

The Hepatitis C Pre-DAA Cascade Of Care For Persons Using Drug Services In England.

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Introduction

Around 200,000 persons are chronically infected with hepatitis C (HCV) in the UK [1]. The majority of HCV infection in the UK is among persons who inject drugs (PWID).

Using Sentinel Surveillance of Blood Borne Virus Testing (SSBBV), which collects testing information from 21 laboratories across England, Simmons et al. (2018) estimated the HCV cascade of care (CoC) by service of first HCV diagnosis. SSBBV contains limited demographic and risk factor information, therefore, we linked with the National Drug Treatment Monitoring System (NDTMS), to identify HCV testing in specialist drug services.

Methods

- HCV testing in drug services in SSBBV was linked with people attending drug services, reported to NDTMS.
- Personal identifiers within NDTMS are limited, but include initials, date of birth, sex, and drug and alcohol team of residence and treatment. There were no additional variables available to identify the correct match, resulting in only one-to-one matches being accepted- 73% of persons tested with all identifiers available.
- SSBBV allows an estimation of the CoC through subsequent HCV RNA testing to confirm active infection, treatment and treatment outcome. Sequential HCV RNA tests during a 390-day period, indicative of treatment monitoring, are used to identify persons who received treatment with ribavirin and pegylated interferon and treatment outcome.
- We describe characteristics, the CoC for HCV for people diagnosed in drug services, and estimate HCV incidence in PWID

Results

- Of the 29,773 persons who were tested for anti-HCV and linked to NDTMS, 9,100 (30.6%) tested HCV positive.
 - 71.6% of persons testing positive were male, 94.3% were of white ethnicity and 94.7% had ever injected drugs.
- 7,357 had a HCV RNA test in SSBBV, with the median number of HCV RNA tests being 2 (IQR: 1-4).
 - 5,208 (74.0%) were positive at any stage and 3,927 (55.8%) were positive on their last HCV RNA test.

Table 1: Characteristics of persons linked to NDTMS and tested for anti-HCV between 2008 and 2016 in England.

	Number tested	anti-HCV positive in any setting N (%)
Total	29,773	9,100 (30.6)
Sex		
Male	21,409	6,485 (30.3)
Female	8,277	2,571 (31.1)
Not reported	87	44 (50.6)
Age[§]		
14-29 years	7,024	1,430 (20.4)
30-39 years	12,310	3,877 (31.5)
40-49 years	8,082	2,991 (37.0)
50+ years	2,356	802 (34.0)
Drug		
Opioid plus Alcohol	8,449	3,593 (42.5)
Opioid	13,989	5,184 (37.1)
Other	7,335	323 (4.4)
Reported history of injecting		
Yes	19,664	8,622 (43.8)
No	10,109	478 (4.7)
Housing status*		
Urgent housing problem ¹	4,947	2,228 (45.0)
Housing problem ²	6,305	1,997 (31.7)
No housing problem	16,935	4,308 (25.4)
Not reported	1,586	567 (35.8)

§ at time of first anti-HCV test between 2008-2016; * worst housing status between 2008 and 2016; ¹ Lives on the streets, used night hostels or sleeps on different friends floor each night; ² short term guest with friends/family, uses night winter shelter, direct access short stay hostel or short term B&B.

•Highest anti-HCV positivity were found in males, person who have ever injected drugs and reported urgent housing problems (table 1).

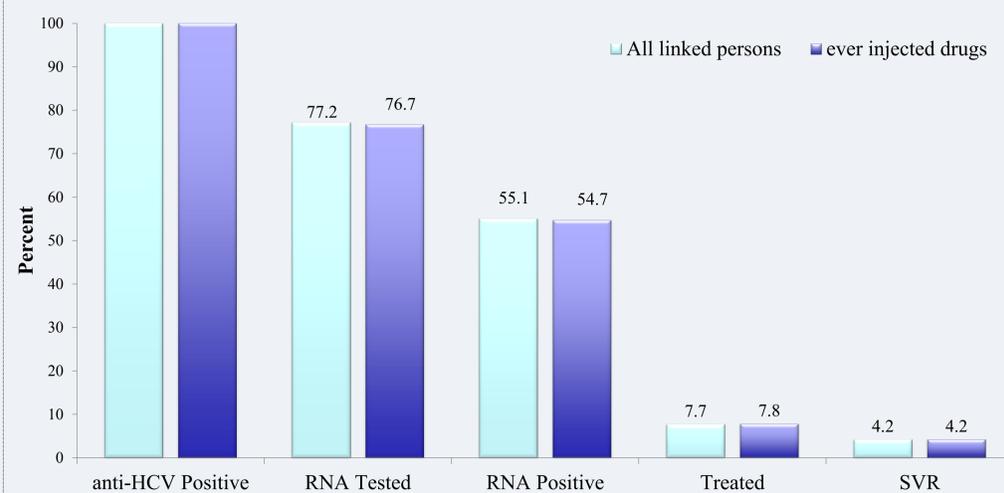
•5.3% (n=478) of persons positive reported no history of injecting drug use (IDU), a higher proportion of persons were female, when compared to persons with a record of IDU (35.7% vs 28.0; p<0.001), and persons with no record of IDU were older at first diagnosis (40 years vs 36 years, p<0.001)

Cascade of care:

•3,123 persons were anti-HCV positive for the first time in drug services between 2008 and 2013. Of these, 2,412 (77.2%) were HCV RNA tested, 1,720 (55.1%) were HCV RNA positive, 293 (7.7%) were treated, and 138 (4.2%) achieved SVR (figure 1).

- The corresponding figures for persons with a history of injecting drug use were 2,937, 2,254 (76.7%), 1,607 (54.7%), 230 (7.8%) and 123 (4.2%).

Figure 1: The cascade of care for all persons, and persons with a history of injecting drug use, testing anti-HCV positive in drug services between 2008 and 2013 and linked to NDTMS in England.



•Among persons ever anti-HCV positive and tested between 2008 and 2016 (9,100), half (50.8%, n=4,625) had more than one positive HCV test reported to SSBBV from any setting (average 2.0 tests per person), and 2,288 persons had more than 1 positive test result within drug services.

Incidence:

• Among persons anti-HCV negative between 2008 and 2016 (21,765), 8,452 had more than one HCV test conducted during this period, a median of 1.6 years (IQR: 0.8-3.0 years) apart.

Table 2: Estimated anti-HCV incidence for persons tested at least twice between 2008 and 2016 in England.

	N	Time (years)	Positive	Incidence*	95% CI [^]
All persons	8,452	17,321	1,092	6.3	5.9-6.7
Sex					
Male	6,327	12,881	744	5.9	5.4-6.2
Female	2,526	4,927	343	7.2	6.2-7.7
Ever IDU	5,801	11,978	1,041	8.7	8.1-9.2
Housing Status					
Urgent housing problem	1,659	3,270	388	11.9	10.7-13.1
Age at first test					
14-29 years	2,301	5,001	419	8.4	7.6-9.2
30-39 years	3,769	7,856	469	6	5.4-6.5
40-49 years	1,912	3,626	181	5	4.3-5.8
50+ years	469	834	23	2.8	1.7-4.1

*per 100 person years; ^ Confidence interval

Discussion

Through novel data linkage approaches we have estimated the CoC in the pre-DAA era, which can be used as a baseline for evaluating HCV prevention programmes, treatment as prevention and progress towards WHO hepatitis elimination goals. HCV treatment rates for persons diagnosed in drug services was suboptimal, and multiple repeat testing and low treatment rates indicate the need for improved linkage to, and engagement in, treatment services. Incidence estimates are similar to previously reported and highlight increased risk amongst vulnerable homeless persons