

## CORRECTIONAL SERVICE CANADA

CHANGING LIVES. PROTECTING CANADIANS.

## Serology results and self-reported diagnosis concordance: HIV, HCV, and Syphilis

*Concordance rates ranging from almost perfect agreement to fair agreement were found for three infectious diseases among in-custody federal offenders, indicating a varying degree of knowledge about their diagnostic history.*

## Why we did this study

In collaboration with Public Health Agency of Canada (PHAC) and the University of Ottawa, Correctional Service Canada (CSC) conducted the 2022 National Health Survey. One study objective was to determine the number and proportion of people in federal prisons living with Human Immunodeficiency virus (HIV), Hepatitis C virus (HCV), and syphilis who are aware of their infection. These infectious diseases can be transmitted through risky behaviours including unprotected sex and needle sharing. This information can help inform offender health strategies and programs aimed to raise awareness of infectious diseases and promote safe behaviours.

## What we did

Institutional Health Services staff approached eligible offenders to participate in the 2022 National Health Survey, which consisted of two parts: 1) a self-report questionnaire, and 2) a dried blood spot (DBS) sample to test for infectious diseases. To participate offenders must have provided consent and had been continuously incarcerated in a federal prison for at least six months prior to the start of the study. The DBS samples were collected between September 2022 and January 2023 and were mailed to PHAC to obtain serological results of infectious diseases: HIV, HCV, and syphilis. Serology data were sent to CSC's Research Branch for linkage with questionnaire data. Levels of concordance between serology results (positive or negative for antibodies) and self-reported diagnosis (ever diagnosed or not diagnosed) were calculated using the Kappa value and percentage agreement.

## What we found

Concordance rates between serological results and self-reported diagnosis indicated almost perfect agreement for HCV with a Kappa of 0.89 ( $p < .001$ , 95% CI = 0.85-0.93). Moderate agreement was found for HIV (Kappa = 0.54,  $p < .001$ , 95% CI = 0.29-0.79), and fair agreement was found for syphilis (Kappa = 0.32,  $p < .001$ , 95% CI = 0.17-0.47). The overall percent agreement is 98.8% for HIV, 96.2% for HCV, and 93.4% for syphilis. Table 1 presents the degree of agreement between serology results and self-report diagnoses, including proportion of positive agreement ( $P_{pos}$ ) and proportion of negative agreement ( $P_{neg}$ ).

Table 1: Concordance between serology and self-report data

		Self-reported diagnosis		κ	P <sub>pos</sub>	P <sub>neg</sub>
		Negative	Positive			
		DBS	% (n)			
HIV <sup>a</sup> (n = 834)	Negative (n = 828)		98.8 (818)	0.54	0.55	0.99
	Positive (n = 6)		0.0 (0)			
HCV <sup>b</sup> (n = 789)	Negative (n = 617)		97.2 (600)	0.89	0.91	0.98
	Positive (n = 172)		7.6 (13)			
Syphilis <sup>c</sup> (n = 723)	Negative (n = 686)		96.5 (662)	0.32	0.35	0.97
	Positive (n = 37)		64.9 (24)			

Note. <sup>a</sup>Participants with insufficient DBS (n = 4) or who self-reported being unsure of their diagnosis (n = 17) were removed from analysis. <sup>b</sup>Participants with serological results in the 'grey zone' (n = 32) or who self-reported being unsure of their diagnosis (n = 34) were removed from analysis. <sup>c</sup>Participants with an insufficient DBS (n = 23) or serological results in the 'grey zone' (n = 73) or who reported being unsure of their diagnosis (n = 36) were removed from analysis. κ = Kappa.

## What it means

Results indicate that offenders are aware of their health statuses and informed of their HIV and HCV infections (i.e., ever diagnosed). However, there is a large proportion of participants who either: 1) thought they did not have syphilis, but serological evidence indicated they did; or 2) thought they had syphilis, but serological evidence indicated otherwise. In fact, almost two-thirds of offenders who tested positive for syphilis antibodies did not self-report ever being diagnosed with syphilis. Taken together, this information provides support for offender health strategies and harm reduction programs that aim to increase awareness on the importance of testing and treating infectious diseases. Findings demonstrate the importance of promoting safe behaviours to reduce the risk of contracting infectious diseases within correctional institutions.

## For more information

For questions and/or more information, please email the [Research Branch](#). You can also visit the [Research Publications](#) section for a full list of reports and one-page summaries.

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