

# Prevalence of Viremic Hepatitis C Virus, Hepatitis B Virus, or HIV Infection and Vaccination Status among Swedish Prisoners

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## Introduction

There is a high prevalence of hepatitis C virus (HCV) infection among prisoners globally (1). In order to reach the WHO goal of HCV elimination within 2030 there is a need to find new areas for identifying and treating patients with HCV, for example in prisons. However, the prevalence of HCV among Swedish detainees is not known. Therefore, in this study we evaluated the prevalence of viremic HCV among Swedish prisoners. Also, we estimated the prevalence of other contagious blood-borne diseases such as hepatitis B virus (HBV) and human immunodeficiency virus (HIV) and the vaccination status for HBV.

## Methods

In this cross-sectional study data from all detainees (n=667) present at all nine prisons in Stockholm County were collected at a time point in year 2017. All prisoners in Sweden are offered blood testing for HCV, HBV and HIV and vaccination for HBV. The results of positive or negative anti-HCV, HCV ribonucleic acid (RNA), HBsAg, anti-HBs, anti-HBc, and HIV Ag/Ab in combination were collected, and the number of vaccine doses given in prison was registered. Swedish prisons are divided into three security classes: 1,2 and 3, where 1 is the highest security class.

HCV RNA, anti-HCV and whether subjects had been tested for HCV in prison were tested in three separate logistic regression models in relation to age, sex and prison security class (1-3).

## Results

Of all detainees 93.4% (n=623) were men. The median age of all detainees, women, and men was 35 (range 18-77), 40 (range 21-75) and 35 (range 18-77) years respectively.

71% (n=471) of all detainees had been tested for anti-HCV, 70% (n=465) for HBsAg and 71% (n=471) for HIV. Anti-HCV was detected in 80 detainees (17%). A HCV RNA test was performed in 71 detainees and 53 (75%) of these were HCV RNA positive giving a prevalence of viremic HCV infection of 11.5%. The prevalence of positive HBsAg and HIV was 1.9%, and 0.2%, respectively (table 1).

The prevalence of viremic HCV infection (OR 1.04 per year, p=0.001) as well as anti-HCV (OR 1.05, p<0.001) increased significantly with age but did not differ significantly between males and females, or between security classes. Prisoners in security class 2 and 3 were less likely to be tested for HCV compared to security class 1 (p<0.001) with ORs 0.51 and 0.24, respectively. Older persons were also less likely to be tested (OR 0.98, p=0.002).

Among all incarcerated 41% had evidence of HBV vaccination and 50% were susceptible or potentially susceptible to HBV infection.

Table 1. Prevalence of hepatitis C, B and HIV among tested detainees at all of the nine prisons in Stockholm County

	All	Male	Female
Anti-HCV positivity			
Anti-HCV+/tested for anti-HCV, n (%)	80/471 (17.0)	71/444 (16.0)	9/27 (33)
HCV RNA positivity <sup>1</sup>			
HCV RNA+/anti-HCV+, n (%)	53/71 (74.6)	50/63 (79.4)	3/8 (37.5)
HCV RNA+/tested for anti-HCV, n (%)	53/462 (11.5)	50/436 (11.5)	3/26 (11.5)
HBsAg positivity			
HBsAg+/tested for HBsAg, n (%)	9/465 (1.9)	9/438 (2.1)	0/27 (0)
HBsAg+/anti-HBc+, n (%)	9/65 (13.8)	9/60 (15.0)	0/5 (0)
Anti-HBc positivity			
Anti-HBc+/tested for anti-HBc, n (%)	65/440 (14.8)	60/414 (14.5)	5/26 (19.2)
HIV positivity			
HIV+/tested for HIV, n (%)	1/471 (0.2)	1/444 (0.2)	0/27 (0)

<sup>1</sup> Nine persons were not tested for HCV RNA among anti-HCV+ and excluded from analysis.

## Conclusions

The prevalence of viremic HCV infection of 11.5% among the detainees was high compared to 0.4% in the general Swedish population (2). Therefore, when aiming for the WHO goal of HCV elimination, prisons could suite as a platform for identification and treatment of HCV infection. The prevalence of HBV and HIV seemed also to be higher than in the general Swedish population (3-4) but there were too few detainees to draw firm conclusions. In addition, there is a need to increase testing for blood-transmitted viruses and to increase vaccination rate against HBV in Swedish prisons.

## References

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