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RESEARCH ARTICLE

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## HCV IN PRISON IN FRANCE, NATIONAL SURVEY 2017: FEWER PATIENTS BUT MORE TREATMENTS THAN IN 2015

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### ABSTRACT

**Background and Aims:** Prevalence of HCV infection is high among prisoners. In France, penitentiary medical units (USMP) are managed by public hospital since 1994. In 2015, a French national 2015 survey describes the state of play of diagnosis and treatment of HCV prisoners. From 2016, all the prisoners can be treated whatever their liver fibrosis is. **Objective:** Describe national HCV diagnostic and therapeutic practices in French prisons in 2017 and to compare with the 2015 results. **Method:** email survey about practices in 168 USMP. **Results:** 71/168 (43%) of questionnaires were usable, covering 46 % of prisoners in France. The number and prevalence (%) of HCV patients decreased from 1145 (4.3%) to 928 (2.8%); (average from 20 to 16 in each USMP) There were no significant differences in proposal and performing of HCV screening; systematic announce of HCV results increased from 72% to 79 %. HCV DBS (n/n prisoners; 54%) was possible in 18 % USMP. FIBROTEST was more frequently performed than FIBROSCAN (89%/68% vs 80%/84% in 2015). Number of on-site performed FIBROSCAN was similar. On-site hepatologist consultations decreased from 56 % to 46 % USMP with a frequency falling from 3.4 to 1.6 a month. Same proportion of USMP (67 %) introduced at least one AAD treatment in 2017, number of treated prisoners increased from 145 to 260 (+79 %) with a rate of treatment increasing from 12.7 % to 28.1 % (+126%) ; In 2017, 72 % USMP compared to 59 % in 2015 introduced DAA even if release was scheduled before the end of treatment. Weekly dispensing DAA was more frequent (27 % versus 19 % in 2015) however remained mostly daily (67 % versus 79 %). Treatment and post-release follow-up after were similar. **Discussion:** HCV prevalence in France decreased. HCV care in prison was more efficient in 2017 than in 2015. Considering screening, systematic announce of the results was higher. Use of FIBROSCAN\* to assess hepatic fibrosis was restricted. The number and percentage of treated patients increased but, 1/3 of the USMP did not introduce any treatment during the incarceration of the prisoners. DAA dispensing surveillance remains low because of their high cost. **Conclusion:** Prison environment constitutes a suitable environment for vulnerable population to access to HCV treatment. However DAA access remains limited.

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### INTRODUCTION

Viral hepatitis C is a public health problem in France with an increased prevalence in prison compared to the general population, estimated at 4.8% in the PREVACAR study

(Chiron, 2013). Systematic screening for hepatitis C in all admissions to prisons is recommended in France and treatment recommended in this population (Roudot-Thoraval, 1998; Remy, 2007 and Pioche, 2011). Epidemiological data do not individualize a dedicated subgroup of drug users (Remy,

2016). The incidence in prison settings in France is poorly known, based solely on local studies (Sannier, 2012 and Cunningham, 2017). Yet the prison is a site of HCV contamination. An Australian study finds an incidence of 11.4 HCV infections/1,000 people years in a follow-up of a cohort of 320 inmates initially HIV-negative, or 93 first-time infections over 10 years. Needle exchange was the first mode of contamination (Fauchille, 2016). However, screening in this population seems to be effective even before incarceration: 69% of entrants to Picardy area in 2013 have already been tested for hepatitis C (Remy, 2006). The main results of the French studies already carried out are detailed in Table 1 (Remy, 2012 and Hepatitis, 2015). The practice survey conducted by our team in 2015 (Jauffret-Roustide, 2013), involved 38% of medical units (called USMP) and 25,962 inmates (39%); 1,145 patients with hepatitis C and a calculated prevalence of 4.3%; 98% of USMP systematically offered screening at entry but the actual completion rate was 70%; systematic reporting of results was only done in 72% of USMP. POCT were used in 8 USMP. FIBROTEST was used by 80% of USMP, FIBROSCAN\* in 84% of USMP but only in 23% of on-site cases; 56% of USMP had a site visit with an average frequency of 3.4/month; 66% of USMP initiated at

least one DAA treatment in 2015 and 130 patients were treated, corresponding to 19% of HCV positive patients assuming 50% positive viraemia; 18 patients had been treated with interferon therapy in 13 USMP. Access to treatment pre-commission was considered easy for 75% of USMP. A validated therapeutic education program was only effective in 16% of USMP. Treatment was initiated in prison even though a release was scheduled before the estimated end of treatment in 59% of USMP. DAA issuance was daily (79%), weekly (17%) or monthly (4%). In the case of daily dispensing, 61% of USMP were taken in front of the nurse. For post-treatment follow-up, 65% of USMP had a post-treatment consultation and 38% had a prevention consultation – risk reduction. After release from prison, the inmate was more often referred to a “generalist” hepatology consultation (72%) than to a dedicated outpatient consultation (28%). An investigation 2 years later was necessary because all inmates can be treated since June 2016 regardless of their fibrosis stage and multidisciplinary concertation meetings (RCP) are no longer necessary for the implementation of antiviral C treatments. Our objective was to establish a national inventory of the diagnostic and therapeutic practices of hepatitis C in the population detained in France for the year 2017 and compare the results with the 2015 survey data.

**Table 1. Summary of french surveys**

YEAR	Author	HCV rate	Specialized consultation	Screening rate	Total inmates rate	Treated HCV inmates rate
2000	REMY (12)	6.7%	10%	36%	52%	3.9%
2003	REMY (12)	6.9%	22%	64%	49%	13.9%
2010	CHIRON (1)	4.9%	57%	93%	86%	46% HCV positive viral load
PREVACAR						44% treated or already treated
2012 TRIPRI	REMY (13)	4.5%	49%	78%	59%	29%
2015	REMY (14)	4,3%	56%	98%/72%	39%	12,7%

**Table 2. Comparison between 2015 et 2017 surveys**

	2015	2017	difference
general data			
total inmates in France	66678	68974	NS
USMP responses	64	71	NS
% of USMP responses	38%	43%	NS
inmates number	25962	31136	p<0,01
% inmates	39%	46%	p<0,01
HCV positive patients	1145	928	-18.90%
HCV rate	4.30%	2.85%	p<0,01
screening			
systematic screening proposition	98%	94%	NS
realized screening	72%	70%	NS
systematic results delivery	72%	79%	p<0,01
POCT serology	12.50%	18%	54%
diagnosis			
possibility of FIBROTEST	80%	89%	p<0,01
possibility of FIBROSCAN	84%	68%	p<0,01
on site FIBROSCAN	23%	22%	NS
On-site hepatologist consultation	56%	46%	p<0,01
monthly mutual meetings	33%	12%	p<0,01
treatment			
at least one DAA treatment	66%	67%	NS
Access to professional multidisciplinary meeting	75%	83%	NS
number of treated patients	145	260	79%
rate of treated patients	13%	28%	126%
interferon treated patients	19 (13)	3 (1)	-84%
Educational program	16%	21%	p<0,01
After treatment consultation	8%	27%	p<0,01
Treatment could be started even if end of detention is planned	59%	72%	p<0,01
DAA daily delivery	79%	66%	p<0,01
treatment took behind nurse	61%	58%	NS
DAA weekly delivery	19%	27%	p<0,01
DAA monthly delivery	4%	7%	NS
After treatment consultation	65%	88%	p<0,01
orientation after prison			
specific medical housing	22%	20%	NS
homeless shelter	41%	18%	p<0,01
high threshold drug center	69%	69%	NS
low threshold drug center	41%	58%	p<0,01

## MATERIALS AND METHODS

We conducted a national practice survey for 2017, identical to the 2015 survey of 168 USMP by email with two reminders. Establishments for minors and day-release centers were excluded. Questionnaire consisted of 42 closed, binary or numerical questions that addressed the size of the penitentiary, the hepatitis C patient queue, the organization of screening, the evaluation of fibrosis, links with hepatology services, antiviral treatment, therapeutic education, and post-treatment and post-prison follow-up. Statistical comparisons between 2015 and 2017 were made using Chi2.

## RESULTS

As of August 1, 2018, 71 validated questionnaires were available with a 43% participation covering a total of 31136 inmates incarcerated on a given day (average occupancy rate 128%) and an annual number of entries of 75225, 46% of the French prison population (68,974 inmates as of 2017 December 31, source prison administration). The capacity of penitentiaries ranged from 78 to 2857 inmates; 27 of 71 institutions, or 38% of the institutions, had a capacity of less than 200 theoretical places. The line-up of patients with hepatitis C was 928, with an average of 15 per facility (extremes 0-50). This represented a prevalence of 2.85% of patients with C-positive serology in the 71 responding facilities. Screening for viral hepatitis was routinely proposed at entry into 67 of 71 USMP (94%). The average actual completion rate was 70%. Serology were performed either by the USMP for 79% or by a CIDAG/CEGGID (anonymous and free screening teams which became free information, screening and diagnosis center in 2016) for 21%. Results were consistently reported in 79% of USMP. Screening and diagnostic orientation tests (POCT) were performed in 18% of USMP: HIV-POCT in 12 of 13 cases and HCV-POCT in 7 USMP; 38 USMP out of the 58 not realizing any were potentially interested to benefit from over reserve funding. For non-invasive fibrosis assessment methods, FIBROTEST\* (biological method) was achievable for 89% of USMP, FIBROSCAN\* (physical method requiring fixed or mobile device) for 68% but only in 22% on-site; 491 FIBROSCAN were performed in 2017 compared to 675 in 2015. Number of FIBROTEST\* performed was not available.

There was a specialized consultation of liver diseases in 46% of USMP, with an average frequency of 1.6 per month; 19 USMP had established an inter-professional cooperation protocol, one in Perpignan on the performance of FIBROSCAN by nurses, the others on procedures of delegation of tasks around the rendering of results of screening and follow-up of antiviral treatments. There were 12 common staffs between USMP and hepatology units. For the treatment of hepatitis C, 67% of USMP initiated at least one AAD treatment in 2014: 260 patients were treated, or 28% of patients with C-positive serology. Assuming that the viral load is positive in 50% of cases, this corresponds to 56%; Only 3 patients were also treated with interferon therapy in 1 USMP. Access to the multidisciplinary concertation meeting (RCP), even if it has become non compulsory for an AAD treatment prescription, is considered easy for 83% of USMP. ADA issuance is daily (66%) weekly (27%) and monthly (4%). In the case of daily dispensing, medication was taken in front of the nurse in 58% of USMP. There was a validated therapeutic

education program in 21% of USMP (15 out of 64). Treatment was initiated in the prison setting even though an exit is scheduled before the estimated end of AAD treatment in 72% of USMP compared to 28% who preferred to defer it. Eighty-eight percent of USMP systematically held a post-treatment consultation and 45% a risk prevention/reduction consultation. After leaving the penitentiary, the affected person was referred either to a dedicated consultation (33%) or to a general hepatology consultation (67%). External links are detailed in Table 1.

## DISCUSSION

Since the Law of 18 January 1994, the health management of detainees has been the responsibility of a specific hospital functional unit, first called UCSA (Consultation and Ambulatory Care Unit) then Unit Sanitaire in Penitentiary environment (USMP). General principle of the Act was that "the public hospital service (identified by a home hospital) provides care to inmates in penitentiaries and, if necessary, in hospitals". The principles of intervention of health units are detailed in the methodological guide updated in 2018 (Pioche, 2011). Management of hepatitis C in prison is organized despite the prison and health constraints. The response rate to our national practice survey is satisfactory for this type of study, with 38% of USMP covering 39% of the prison population. We can assume that it was the USMP most motivated and/or most affected by hepatitis C who responded. Nevertheless, the sample was large, made up of small and large establishments in equal proportions. The inmate and annual entry characteristics of non-responding USMP were similar to those of responding USMP. The prevalence in our 2015 survey was close to that found in PREVACAR. It is declining in 2017; this may reflect a decrease in prevalence in drug users as described in COQUELICOT study ([http://www.has-sante.fr/portail/upload/docs/application/pdf/2013-07/place\\_des\\_trod\\_dans\\_la\\_strategie\\_de\\_depistage\\_du\\_vhc\\_note\\_de\\_cadrage.pdf](http://www.has-sante.fr/portail/upload/docs/application/pdf/2013-07/place_des_trod_dans_la_strategie_de_depistage_du_vhc_note_de_cadrage.pdf)) A sampling bias could have been opposed to us but also an increase in prevalence and/or screening. This was not the case because of this prevalence data. We did not have the positive viral load rate and we applied by default the rate found in PREVACAR, 50%. This prevalence remains higher, as the prison setting is a place at risk for transmission of the hepatitis C virus, which also concentrates current and former drug users. Viral hepatitis screening in prison settings is systematically organized and proposed, even if the actual completion rate barely exceeds two-thirds;

There are many reasons for this: people who have already been detected in addictological structures or during a previous incarceration, very short sentences, days dedicated to limited samples. In a quarter of the USMP, results are not systematically reported. The risk remains that some of the results will not be positive, which is a loss of opportunity for the patient. Non-invasive diagnostic methods of hepatic fibrosis are widely used, whether biological or physical, but with limited access to a number of machines for FIBROSCAN\*. On-site access for all inmates to FIBROSCAN is highly desirable for an immediate summer evaluation without a blood sample of hepatic fibrosis, in order to determine which cirrhotic patients should continue follow-up after sustained virologic response. The place of HCV-POCT remains to be specified in prison even if many USMP would like to use them and their use is recommended by national

guidelines (Circular, 2015). Their implementation, coupled with FIBROSCAN\*, would shorten the time it takes to take care of the virus and thus access to possible antiviral treatment. The links of the USMP responding to our survey remain important with hepatology services, in particular, those that have become expert services in the fight against viral hepatitis, but there is a marked decrease in specialized on-site consultations and common staffs. Simplification of treatment for hepatitis C and declining medical demographics may explain this trend. The number of patients treated is increasing both in terms of the number of inmates treated and the percentage of people with positive hepatitis C. Since January 2017 in France, there is no longer any DAA treatment restrictions related to fibrosis; only prescribers are currently restricted. Since 2015, financial support has been provided outside the USMP budget. Delivery remains highly monitored due to the high cost of these treatments. However, there are no data on the potential trafficking of DAA in prisons. The manner in which DAA are issued should take into account the organization of each USMP and the personality of each patient. Access to a therapeutic education professional remains low in prison, with only one in five patients. Post-treatment and post-incarceration follow-up appears to be well organized by USMP professionals.

## Conclusion

The management of hepatitis C in prison in France in 2017 is characterized by efficient screening, a pre- and post-treatment management organisation in line with the recommendations but a number of people in treatment is insufficient because there are still obstacles to access to AAD treatment. The prison setting is a place for the care and treatment of hepatitis C for a vulnerable population with difficulty accessing care in an open environment. But there are big differences in the way USMP is managed: access to a specialist consultation, number of general practitioners and nurses, access to therapeutic education, presence of a social worker. This work has received institutional support from the GILEAD laboratory only for the logistics required for the project. The laboratory was not directly or indirectly involved in the collection or analysis of the data or in the writing of the article. No representatives from the GILEAD laboratory were present at the working group meetings.

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