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Increased diagnosis and treatment of hepatitis C in prison by universal offer of testing and use of telemedicine.

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Abstract

With recent advances in anti-viral therapy there is an opportunity to eliminate HCV from the UK population. HCV is common in incarcerated individuals, with previous estimates suggesting ~7% of the UK prison population is anti-HCV antibody positive. Increasing diagnosis and treatment of HCV in prison is a priority in seeking to eliminate transmission in the general population. Thus the study aimed,

to assess the impact implementation of: 1. A universal offer of blood borne virus testing (UOBBVT) using dry blood spot testing for prisoners at reception to increase diagnosis; 2. Telemedicine clinics (TC) within North East England (NEE) prisons to increase HCV treatment rates. UOBBVT was initially implemented at Her Majesty's Prison (HMP) Durham, commencing March 2016. From March 2016 to February 2017, 2,831 of 4,280 (66%) new receptions were offered BBV testing. Of these, 1,495 (53% of offered) accepted BBV testing, of whom 95 (6.4%) were HCV antibody positive, with 47 of those 95 (49.5%) HCV RNA positive, suggesting a prevalence of active infection in the tested population of 3.1% (95% CI 2.4% to 4.2%). Between August 2015 and October 2017, 80 individuals were seen in the TC and 57 (71%) commenced antiviral therapy. Of those with known outcome (n=29), 100% achieved sustained virological response. In the year prior to implementation, only 4 patients received HCV treatment. In conclusion,a universal offer of BBV testing to inmates presenting

at HMP reception coupled with linkage into specialist care via TC can substantially increase rates of testing, diagnosis and treatment of HCV in this high prevalence population.

Introduction

Chronic hepatitis C virus infection (HCV) is a major cause of end-stage liver disease worldwide. It is estimated that there are 214,000 HCV infected individuals in the UK, with injecting drug use as the major risk factor for HCV acquisition, accounting for approximately 85% of cases [1]. It is known that approximately 60% of individuals who inject drugs have been in prison [2], and that 68% of incarcerated individuals have injected drugs the previous year [2,3]. As a result, HCV is common in incarcerated individuals, with previous estimates suggesting ~7% of the UK prison population is HCV antibody (anti-HCV) positive [4]. Studies from Europe, Australia and the USA suggest that the prevalence of anti-HCV in prison populations may be higher still, ranging from 8% to 57% [4,5].

In the last few years there has been a substantial improvement in the efficacy and tolerability of HCV treatments, with the development of direct acting antivirals (DAAs) [6–8]. Now more than 95% of those treated with an 8 to 12-week oral combination of DAAs achieve a sustained virological response (SVR), defined as HCV RNA not detected 3-month post treatment, which is accepted as indicating a cure of the infection [9]. SVR has also been shown to significantly reduce the risk of liver-related complications, hepatocellular carcinoma, and both liver-related and all-cause mortality [10,11]. These dramatic improvements in antiviral therapy present a major public health opportunity, and in 2016 Public Health England [1] agreed to support the World Health Organisation strategy to eliminate HCV as a major public health threat by 2030 [12]. The WHO goal for incidence reduction is 80% for HCV, 95% for HBV and 90% for HBV and HCV combined. [12].

Given the high prevalence of HCV in prison populations, any programme designed to achieve elimination needs to significantly increase the diagnosis and treatment of HCV in prisons. In England, however, testing rates in prisons have historically been low (c. 4%), with inconsistent approaches across the Health and Justice systems [13]. In 2013-4, for example, in one of the prisons in North East England (NEE) only 8% of prisoners were tested for HCV, with 43% of these being HCV antibody positive [14]. At that time, HCV testing was conducted

by the sexual health team on individuals specifically referred for HCV testing from other services (drug and alcohol in-reach, mental health or primary care) within the prison. Attendance rates at these testing appointments were low, while the high positivity rate suggested a high burden of undiagnosed infection.

In response to the low rates of HCV testing in UK prisons, in 2013 PHE, NHS England (NHSE) and the National Offender Management Service (NOMS) published a Joint Partnership Agreement. This partnership recommended that all prisoners should receive a universal offer of blood borne virus testing (UOBBVT) at or near to reception into prison. In 2014 the NEE "UOBBVT task and finish" group began developing a program to implement UOBBVT in all NEE Prisons. In addition, a robust HCV treatment pathway was developed to effectively deliver antiviral treatment within the prisons[14]. This pathway included consultant-led TC supported by specialist nurse in-reach.

Here we present the results of the 1-year pilot of UOBBVT in HMP Durham and the pilot of TC HCV treatment clinics in HMP Northumberland.

Methods

Development of the BBV testing and treatment pathway

In 2014 the "task and finish" team was convened to develop a blood borne virus testing (BBVT) and treatment pathway for all the prisons in NEE. This team was comprised of public health consultants, prison healthcare staff, commissioners, viral hepatitis specialist consultants and viral hepatitis specialist nurses.

The overall initial aims of the group were to optimise BBV testing rates within the NEE HMP estate and to expand BBVT opportunities within the whole prison environment. To achieve these aims, an adequately funded UOBBVT program at reception to prison has been developed, feeding in to robust treatment pathways. The HCV treatment pathway is designed to ensure a high proportion of HCV RNA positive individuals are able to commence and complete treatment, either within the prison establishment or in the community if the prisoner is released prior to commencing treatment.

To inform the development of this new service, an audit of HCV testing and treatment rates in the NEE Prisons was conducted in 2013/4 to determine baseline activity. To secure adequate funding, economic models were developed to assess the fiscal impact of UOBBVT and the introduction of consultant Telemedicine HCV clinics [14].

The project was approved by the Newcastle-upon-Tyne Hospitals NHS Foundation Trust clinical governance department (project 8083).

The Prison Estate in the North East of England (NEE)

The prison estate in NEE comprises seven facilities. This project was piloted in HMP Durham, a large category B male remand prison taking approximately 7,000 receptions awaiting trial annually and HMP Northumberland, a large category C male prison with a fairly stable population of 1,354 inmates [15].

The initial pilot of UOBBVT was conducted at HMP Durham before being rolled out in a staged manner to other HMPs across the NEE estate. The pilot of consultant-led telemedicine HCV clinics was conducted at HMP Northumberland and was also rolled out across the prison estate.

The BBV testing pathway

Prior to the implementation of the new BBV testing pathway, it was routine practice to use standard venepuncture to test for BBV in the prisons. This method, however, was unpopular with prisoners, and some of the individuals most at risk of HCV were difficult to obtain blood from due to a previous history of injecting drug use. Therefore, in order to maximise uptake of BBVT, dry blood spot testing (DBST) was introduced. All prison healthcare staff were trained in DBST prior to roll out of the new program and there remains an ongoing program of education for current and new staff. HMP Durham has a very high throughput of new inmates presenting to reception and thus was considered to be the most appropriate site for the UOBBVT testing pilot. Roll out of the UOBBVT to the other NEE prisons was implemented after completion of the pilot.

From March 2016, all prisoners at HMP Durham were to be offered BBV testing at reception to the prison using DBST. Inmates presenting within the HMP Durham health system and within the general HMP Durham estate were also offered BBVT. Trained staff were available at all times to perform the blood testing. Staff were encouraged to be positive when seeking

consent from prisoners and to indicate that is was routine practice for all inmates to be tested for BBVs.

DBS samples, along with venous blood samples, were sent to the regional Public Health Laboratory for testing.

DBS testing

DBS samples were tested for HCV, HBV and HIV using Roche Elecsys® Anti-HCV II, Elecsys® HIV combi PT and Elecsys® HBsAg II assays on a Cobas® 8100 platform as previously described[16,17]

DBS samples which were anti-HCV positive results were confirmed using HCV RNA on DBS samples [17]. HBV and HIV positive results were confirmed as recommended in the national standard testing algorithm, on further venous samples. DBS testing and confirmation algorithm is shown in figure 1.

Within 10 days of initial testing, inmates were recalled into HMP healthcare for review of their DBST results. Those who had a negative result were informed of this via letter from the healthcare team that also advised of viral incubation periods and offered further testing if needed. Individuals in receipt of a positive HCV RNA by DBS had a venous sample taken to measure HCV viral load and genotype. Any prisoners who were confirmed as being HCV RNA positive were referred for treatment. In these consultations, detailed counselling advised them about opportunities for treatment and risk reduction.

For those with a anti-HCV positive , but negative HCV RNA by DBS repeat HCV testing with standard venous blood was undertaken to confirm the DBS result in order to rule out false a positive antibody result and false negative RNA result.

BBV testing rates from HMP Durham before and after implementation of the new testing pathway

Baseline BBV testing rates (prior to the initiation of the new BBV testing pathway) at HMP Durham (and all other prisons across NEE) were previously assessed for 2013/4 and reported by PHE [18]. These baseline testing rates were used as a comparator to assess the impact of the new UOBBVT.

Following the implementation of the UOBBVT, data were collected prospectively. These included the number of new receptions who were offered DBST, the number who declined testing, the number who tested anti-HCV positive and the number who were HCV RNA positive. In addition, data was collected on the total number of BBV tests conducted anywhere in the prison.

New HCV treatment pathway

Prior to the implementation of TC in HMP Northumberland, HCV positive inmates were reviewed in the HCV clinic at the Freeman Hospital, Newcastle, with a maximum of 1 inmate per week. Attendance rates were poor, costs for prisoner transport were high and few patients ever started treatment. The new treatment pathway using consultant-led TC with viral hepatitis nurse-led prison in-reach clinics was designed to optimize the treatment pathway, thus increasing efficiency and treatment rates[19]. This was fully implemented at HMP Northumberland in August 2015. HMP Northumberland houses a more stable prison population than other facilities within the NEE prison estate, with many inmates undertaking medium lengths of sentence. It was therefore felt to be an ideal prison to test the treatment pathway, as the majority of prisoners would be able to complete treatment while in custody.

All individuals found to be HCV RNA positive were offered an assessment for treatment with the in-reach viral hepatitis nurse (weekly clinic) similar to a model described previously in Australian Prisons [19]. At this initial consultation, the nurse obtained an inmate history and conducted a physical examination, pre-treatment blood tests, liver ultrasound and transient elastography. Once the results of these tests were available, a second consultation was conducted via TC video link with the hepatology consultant (TCs being delivered fortnightly

or monthly depending on demand) and a decision was made whether or not to proceed with treatment. All patients were then discussed in the regional hepatitis C multidisciplinary meeting and commenced on a combination of DAAs in line with NHS England recommendations, if appropriate.

All HCV RNA positive individuals with a short sentence that precluded commencement of antiviral therapy in prison were provided with written information about their diagnosis, given details of contacts for community HCV treatment services, and encouraged to access treatment upon release from prison.

Review of treatment rates prior to and after implementation of the telemedicine treatment pathway in HMP Northumberland

A retrospective audit of HCV treatment was conducted in HMP Northumberland in 2013/4 and formed part of the PHE report in 2014[18]. This provided baseline data on treatment rates for comparison with the new treatment pathway. Following introduction of the prison HCV TC, data were collected prospectively on HCV RNA positive referral rates, attendance rates and antiviral treatment rates. Patients accessing the clinic were also invited to complete a short satisfaction questionnaire.

Results

A universal offer of BBV testing increases testing rates in HMP Durham

The UOBBVT pilot commenced at HMP Durham in March 2016. From March 2016 to February 2017, 3,309 offers for BBVT were made across the site, with 2,831 of the 4,280 (66%) new receptions offered BBV testing. A total of 1,495 (53% of offered, 35% of total) of new receptions accepted BBV testing, of whom 95 (6.4%) were anti HCV antibody positive. Of these, 47 (49.5%) were HCV RNA positive, confirming a prevalence of active infection in 3.1% of all tested (95% confidence interval 2.4% to 4.2%). Seven (0.5%) individuals were also HBsAg positive and 2 (0.1%) were HIV positive.

Data from March 2016 to October 2017 (Figure 2) continued to show that 65% of all new receptions were offered BBVT, with an uptake of around 50%. The initial and sustained uptake of the UOBBVT at HMP Durham illustrates a substantial increase in testing rates when compared with 2013-2014 data, in which only 164 of the ˜ 7,000 new receptions (2.3%) undertook BBVT. During the UOBBVT pilot phase (March 2016 – Feb 2017), 479 had BBV testing after reception. This represents an increase in testing rates more generally in the prison when compared to 164 inmates tested across HMP Durham estate in the year 2013-14 prior to implementation of UOBBVT, suggesting that inmates may decide to accept BBVT after the initial contact of the reception stage.

Common reasons for non-acceptance of the test were inmates stating: “doesn’t want it” (54%), “already had test” (37%) or “doesn’t need it” (5.4%) as illustrated in Figure 3.

What was the outcome for the HCV RNA positive individuals?

Table 1 shows the outcome of the 47 individuals who were diagnosed with active HCV (HCV RNA positive) between March 2016 and February 2017. Overall, 11 (23%) have completed antiviral treatment, 3 (6%) have been reviewed in the MDT but not yet commenced treatment, 5 (11%) declined to engage in treatment, 1 (2%) died and 1 (2%) is currently ineligible for re-treatment, having failed DAA treatment previously. Unfortunately, in 26 patients (55%) the outcome is unknown as these individuals were released prior to commencing antiviral treatment. The relatively low rate of linkage into treatment has persisted after the pilot, with only 15% (6 out of 41 HCV RNA positive patients) commencing treatment between March 2017 and May 2017, despite there being an active fortnightly HCV assessment/treatment clinic in the prison.

Significant increase in treatment rates with the new TC HCV clinic in HMP Northumberland

Prior to full implementation of the TC HCV clinic in HMP Northumberland, testing and treatment rates were low. An audit of activity for the year 2013-2014 (PHE, 2014) illustrated that only 102 (8%) inmates were tested for HCV. Of these, 44 (43%) were anti-HCV positive,

with 29 (29%) being HCV RNA positive, although only 4 of these individuals (13.8%) started treatment in that year.

TCs were fully implemented in HMP Northumberland from August 2015, with 80 individuals being reviewed in this clinic up to October 2017. Of those seen, 57 (71%) commenced anti-HCV treatment and 42 (73%) are known to have completed treatment in prison, with the others being released or transferred to other prisons on treatment. In those with a known outcome 100% (n=29; 51%) achieved SVR. Attendance rates at the TC were good at 83%. Overall, satisfaction with the TC among the prisoners was very high (80% good or excellent).

Rollout of UOBBVT to the other NEE prisons

Roll out of UOBBVT across other prisons in the NEE HMP estate began in March 2017. This has resulted in similar increases in BBV offer and testing rates for both new reception and all inmates, with notable increases being the uptake of UOBBVT for all inmates in HMP Low Newton, rising from 155 for the 12 months from April 2013 to March 2014 to 281 for the 7 months from April to October 2017, demonstrating an increase from an average of 12 BBVT/month to 40. HMP Frankland has also seen a significant increase in uptake, from 40 during the calendar year 2013-2014 to 144 in the 5 months from June to October 2017, representing an increase from an average just over 3 BBVT/month to nearly 29 BBVT/month.

Since introduction of the BBV testing program, treatment rates have dramatically increased across the NEE prison estate. Between February 2017 and January 2018, a total of 159 commenced antiviral treatment, as shown in Table 2. This is in part due to the increased testing rates in Durham as many prisoners who test positive for HCV are transferred to other prisons in NEE where they receive treatment.

Discussion

Hepatitis C is common in prison, with previous estimates suggesting ˜7% of the UK prison population carries HCV antibodies, and our own data demonstrating a prevalence of active infection of just over 3%. While prison is potentially a good place in which to treat hepatitis C by providing a stable environment for prolonged periods of time, testing and treatment rates have historically been suboptimal in UK prisons. As a result, in 2013 Public Health England, NHS England and the National Offender Management Service published a report recommending that all prisoners should receive a universal offer of blood borne virus testing (UOBBVT) at reception to prison. Here we have shown that implementation of a UOBBVT at reception in one prison significantly increased testing for BBVs from 2.3% to 35%, leading to many new diagnoses of HCV. Subsequent rollout of the program to other NEE prisons has seen similar increases in testing rates, suggesting that this is a reproducible model. Coupled with the development of the UOBBVT, we have overhauled our prison HCV treatment pathway by using telemedicine to improve efficiency of the service. Previously, prisoners had to visit the hospital to see a consultant prior to receiving treatment in the prison. This was notoriously inefficient with limited numbers of clinic slots and the need for expensive prisoner transportation, meaning that relatively few patients ever commenced treatment. Since introducing the TC with specialist nurse in-reach in HMP Northumberland using a model that has been shown to be effective in Australia [19] , treatment rates have increased 10-fold and there has been a notable reduction in clinic non-attendance rates from 50% to 17%.

The prevalence of anti-HCV positivity in HMP Durham was similar to other UK prisons (6.4% vs. 7%). However, this is significantly lower than is seen in other countries, such as Australia, where the prevalence rate is between 23%-33% [20]. The reasons for the significant differences is not clear, but could be due to the difference in HCV prevalence in the general population, which is known to be higher in Australia than England (0.9% vs 0.3%) In addition, there could be differences in the proportion the prison population who are current or previous injecting drug users or the rate of HCV in injecting drug users between the countries. Moreover, harm reduction methods may differ. It is interesting to note that only 49.5% of the individuals testing anti-HCV positive were viraemic, which was lower than has

been seen in other settings. This is thought to be unlikely to be due to patients receiving treatment previously as very few had received previous treatment, but might represent a high spontaneous clearance rate. Although low specificity of the HCV antibody test (false positive antibody) or low sensitivity of the HCV RNA test (false negative RNA) on DBS samples are other possibilities, the performance of anti-HCV and RNA tests on DBS samples were extensively validated against paired venous samples from patient with unknown HCV status, and simulated DBS samples using known positive & negative samples as per regulatory requirements, with high degree of concordance. In addition, venous samples were collected from prisoners with a positive anti-HCV but negative RNA result to confirm status as described in the testing algorithm above.

Although there has been a large increase in testing rates among prisoners at first reception, overall rates of uptake of BBV testing remain suboptimal at 35%. In order for a BBV testing program to be truly "universal opt out", and consequently highly effective, offer and acceptance rates need to be >90%, and further work is needed to optimise testing. The major reasons for non-acceptance of the test were "doesn't want it" (54%) and "already had test" (37%). Reasons why those who didn't want the test needs further exploration. It may be that reception to prison is not the best time to offer individuals BBV testing as this may be a stressful time for the new receptions. In addition, reception can be busy (>7000 receptions/year in HMP Durham), making it difficult to find time to encourage waverers to take the test. A significant number of receptions said they had "already had the test". In this pilot we were unable to verify if this was the case, but further work is needed to understand the validity of such a claim. Robust mechanisms need to be in place to access previous BBV test results, if available, to verify whether inmates have been tested and to reduce duplicate testing. Use of a common computer system, with access to electronic health records, across the whole UK prison estate will reduce the risk of duplicate testing.

Previous studies have identified a number of barriers to BBV testing in the incarcerated population [21]. These include important organisational issues such as lack of a structured approach to testing, long waiting times, poor linkage to care for those with a positive test, limited knowledge about HCV by prison staff and differing health priorities [21,22]. Our work has overcome many of these barriers. In addition, there are a number of personal barriers to testing such as concerns about stigma and confidentiality, low motivation for testing in

some individuals [21], lack of understanding around the perceived risk of BBV, lack of understanding of the consequences of untreated HCV, and lack of knowledge that it can be relatively easily treated with DAAs [23]. Our systematic approach to staff training about HCV and other BBVs has also helped address some of these barriers, but clearly there is more work to do to further increase testing rates. Staff have now routinely embedded BBV testing in reception to normalise it. However, there is a regular turnover staff in the prison so an ongoing process of education is essential to maintain a high testing rate. Although we have not explored the use of incentives for prisoners having a test or staff undertaking the test, this might be a way to increase testing rates further and is worthy of a trial.

Testing rates for BBVs in HMP Durham are now higher than for other prisons in England. Data from the 2017 PHE report "Hepatitis C in England" showed that rates of testing for BBVs in English prisons has increased from 5.3% on 2010/11 to 11.5% in 2015/6 due to some prisons having implemented a UOBBVT, but rates of testing remain well below acceptable levels. There are a number of potential reasons for the higher offer and testing rates seen in Durham prison compared with other prisons in England. Firstly, the NEE BBV testing and treatment pathway group used a systematic approach to introduction of the new programme of BBV testing. This incorporated assessment of the cost of implementation of the program, achieving specific funding for the program from prison healthcare commissioners, developing a thorough training program for staff in the prison and introducing robust data collection on outcomes of the program. Secondly, DBST was used as the testing method, which is more acceptable than standard venepuncture that is still used in many UK prisons. DBST increases the likelihood of individuals accepting a test by 3-6 fold compared with standard venepuncture [24,25]. This technique is also not dependent on the need for specialist skills in venepuncture, resulting in many more staff being able to perform the test [26–28]. DBST has very good sensitivity (>96%) and specificity (>98%) for HCV [29] and has been shown to be a cost- effective screening tool for HCV within the prison setting [26], making it a good testing system in prisons [28–30].

In addition to developing the UOBBVT, we introduced a new treatment pathway to help deal with the expected increase in patients diagnosed with HCV and to ensure high rates of treatment. This involved the introduction of specialist nurse in-reach clinics with consultant-led TC, which significantly increased the number of patients treated in HMP

Northumberland. The pathway was also very efficient in reducing the need for prisoner transport, which cost £250-500 per hospital visit. The telemedicine approach was also an efficient use of consultant time, allowing the consultant to do the clinic from their hospital base where other activities are ongoing. Following the successful introduction of the TC in Northumberland Prison, this pathway is now used in other prisons in NEE. In the last year, 159 patients were commenced on antiviral treatment across the whole Estate, which represents a large increase in treatment rates (54 in previous year). Clearly, not all of the increase in activity is due to the new treatment pathway. Availability of the new direct acting antivirals (DAAs) is also likely to have contributed as more patients are willing to undergo treatment with DAAs than with interferon based treatments, which were poorly tolerated and had modest HCV clearance rates [6,8,31].

One of the key success factors of a BBV testing program is to ensure that all BBV positive cases are linked into treatment. The pilot work of HCV testing in Durham Prison showed that linkage to treatment for those testing positive for HCV was low (~20%). The likely explanation for this is that HMP Durham is now entirely a remand prison and, as a result, many inmates have a very short prison stay. It is also hard to predict how long inmates will be in the prison as they are awaiting court appearances and sentencing. Therefore, a large proportion of prisoners have insufficient time in prison to enter the treatment pathway, even with weekly nurse in-reach HCV clinics. Although some patients who were diagnosed with HCV did not access treatment in the prison, all were given both harm reduction advice that may reduce their risk of infecting others and information about HCV and local treatment services so they could access treatment on release. Further work is needed to assess what proportion are subsequently treated in the community. Importantly, many prisoners who have medium or long sentences are transferred to the other NEE prisons where telemedicine HCV clinics have been established and so are able to access treatment there. Since the introduction of the new testing and treatment pathways, we have seen a large increase in the number patients treated in all NEE prisons. Going forward, it is important that the diagnostic and treatment pathway for HCV in prison is as simple and quick as possible to ensure that a large proportion of inmates commence treatment. There have been some recent developments in point of care tests, including a rapid oral anti-HCV test [32] and a rapid point of care RNA test [33], which can give a result within an hour.

Incorporation on these new technologies in the diagnostics pathway could reduce the time from positive test to commencing treatment. In addition, robust arrangements for transfer of care and better communication between prisons and community treatment centres when patients move prison or are released, should improve treatment rates.

In conclusion, a universal offer of BBV testing to prisoners at prison reception can significantly increase testing rates and lead to many new diagnoses of HCV. Non-acceptance rates remain high, so it is important that there are other opportunities for testing within the prison. TC with nurse-led prison in-reach offers a cost effective and efficient method of treating HCV in the prison environment.

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Figure legends

Figure 1. DBS testing and confirmation protocol.

Figure 2. Offer and uptake rates for BBV testing in HMP Durham between Mar 2016 and Oct 2017.

Figure 3. Reasons for non-acceptance of BBV testing between Mar 2016-Feb 2017.

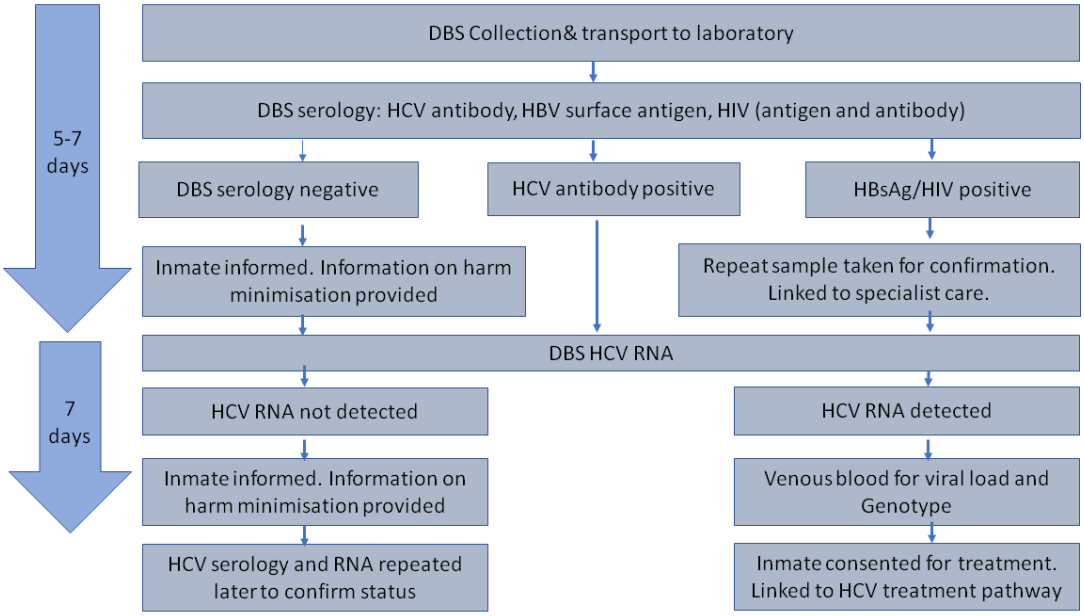
Tables.

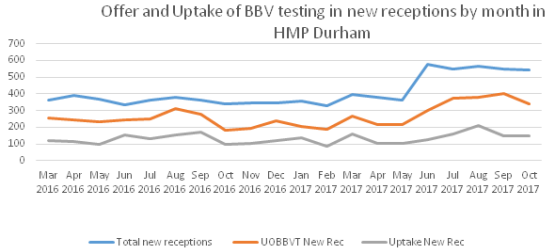
Table 1. Outcome of HCV RNA positive individuals at HMP Durham diagnosed between Mar 2016 and Feb 2017 (n=47).

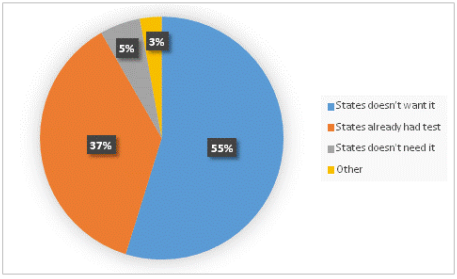
Outcome	n (%)
Completed anti-viral treatment	11 (23%)
Review in the MDT, but treatment not yet commenced	3 (6%)
Unknown outcome (released from prison)	26 (56%)
Declined to engage in treatment	5 (11%)
Deceased	1 (2%)
Currently ineligible for re-treatment (previous DAA failure)	1 (2%)

Table 2. Numbers of patients receiving antiviral treatment for HCV in the NEE prisons.

Prisons	Feb 2016-Feb 2017	Feb 2017-Jan 2018
HMP Frankland	0	9
HMP Durham	4	18
HMP Low Newton	0	30
HMP Northumberland	32	62
HMP Holme House	18	39
YOI Deerbolt	0	0
HMP Kirk Levington	0	0


5-7 days
7 days
DBS Collection& transport to laboratory
DBS serology: HCV antibody, HBV surface antigen, HIV (antigen and antibody)
DBS serology negative
HCV antibody positive
HBsAg/HIV positive
Inmate informed. Information on harm minimisation provided
Repeat sample taken for confirmation. Linked to specialist care.
DBS HCV RNA
HCV RNA not detected
HCV RNA detected
Inmate informed. Information on harm minimisation provided
Venous blood for viral load and Genotype
HCV serology and RNA repeated later to confirm status
Inmate consented for treatment. Linked to HCV treatment pathway


Offer and Uptake of BBV testing in new receptions by month in HMP Durham
700
600
500
400
300
200
100
0
Mar 2016
Apr 2016
May 2016
Jun 2016
Jul 2016
Aug 2016
Sep 2016
Oct 2016
Nov 2016
Dec 2016
Jan 2017
Feb 2017
Mar 2017
Apr 2017
May 2017
Jun 2017
Jul 2017
Aug 2017
Sep 2017
Oct 2017
Total new receptions
UOBBVT New Rec
Uptake New Rec


55%
37%
5%
3%
States doesn't want it
States already had test
States doesn't need it
Other