards Drug Use and Access to Treatment for Substance Use Disorders.

Participants were asked a number of questions about their attitudes towards drug use and access to treatment for substance use disorders. These questions were rated on a 4-point Likert-type scale ranging from *Strongly Disagree* to *Strongly Agree*, with the additional option of selecting *Does not apply to me*. Importantly, the most prevalent response to each of these questions was *Does not apply to me*. For example, 53.2% (*n* = 747/1,404) of participants provided this response for 'I switched to drugs that are harder to catch in urine testing' and 48.7% (*n* = 684/1,404) of participants provided this answer for 'The idea that I might miss a dose makes me anxious or worried'. However, responses other than '*Does not apply to me'* and

[48] PEP: Medication taken to help prevent HIV after engaging in risk-behaviours (PHAC, 2019).
[49] Note that 196 (14.0%) participants had missing responses on the question asking about whether they knew they could get PEP in federal prison; the numbers do not add up to 100%.
[50] Eight (8.0%) participants had missing responses; the numbers do not add up to 100%.

missing were further analyzed. Among those who responded using one of the four Likert-scale options (*Strongly Disagree* to *Strongly Agree*), it was found that 64.9% (*n* = 379/584) indicated that they *Agree* or *Strongly Agree* that they worry that the drugs available may be contaminated or cut with drugs they do not know about. A large proportion of respondents also indicated that they *Agree* or *Strongly Agree* that they want to try to stop using drugs while in prison (*n* = 361/478; 75.5%), that they have tried stopping while in prison (*n* = 377/491; 76.8%), and that they are comfortable talking to Health Services about their drug use (*n* = 457/605; 75.5%). Notably, a larger proportion of participants reported that they *Agree* or *Strongly Agree* that they do not do drugs because they do not want to be targeted by staff (*n* = 319/581; 54.9%) compared to the proportion of participants who reported that they *Agree* or *Strongly Agree* that they do not do drugs because they do not want to be targeted by other incarcerated individuals (*n* = 179/532; 33.6%). Finally, of the 558 individuals who responded to whether they refrained from drug use out of fear of getting HIV and HCV, less than half *Agreed* or *Strongly Agreed* (*n* = 258/558; 46.2%). See Table 10 for a full breakdown of responses on questions about participants' attitudes toward drug use and access to treatment for substance use disorders.

Table 10

Attitudes Toward Drug Use and Access to Treatment for Substance Use Disorders

Attitudes Towards Drug Use and Access to Treatment	Total (N = 1,404)					
	Strongly Disagree	Disagree	Agree	Strongly Agree	Does not apply to me	Missing Data
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)
I don't do drugs in prison because I'm afraid of being caught	11.3 (159)	12.3 (173)	9.6 (135)	6.6 (93)	43.6 (612)	16.5 (232)
I don't do drugs in prison because I'm close to my release date and don't want to mess it up	8.3 (116)	9.7 (136)	11.7 (164)	11.4 (160)	43.0 (604)	16.0 (224)
I don't do drugs because I'm afraid of getting HIV/Hep C	9.8 (138)	11.5 (162)	8.4 (118)	10.0 (140)	43.8 (615)	16.5 (231)
I don't do drugs because I'm afraid of overdosing	10.0 (141)	11.8 (165)	9.3 (130)	9.8 (138)	43.2 (607)	15.9 (223)
I don't do drugs because I don't want to be targeted by other inmates	12.0 (168)	13.2 (185)	6.6 (93)	6.1 (86)	45.4 (638)	16.7 (234)
I don't do drugs because I don't want to be targeted by staff	8.8 (123)	9.9 (139)	12.0 (169)	10.7 (150)	42.5 (596)	16.2 (227)
I worry that the drugs that are available might be contaminated or cut with drugs I do not know about	6.0 (84)	8.6 (121)	13.8 (194)	13.2 (185)	41.7 (585)	16.7 (235)
I switched to drugs that are harder to catch in urine testing	10.4 (146)	11.6 (163)	4.5 (63)	3.1 (44)	53.2 (747)	17.2 (241)
My drug use is out of control	17.5 (246)	11.1 (156)	3.5 (49)	3.3 (47)	46.5 (653)	18.0 (253)
The idea that I might miss a dose makes me anxious or worried	11.3 (158)	11.5 (161)	5.8 (82)	3.8 (53)	48.7 (684)	18.9 (266)
I want to try to stop using drugs while in prison	3.8 (53)	4.6 (64)	12.7 (179)	13.0 (182)	47.3 (664)	18.7 (262)
I have tried stopping while in prison	3.9 (55)	4.2 (59)	15.2 (214)	11.6 (163)	46.2 (648)	18.9 (265)
I am comfortable talking to Health Services about my drug use	5.4 (76)	5.1 (72)	17.2 (241)	15.4 (216)	38.0 (534)	18.9 (265)

Note: To prevent misinterpretation of the information in this table, both missing responses and "Does not apply to me" responses are presented and included in the denominator. Notably, the response option "Does not apply to me" makes up the largest proportion of participant responses across each question (ranging from 38.0% to 53.2% of responses).

Currently Receiving Help or Treatment for Addiction or Substance Use.

Participants were asked about whether they were receiving some form of help or treatment for addiction or substance use. Seven different response options were available, ranging from "This does not apply to me, I don't do drugs", to "Yes, I'm getting all the help I

need" (see Table 11 for the complete list of response options and respective response frequencies). Just over half of participants with valid questionnaire data (*n* = 740/1,404; 52.7%) selected "This does not apply to me, I don't do drugs". Importantly, just under 20% of participants (*n* = 279/1,404; 19.9%) had missing responses on this question. Finally, 27.4% (*n* = 385/1,404) of participants selected a response option other than "This does not apply to me, I don't do drugs" and were thus directed to answer further follow up questions pertaining to Opioid Agonist Treatment (OAT). See Table 11 below for a full breakdown of responses.

Table 11

Participant Responses to Receiving Help or Treatment for Addiction or Substance Use

Are you currently receiving help or treatment for addiction or substance use?	Sample (*N* = 1,404)
	% (*n*)
This does not apply to me, I don't do drugs	52.7 (740)
No, I sometimes do drugs but don't feel I need it	5.0 (70)
No, I would like to but haven't asked	1.2 (17)
No, I didn't know that help was available	0.9 (12)
No, but I need help	2.5 (35)
Yes, but I still need more help	7.0 (98)
Yes, I'm getting all the help I need	10.9 (153)

Note: Missing responses for *n* = 279/1,404 (19.9%) of participants, hence why the percentages do not add up to 100%.

Among the 385 participants who were directed to answer a follow up question about OAT (Methadone, Suboxone, or Sublocade) 39.2% (*n* = 151/385) indicated that they are currently on OAT and 38.7% of participants (*n* = 149/385) said that they are not currently on OAT .[51] It is important to note, however, that data from the 2022 Health Survey does not allow for distinguishing which participants have an opioid use disorder and which participants do not. As such, caution is warranted when interpreting these findings. The 149 participants who said that they were not currently on OAT were then asked a follow up question gauging their interest in OAT. Just under two-thirds (*n* = 93/149; 62.4%) indicated that they did not want to be on

[51] Note that 22.1% (*n* = 85/385) participants had missing data on this question; the numbers do not add up to 100%.

OAT; however, 18.8% (*n* = 28/149) indicated that they would like to be on OAT and another 18.8% (*n* = 28/149) did not answer the question (i.e., missing responses). Conversely, the 151 participants who said that they were on OAT were asked to specify which treatment option they used (Methadone, Suboxone, or Sublocade). Of these participants, 33.8% (*n* = 51/151) reported that they are on Methadone, 53.6% (*n* = 81/151) reported that they are on Suboxone, and 11.3% (*n* = 17/151) reported that they are on Sublocade.[52]

[52] Two participants (out of 151; 1.3%) did not specify their treatment type (i.e., missing response).

Discussion

One goal of this study was to update health estimates obtained in the 2007 National Inmate Infectious Disease Survey based on information obtained through the 2022 National Health Survey. Specifically, the purpose of this study was to examine the prevalence of STBBI such as HIV, HCV, and syphilis (using biological sampling to determine seroprevalence), as well as the prevalence of risk-behaviours while in federal custody that can result in STBBI. In addition, based on information collected through a self-report questionnaire, this study reported on factors that could increase risk for infection, such as engagement in risk-behaviours including tattooing, drug use, and unprotected sex, as well as factors that could decrease risk for infection, such as awareness of, and access to, harm reduction programs and services.

Sexually Transmitted and Blood Borne Infections: Prevalence and Testing

In terms of prevalence of infectious diseases, 1.6% of participants self-reported that they had been diagnosed with HIV at some point in their lives. However, serology results indicated that the prevalence of HIV antibodies was 0.7%. Importantly, a recent study used the 2022 National Health Survey dataset to report on concordance rates between serology data and self-report data. Among participants who have datapoints for both sources, it was found that there was a moderate level of agreement between serology data and self-report data (see Coles, 2023 for more details). The discrepancy between serology data and self-report data may be due to a few factors including the lack of serology information available for all participants in the Health Survey. Furthermore, it is possible that individuals who self-reported being diagnosed with HIV may have been assigned "Grey Zone" for the serology results.[53] In these instances, due to a high level of uncertainty, the findings should not be interpreted and thus were excluded from the serology results. It is also possible that some people who engage in risky behaviours may assume that they have certain infectious diseases (like HIV), given their potential exposure and engagement with others who may have an active infection. As such, the self-report information around infectious disease diagnosis and treatment should be interpreted with caution, particularly when examining self-report treatment for HIV, given the small sample (n = 22). In contrast, for HCV, 17.6% of participants self-reported that they had been diagnosed at some point in their

[53] Grey Zone is assigned to samples when the assay reading is in close proximity to the assay cut-off, within a defined range.

lives, and 4.9% indicated that they currently have HCV. However, when looking at the serological information, the rate of HCV antibodies was 22.0%, and the active rate of HCV was 3.6%. It is possible that participants may not be aware of their health status, or similar to the discrepancy between self-report and serology information for HIV, this may be at least partially the product of the discrepancy in the number of DBS test results, relative to the number of completed questionnaires. Nevertheless, the concordance rate between self-reported HCV status and DBS findings was the highest among all three infectious diseases, indicating agreement between the two sources of information (Coles, 2023). For syphilis, the concordance of prevalence rates between self-reported information and findings from the serological data was fair (4.5% versus 4.7%, respectively; Coles, 2023).[54] These results indicate that work is needed to more clearly communicate infectious disease status to incarcerated individuals.

Findings indicate that the rate of infection of various infectious diseases have decreased overtime. For example, as reported by Thompson and Gendron (2022), surveillance data at CSC demonstrates a marked decrease in rates of active infection of HCV from 21.0% in 2010 to just over 3.0% in the most recent surveillance data from 2022. The HCV active infection rates from the most recent surveillance data align with the findings from the current study (3.2% and 3.6%, respectively). Similarly, Thompson and Gendron (2022) reported a decrease in HIV rates over the past 20 years (from 2.4% in 2002 to under 1.0% in 2020). The rates of HIV from the most recent surveillance data align with the findings from the current study (0.9% and 0.7%, respectively).[55] However, it is important to note that surveillance data represents population level data, whereas the information stemming from the current study reflects a sample of that population; thus, slight variability between sample and population rates are to be expected.

Comparison of prevalence findings with other studies are limited by differences in methodology (Zakaria et al., 2010b). For example, while previous research has relied on testing blood or saliva (biological sampling), the focus is most often limited to people entering

[54] For a full breakdown of the concordance rates between self-reported and DBS findings of HIV, HCV, and syphilis, refer to Coles (2023).

[55] Recall that serology information was not available for all 1,404 participants. Rather, 861 participants had valid DBS information to analyze the presence of antibodies for three infectious diseases—HIV, HCV, and syphilis. Ten of these individuals did not complete the questionnaire portion of the Health Survey. As such, there may be differences between the questionnaire sample (N = 1,404) and the total sample with serology data on at least one of the infectious diseases (N = 861), in terms of the degree of representativeness to the in-custody population, more largely.

correctional institutions, or people who are being (or who have recently been) released into the community. Regardless, research has continuously found that specific infectious diseases (such as HIV and HCV) have a higher prevalence in the criminal justice system (Nijhawan, 2016; Taylor & Neufeld, 2021). As such, it is important to screen and treat for infection during incarceration in order to: 1) improve individual outcomes, such as the health status of people who are incarcerated, 2) minimize spread of infectious diseases within the correctional facility, and 3) reduce the likelihood of infectious disease transmission in the community post release (Nijhawan, 2016).

In terms of infectious disease testing, just over a third of participants reported that they had never been tested for HIV and HCV while in federal prison, and over half of participants indicated that they had not been tested for syphilis while in federal prison. However, the reasons for not being tested ranged, with the most common answer being that they did not think they were at risk. However, just under a quarter of participants who were not tested indicated that they were not offered a test. These findings demonstrate that it is imperative to continue to increase awareness around the importance of testing, increase access to testing, and increase knowledge on how to access testing for infectious diseases while federally incarcerated.

Risk-taking Behaviour: Tattooing, Drug Use, and Unsafe Sex in Federal Prison

Participants answered questions pertaining to their engagement in risk-behaviours that could increase their chances of contracting STBBI. This included questions pertaining to unsafe drug use, tattooing, and sexual practices while incarcerated in federal prison. In terms of tattooing, results indicated that just under half of all participants have gotten a tattoo at some point while in federal prison, with about 30% of participants who reported that they got a tattoo within the last six months. This rate is higher than what was found in the 2007 National Inmate Infectious Diseases and Risk-Behaviours Survey, whereby 38% of participants indicated *ever* getting a tattoo in federal prison. Importantly, just under a quarter of those who had gotten a tattoo in the last six months used a device that was *sometimes* or *always* used by someone else first, which could increase the chance of contracting blood borne infections. For example, research from Australia has found that, in addition to injection drug use, unsafe tattooing practices is a likely mode of transmission of HCV in prison (Butler et al., 2004).

Another important finding from the questionnaire results is that almost all (91%) of the participants who got a tattoo within the past six months indicated that they would use a safer

tattooing program if one were available in their institution. In 2005 CSC introduced a Safer Tattooing Practices Pilot Initiative, described as a harm reduction initiative to assist with reducing the spread of HIV and HCV. There was an operational component, which consisted of tattoo rooms set up in certain institutions, which were highly controlled and sterile, as well as an educational component to spread awareness of the dangers of infectious diseases and unsafe tattooing practices (CSC, 2009). Despite findings indicating that the pilot program had the ability to reduce harm, decrease exposure to health risk, and enhance the health and safety of CSC staff and incarcerated individuals, the program was terminated as of 2007 (Office of the Correctional Investigator, 2017). Consideration around future harm reduction practices and initiatives targeting unsafe tattooing practices would be advantageous to further reduce the spread of HCV and HIV.

A second risk-behaviour that participants were asked about was drug use while in federal prison. It was found that the largest proportion of participants smoked drugs (23.0% of the entire sample), followed by snorted drugs (18.5% of entire sample), and then injected drugs (3.6% of entire sample). In contrast, in the 2007 National Inmate Infectious Diseases and Risk-Behaviours Survey, 27% of women and 33% of men reported non-injection drug use within the past six months in federal prison (Zakaria et al., 2010b). Although these rates are not broken down by smoking or snorting, compared to the current study, a considerably larger proportion of participants in the 2007 survey reported non-injection drug use. However, it is entirely possible that rates of drug use in the 2022 National Health Survey were underreported due to exclusion of other types of non-injection drug ingestion methods—such as swallowing or huffing. As such, caution is warranted when drawing comparisons on non-injection drug use findings between the 2007 survey and the 2022 survey. Moreover, in the 2007 survey, 15% of women participants and 17% of men participants reported injecting drugs within the past six months in prison. Once again, a considerably larger proportion of participants in the 2007 survey reported injection drug use (Zakaria et al., 2010b). Although rates of injection drug use have decreased overtime in federal institutions, it is important to continue to provide harm reduction services to those who inject as previous health research has found that individuals who reported injection drug use were almost 10 times more likely to HCV seroconvert[56] and almost one-and-a-half times more

[56] Seroconversion is defined as a negative test result (enzyme immunoassay [EIA] for HCV; serology for HIV) followed by a positive test result (EIA or ribonucleic acid [RNA] for HCV; serology for HIV) at a later time.

likely to HIV seroconvert than those who did not report injection drug use (CSC, 2016a, 2016b).

One potential reason for this decrease in self-reported drug use could be due to CSC's expansion of harm reduction treatment options. More specifically, CSC has expanded the pharmacological treatment of opiate use disorder from the Methadone Maintenance Treatment Program (MMTP) to Opiate Agonist Treatment (OAT) more broadly, which includes suboxone, sublocade, *and* methadone. Further, when looking at the use of OAT in CSC, it is evident that there has been an increase in use, with numbers from December 2018 to June 2023 steadily increasing over time. For example, in December 2018, there were 1,445 incarcerated individuals participating in OAT, whereas, as of June 2023, this number had increased to 3,091 participants. Further, there was a marked decrease in the number of people on the waitlist for OAT within this same time period (from 435 in December 2018 to 207 as of June 2023; CSC, 2023c). This increase in OAT over the past several years has likely contributed directly to the decrease in institutional drug use. Furthermore, the finding that a sizeable proportion of respondents agreed or strongly agreed to statements that they wanted to stop using drugs, had tried stopping, and were comfortable talking to health care about their substance use support the opportunity to strengthen wrap around services to address the health needs of people who use substances in CSC.

Another notable finding regarding institutional drug use is that approximately half of injection drug users reported sharing devices used to inject drugs. Given that most of CSC's federal institutions do not have a PNEP this could potentially be creating an environment with an informal and illegal institutional 'economy' of needle trading (Treloar et al., 2016). In fact, previous evaluations of prison-based needle exchange programs in Europe (Switzerland, Germany, and Spain) found positive outcomes resulting from these programs including a striking reduction in needle sharing (Rutter et al., 2001). As such, further implementation of PNEPs across other CSC institutions may help to mitigate needle sharing and associated harms. Nevertheless, it is promising that needle cleaning has increased among injection drug users since 2007 (77.1% of injection drug users in the current survey, compared to 69.0% in 2007), a change that may be attributable to the availability of bleach in federal correctional institutions (CSC, 2015). Nonetheless, these findings support the need to promote harm reduction practices and services within correctional institutions.

Finally, participants were asked about whether they had sex while in federal prison.

Although most participants indicated that they did not have sex while in federal prison (85.8%), a large proportion of those who did, indicated that they did not use protection some or most of the time, thereby potentially increasing the risk of infections such as syphilis and HIV. In fact, previous health research has found that individuals who reported unprotected sex were almost two times more likely to HIV seroconvert compared to those who did not report having unprotected sex (CSC, 2016b). Furthermore, just over 10% of participants who reported having sex while in federal prison also indicated that they had exchanged sex for other goods. Research has found that within prison settings, there is a higher prevalence of sexually transmitted infections than in the general population. As well, exchanging sex for goods can lead to adverse outcomes, due to the high-risk nature, such as having a large number of sexual partners (Noska et al., 2016). Further, research has found that HIV and HCV are more common among individuals who exchange sex for goods (Noska et al., 2016). Taken together, this highlights the need for effective prevention services for people who are incarcerated, which may include general or targeted screening, sexual education, and access to harm reduction supplies (e.g., condoms) within correctional facilities (Kouyoumdjian et al., 2012).

Harm Reduction in Federal Prison: Access to Supplies, Treatment, and Perceptions.

In addition to risk-taking behaviours, participants were asked several questions about access to supplies and treatments, and general perceptions of harm reduction initiatives. Regarding access to supplies, just under half of participants (46.4%) attempted to access harm reduction supplies; however, two of the biggest issues faced by those who tried to access supplies were insufficient quantities and a lack of knowledge of where to find supplies. Participants also reported concerns around others seeing them access these supplies. Regarding access to treatment, a large proportion of participants were not aware that PrEP or PEP are available in federal prison (80% and 79%, respectively). These findings have important implications for the health of people who are incarcerated. For example, a review article examining harm reduction practices in prisons across several European countries (including Spain, Greece, Ireland, Italy, Latvia, Poland, and Portugal) found that in settings where harm reduction services had been available and easily accessible, better health outcomes had been observed, including significantly reduced rates of HIV and HCV incidence (Sander et al., 2016). This demonstrates that correctional institutions should ensure: 1) that there are adequate harm reduction supplies (e.g., condoms, lubricant, dental dams, needles, bleach) for people in custody

to access, and 2) that the location of the supplies are well-known and in an area that is easily accessible, with more confidentiality, where feasible.

As mentioned previously, one of the most commonly available treatments for opioid use disorders in federal prison is OAT. Accordingly, of those participants who were referred to answer questions about OAT, 39.2% (n = 151/385) indicated that they are currently on OAT.[57]Notably, for the entire in-custody population, 23.5% were reported to be on OAT as of the 2022/2023 fiscal year end (CSC, 2023b, 2023c).[58] It is important to reiterate, however, that OAT is only provided to individuals with an opioid use disorder. Previous research has demonstrated that individuals with opioid use disorders who are on OAT (suboxone, methadone, or naltrexone[59]) tend to have better health-related outcomes compared to those who have an opioid use disorder but are not on OAT (Wakeman et al., 2020). Similarly, research from CSC has demonstrated that people who are incarcerated and remain on methadone have lower return rates and are less likely to commit a new offence when compared to people who are incarcerated but discontinue methadone treatment (MacSwain et al., 2014). As such, it may be beneficial for future research to consider the number of individuals in custody who are on OAT as a proportion of the number of individuals in custody with an opioid use disorder. Taken together, these findings demonstrate that reducing the number of people who are on the OAT waitlist would be beneficial.

Limitations and Future Directions

One limitation from the 2007 National Inmate Infectious Diseases and Risk-Behaviours Survey was that it did not use biological samples to examine prevalence rates. Although the current study addressed this concern, several limitations of the current study exist. First, as with

[57] This represents just over 10% of the entire sample. Note that "entire sample" includes those with missing information and those who were not referred to answer questions pertaining to OAT (e.g., those who responded that they are not currently receiving help or treatment for substance use as it does not apply to them—they do not do drugs). This rate is slightly higher than the percentage of participants who were on methadone in the National Inmate Infectious Diseases and Risk-Behaviours Survey conducted in 2007 (7.0%; Zakaria et al., 2010b). This increase in use of OAT may be at least partially attributed to the fact that CSC has increased its harm reduction treatment options for the in-custody population over the past several years (from methadone maintenance to OAT).
[58] The value of the in-custody population who participate in OAT is not readily available online as a percent. Therefore, the study team calculated this percentage using the following approach: (1) dividing the number of in-custody individuals who were on OAT as of March 2023 (CSC, 2023c), by (2) the total in-custody population as of the 2022/2023 fiscal year end period (CSC, 2023b), and (3) multiplying that value by 100.
[59] Naltrexone is a medication that is used to treat opioid and/or alcohol use disorder by reducing cravings. It can be used orally, intramuscularly, or subcutaneously; however, it is not currently available as an OAT option within CSC institutions.

many self-report, cross-sectional surveys, one limitation pertains to measurement error and social desirability bias, particularly since this survey captured information on sensitive subject matter. Although shorter than the 2007 survey, the 2022 National Health Survey was still over 25 pages long, contained questions that were fairly complex (i.e., above a grade 5 reading level), and contained skip patterns that may have been difficult to navigate for participants. It is also possible, given the length of the survey, that participants may have felt response burden and experienced fatigue. Moreover, questions asked participants about events that took place over the past six months, which may have been difficult to recall. As such, caution is warranted when referring to findings about past risk-behaviours, testing, treatment, and program participation.

Although efforts were made to achieve a large and representative sample that would allow for sufficient power to disaggregate findings by institution, gender and ethnocultural groups, operational challenges and COVID-19 related challenges had impacts on data collection and participant recruitment. As such, instead of the target sample of about 3,000 men and all eligible federally incarcerated women, we obtained a final, combined sample of 1,404 people who are federally incarcerated. Given that Health Services staff were conducting the data collection at each site, this resulted in an increased workload, which may not have been possible to maintain in some institutions due to the competing and prioritized day-to-day demands. Additionally, during the time of participant accrual and survey roll-out, several institutions were under lockdown or were short-staffed as a result of the COVID-19 pandemic. Other operational challenges, including movement restrictions, and security-related processes may have contributed to challenges with participant recruitment and completion of the finger-prick blood sample in some institutions.

Given that the sample size was smaller than anticipated, the participants may not be representative of the larger population of people who are federally incarcerated. Moreover, in terms of representation of the in-custody population, there may be differences between the questionnaire sample (N = 1,404) and the total sample with serology data on at least one of the infectious diseases (N = 861) that should be considered. For example, the serology findings from the current study align with the population surveillance findings, suggesting that this sample may be representative of the in-custody population, although further research is warranted comparing the serology sample to the in-custody population. It should also be noted that differences may exist between those who provided serology information and those who refused. As such, this

could be another area of exploration for future research. When looking at the sample who completed the questionnaire, there are differences on key demographic variables in comparison to the in-custody population at CSC. First, the questionnaire sample is comprised of a larger proportion of women than that of the in-custody population. Second, the regional proportions within the questionnaire sample are not reflective of the regional proportions within the in-custody population (e.g., larger proportion of sample are from Quebec compared to the overall in-custody population), and third, there are differences in the age distribution of the sample in comparison to the in-custody population. Additionally, there may be differences between the sample and the in-custody population in terms of proportions within each security level and proportions within each ethnocultural group. Unfortunately, due to discrepancies in how this information is captured in the questionnaire versus administratively at CSC, differences could not be examined. For these reasons, caution is warranted when interpreting these findings. Regardless, findings from this survey provides valuable information pertaining to risk-behaviours as well as knowledge of and access to harm reduction services, that can be used to inform Health Services at CSC about current practices and to identify areas of improvement.

This omnibus report provides an overview of all the questionnaire responses from the 2022 National Health Survey, with the exception of questions pertaining to the PNEP and OPS, which will be analyzed separately. Additional reports stemming from these data will also be produced.[60] For example, if feasible, a report examining risk-behaviours specifically among those who tested positive for infectious diseases versus those who did not would be beneficial, as well as research focusing on the relationship between risk-behaviours and infectious diseases (including the potential mediating role of harm reduction practices). To overcome methodological limitations, it may be useful for future research to use multi-wave, longitudinal designs where the federally incarcerated population is tested using biological sampling at multiple intervals, such as at admission and regular follow-ups (e.g., every six months) to maximize accuracy in estimating the time of infection and improve recall of risk-behaviours since the previous follow-up. It may also be worthwhile to compare risk-behaviours and use of harm reduction practices of those in correctional institutions to the general population. For

[60] Note that this omnibus report was completed as part of a series of reports using data stemming from the 2022 National Health Survey. For additional information, please see the report detailing the findings from the survey specific to people incarcerated in women's institutions (Gendron et al., 2024) as well as a report detailing the findings from the survey specific to people incarcerated in women's institutions (Wanamaker et al., 2024).

example, research could examine whether people in the general population who engaged in risk-behaviours had knowledge of available harm reduction services, such as PEP and PrEP. In addition, there may be differences between those housed in women's institutions or men's institutions, as well as across different ethnocultural groups – these topics will be addressed in two forthcoming reports.

Conclusions

Given that previous research has found that HIV, HCV, and syphilis are more common among people in federal prison than in the general Canadian population, the current study was conducted in order to obtain prevalence estimates of these infectious diseases, and to gain a better understanding of the risk for infection, as well as awareness of, attitudes towards, access to, and experiences with prevention and harm reduction services. Results indicated that prevalence rates of infectious diseases in the federally incarcerated population are elevated in comparison to the general population. However, rates of infection among the people who are federally incarcerated have generally decreased since the early 2000s. Findings suggest that several risk-behaviours may be contributing to rates of infection including needle sharing in prison for the purpose of drug use and/or tattooing and engaging in unsafe sexual practices. Further, findings suggest that participants may not be accessing harm reduction programs or utilizing harm reduction services and supplies on a consistent basis, despite them being offered. Results from this study can be used to help improve harm reduction strategies and harm prevention practices.

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Appendix A

2022 National Health Survey – Questionnaire (General Version)

Government of Canada / Gouvernement du Canada

Study ID: _____

2022 Health Survey
General Version

A Joint Study by
The University of Ottawa,
The Public Health Agency of Canada
and Correctional Service Canada.

Questionnaire is confidential	Your answers are **anonymous** and **confidential**. Your responses cannot be linked back to you. **DO NOT WRITE YOUR NAME OR ANYONE ELSE'S NAME ON THE QUESTIONNAIRE OR ON THE RETURN ENVELOPE.**
Your participation is voluntary	You may choose not to answer any or all questions in this questionnaire.
How to answer the survey questions	Mark your answer to each question with a ✓ in a box, like this: ☑
Returning your completed questionnaire	After you complete the questionnaire, place it in the accompanying envelope, seal it and return it to the person administering the survey.
ⓘ	**If you have questions or need other help** For questions about this survey or if you need help filling it in, please speak to the person who gave you the questionnaire.
This questionnaire was:	☐ Interviewer-Administered

Please Note: You will be asked some questions about your personal background, drug use, and sexual practices. Some of these questions are very personal. We are asking everyone the same questions. Please remember that the answers you give are anonymous and confidential.

SECTION A – QUESTIONS ABOUT YOU

1. Thinking about all the times you've been in federal prisons, how many years in total have you spent in federal prisons?
    a. ☐ Less than 1 year
    b. ☐ 1-2 years
    c. ☐ 3-5 years
    d. ☐ 6-10 years
    e. ☐ 11-15 years
    f. ☐ 16+ years

2. How old are you? _____ years

3. Do you self-identify as…
    a. ☐ Male
    b. ☐ Female
    c. ☐ Other

4. Are you (check all that apply)
    a. ☐ White
    b. ☐ South Asian (e.g., East Indian, Pakistani, Sri Lankan)
    c. ☐ Chinese
    d. ☐ Black
    e. ☐ Filipino
    f. ☐ Arab
    g. ☐ Latin American
    h. ☐ Southeast Asian (e.g., Vietnamese, Cambodian, Laotian, Thai)
    i. ☐ West Asian (e.g., Iranian, Afghan)
    j. ☐ Korean
    k. ☐ Japanese
    l. ☐ Indigenous
    m. ☐ Mixed race
    n. ☐ Other group — specify: _____

5. Do you self-identify as Indigenous?
    a. ☐ No
    b. ☐ Yes - please specify:
        i. ☐ Inuit/Inuk
        ii. ☐ Métis
        iii. ☐ First Nations
        iv. ☐ Other

SECTION B – INFECTIOUS DISEASE TESTING

6. Have you **EVER** been **DIAGNOSED** with HIV?
    a. ☐ No
    b. ☐ Yes → If "Yes", are you:
        i. ☐ Currently receiving treatment
        ii. ☐ Not currently receiving treatment
    c. ☐ Unsure

7. While in federal prison, have you **EVER** been **TESTED** for **HIV**?
    a. ☐ No → If "No", please specify why not (check all that apply):
        i. ☐ I don't think I'm at risk
        ii. ☐ I don't want to know my status
        iii. ☐ I haven't been offered an HIV test
        iv. ☐ I've already been tested and I know I don't have HIV
        v. ☐ I've already been tested and I know I have HIV
        vi. ☐ I was afraid of being treated differently by other inmates if I was tested
        vii. ☐ I was afraid of being treated differently by correctional staff if I was tested
        viii. ☐ Other: _____
    b. ☐ Yes
    c. ☐ Unsure

8. In the **last 6 months** in federal prison, have you been tested for **HIV**?
    a. ☐ No → If "No" please specify why not (check all that apply):
        i. ☐ I don't think I'm at risk
        ii. ☐ I don't want to know my status
        iii. ☐ I haven't been offered an HIV test
        iv. ☐ I've already been tested and I know I don't have HIV
        v. ☐ I've already been tested and I know I have HIV
        vi. ☐ I was afraid of being treated differently by other inmates if I was tested
        vii. ☐ I was afraid of being treated differently by correctional staff if I was tested
        viii. ☐ Other: _____
    b. ☐ Yes
    c. ☐ Unsure

9. Have you **EVER** been **DIAGNOSED** with **Hep C**?
    a. ☐ No
    b. ☐ Yes → If "Yes", please specify:
        i. ☐ I still have Hep C
        ii. ☐ I no longer have Hep C
    c. ☐ Unsure

10. While in federal prison, have you **EVER** been **TESTED** for **Hep C**?
    a. ☐ No → If "No", please specify why not (check all that apply):
        i. ☐ I don't think I'm at risk
        ii. ☐ I don't want to know my status
        iii. ☐ I haven't been offered an Hep C test
        iv. ☐ I've already been tested and I know I don't have Hep C
        v. ☐ I've already been tested and I know I have Hep C
        vi. ☐ I was afraid of being treated differently by other inmates if I was tested
        vii. ☐ I was afraid of being treated differently by correctional staff if I was tested
        viii. ☐ Other: _____
    b. ☐ Yes
    c. ☐ Unsure

11. In the **last 6 months** in federal prison, have you been tested for **Hep C**?
    a. ☐ No → If "No", please specify why not (check all that apply):
        i. ☐ I don't think I'm at risk
        ii. ☐ I don't want to know my status
        iii. ☐ I haven't been offered a Hep C test
        iv. ☐ I've already been tested and I know I don't have Hep C
        v. ☐ I've already been tested and I know I have Hep C
        vi. ☐ I was afraid of being treated differently by other inmates if I was tested
        vii. ☐ I was afraid of being treated differently by correctional staff if I was tested
        viii. ☐ Other: _____
    b. ☐ Yes
    c. ☐ Unsure

12. Have you **EVER** been **DIAGNOSED** with syphilis?
    a. ☐ No
    b. ☐ Yes → If "Yes", please specify:
        i. ☐ I received or am currently receiving treatment
        ii. ☐ I was NOT treated
    c. ☐ Unsure

13. While in federal prison, have you been **TESTED** for **syphilis?**
    a. ☐ No → If "No", please specify why not (check all that apply):
        i. ☐ I don't think I'm at risk
        ii. ☐ I don't want to know my status
        iii. ☐ I haven't been offered a syphilis test
        iv. ☐ I've already been tested and I know I don't have syphilis
        v. ☐ I've already been tested and I know I have syphilis
        vi. ☐ I was afraid of being treated differently by other inmates if I was tested
        vii. ☐ I was afraid of being treated differently by correctional staff if I was tested
        viii. ☐ Other: _____
    b. ☐ Yes
    c. ☐ Unsure

14. In the **last 6 months** in federal prison, have you been tested for **syphilis?**
    a. ☐ No → If "No", please specify why not (check all that apply):
        i. ☐ I don't think I'm at risk
        ii. ☐ I don't want to know my status
        iii. ☐ I haven't been offered a syphilis test
        iv. ☐ I've already been tested and I know I don't have syphilis
        v. ☐ I've already been tested and I know I have syphilis
        vi. ☐ I was afraid of being treated differently by other inmates if I was tested
        vii. ☐ I was afraid of being treated differently by correctional staff if I was tested
        viii. ☐ Other: _____
    b. ☐ Yes
    c. ☐ Unsure

SECTION C – TATTOOING

Thinking now about **tattooing in federal prisons…**

15. Have you **EVER** gotten a tattoo in a federal prison?
    a. ☐ No → If "No", GO TO SECTION D, QUESTION 24
    b. ☐ Yes

16. In the **last 6 months,** have you gotten a tattoo (or had a tattoo session) in a federal prison?
    a. ☐ No → If "No", GO TO SECTION D, QUESTION 24
    b. ☐ Yes

17. Thinking of the tattoo(s) you got in the **last 6 months** in federal prison**,** what kind of **device(s)** was used? **Check all that apply**.
    a. ☐ A sewing needle
    b. ☐ A needle used for injections
    c. ☐ A beading needle
    d. ☐ A staple
    e. ☐ A guitar string
    f. ☐ A modified tattoo gun (a device made out of other materials)
    g. ☐ A tattoo gun
    h. ☐ Other – please specify:_____

18. In **the last 6 months**, was the **device** used for your tattoo(s) used by someone else **before** you?
    a. ☐ No (Never)
    b. ☐ Sometimes
    c. ☐ Yes (Always)
    d. ☐ Don't know

19. In **the last 6 months**, was the **ink** that was used for your tattoo(s) used by someone else **before** you?
    a. ☐ No (Never)
    b. ☐ Sometimes
    c. ☐ Yes (Always)
    d. ☐ Don't know

20. Thinking of the **LAST TIME** you got a tattoo in federal prison**,** what kind of **device** was used? **Check all that apply.**
    a. ☐ A sewing needle
    b. ☐ A needle used for injections
    c. ☐ A beading needle
    d. ☐ A staple
    e. ☐ A guitar string
    f. ☐ A modified tattoo gun (a device made out of other materials)
    g. ☐ A tattoo gun
    h. ☐ Other – please specify:
    _____

21. Thinking of the **LAST TIME** you got a tattoo in federal prison, was the **device** used for your tattoo(s) used by someone else **before** you?
    a. ☐ No
    b. ☐ Yes
    c. ☐ Don't know

22. Thinking of the **LAST TIME** you got a tattoo in federal prison, was the **ink** that was used for your tattoo(s) used by someone else **before** you?
    a. ☐ No
    b. ☐ Yes
    c. ☐ Don't know

23. Would you use a safer tattooing program (access to professional, sterile tattoo services) if one were set up in your institution?
    a. ☐ No
    b. ☐ Yes
    c. ☐ Unsure

SECTION D – DRUG USE

***REMEMBER, YOUR RESPONSES ARE ANONYMOUS AND CONFIDENTIAL.**

*When we talk about **drugs**, we mean all of the following:

- Street drugs, like heroin, fentanyl, crack.
- Medications that were not prescribed to you (like using someone else's methadone or suboxone).
- Medications that were prescribed to you that you took in a different way, such as snorting/ injecting a tablet that you were supposed to swallow or taking multiple doses at one time.

24. In the last 6 months in federal prison, have you used drugs?
    a. ☐ No → If "No", GO TO SECTION E, QUESTION 48
    b. ☐ Yes

25. In the **last 6 months** in federal prison, have you **smoked** drugs?
a. ☐ No → If "No", GO TO QUESTION 32
b. ☐ Yes

26. In the last 6 months, how often did you **smoke** drugs?
a. ☐ Less than one day a month
b. ☐ 1 to 3 days a month
c. ☐ About one day a week
d. ☐ 2 to 3 days a week
e. ☐ 4 to 6 days a week
f. ☐ Every day

27. In the **last 6 months** in federal prison, had the **device or tool** you used to **smoke** drugs been used by someone else **before** you? (A device or tool includes foil, paper, pipe, glass tube, metal tube, shaft of pen).
a. ☐ No (Never)
b. ☐ Sometimes
c. ☐ Yes (Always)
d. ☐ Don't know

28. In the **last 6 months** in federal prison, did you pass on the **device or tool** you used to smoke drugs to someone else to use **after** you had used it?
a. ☐ No (Never)
b. ☐ Sometimes
c. ☐ Yes (Always)
d. ☐ Don't know

29. Thinking of the **LAST TIME** you smoked drugs, which **device or tool** did you use to smoke your drug(s)?

a. ☐ Foil
b. ☐ Pipe
c. ☐ Glass tube
d. ☐ Metal tube
e. ☐ Pen shaft
f. ☐ Other: _____

30. Thinking of the **LAST TIME** you smoked drugs, had the **device or tool** you used to **smoke** drugs been used by someone else **before** you?

a. ☐ No
b. ☐ Yes
c. ☐ Don't know

31. Thinking of the **LAST TIME** you smoked drugs, did you pass on your device to someone else to use **after** you had used it?

a. ☐ No
b. ☐ Yes
c. ☐ Don't know

32. In the **last 6 months** in federal prison, have you **snorted** drugs?

a. ☐ No → If "No", GO TO QUESTION 39
b. ☐ Yes

33. How often did you **snort** drugs?

a. ☐ Less than one day a month
b. ☐ 1 to 3 days a month
c. ☐ About one day a week
d. ☐ 2 to 3 days a week
e. ☐ 4 to 6 days a week
f. ☐ Every day

34. In the **last 6 months** in federal prison, had the **device or tool** (like a straw, foil, or rolled up paper) you used to **snort** drugs been used by someone else **before** you?

a. ☐ No (Never)
b. ☐ Sometimes
c. ☐ Yes (Always)
d. ☐ Don't know

35. In the **last 6 months** in federal prison, did you pass on the **device or tool** that you used to **snort** drugs to someone else to use **after** you had used it?

a. ☐ No (Never)
b. ☐ Sometimes
c. ☐ Yes (Always)
d. ☐ Don't know

36. Thinking of the **LAST TIME** you snorted drugs, which **device or tool** did you use to snort your drug(s)?

a. ☐ Straw
b. ☐ Foil
c. ☐ Rolled up paper, money, or post-it notes
d. ☐ Other: _____

37. Thinking of the **LAST TIME** you snorted drugs in federal prison, had the **device or tool** (straw, foil, etc.) you used to snort your drug(s) been used by someone else before you?

a. ☐ No
b. ☐ Yes
c. ☐ Don't know

38. Thinking of the **LAST TIME** you snorted drugs in federal prison, did you pass on your **device** to someone else to use **after** you had used it?

a. ☐ No
b. ☐ Yes
c. ☐ Don't know

39. In the **last 6 months** in federal prison, have you **injected drugs**?

a. ☐ No → If "No", GO TO QUESTION 47
b. ☐ Yes

40. In the **last 6 months, how often** did you **inject** drugs?

a. ☐ Less than one day a month
b. ☐ 1 to 3 days a month
c. ☐ About one day a week
d. ☐ 2 to 3 days a week
e. ☐ 4 to 6 days a week
f. ☐ Every day

41. On a typical day when you inject drugs, how many times do you inject?

a. ☐ Once
b. ☐ 2-3 injections
c. ☐ 4-6 injections
d. ☐ 7 or more injections

42. In the **last 6 months** in federal prison, did someone else use any of the following items **before you**? ***(check all that apply)***

a. ☐ Needle
b. ☐ What you used to tie off your vein (tie, tourniquet, or belt)
c. ☐ What you used to mix your drug in (cooker or spoon)
d. ☐ Filter
e. ☐ Water
f. ☐ Acidifier (vitamin C)

43. In the **last 6 months** in federal prison, did you **pass** any of the following items to someone else after you used it? ***(check all that apply)***

a. ☐ Needle
b. ☐ What you used to tie off your vein (tie, tourniquet or belt)
c. ☐ What you used to mix your drug in (cooker or spoon)
d. ☐ Filter
e. ☐ Water
f. ☐ Acidifier (vitamin C)

44. Thinking of the **LAST TIME** you injected drugs in federal prison, did someone else use any of the following items **before you**? ***(check all that apply)***

a. ☐ Needle
b. ☐ What you used to tie off your vein (tie, tourniquet or belt)
c. ☐ What you used to mix your drug in (cooker or spoon)
d. ☐ Filter
e. ☐ Water
f. ☐ Acidifier (vitamin C)

45. Thinking of the **LAST TIME** you injected drugs in federal prison, did you pass any of the following items to someone else **after you used it**? (**check all that apply**)

a. ☐ Needle
b. ☐ What you used to tie off your vein (tie, tourniquet or belt)
c. ☐ What you used to mix your drug in (cooker or spoon)
d. ☐ Filter
e. ☐ Water
f. ☐ Acidifier (vitamin C)

46. Thinking of the **LAST TIME** you injected drugs in federal prison, was the needle / syringe or rig cleaned before you used it?

a. ☐ No
b. ☐ Yes
   i. Bleach
   ii. Hot Water
   iii. Some other Way
c. ☐ Don't know

47. In the **last 6 months,** which drugs have you used? **(*Check all that apply, and indicate whether you smoked, snorted, swallowed or injected the drug).***

	Smoke	Snort	Swallow	Inject
Adderall, Dexedrine, or Ritalin alone	☐	☐	☐	☐
Amphetamines (speed, uppers, bennies)	☐	☐	☐	☐
Barbiturates (downers, phenobarbital, tranquilizers)	☐	☐	☐	☐
Benzodiazepines (Xanax, Valium, clonazepam, Rivotril)	☐	☐	☐	☐
Cocaine (uptown, up, powder)	☐	☐	☐	☐
Codeine or Tylenol (T3)	☐	☐	☐	☐
Crack or Freebase (rock)	☐	☐	☐	☐
Dilaudid (hydromorphone tablet or pill, dillies)	☐	☐	☐	☐
Ecstasy (MDMA, Molly, E, X)	☐	☐	☐	☐
Fentanyl	☐	☐	☐	☐
Gabapentin	☐	☐	☐	☐
Heroin (dust, junk, horse, smack)	☐	☐	☐	☐
Marijuana (pot, hash, weed, shatter, sativa)	☐	☐	☐	☐
Methadone	☐	☐	☐	☐
Methamphetamine (crystal meth, ice, jib)	☐	☐	☐	☐
Morphine (MS Contin, Kadian)	☐	☐	☐	☐

	Smoke	Snort	Swallow	Inject
Mushrooms	☐	☐	☐	☐
OxyContin or oxycodone (OxyNEO)	☐	☐	☐	☐
Suboxone (buprenorphine/naloxone)	☐	☐	☐	☐
Talwin and Ritalin (Ts and Rs)	☐	☐	☐	☐
Wellbutrin (bupropion)	☐	☐	☐	☐
Other(s)- please specify:				
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

SECTION E – SEX

Remember, your answers are anonymous and confidential. We are asking everyone the same questions.

48. In the **last 6 months** in federal prison, have you had **sex (oral, vaginal and/or anal)**?

a. ☐ No → If "No", GO TO SECTION F, QUESTION 53
b. ☐ Yes

49. In the **last 6 months** in federal prison, have you had **sex with a man** (oral, vaginal, or anal)?

a. ☐ No → If "No", GO TO QUESTION 49
b. ☐ Yes → If "Yes", how often did you or your partner use a **condom or dental dam** when having:

	Never	Rarely	Often	Always	Does not apply
i. Vaginal sex	☐	☐	☐	☐	☐
ii. Oral sex	☐	☐	☐	☐	☐
iii. Anal sex	☐	☐	☐	☐	☐

50. In the **last 6 months** in federal prison, have you had **sex with a woman** (oral, vaginal, or anal)?

a. ☐ No
b. ☐ Yes → If "Yes", how often did you or your partner use a **condom or dental dam** when having:

	Never	Rarely	Often	Always	Does not apply
i. Vaginal sex	☐	☐	☐	☐	☐
ii. Oral sex	☐	☐	☐	☐	☐
iii. Anal sex	☐	☐	☐	☐	☐

51. In the **last 6 months** in federal prison, did **you exchange sex** for money, drugs or other things (for example, canteen, tobacco, a needle or other injection equipment)?

a. ☐ No
b. ☐ Yes → If "Yes", how often?
   i. ☐ Frequently
   ii. ☐ Sometimes
   iii. ☐ Rarely

52. In the **last 6 months** in federal prison, did **someone pay you** with money, drugs or other things (for example canteen, tobacco, a needle or other injection equipment) in exchange for sex?

a. ☐ No
b. ☐ Yes → If "Yes", how often?
   i. ☐ Frequently
   ii. ☐ Sometimes
   iii. ☐ Rarely

SECTION F – ACCESS TO HARM REDUCTION SUPPLIES

53. In the **last 6 months** in federal prison, were you able to get **condoms, lubricant, or dental dams** when you needed them?

a. ☐ Yes, I was able to access what I needed → If "Yes", GO TO SECTION G, question 54
b. ☐ Not applicable, I did not try to get any → If "Not applicable", GO TO SECTION G, question 54
c. ☐ No, I had trouble accessing what I needed → If "No", then using the table below **check all that apply**:

	Condoms	Lubricant	Dental Dams
When I went to get some, there weren't any left	☐	☐	☐
I was worried/afraid inmates could see me getting them	☐	☐	☐
Other inmates control the supply	☐	☐	☐
Other inmates stopped me from getting any	☐	☐	☐
The item(s) were damaged or useless	☐	☐	☐
I had to ask staff to get some	☐	☐	☐
I didn't know where to find them	☐	☐	☐
Other - please specify:	☐	☐	☐
	☐	☐	☐
	☐	☐	☐

SECTION G –HARM REDUCTION AND TREATMENT

54. Pre-exposure prophylaxis (**PrEP**) is a medication you can take to **help prevent HIV BEFORE you engage in risky behaviour** like sharing needles or other injection equipment, having sex without a

condom, or getting a tattoo with non-sterile equipment.

Did you know that **you can get PrEP** in federal prison?

a. ☐ No → If "No", GO TO QUESTION 56
b. ☐ Yes

55. Have you ever been on PrEP in federal prison?

a. ☐ No → If "No", why not?
   i. ☐ I didn't want to be stigmatized by others
   ii. ☐ I didn't want to talk to my doctor about it
   iii. ☐ I didn't need it / I'm not at risk for HIV
b. ☐ Yes → If "Yes", have you been on it within the last 6 months?
   i. ☐ No
   ii. ☐ Yes

56. Post-exposure prophylaxis (**PEP**) is a medication you can take to **help prevent HIV <u>AFTER</u> you engage in risky behaviour** like sharing needles or other injection equipment, having sex without a condom, or getting a tattoo with non-sterile equipment.

Did you know that **you can get PEP** in federal prison? ***(check all that apply)***

a. ☐ No → If "No", GO TO QUESTION 58
b. ☐ Yes

57. Have you ever taken **PEP** in federal prison?

a. ☐ No → If "No", why not?
   i. ☐ I didn't want to be stigmatized by others
   ii. ☐ I didn't want to talk to my doctor about it
   iii. ☐ I didn't need it / I'm not at risk for HIV
b. ☐ Yes → If "Yes", have you been on it within the last 6 months?
   i. ☐ No
   ii. ☐ Yes

58. Thinking of attitudes towards drug use and access to treatment for substance use disorders, answer the questions in the table below.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Doesn't apply to me
I don't do drugs in prison because I'm afraid of being caught	☐	☐	☐	☐	☐
I don't do drugs in prison because I'm close to my release date and don't want to mess it up	☐	☐	☐	☐	☐
I don't do drugs because I'm afraid of getting HIV/Hep C	☐	☐	☐	☐	☐
I don't do drugs because I'm afraid of overdosing	☐	☐	☐	☐	☐
I don't do drugs because I don't want to be targeted by other inmates	☐	☐	☐	☐	☐
I don't do drugs because I don't want to be targeted by staff	☐	☐	☐	☐	☐
I worry that the drugs that are available might be contaminated or cut with drugs I do not know about	☐	☐	☐	☐	☐
I switched to drugs that are harder to catch in urine testing	☐	☐	☐	☐	☐
My drug use is out of control	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Agree	Strongly Agree	Doesn't apply to me
The idea that I might miss a dose makes me anxious or worried	☐	☐	☐	☐	☐
I want to try to stop using drugs while in prison	☐	☐	☐	☐	☐
I have tried stopping while in prison	☐	☐	☐	☐	☐
I am comfortable talking to Health Services about my drug use	☐	☐	☐	☐	☐

59. Are you **currently** receiving help or treatment for addiction or substance use?

a. ☐ This does not apply to me, I don't do drugs →GO TO SECTION H, QUESTION 61
b. ☐ No, I sometimes do drugs but don't feel I need it
c. ☐ No, I would like to but haven't asked
d. ☐ No, I didn't know that help was available
e. ☐ No, but I need help
f. ☐ Yes, but I still need more help
g. ☐ Yes, I'm getting all the help I need

60. Are you **currently** on the Opioid Agonist Treatment (OAT - Methadone, Suboxone or Sublocade) program?

a. ☐ No → If "No", would you like to be on OAT:
   i. ☐ No
   ii. ☐ Yes
b. ☐ Yes – please specify:
   i. ☐ Methadone
   ii. ☐ Suboxone
   iii. ☐ Sublocade

SECTION H - THE PRISON NEEDLE EXCHANGE PROGRAM AND OVERDOSE PREVENTION SERVICE

CSC has a program where inmates who inject drugs can get sterile needles and other clean and sterile injection and drug preparation equipment called the **prison needle exchange program (PNEP).**

61. Does your institution **need** a PNEP?
- a. ☐ No
- b. ☐ Yes
- c. ☐ Don't know

62. If your institution had a PNEP, would **you** use it?
- a. ☐ No
- b. ☐ Yes
- c. ☐ Don't know

63. Do you think people would start injecting drugs in prison with a PNEP who wouldn't otherwise?
- a. ☐ No
- b. ☐ Yes
- c. ☐ Don't know

CSC has space at some institutions where you can use your drugs under medical supervision AND obtain sterile and clean equipment. This is called the Overdose Prevention Service (OPS).

64. Does your institution **need** an OPS?
- a. ☐ No
- b. ☐ Yes
- c. ☐ Don't know

65. If your institution had an OPS, would **you** use it?
- a. ☐ No
- b. ☐ Yes
- c. ☐ Don't know

66. Do you think people would start injecting or using drugs in prison with an OPS who wouldn't otherwise?
- a. ☐ No
- b. ☐ Yes
- c. ☐ Don't know

THE END

Place your completed questionnaire in the envelope, seal it well and hand it to the survey administrator.

DO NOT PUT YOUR NAME (OR ANYONE ELSE'S NAME) ON THE QUESTIONNAIRE OR THE ENVELOPE.

Your health is very important! If you'd like to find out more about testing, prevention, or treatment for HIV, hepatitis, syphilis, or COVID-19, talk to the nurse for assistance booking an appointment with healthcare.

Thank you very much for your time and participation!

Appendix B

Study Recruitment Posters

Appendix C

Participant Information and Consent Form

Correctional Service Canada | Service correctionnel Canada

uOttawa

PARTICIPANT INFORMATION AND CONSENT FORM

2022 Health Survey

Principal Investigators: Dr. Lynne Leonard
School of Epidemiology and Public Health
University of Ottawa

Dr. Paul Sandstrom,
National HIV & Retrovirology Laboratories
Public Health Agency of Canada

Participation in the study is voluntary. Please read/listen to this Information and Consent Form carefully before you decide if you would like to participate. Ask the study nurse as many questions as you would like. If you would like a copy of this form just ask the study nurse.

WHY IS THIS STUDY BEING DONE?

Infection with HIV, hepatitis C, and syphilis and SARS-Cov-2 are more common among people in federal prison than in the general Canadian population. We are conducting this study to help us understand just how common these infections are, the risks for infection, and attitudes, access to, and experience of prevention programming for these infections. We will use this information to improve services.

WHY AM I BEING ASKED TO PARTICIPATE?

This study will be carried out in all Canadian federal institutions. We are inviting all women and 3,000 randomly selected men who have been continuously incarcerated for at least six months prior to study completion to take part in the study.

In order to decide if you want to take part in this research study, you need to understand what is involved and the potential risks and benefits of participating. This form gives you detailed information about the research study. Once you understand the study, you will be asked to provide verbal consent to indicate your willingness to participate. Please take your time to make your decision. Feel free to discuss it and ask the study nurse any questions. If you prefer, this nurse can read this information aloud to you.

WHAT DOES IT INVOLVE?

It will take roughly 45 minutes of your time to participate. We will ask you to fill in an anonymous questionnaire about prior testing for infections, risk(s) for infections, and access to treatment and prevention services. We will ask you to provide an anonymous finger-prick blood sample that will be sent to the National HIV & Retrovirology Laboratories at the Public Health Agency of Canada for testing for infection with HIV, hepatitis C, syphilis and SARS-Cov-2 antibodies. The nurse will collect a few drops of blood by pricking your fingertip with a lancet and blotting a test card. You can choose to complete only the questionnaire and decline the offer of the collection of a finger-prick blood sample.

As your answers to the questionnaire and the finger-prick blood sample collected for this study do not include your name or any other identifying information, results from this study can't be linked to you and therefore cannot be shared with you. If you would like to know if you have HIV, hepatitis C, syphilis, or any other sexually transmitted infections (STIs), you can have another blood test done at Health Services. Once you have completed the questionnaire and the collection of the finger-prick blood sample is complete, the nurse will offer you the opportunity to make an appointment to have a test done at Health Services. The nurse will be able to give you the results of those tests and discuss available treatment if necessary. Knowing your status and taking care of your health is important for you, your family and loved ones, and the health of our community.

If you agree, we will store any remaining blood samples at the National HIV & Retrovirology Laboratories at the Public Health Agency of Canada. We may want to test your blood sample again in the future for other infections or if new tests for HIV, hepatitis C, and syphilis become available. Since the samples will be anonymous, you will not be able to find out the results of any possible future tests. You will be asked whether you agree to have your blood sample stored. If you do not agree, your sample will be destroyed after analysis is complete for this study.

BENEFITS

The results of this research will allow for a better understanding of the health needs of people in federal institutions. The information provided by you will help us develop effective Health Services within federal prisons.

RISKS

There are no major risks to participating in this study. If you feel upset or uncomfortable during or after the study, you can tell the person who gave you the survey or ask to see an Elder, a psychologist, a nurse or your case management officer. Collecting the finger-prick blood sample may hurt a little bit, and it's possible to get a small bruise or infection, but this is very unlikely.

DO I HAVE TO PARTICIPATE?

Your participation is voluntary. You can choose not to take part in this study. Choosing not to take part will not affect your care or treatment. If you do decide to participate, you can choose to not answer certain questions and you can decide to opt out of doing the finger-prick blood sample. You can stop or withdraw participation at any time.

CONFIDENTIALITY

No personal identifying information will be collected for this study. Neither your name or any other identifying information will appear on any study documents, including this consent form, the questionnaire and blood sample card.

The study records will be kept for seven years after termination of the study. All data will be stored in a locked office In the Research Branch at CSC either on a password-protected computer or in a locked cabinet. At the end of the storage time, all paper records will be shredded and electronic files securely deleted. When we publish the results or present them at scientific meetings, no information that could potentially identify you will be released.

WILL I BE PAID TO PARTICIPATE IN THIS STUDY?

There is no payment for participation in this study. If you need to miss work to participate, you will continue to be paid according to your salary scale while you are taking part in the study.

IF I HAVE QUESTIONS OR PROBLEMS, WHOM CAN I CONTACT?

If you have any questions about this consent form or about the survey, please speak with the study nurse.

STUDY NURSE STATEMENT

I CONFIRM THAT:

The participant has read/ I have read to the participant the three pages of this Participant Information and Consent Form.

- To the best of my knowledge, the participant understands the nature, demands, risks, and benefits involved in taking part in this study.

- The participant has had a chance to ask me any questions they have about the study.

- I understand that their questions have been answered to their satisfaction and they have agreed to:

Complete the questionnaire	☐ Yes ☐ No
Provide a finger-prick blood sample	☐ Yes ☐ No
The storage and additional testing of their finger-prick blood sample in the future	☐ Yes ☐ No

- I have offered the participant a copy of this Participant Information and Consent Form for their use.

Name of Person Obtaining Consent

Signature of Person Obtaining Consent

Date