Insufficient HIV, HBV and HCV screening in French penal institutions and impact on actual access of inmates with chronic HCV infection to Direct-Acting Antiviral (DAA) therapy

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Background

Prison inmates represent in France a key population regarding the implementation of a test-and-treat strategy against both HIV and HCV epidemics, with a seroprevalence estimated at 2% (2010) and 2.9% (2017), respectively. [1, 2]

According to current guidelines, HIV, HBV and HCV screening should be systematically offered at prison admission. Furthermore, inmates benefit from free access to medical care and treatment during detention, including HCV treatment with Direct-Acting Antivirals (DAAs). However, data on effective implementation of HCV screening and treatment is lacking.

The Government requested the French National AIDS & Viral Hepatitis Council to investigate the current state of access to HIV, HBV and HCV screening and specifically to HCV treatment in prison settings, and to outline proposals for improvement. [3]

Objectives and methods

1) Regarding the implementation of HIV, HBV and HCV screening

Since there is no routine collection of epidemiological data in prison healthcare units, we developed indirect methods to document the number of HIV, HBV and HCV tests performed over the last five years period, and to assess the proportion of inmates effectively screened for these infections during their imprisonment in France, in 2017.

We used activity data from administrative reports that healthcare units are requested to enter annually in a central database, for budgetary follow up purposes. Data were available for the period 2012 to 2017. The number of operating healthcare units varied between 170 and 175 over the period. The database provided raw data on the overall number of HIV, HBV and HCV tests performed in each healthcare unit, as well as on the number of medical consultations completed at prison admission, as this consultation is mandatory. These data did not allow to distinguish between female and male inmates, while the latter account for 96% of prison population.

Healthcare units presenting incomplete or inconsistent data sets were systematically removed from the calculation. Consequently, data completeness varied from year to year between 78.8% and 86.2%.

We estimated at national and regional level the rate of inmates effectively screened at prison admission over the year 2017 by calculating the ratio between the number of tests performed and the number of medical consultations completed at admission. Since studies as well as field observations show that mandatory admission consultations are effectively performed for nearly all new inmates (≈99%) [4], their number provides a reliable estimate of the number of inmates newly entering the prison over the year, and to whom screening should be offered. The overall number of tests performed, however, does not accurately represent the number of tests carried out at admission, since it also includes a presumably low, but unknown proportion of tests performed for inmates at later stages of their detention period.

2) Regarding the implementation of HCV therapy

In three representative regions accounting for 38% of the overall prison population, we conducted a survey combining different data sources and collection methods in order to estimate the cascade of HCV care in penal institutions in 2017.

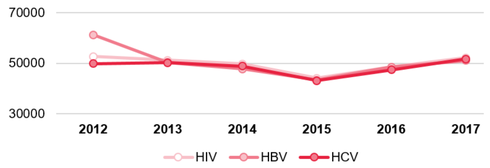
In a first step, we conducted in the regions involved an online survey of the hospital pharmacies responsible for drug supply in prison healthcare units, in order to document the number of DAA therapy delivered to inmates in the 2016-2018 period. Data was available for 37 out of overall 43 prison settings located in the survey regions.

We then documented the number of inmates newly incarcerated in 2017 in these 37 prison settings, by using the administrative data sources presented above. Data was lacking for 7 of the prison settings, which therefore were excluded from the survey. We estimated the number of inmates infected with HCV, and of those among them presenting active chronic infection, by using data from the literature, i.e. prevalence rates estimated at 2.9% and 1.1% respectively [2, 5]. Relying on our calculation of regional screening rates at prison admission, we estimated the number of inmates effectively screened for HVC among those infected. Finally, we calculated the proportion of those having received DAA therapy.

Results

1) Number of HIV, HBV and HCV tests performed in penal institutions and proportion of inmates effectively screened at prison admission

Figure 1 : Number of HIV, HBV and HCV tests performed in French prison settings (2012-2017)
(corrected for annual variations in the data completeness)



While the size of the inmate population did not significantly vary over the period, Figure 1 shows that the number of tests performed remained very stable.

Furthermore, the overall number of tests performed proved remarkably similar for HIV, HBV and HCV as of 2013 onwards, suggesting that these tests were offered, accepted and performed as a package. This finding held true when analyzing data at the level of single healthcare units. Differences in the number of each type of test performed were less than 5% in over 80% of the healthcare units in 2017.

Estimating screening rates, we found that overall 52% of people entering a penal institution in 2017 were actually screened for HCV. Logically, the same rate was found for HIV and HBV screening.

Furthermore, we observed marked disparities in screening rates across regions (36% to 67%) and even more between single prison settings. Moreover, these disparities were found regardless of characteristics of the penal institutions such as their type (settings for short *vs* long-term detention), the size of their detained population or their location (urban, semi-urban or rural areas). This suggests that the performance gaps may primarily be due to discrepancies in the capacity of the single healthcare units to efficiently organize the screening activity, and/or in their commitment to achieve this task.

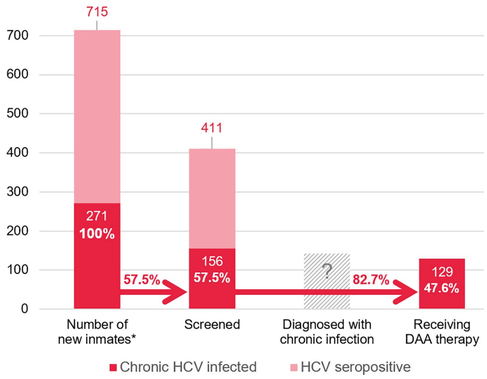
2) Cascade of access to DAA therapy in the penal institutions of three French regions in 2017

Figure 2 shows a moderate increase in the overall number of DAA therapy delivered to inmates in the survey regions from 2016 to 2018. However, evolution patterns in the single regions considerably differ from each other.

Figure 2 : Number of DAA therapy delivered in prison settings (n=37) in three French regions (2016-2018)

In the cascade representation shown in Figure 3, overall 47.6% of the inmates estimated to have a replicative chronic HCV infection at prison admission in 2017 received DAA therapy during detention. Insufficient screening rate (57.5%) proved to be the major barrier in accessing therapy. By contrast, most inmates (82.7%) achieved effective access to therapy once they were screened.

Figure 3 : Engagement in care of HCV-infected inmates detained in three representative French regions in 2017



** HCV seroprevalence and prevalence of chronic HCV infection among prison inmates estimated in 2017 at 2.9% and 1.1%, respectively.*

Discussion

Despite the lack of appropriate data, the indirect methods we developed in our survey allowed us to assess the rate of inmates effectively screened for HIV, HBV and HCV at prison admission, and the cascade of access to DAA therapy for HCV infected inmates. However, our estimates show limitations. Screening rates at prison admission may be overestimated.

Furthermore, we conducted the cascade survey in only three regions, which, moreover, showed divergent trends in the number of DAA therapies delivered in penal institutions. Accordingly, results may differ in value at country level. However, there is no argument supporting that the cascade profile could be significantly different, since the proportion of inmates eventually receiving DAA therapy predominantly depends on screening performance. Higher screening rates in the survey regions (57.5%) than at country level (52%) even suggest that access to DAA therapy might be overall poorer than estimated in our regional survey.

Conclusions

The lack of descriptive and therapeutic epidemiology data concerning HIV, HBV and HCV infections within the prison population in France is a major barrier to assess, and monitor the implementation of test-and-treat strategies against these epidemics. There is an urgent need to organize the routine collection, processing and analysis of these data, in order to better adapt the health response in penal institutions.

Poor HIV, HBV and HCV screening rates among the inmate population represent the main barrier in accessing adequate care. Less than half of chronically HCV infected inmates accessed DAA therapy in 2017, mostly due to the lack of screening.

A drastic improvement of screening is therefore required if test-and-treat strategies against HIV and HCV epidemics are to be efficiently implemented in penal institutions.

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