



Summary findings from Tracks surveys implemented by First Nations in Saskatchewan and Alberta, Canada, 2018–2020

Kathleen Lydon-Hassen^{1*}, Leigh Jonah¹, Lisa Mayotte², Ashley Hrabowy², Bonny Graham², Beverley Missens², Amanda Nelson², Mustafa Andkhoie³, Deana Nahachewsky⁴, Dharma Teja Yalamanchili⁵, Sabyasachi Gupta⁵, Nnamdi Ndubuka⁵, Ibrahim Khan³, Wadieh Yacoub⁴, Maggie Bryson¹, Dana Paquette¹

Abstract

Background: The Public Health Agency of Canada's integrated bio-behavioural surveillance system—Tracks surveys—assesses the burden of HIV, hepatitis C and associated risks in key populations in Canada. From 2018–2020, Tracks surveys were successfully implemented by First Nations Health Services Organizations in Alberta and Saskatchewan.

Methods: First Nations-led survey teams invited community members who identified as First Nations, Inuit or Métis to participate in Tracks surveys and testing for HIV, hepatitis C and syphilis. Information was collected on social determinants of health, use of prevention services, substance use, sexual behaviours and care for HIV and hepatitis C. Descriptive statistics are presented.

Results: Of the 1,828 survey participants, 97.4% self-identified as First Nations and 91.4% lived in an on-reserve community. Over half (52.2%) were cisgender female, average age was 36.3 years, 82.5% lived in stable housing, 82% had access to primary healthcare and 73.8% reported having good to excellent mental health. Most participants (97%) had a family member who had experienced residential school. High proportions experienced stigma and discrimination (65.6%), financial strain (64.3%) and abuse in childhood (65.1%). Testing for HIV (62.8%) and hepatitis C (55.3%) was relatively high. Prevalence of HIV was 1.6% (of whom 64% knew their infection status). Hepatitis C ribonucleic acid prevalence was 5% (44.9% of whom knew their current infection status).

Conclusion: Historical and ongoing experiences of trauma, and higher prevalence of hepatitis C were identified, reaffirming evidence of the ongoing legacies of colonialism, Indian Residential Schools and systemic racism. High participation in sexually transmitted blood-borne infection testing and prevention reflect the importance of First Nations-led culturally sensitive, safe and responsive healthcare services and programs to effect improved outcomes for First Nations peoples.

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Keywords: First Nations, on-reserve communities, community-led, Indigenous Peoples, resilience, Tracks survey, STI, STBBI, Canada, HIV, hepatitis C, testing, care and treatment

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Affiliations

¹ Centre for Communicable Diseases Infection and Control, Public Health Agency of Canada, Ottawa, ON

² Participating First Nations Health Services Organization

³ First Nations and Inuit Health Branch, Saskatchewan Region, Indigenous Services Canada, Regina, SK

⁴ First Nations and Inuit Health Branch, Alberta Region, Indigenous Services Canada, Edmonton, AB

⁵ Northern Inter-Tribal Health Authority, Prince Albert, SK

*Correspondence:

kathleen.lydon-hassen@phac-aspc.gc.ca



Introduction

Available evidence suggest First Nations, Inuit and Métis peoples continue to experience disproportionately higher rates of HIV and hepatitis C virus compared with non-Indigenous Canadians. In 2016, Indigenous peoples represented 4.9% of Canada's population but comprised an estimated 12.3% of all new HIV infections in Canada that year, increasing to 14% of all new HIV infections in 2018 (1). In 2016, rates of newly diagnosed HIV and newly diagnosed hepatitis C were three times higher in First Nations living on reserve than in the overall Canadian population (2,3).

First Nations communities in Saskatchewan (SK) and Alberta (AB) are particularly impacted by HIV and hepatitis C. In 2016, the rate of new HIV diagnoses in First Nations living on reserve in SK was three and seven times higher than for overall provincial and national rates, respectively (4). Rates of hepatitis C in SK First Nations communities were three and four times higher than for the overall provincial and national populations in 2016, respectively (4). In AB, between 2012 and 2016, HIV incidence was four and eight times higher among male and female First Nations, respectively, compared with their non-First Nations counterparts (5). Similarly, in 2016, hepatitis C incidence in AB was four times higher among First Nations than among non-First Nations (6). Despite the higher rates of HIV and hepatitis C in First Nations communities, there is a lack of information on factors associated with these increased rates.

The Public Health Agency of Canada (PHAC) coordinates an integrated bio-behavioural surveillance system—Tracks surveys—to assess the burden of HIV, hepatitis C and associated risk factors in key populations in Canada. Tracks surveys help identify underlying determinants contributing to higher rates of sexually transmitted and blood-borne infections (STBBI), including HIV and hepatitis C, in key populations. These data are used to inform public health responses aimed at reducing and preventing infections and improving treatment and support to those who need it most. Tracks information contributes to national estimates of HIV and hepatitis C prevalence and to assessments of Canada's progress towards global targets to eliminate HIV and hepatitis C as a public health threat by 2030 (7).

Compared with other ethnicities, Indigenous participants have been consistently over-represented in all four phases of Tracks survey of people who inject drugs, conducted periodically in sentinel sites across Canada since 2002 (8). Indigenous participants represented 42.2% of all participants of the Phase 4 Tracks survey among people who inject drugs, conducted in 2017–2019, up from 36.1% in Phase 3 conducted in 2005–2008. The first Tracks survey that focused on Indigenous Peoples was conducted in Regina, SK in 2011–2012 and was formerly known as A-Track. Self-reported injection drug use was not a criterion for eligibility to participate (9). The A-Track pilot survey

provided valuable information on the challenges faced by urban Indigenous peoples and factors contributing to increased vulnerability for HIV and hepatitis C.

In the context of evidence of higher rates of HIV and hepatitis C in on-reserve communities and gaps in knowledge on factors contributing to higher rates in community contexts—from 2017 to 2020, First Nations Tribal Councils, communities, regional and federal public health authorities worked towards implementation of First Nations-led Tracks surveys in on-reserve community settings in AB and SK. This unique collaboration between First Nations Tribal Councils and communities, the Northern Inter-Tribal Health Authority, the First Nations and Inuit Health Branch of Indigenous Services Canada and PHAC was grounded in early and continuous First Nations involvement, participatory research and respect for First Nations data sovereignty.

The objective of this report is to present descriptive summary findings of combined Tracks surveys led and implemented in and by seven First Nations Health Services Organizations in AB and SK between September 2018 and March 2020. The generous agreement of all participating First Nations Health Services Organizations to contribute their site-specific data made this summary analysis and report possible. Findings include socio-demographic characteristics of survey participants, selected social determinants of health, access and use of healthcare, STBBI prevention and testing services including Indigenous health and healing services, injection and non-injection substance use (including drugs or alcohol) and experiences of substance-related poisoning, sexual risk behaviours, and HIV and hepatitis C care cascade, prevalence and awareness of infection status.

Methods

First Nations engagement and participation

Community engagement to determine interest and participation in Tracks surveys was conducted by the Northern Inter-Tribal Health Authority and Indigenous Services Canada's First Nations and Inuit Health Branch regions of AB and SK and included the following criteria: Chief and Council support, health director support; increasing rates of HIV/hepatitis C or higher than provincial average or identified risk; capacity to meet the requirements of the project including testing; and population size of community or group of collaborating communities of over 800.

In the fall/winter of 2018–2019 and of 2019–2020, seven First Nations-led survey teams were established to implement the Tracks survey and testing: four in SK (two First Nations communities in 2018 and two Tribal Council Health Services Organizations in 2019–2020) and three Tribal Council Health Services Organizations in AB in 2019–2020.



Data source and sampling methods

The protocol for the Tracks survey of determinants of HIV and hepatitis C among Indigenous peoples in Canada was approved by the Health Canada/PHAC Research Ethics Board. First Nations leadership reviewed and approved the proposed survey approach in each participating jurisdiction. Similar to other Tracks surveys of key populations in Canada, venue-based sampling methods were used, focusing recruitment efforts on where people are more likely to gather as determined by community survey teams. The survey was widely promoted including advertising at high traffic community locations such as stores, band offices, health centres, health fairs, harm reduction program venues and high schools, as well as on community and regional social media platforms. Survey participation mainly took place in community health centres but also at health fairs, high schools and using mobile outreach vehicles, and were often strategically timed to coincide with other health-related events such as mass influenza immunization clinics, “Liver Health Days” and HIV Awareness Day.

Anyone who self-identified as First Nations, Inuit or Métis and met the minimum age to provide informed consent (according to local research ethics requirements) was eligible to participate in the survey. Eligible and consenting participants completed a web-based questionnaire on an electronic tablet.

Questionnaire and biological sample

The Tracks survey collects information on socio-demographic characteristics, social determinants of health, use of health and prevention services (including testing), substance use (including drugs or alcohol) and injecting behaviours, sexual behaviours and care and treatment for HIV and hepatitis C. The questionnaire was comprised of validated questions from previous Tracks surveys, including from the 2011 A-Track pilot survey of Indigenous Peoples. The questionnaire was pre-tested in a small sample of First Nations community members in 2018 and was reviewed and approved by Health Canada/PHAC Research Ethics Board. Plain language definitions for more complex terms were embedded in the questionnaire. Trained survey staff were available to assist participants during survey completion upon request. The majority of participants (85%) self-administered the questionnaire on an electronic tablet while the remainder was assisted by an interviewer. Participants provided a blood sample in the form of a dried blood spot specimen (SK, 2019) or a full-blood sample (SK, 2018; AB, 2019) for HIV, hepatitis C and syphilis testing according to provincial testing protocols. Community public health nurses collected personal information necessary to return test results to participants. Anonymized test results were linked to survey data using a unique survey identification code.

Analysis, interpretation and contextualization of results

All seven First Nations Health Services Organizations contributed their site-specific survey data to this combined analysis. A Writing Group was established comprised of a representative from each participating First Nations organization, Northern Inter-Tribal Health Authority, First Nations and Inuit Health Branch and PHAC to review draft manuscripts and to ensure that survey findings were appropriately contextualized in a culturally relevant safe manner and that potential implications resonated with community realities and priorities. First Nations review and approval of the final manuscript was sought prior to publication.

Seven site-specific survey datasets were combined to generate an all-site dataset for the purposes of this analysis and report. Descriptive statistics were produced for selected indicators using SAS Enterprise Guide 7.1. Participants who responded “not stated”, “refused” or “don’t know” were excluded from the denominator of each indicator analysis, except for instances where “don’t know” was an expected valid response to certain questions. As a proxy measure of the representativeness of the survey sample, age and sex characteristics of the sample were compared with those of the 2019 Registered Indian Population (10) for AB and SK using chi-square tests at a level of significance of 0.05.

Results

Socio-demographic characteristics

In total, 1,828 individuals who self-identified as being Indigenous participated in Tracks surveys implemented by First Nations Health Services Organizations in First Nations communities in AB and SK in 2019 and 2020. The majority of participants (97.4%) self-identified as First Nations and 91.4% lived in a First Nations on-reserve community (Table 1).

Table 1: Socio-demographic characteristics of Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828)

Socio-demographic characteristics		n	%	Total ^a
Indigenous identity	First Nations	1,780	97.4	1,827
	Inuit, Métis, or unspecified Indigenous identity	47	2.6	
Living in a First Nations (on-reserve) community		1,671	91.4	1,828
Age group	Younger than 25 years	458	25.4	1,807
	25–39 years	680	37.6	
	40–54 years	443	24.5	
	55 years or older	226	12.5	

Table 1: Socio-demographic characteristics of Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828)
(continued)

Socio-demographic characteristics		n	%	Total ^a
Gender identity ^b	Cisgender female	952	52.2	1,825
	Cisgender male	822	45.0	
	Transmasculine ^c	30	1.6	
	Transfeminine ^d	21	1.2	
Sexual orientation	Heterosexual or straight	1,606	88.4	1,817
	Bisexual	110	6.1	
	Two-spirit	35	1.9	
	Gay or lesbian	20	1.1	
	Other ^e	46	2.5	

^a Total represents total counts for the corresponding indicator excluding “don’t know”, “refused” and “not stated” values

^b The Multidimensional Sex/Gender Measure was used to measure gender identity (11)

^c Transmasculine includes those assigned female at birth who identified with either male or a non-binary gender

^d Transfeminine includes those assigned male at birth who identified with either female or a non-binary gender

^e Other included asexual, pansexual and other unclassifiable responses

Over one third of participants (37.6%) were 25 to 39 years of age. A quarter of participants were younger than 25 years (25.4%) and a similar proportion were 40 to 54 years (24.5%) while 12.5% were 55 years of age or older.

Just over half of participants (52.2%) identified their gender as cisgender female, 45% identified as cisgender male, 1.6% identified as transmasculine and 1.2% as transfeminine.

The assessment of representativeness comparing the age and sex characteristics of the survey sample to those of the on-reserve population in AB and SK did not show any statistically significant differences (age, $p=0.999$; sex, $p=0.298$).

The majority of participants (88.4%) reported their sexual orientation as heterosexual or straight. Small proportions identified as bisexual (6.1%), Two-spirit (1.9%), gay or lesbian (1.1%) or other sexual orientation (2.5%).

Social determinants of health

Equal proportions of participants either completed high school (20.4%) or completed more than high school (20.5%). More than half of participants completed some high school or less (59.1%) (Table 2).

A large majority of participants (82.5%) reported living in stable housing in the six months prior to completing the survey. Less than one third of participants (32.1%) reported having been incarcerated at some point in their lifetime and 6.2% reported being incarcerated in the year prior to the survey.

Table 2: Social determinants of health of Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828)

Social determinants of health		n	%	Total ^a
Education, highest level completed	Some high school or less	1,078	59.1	1,825
	High school	373	20.4	
	More than high school	374	20.5	
Housing status ^b , past 6 months	Stable housing	1,506	82.5	1,826
	Unstable housing	320	17.5	
Incarceration	Ever incarcerated	585	32.1	1,824
	Incarcerated, past 12 months	113	6.2	1,823
Mental health, self-reported	Fair to excellent	1,742	95.4	1,826
	Good to excellent	1,347	73.8	
	Poor	84	4.6	
Experienced financial strain ^c , past 12 months		1,175	64.3	1,827
Other social determinants of health	Experience of stigma and discrimination ^d , ever	1,107	75.9	1,458
	Experience of stigma and discrimination ^d , past 12 months	870	65.6	1,326
	Experience of childhood physical, sexual, and/or emotional abuse	1,068	65.1	1,641
	Experience of sexual partner physical, sexual, and/or emotional abuse	741	44.8	1,654
	Placed in an Indian Residential School	474	26.4	1,798
	Family member placed in an Indian Residential School	1,636	97	1,686

^a Total represents total counts for the corresponding indicator excluding “don’t know”, “refused” and “not stated” values

^b Stable housing included living in an apartment or house or a relative’s apartment or house. Unstable housing included living in a hotel or motel room, rooming or boarding house, shelter or hostel, transition or halfway house, psychiatric institution or drug treatment facility, public place or correctional facility

^c Defined as ever having difficulty making ends meet (e.g. having a hard time paying bills or buying enough food) in the year prior to the survey

^d Defined as ever experienced any stigma or discrimination (e.g. avoidance, pity, blame, shame, rejection, verbal abuse, or bullying) based on racial or cultural background, hepatitis C status, HIV status, sexual orientation, use of drugs or alcohol or sex work rejection, verbal abuse, or bullying) based on racial or cultural background, hepatitis C status, HIV status, sexual orientation, use of drugs or alcohol or sex work

A large majority of participants (95.4%) reported their mental health as fair to excellent and almost three quarters (73.8%) reported their mental health as good, very good or excellent. Fewer than 5% of participants reported poor mental health status.

Over one fifth of participants (23.4%) reported working full-time in the six months prior to completing the survey and 14.5% reported working part-time in the same period. Almost



two thirds of participants (64.3%) reported experiencing financial strain in the year prior to the survey. Over one third reported being unemployed (37.4%) or receiving social assistance (36.2%) in the six months prior to the survey.

Three quarters of participants (75.9%) experienced stigma and discrimination in their lifetime and two thirds (65.6%) experienced stigma and discrimination in the year prior to the survey. More than one quarter of participants (28.7%) reported experiencing discrimination because of their racial or cultural background in the year prior to the survey. Almost two thirds of participants (65.1%) experienced physical, sexual and/or emotional abuse in childhood and under half (44.8%) experienced these types of abuse with a sexual partner.

One quarter of participants (26.4%) had been placed in a residential school. Almost all participants (97%) had a family member who had been placed in a residential school and two thirds (67%) had a parent who was placed in a residential school.

Access and use of health care, sexually transmitted and blood-borne infection prevention and testing services

The majority of participants (81.9%) had access to primary health care; almost two thirds (63.6%) had a regular healthcare provider or had access to a community health centre or nursing station (64.5%) (Table 3). Over one third of participants (36.4%) used Indigenous health or healing services in the year prior to the survey, while one quarter of participants (26.4%) used mental health counselling services in the same period. Just under one in five participants (18.3%) reported avoiding healthcare services due to stigma and discrimination in the year prior to the survey.

Table 3: Access and use of health care, STBBI prevention and testing services among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828)

Access and use of health care and STBBI prevention services	n	%	Total ^a
Access to primary health care	1,492	81.9	1,822
Access to a primary healthcare provider	1,158	63.6	1,822
Use of community health centre or nursing station	961	64.5	1,491
Use of services that included Indigenous health or healing practices, past 12 months ^b	663	36.4	1,822
Use of mental health counselling services, past 12 months	481	26.4	1,823
Avoidance of healthcare services because of stigma and discrimination, past 12 months ^c	291	18.3	1,590
Use of prevention services, past 12 months			
Received STBBI prevention counselling	671	37.3	1,800
Use of a condom distribution program	639	35.2	1,816

Table 3: Access and use of health care, STBBI prevention and testing services among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828) (continued)

Access and use of health care and STBBI prevention services	n	%	Total ^a
Use of prevention services, past 12 months (continued)			
Use of treatment services for drug or alcohol use ^d	175	9.6	1,815
Use of a needle and syringe distribution program	142	7.8	1,816
Use of methadone, suboxone or other opioid substitution therapy	111	6.1	1,814
Awareness of PrEP and nPEP			
Awareness of oral HIV PrEP	202	11.1	1,821
Awareness of nPEP for HIV	511	28.1	1,822
Use of STBBI Testing Services			
Tested for HIV			
Ever	1,036	62.8	1,649
Past 12 months	564	34.3	1,646
Tested for hepatitis C			
Ever	846	55.3	1,529
Past 12 months	467	30.6	1,526
Tested for chlamydia			
Ever	909	51.8	1,756
Past 12 months	488	27.8	
Tested for gonorrhoea			
Ever	817	47.1	1,735
Past 12 months	446	25.7	
Tested for syphilis			
Ever	721	41.9	1,719
Past 12 months	428	24.9	
Tested for any STI			
Ever	1,078	65.0	1,658
Past 12 months	619	40.5	1,529

Abbreviations: HIV, human immunodeficiency virus; nPEP, non-occupational post-exposure prophylaxis; PrEP, pre-exposure prophylaxis; STBBI, sexually transmitted and blood-borne infection; STI, sexually transmitted infection
^a Total represents total counts for the corresponding indicator excluding “don’t know”, “refused” and “not stated” values
^b Indigenous health or healing practices included a Traditional Healer, a Community Elder, the Hope for Wellness Help line or other Indigenous-specific services
^c Defined as worry about stigma by staff or neighbours, worry about or experienced violence, police harassment or arrest
^d Included services such as live-in treatment, group counselling or a Traditional Healer

Over one third of participants (37.3%) received STBBI prevention counselling in the year prior to the survey and a similar proportion (35.2%) used a condom distribution program in the same period. Smaller proportions reported using treatment services for drug or alcohol use (9.6%), needle and syringe distribution programs (7.8%), or methadone, suboxone or other opioid substitution therapy (6.1%) in the year prior to the survey.



Just over one in ten participants (11.1%) were aware of oral HIV pre-exposure prophylaxis while over one quarter (28.1%) were aware of non-occupational post-exposure prophylaxis for HIV.

Just under two thirds of participants (62.8%) had ever been tested for HIV (i.e. tested at some time in their lifetime) while over one third (34.3%) were tested for HIV in the year prior to the survey. Over half of participants had ever been tested for hepatitis C in their lifetime (55.3%) and under one third were tested in the year prior to the survey (30.6%).

Almost two thirds of participants (65%) reported ever being tested for any sexually transmitted infection and 40.5% reported being tested for a sexually transmitted infection in the year prior to the survey. Approximately one quarter of participants were tested for chlamydia (27.8%), gonorrhoea (25.7%) or syphilis (24.9%) in the year prior to the survey.

Injecting behaviours

One sixth (16.7%) of participants reported injecting a substance or drug for non-medicinal purposes at some point in their lifetime (Table 4). The average age of first injecting drugs was 25.3 years; the largest proportions reported first injecting at ages 16 to 24 years (44.3%) and 25 to 39 years (38.1%).

Table 4: Injecting behaviours among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828)

Injecting behaviours	n	%	Total ^a
Injected substances or drugs for non-medical purposes			
Ever	304	16.7	1,826
Past 6 months	148	8.1	1,824
Daily in the past month ^b	42	28.4	148
Age at first injection^c			
Younger than 16 years	28	9.6	291
16–24 years	129	44.3	
25–39 years	111	38.1	
40 years or older	23	7.9	
Injecting behaviours, past 6 months^b			
Injected drugs in a public space	57	38.5	148
Used sterile needle and syringe at last injection	125	84.5	148
Borrowed used needles and/or syringes	34	23.1	147
Borrowed used needles and/or syringes from people known well ^{d,e}	30	90.9	33
Borrowed used other injecting equipment (i.e. water, filters, cookers, tourniquets, swabs, acidifiers)	70	48.3	145
Borrowed used other injecting equipment from people known well ^e	62	91.2	68
Related non-injection borrowing behaviours, past 6 months			
Borrowed used non-injection drug paraphernalia (i.e. straws, dollar bills and pipes)	502	33.7	1,489

^a Total represents total counts for the corresponding indicator excluding “don’t know”, “refused” and “not stated” values

^b Among those who injected in the past six months

^c Among those who had ever injected

^d People known well was defined as family, friends or sex partners

^e Among those who borrowed used needles and/or syringes

Under one tenth (8.1%) of all survey participants reported injecting in the six months prior to the survey. Of these, a large majority (84.5%) used a sterile needle and syringe when they last injected. Of those who injected in the month prior to the survey, 85.7% used a sterile needle and syringe at last injection.

Over one third (38.5%) of participants who injected in the six months prior to the survey reported injecting drugs in a public space and over one quarter (28.4%) reported injecting daily in the month prior to the survey.

Over one fifth (23.1%) of participants who injected in the past six months reported borrowing used needles and/or syringes and of these, a large majority (91%) borrowed from people they knew well. Almost half (48.3%) reported borrowing used other injecting equipment such as water, filters and cookers; mostly from people they knew well (91.2%). Of note, of the survey participants who reported using a non-injection substance in the previous six months, one third (33.7%) reported borrowing previously used non-injection drug paraphernalia such as straws and pipes in the six months prior to the survey.

Substance use and experiences with overdoses (poisonings)

Alcohol and cannabis were the most commonly used non-injection substances by survey participants in the six months prior to the survey; almost two thirds (64.6%) reported alcohol use and over half (55.6%) used cannabis (Table 5). Lower proportions reported using cocaine (16.7%), codeine (15.1%), methamphetamine (14.3%) or crack (12.9%).

Table 5: Substance use and experiences with overdoses (poisonings) among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828)

Drug use and experiences with overdoses (poisonings)	n	%	Total ^a
Most common non-injection substances used, past 6 months^b			
Alcohol	1,174	64.6	1,817
Cannabis	1,010	55.6	
Cocaine	304	16.7	
Codeine	275	15.1	
Methamphetamine	260	14.3	
Crack	234	12.9	
Most common injection drugs used, past 6 months^{b,c}			
Methamphetamine	96	64.9	148
Morphine	57	38.5	
Fentanyl	55	37.4	147
Heroin	43	29.1	148
Cocaine	42	28.4	
Hydromorphone	41	27.7	
Awareness, access and use of an overdose kit			
Heard of overdose kits	839	46.0	1,826
Ever used an overdose kit	144	17.2	838



Table 5: Substance use and experiences with overdoses (poisonings) among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828) (continued)

Drug use and experiences with overdoses (poisonings)	n	%	Total ^a
Awareness, access and use of an overdose kit (continued)			
Overdose kits are available in participants' community ^d			
Yes	586	69.9	838
No	56	6.7	
Don't know	196	23.4	
Overdose experiences			
Overdosed in the past 6 months	122	8.2	1,495
Most common drugs or substances used at last overdose^e			
Alcohol	46	38.3	120
Fentanyl	44	36.7	
Methamphetamine	29	24.2	
Cannabis	22	18.3	
Cocaine	19	15.8	
Heroin	16	13.3	

^a Total represents total counts for the corresponding indicator excluding "don't know", "refused" and "not stated" values

^b Participants recorded all drugs (that they had injected, consumed or used at last overdose) for non-medical purposes in the six months prior to survey. The most commonly reported drugs among all participants are presented. Responses are non-mutually exclusive

^c Among participants who injected in the past six months

^d Among participants who had heard of overdose kits

^e Among participants who overdosed in the past six months and who provided a response. Overdose was defined as 'a negative reaction to using too much drugs. Symptoms may include slow breathing, slow heart rate, slow pulse, muscle spasms, seizures, or decreased consciousness

Of the 8.1% of participants who reported injecting non-medical drugs in the six months prior to the survey, methamphetamine was the most commonly injected drug (64.9%), over one-third injected morphine (38.5%) or fentanyl (37.4%), and over one quarter injected heroin (29.1%), cocaine (28.4%) or hydromorphone (27.7%).

Just under half (46%) of all participants had heard of overdose kits. Of these, the majority (69.9%) knew that overdose kits were available in their community while almost one quarter (23.4%) did not know. Under one fifth (17.2%) had used an overdose kit on someone else.

Under one tenth (8.2%) of participants said they had overdosed in the six months prior to the survey. The most commonly reported substances used at last overdose were alcohol (38.3%), fentanyl (36.7%), and methamphetamine (24.2%).

Sexual risk behaviours

Of participants who reported ever having had sex, approximately one quarter (26.1%) had two or more sex partners in the six months prior to the survey (Table 6). The majority (89.3%) of participants who had a regular sex partner reported inconsistent condom use during vaginal and/or anal sex. Among participants

who had a casual sex partner, almost 80% reported inconsistent condom use during vaginal and/or anal sex. About four out of ten participants (43.5%) reported substance use before or during sex in the six months prior to the survey.

Table 6: Sexual risk behaviours among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,828)

Sexual risk behaviours, past 6 months	n	%	Total ^a
Two or more sex partners	410	26.1	1,573
Inconsistent condom use during vaginal and/or anal sex with a regular sex partner ^b	1,049	89.3	1,175
Inconsistent condom use during vaginal and/or anal sex with a casual sex partner ^b	432	79.9	541
Substance use before or during sex	606	43.5	1,394
Engaged in transactional sex	53	3.8	1,394
Condomless sex at last transactional sex ^c	19	35.9	53

^a Total represents total counts for the corresponding indicator excluding "don't know", "refused" and "not stated" values indicators and excludes participants who never had sex

^b Inconsistent condom use defined as not always using a condom (i.e. never, sometimes or frequently)

^c Among those who engaged in transactional sex

A small proportion (3.8%) of participants had engaged in transactional sex at least once in the six months prior to the survey and of these, over one third (35.9%) reported not using a condom at last transactional sex.

HIV and hepatitis C prevalence and awareness

The majority (95%) of participants provided a blood sample for testing for HIV and hepatitis C testing (n=1,736) and HIV prevalence was 1.6% (or under two in 100 participants). Of those who tested positive for HIV, almost two thirds (64%) were aware of their HIV-positive status (Table 7).

Table 7: HIV and hepatitis C prevalence, awareness of infection status, and care cascade among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,736)

Prevalence of HIV and hepatitis C	n	%	Total ^a
HIV prevalence	27	1.6	1,736
Awareness of HIV-positive status ^b	16	64.0	25
HIV care cascade (among participants aware of their HIV-positive status)			
Linked to care for HIV-related services ^c	13	81.3	16
Currently taking ART treatment	13	81.3	
Adherence to ART, no missed doses in last month	<10	-	13
Self-reported undetectable HIV viral load	7	53.9	
Avoidance of HIV services or treatment because of stigma and discrimination, past 12 months	<5	-	
Hepatitis C prevalence and awareness of infection status			
HCV antibody prevalence	193	11.2	1,728
HCV RNA prevalence	87	5.0	1,725
Awareness of hepatitis C RNA positive status ^d	35	44.9	78



Table 7: HIV and hepatitis C prevalence, awareness of infection status, and care cascade among Tracks survey participants in First Nations communities in Alberta and Saskatchewan, 2018–2020 (n=1,736) (continued)

Prevalence of HIV and hepatitis C	n	%	Total ^a
Hepatitis C care cascade (among participants aware of their hepatitis C RNA-positive status)			
Linked to care for hepatitis C ^c	21	60.0	35
Ever taken hepatitis C treatment	<10	-	
Currently taking hepatitis C treatment	<10	-	
HIV and hepatitis C co-infection			
HIV-positive and hepatitis C RNA-positive	8	0.5	1,724

Abbreviations: ART, antiretroviral therapy; HCV, hepatitis C virus; HIV, human immunodeficiency virus; RNA, ribonucleic acid; -, data suppressed to protect privacy
^a Total represents total counts for the corresponding behavioural indicator excluding “don’t know”, “refused” and “not stated” survey values. For biological test results, total is among participants who provided a biological sample of sufficient quantity for testing
^b Among participants who tested positive for HIV antibodies and who reported their HIV diagnosis
^c Defined as under the care of a doctor or healthcare provider for HIV-related services at the time of the survey
^d Among participants who tested HCV RNA positive and who reported their current hepatitis C status. The denominator excludes participants with missing data
^e Defined as under the care of a healthcare provider for hepatitis C-related services at the time of the survey

Lifetime exposure to hepatitis C infection measured by the prevalence of hepatitis C antibodies was 11.2%. One in 20 (5%) of participants were hepatitis C ribonucleic acid (RNA)-positive, an indication of having active hepatitis C infection at the time of the survey. Of these, under half (44.9%) were aware of their hepatitis C RNA-positive status.

HIV and hepatitis C cascade of care

Of the 16 survey participants who were aware of their HIV-positive status, 13 (81.3%) were linked to a healthcare provider for HIV-related services and were on antiretroviral treatment at the time of the survey (Table 7). Of those currently taking treatment for HIV, fewer than 10 participants reported adherence to treatment in the month prior to the survey. Seven of 13 individuals self-reported undetectable viral load. Fewer than five participants reported avoiding HIV services or HIV treatment in the year prior to the survey.

Of the 35 participants who were aware of their hepatitis C RNA-positive status, 21 (60%) were linked to a healthcare provider; fewer than 10 of 35 had taken treatment for hepatitis C at some point or were taking hepatitis C treatment at the time of the survey. The most common reasons for not taking hepatitis C treatment were that the participant was feeling good (33.7%), they were using substances (14.9%) or they only recently linked with medical care (11.9%).

The proportion of participants who were both HIV-positive and hepatitis C RNA positive was five in 1,000 individuals (0.5%). The prevalence of syphilis antibodies (an indicator of lifetime exposure to syphilis) was 2.5%.

Discussion

Seven First Nations Health Services Organizations and their respective survey teams successfully implemented Tracks surveys in participating First Nations communities in AB and SK. These First Nations-led Tracks surveys represent the first assessments of their kind in on-reserve community settings. Early First Nations involvement, leadership support, participatory research, and respect for First Nations data sovereignty were fundamental to meaningful community engagement and successful survey implementation in communities. A commitment to return biological test results to survey participants, while assuring anonymity of all personal data for public health surveillance purposes, was also key. Public health professionals from First Nations Health Services Organizations-led community survey teams to conduct survey promotion, participant recruitment and data collection. Their expertise and participation in the writing group to guide data analysis and interpretation was critical to assuring the culturally relevant and appropriate contextualization of survey findings for this report. First Nations active involvement throughout the project lifecycle, from conceptualization to knowledge translation, supported commitments to advance reconciliation and First Nations self-determination of health services and programs to reduce the impacts of STBBI in their communities.

It is recognized that health, structural and social inequities directly and indirectly influence vulnerability to and resilience against HIV, hepatitis C and other STBBI (12). These factors are further compounded by the legacy and ongoing impacts of colonialism, residential school and systemic racism experienced by First Nations, Inuit and Métis people. Consistent with previous Tracks surveys involving Indigenous participants in urban centres (8), personal or close family member residential school experience, past and ongoing experiences of stigma and discrimination and physical, sexual and/or emotional abuse (in childhood or with a sexual partner), as well as financial strain, were commonly reported by participants. Despite these significant challenges and traumas, several survey indicators reflected the strength and resilience of communities with a relatively high proportion reporting good to excellent mental health, stable housing, access to primary health care and to Indigenous-specific health or healing services.

The STBBI prevention and testing indicators were encouraging with high rates of lifetime testing for HIV and hepatitis C, testing for any sexually transmitted infection and use of STBBI prevention counselling or condom distribution programs. Awareness of oral HIV pre-exposure prophylaxis and non-occupational post-exposure prophylaxis were 11.1% and 28.1%, respectively; equivalent or higher than found in a sub-analysis of Indigenous participants of the Tracks survey among people who inject drugs across Canada in 2017–2019 at 11.5% and 10.8%, respectively (8). High participation in STBBI



prevention and testing programs reflects the effectiveness of First Nations-led and delivered programs and services in their communities. It should also be noted that pre-exposure prophylaxis and non-occupational post-exposure prophylaxis are covered for registered First Nations and Inuit under the Non-Insured Health Benefits program of Indigenous Services Canada as are medications for treatment for HIV and hepatitis C (13).

Alcohol and cannabis were the most commonly reported non-injection substances. Stimulant use, including cocaine, methamphetamine and crack, was reported to a lesser extent. Fewer than 10% of all participants reported injecting substances in the six months prior to the survey among whom predominant use of methamphetamine and opioids, including morphine and fentanyl, was noted. While most used sterile needles and syringes, borrowing used needles, syringes and other used injecting equipment, mostly from people they knew well, was also reported. Similarly, borrowing previously used paraphernalia such as straws or pipes for non-injection substance use was also reported. These findings suggest increased public health education and awareness are warranted to alert communities to the increased risks associated with sharing used drug consumption equipment and/or paraphernalia even with trusted contacts.

One in ten participants experienced drug and/or alcohol poisoning (overdose) in the six months prior to the survey, with alcohol and fentanyl being the most commonly reported substances used at last overdose. It is encouraging that almost half of the participants had heard of overdose kits such as naloxone and a large proportion of these knew that kits were available in their community. However, almost one quarter of participants did not know if kits were available locally, suggesting that promotion of availability of kits in communities could be bolstered.

Caution must be taken when comparing the prevalence from studies using different methods, and among different populations and settings and in different time periods. However, to provide some context, HIV prevalence among survey participants was relatively low at 1.6% compared with 5.2% HIV prevalence in the A-Track pilot survey of urban Indigenous peoples in Regina, SK in 2011–2012 (9) and higher than national modelled estimates of HIV prevalence among Indigenous Peoples of just under 0.4% in 2016 (14) and under 0.2% in the general Canadian population in 2018 (1). While HIV testing rates were high in communities, six of the 25 (or one in four) participants who tested positive for HIV did not know their status. Over 81% of those who did know their HIV-positive status were previously linked to care and treatment and of these, over half reported undetectable viral loads. These findings suggest more work is needed to optimize testing, linkage to HIV care and treatment to better meet community needs and to come closer to reaching the 90-90-90 global HIV testing and treatment targets (7).

Similar caution must be taken if attempting to compare hepatitis C prevalence in different populations, settings and time periods. Just over one in ten (11.2%) survey participants tested positive for the hepatitis C antibody (an indicator of lifetime exposure). This is lower than the 41.6% of participants who tested positive for the hepatitis C antibody in the 2011–2012 A-Track survey of Indigenous peoples in an urban (*versus* on-reserve) setting (9). It is also higher than estimates of hepatitis C antibody-positive rate of just under 1% in the general Canadian population in 2017 (15). The current Tracks surveys in First Nations communities found 5% of participants tested positive for hepatitis C RNA (an indicator of active hepatitis C infection) and of these, more than half were unaware of their active hepatitis C status. These findings support redoubling of efforts to advance community-driven strategies to normalize culturally safe and accessible screening and testing, facilitate more timely linkage to care and treatment and move closer to the goal of eliminating hepatitis C in First Nations communities.

Strengths and limitations

Tracks surveys use an integrated bio-behavioural surveillance approach endorsed by the World Health Organization/Joint United Nations programme on HIV/AIDS to increase knowledge on factors contributing to HIV among populations most at risk towards improving public health responses. Tracks surveys in First Nations communities in AB and SK were First Nations-led and supported by Tribal Council leadership. The combined population of participating communities and Tribal Councils represents over one quarter (28%) of all First Nations living on reserve in AB and SK. Over 95% of survey participants agreed to provide a blood sample for HIV, hepatitis C and syphilis testing. The surveys were widely promoted at local community and healthcare venues in all participating jurisdictions, inviting community members to participate. While this non-probabilistic method of participant recruitment means survey findings may not be fully representative of all First Nations communities in AB and SK, First Nations-led survey promotion, participant recruitment and data collection likely helped mitigate this limitation. The similarity of age and sex characteristics of the survey population to those of the on-reserve population in both provinces is also reassuring. The majority (85%) of surveys were self-administered thereby reducing potential observer and/or social desirability biases associated with interviewer-administered surveys; however, as with all self-reported data, it is possible that some risk behaviours were over or under-reported. Regional variations in some indicators are not reflected in this summary of combined results. Despite the limitations, and considering notable strengths, these surveys provide unique insights into factors that may affect vulnerability to STBBI in First Nations communities and help inform targeted strategies to address them.

Conclusion

First Nations-led Tracks surveys are the first of their kind in on-reserve community settings and represent an innovative model of a successful community, public health and surveillance collaboration at local, regional and national levels. Early



engagement, leadership support, respect for First Nations data sovereignty, First Nations-led survey implementation and active participation in all phases of the project were key to success and help contribute to the path towards reconciliation. This project generated new insights on HIV and hepatitis C prevalence in First Nations communities in AB and SK. Survey findings will help inform community STBBI testing, prevention and treatment services and harm reduction programs on where best to focus their efforts. High prevalence of hepatitis C in particular signals that renewed and sustained efforts are needed to address the drivers of infection and to increase access to testing and treatment. This, together with ongoing experiences of stigma, discrimination and racism, including when accessing health services, reaffirms evidence of ongoing impacts of colonization, Indian Residential Schools and systemic racism on First Nations peoples. Despite these challenges, the high uptake of STBBI testing and prevention programs reflect the importance of culturally sensitive, safe and responsive healthcare services and programs that are First Nations-led to effect meaningful progress towards improved STBBI-related and other health outcomes for First Nations peoples. Subject to the support and priorities of the collaborating First Nations Health Services Organizations, further analyses may be undertaken to assess associations between behavioural and social determinants and infection rates. Future surveys in community settings will depend on the priorities and needs of First Nations as well as the capacity needed for successful survey implementation.

Authors' statement

KLH — Conceptualization, formal analysis, methodology, project administration, writing (original draft and review and editing)

LJ — Conceptualization, formal analysis, data curation, methodology, project administration, writing (review and editing)

LM — Conceptualization, project administration, writing (review and editing)

AH — Conceptualization, project administration, writing (review and editing)

BG — Conceptualization, project administration, writing (review and editing)

BM — Conceptualization, project administration, writing (review and editing)

AN — Conceptualization, project administration, writing (review and editing)

MA — Conceptualization, project administration, writing (review and editing)

DN — Conceptualization, project administration, writing (review and editing)

DTY — Writing (review and editing)

SG — Writing (review and editing)

NN — Conceptualization, project administration, writing (review and editing)

IK — Conceptualization, writing (review and editing)

WY — Conceptualization, project administration, writing (review and editing)

MB — Conceptualization, methodology, project administration, writing (review and editing)

DP — Conceptualization, funding acquisition, methodology, project administration, writing (review and editing)

Competing interests

None.

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