

Management of Hepatitis C in Delaware Prisons:

Approaching Microenvironmental Eradication

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Abstract

The management of chronic hepatitis C virus (HCV) infection has been transformed due to the arrival of HCV-specific Direct-Acting Antivirals (DAAs), which are safer, more effective, and better tolerated than the interferon-based therapies that preceded them. Compared with community healthcare systems, many prison healthcare systems have been slower to adopt the routine use of HCV DAAs despite the fact that HCV infection disproportionately affects individuals in correctional institutions. In 2015, the Delaware Department of Correction (DDOC) launched a treatment program that prioritized treatment for patients who were at greatest risk of disease complications. To date, 327/345 (95%) of eligible current HCV patients have initiated DAA therapy. A total of 196/199 (98.4%) patients who have initiated treatment and who have post-treatment data available have achieved sustained virologic response, defined as undetectable HCV viral load 12 weeks after treatment. Applying a concept of microenvironmental eradication, it can reasonably be concluded that that DDOC is approaching this benchmark with regard to chronic HCV infection and will soon enter a “maintenance phase,” during which it will be feasible to treat new cases of HCV in real time. Correctional systems with significant numbers of untreated hepatitis C patients may want to consider implementing HCV treatment programs that focus on cost-effectiveness and prioritize treatment for patients who are at greatest risk of disease complications.

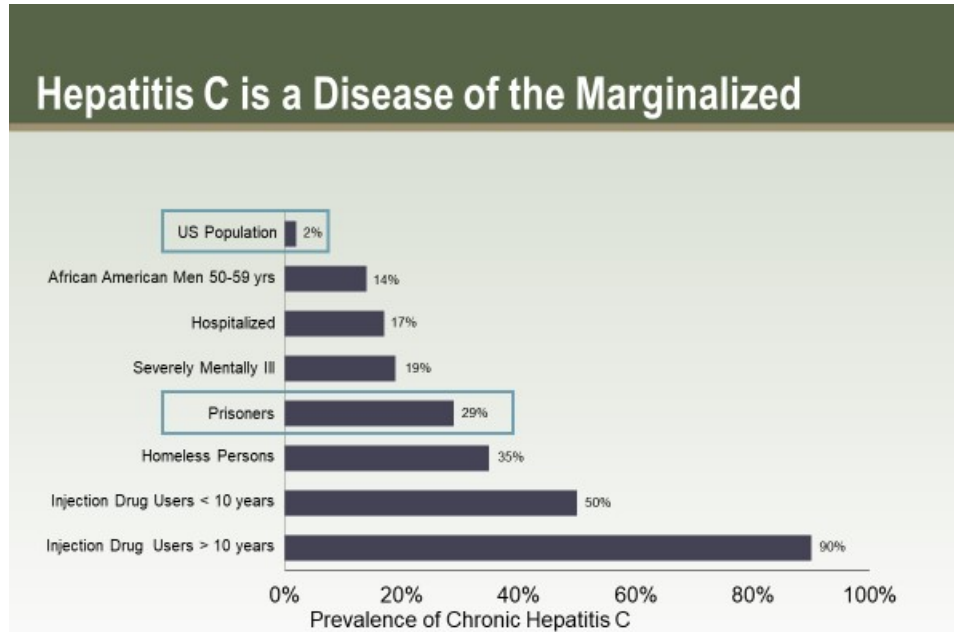
Introduction

Hepatitis C virus (HCV) is the most common blood-borne infection in the United States.¹ Approximately one-quarter of patients infected with hepatitis C spontaneously clear the infection, but the rest develop chronic infection, which usually results in progressive liver fibrosis (i.e., scarring) and may lead to cirrhosis, liver cancer, and liver failure.² It has been estimated that 20%-30% of people with untreated chronic HCV will develop cirrhosis within 25-30 years of becoming infected.³ Hepatitis C infection and its complications impose a substantial healthcare utilization and cost burden, which increases as HCV-associated liver disease advances.⁴ HCV is curable with antiviral therapy, and achieving sustained virologic response (SVR) with HCV antiviral therapy has been shown to reduce adverse liver-related health outcomes and all-cause mortality.⁵

The seroprevalence of HCV infection in the general population is estimated to be approximately 1.0% (see Figure 1).⁶ Injection drug use (IDU) is the most common mode of HCV transmission and is reported by 20% to 55% of inmates,⁷ so it is not surprising that HCV infection disproportionately affects individuals in correctional institutions. A review of pooled published studies during 2003-2010 reported the HCV seroprevalence among incarcerated persons in the

United States to be between 17.4% and 23.3%.⁸ It has been estimated that nearly one-third of all Americans with hepatitis C spend at least part of the year in a correctional facility.⁹

Figure 1. Hepatitis C is a disease of the marginalized. Adapted from Edlin BR. Perspective: Test and treat this silent killer. *Nature* Volume 474, pages s18–s19 (09 June 2011).⁶



Edlin BR. Perspective: Test and treat this silent killer. *Nature* volume 474, pages s18–s19 (09 June 2011). Available at: <https://www.nature.com/articles/474S18a> Accessed February 2, 2019.

The management of chronic hepatitis C has undergone a remarkable transformation in recent years due to the arrival of HCV-specific Direct-Acting Antivirals (DAAs), which are safer, more effective, and better tolerated than the interferon-based therapies that preceded them. Expert guidelines recommend that all patients living with hepatitis C should be treated.¹⁰ Compared with community healthcare systems, many prison healthcare systems have been slower to adopt the routine use of HCV DAAs. According to a recent Washington Post article, up to 97 percent of inmates in the U.S. with hepatitis C have not been treated.¹¹ Many states cited high drug prices as the reason for denying treatment. This article may have underestimated the percentage of incarcerated patients who have been treated, but it seems clear that much more needs to be done to increase treatment of hepatitis C in prison populations. In 2015, the Delaware Department of Correction (DDOC) launched a treatment program based on a prioritization approach and, since then, has treated nearly all of its identified cases of hepatitis C.

Healthcare in the Delaware Department of Correction

The Delaware Department of Correction (DDOC) is comprised of the Office of the Commissioner, Bureau of Administrative Services, Bureau of Correctional Healthcare Services, Bureau of Prisons, and Bureau of Community Corrections. Unlike most state correctional systems, the Delaware Department of Correction is a unified correctional system, which manages offenders from pre-trial detention through incarceration and community supervision. The Department supervises between 5,500 – 7,000 inmates within its correctional facilities and

approximately 17,000 probationers within the community. Within the unified system, Delaware maintains a five-level system of supervision for offenders:

- Level V - 24-hour incarceration (jail/prison) *
- Level IV - Work Release Centers, Home Confinement (electronic monitoring), Residential Drug Treatment, Violation of Probation Centers
- Level III - Intensive Probation Supervision
- Level II - Standard Probation
- Level I - Administrative Supervision

*Jail describes those offenders serving one year or less.

The Bureau of Correctional Healthcare Services (BCHS) provides management and oversight of the daily medical care, substance abuse, and behavioral health operations of the contracted medical and mental health providers to ensure that the standards of the National Commission on Correctional Health Care are continuously met and maintained. Offenders under the DDOC custody in Level 5 and Level 4 facilities have access to medical primary care services through Intake Screening, Sick Call and Chronic Care Clinics staffed by Registered Nurses (RN), Advanced Practice Registered Nurses (APRN), Physician Assistants (PA), and Primary Care Physicians (PCP), as well as comprehensive behavioral health and general dentistry services.¹²

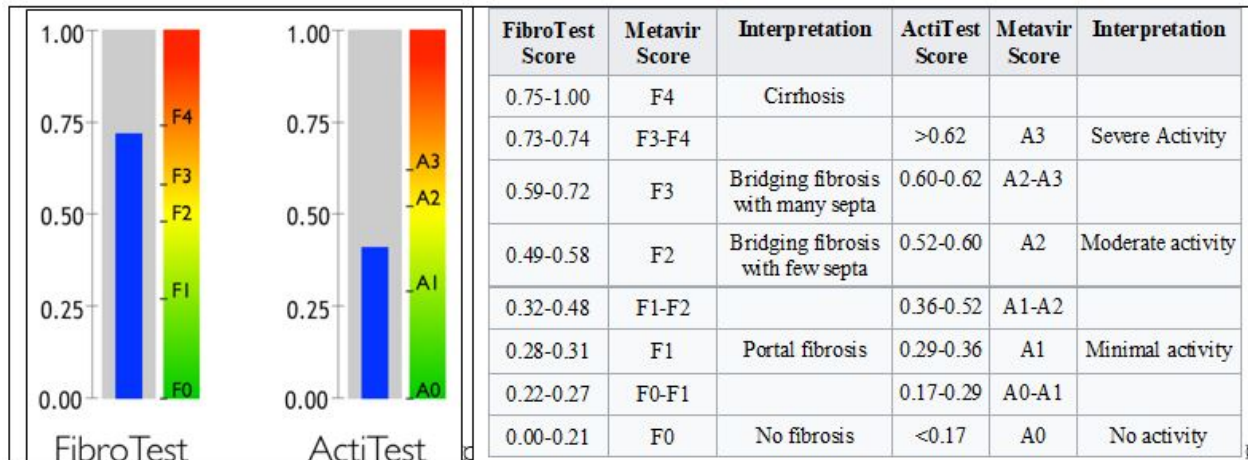
Hepatitis C Management in DDOC

In the DDOC, hepatitis C is managed in accordance with current guidelines, in particular HCV Guidance: Recommendations for Testing, Managing, and Treating Hepatitis C by the American Association for the Study of Liver Diseases (AASLD) and the Infectious Diseases Society of America (IDSA).¹⁰ Since 2011, the management of DDOC patients with chronic hepatitis C has been supervised by an Infectious Disease (ID) specialist who is employed part-time by the medical contractor and who is the sole prescriber of hepatitis C medications. Most inmates are screened for hepatitis C during their medical intake (see below). Patients who have a positive screening test or who report a history of hepatitis C are referred by the primary care providers to the facility Infection Control Nurses (ICN); approximately 20-30 new cases are identified per week. The ICNs inform the ID specialist about the new cases of HCV. Patients with confirmed chronic hepatitis C receive appropriate counseling and education and undergo baseline evaluation, including medical history and physical examination. Baseline lab tests include: quantitative HCV RNA (HCV viral load), HCV genotype and subtype, staging of hepatic fibrosis, hepatitis A and B serologies (HAV Ab, HBsAb, HBsAg, HBcAb) complete blood count (CBC), international normalized ratio (INR), hepatic function panel (i.e., albumin, total and direct bilirubin, alanine aminotransferase [ALT], aspartate aminotransferase [AST], and alkaline phosphatase levels), and calculated glomerular filtration rate (eGFR).

The ID specialist utilizes serum measurement of biochemical markers for noninvasive assessment of liver fibrosis status. FibroTest, known as FibroSure in the U.S., is a biomarker test that uses the results of six serum tests to generate a score that is correlated with the degree of liver damage in people with a variety of liver diseases. It has been validated for use in the setting of chronic hepatitis C infection and is considered to have the same prognostic value as a liver biopsy. FibroTest and ActiTest permit the non-invasive evaluation of individuals with hepatitis C for the presence of liver fibrosis and liver inflammation, respectively. FibroTest and ActiTest

scores are calculated based on patient age, gender and concentrations of serum of γ -glutamyl transferase (GGT), total bilirubin (TB), α -2 macroglobulin, haptoglobin, apolipoprotein A1 and alanine aminotransferase (ActiTest). FibroTest and ActiTest Scores, on a scale of 0.0 to 1.0, are assigned a Metavir scale indicating the level of fibrosis or inflammation present.¹³ (see Figure 2 and Figure 3)

Figure 2 (left panel). FibroTest scores range from 0.00 to 1.00 and correlate with METAVIR fibrosis stages. (right panel). Sample FibroTest/ActiTest report. This sample demonstrates stage F3-F4, Activity stage A1-A2.



Before 2015, the standard of care for treatment of hepatitis C was interferon-based therapy, which was available for DDOC patients. These treatment regimens had cure rates of only approximately 50% and had significant safety and tolerability drawbacks. The arrival of HCV DAAs, which were expected to be much safer, more effective, and more tolerable, was anticipated for years and it became common practice in community healthcare settings to recommend deferral of treatment for most patients in order to take advantage of the improved safety and efficacy of DAAs. Deferral of treatment was presented as an option to DDOC hepatitis C patients, most of whom agreed with this approach.

Successive waves of increasingly effective DAAs have transformed HCV treatment. The first generation of DAAs was approved by the U.S. Food and Drug Administration (FDA) in 2011 and included two HCV protease inhibitors. Cure rates were slightly higher, but these medications required coadministration of interferon, and therefore did not result in significant safety benefits. In 2013, the FDA approved a third protease inhibitor and the first HCV polymerase inhibitor, which raised cure rates to higher than 80% and also shortened the duration of treatment to as little as 12 weeks. However, the drawbacks for all four of the first-generation DAAs was that they still required most patients to be treated with interferon. In addition, they were very expensive. For these reasons there was very little utilization of these early DAAs by DDOC. However, their arrival did increase anticipation for interferon-free treatment among community and DDOC patients living with hepatitis C and their advocates, and when this possibility finally arrived the department was poised for progress. In late 2014 and 2015, several new DAA were approved that did not require interferon, finally ushering in the current paradigm of interferon-free therapy for hepatitis C. Additional DAAs arrived in 2016 and 2017, providing prescribers with several treatment options for all types of HCV infection, all of which have excellent safety profiles and cure rates as high as 99%.

HCV Treatment in DDOC during the DAA Treatment Era: A Multi-Level Prioritization Approach

In addition to the constant influx of new patients, by 2015 there was a large volume of existing HCV cases awaiting treatment. To assure that patients who were at highest risk for disease complications got evaluated and treated as quickly as possible, baseline testing was prioritized according to the patient's age; this was based on the presumption that older patients may have had HCV longer and may, therefore, have more advanced hepatic fibrosis. Baseline evaluation was also expedited for DDOC HCV patients with shorter sentences to assure that they get evaluated before they get released.

In 2015, AASLD/IDSA Guidance recommended treating patients who have advanced illness before treating those with less advanced disease in settings where resources limit the ability to treat all patients immediately.¹⁴ Resource limitations exist in virtually every healthcare setting, including prisons and jails. Accordingly, the Federal Bureau of Prisons (FBOP) has established priority criteria for treatment based on several clinical measures, most notably the degree of hepatic fibrosis.¹⁵ In keeping with this guidance, a prioritization approach based on risk of disease complication was developed for DDOC. Under this scheme, patients with cirrhosis were the first to receive treatment with HCV DAAs. These cirrhotic patients were further stratified by Child-Pugh classification, a widely used tool to assess prognosis in patients with chronic liver disease and cirrhosis. Once the initial cohort of cirrhotic patients was treated, which took about 18 months, patients with stage F3 hepatic fibrosis were offered treatment, then patients with F2 fibrosis, and so on. Patients with F3 through F0 fibrosis were further prioritized according to their necroinflammatory scores based on the understanding that higher necroinflammatory scores are associated with faster disease progression. Within each fibrosis category, patients with comorbidities which have been associated with faster disease progression, such as HIV or chronic Hepatitis B infection, were prioritized for treatment before those who did not have such comorbidities. While awaiting treatment, FibroTest assessment was repeated annually to monitor for disease progression. The prioritization scheme was flexible, and newly identified patients with fibrosis scores higher than the current treatment level were expedited.

DAA Selection and Cost-Effectiveness Considerations

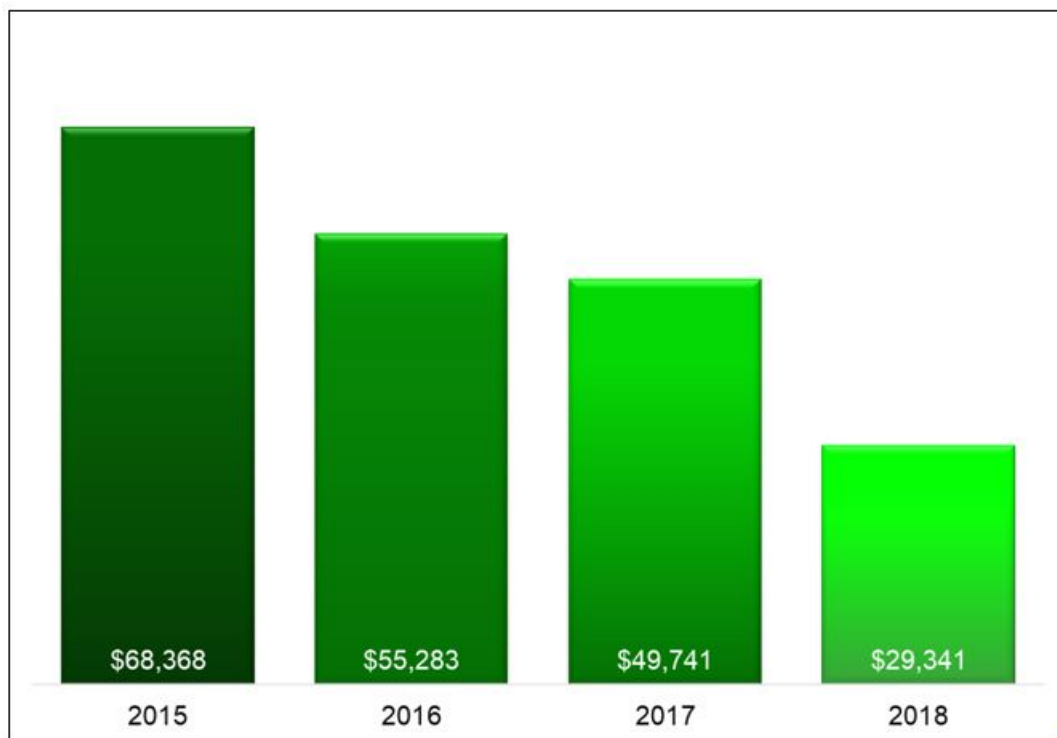
Several factors went into the selection of HCV DAAs for each patient who received treatment, most notably the safety and efficacy. AASLD/IDSA HCV Guidance recommends DAA regimens based on scientific evidence and expert opinion.¹⁰ Each recommendation includes a Roman numeral (I, II, or III) representing the level of the evidence that supports the recommendation and a letter (A, B, or C) representing the strength of the recommendation. Recommended regimens are those that are favored for most patients in a given group, based on optimal efficacy, favorable tolerability and toxicity profiles, and treatment duration. Alternative regimens are those that are effective but, relative to recommended regimens, have potential disadvantages, limitations for use in certain patient populations, or less supporting data than recommended regimens. In certain situations, an alternative regimen may be an optimal regimen for an individual patient. For most patients, there are several treatment regimen options that are recommended with the highest possible rating (I, A).

The high cost of HCV DAAs has resulted in significant barriers to access in both community and correctional settings. DDOC is determined to provide HCV treatment despite the high prices of

these medications. Several recent studies have demonstrated the economic value of HCV treatment and made it clear that HCV therapy is cost-effective,^{16,17} including in prisons.^{18,19} According to AASLD/IDSA Guidance, when given a choice between recommended HCV DAA regimens, the less costly regimen is preferred as a more efficient use of resources (even if it requires multiple tablet dosing).¹⁰ Because of the similar efficacy of most DAA regimens, cost becomes the critical factor driving cost-effectiveness. DDOC endeavors to maximize cost-effectiveness while providing treatment in accordance with the community standards and current guidelines. The DDOC maintains a contractual arrangement with an institutional pharmacy service provider (PSP) to administer its pharmaceutical activities. The PSP engages in ongoing negotiations with pharmaceutical manufacturers to obtain the best possible prices for medications, including HCV DAAs, therefore prices are always subject to change. To stay abreast of current DAA prices, the ID specialist maintains ongoing communication with the PSP.

After consideration of pertinent clinical information (e.g. HCV genotype, fibrosis level, treatment experience, potential drug interactions, etc.), there usually are several AASLD/IDSA Recommended regimens with Level I, A ratings from which to choose. From this list of options, the ID specialist typically selects the most cost-effective (least expensive) option for each patient. DAAs with lower AASLD/IDSA ratings are not selected over DAAs with higher ratings for any reason, including cost. By selecting DAAs based on cost-effectiveness it was possible to treat more patients each year for less total cost. This is evidenced by the decreasing cost per treatment each year since 2015 (see figure 3).

Figure 3. Average HCV Cost per Patient 2015 – 2018.



Courtesy of Correct Rx Pharmacy Services, Linthicum, Maryland.

Sentence time considerations

Interferon-based HCV treatment regimens required six to twelve months of therapy, and when they were the standard of care the Federal Bureau of Prisons and most state correctional systems included sentence duration of up to 18 months as a criterion for treatment eligibility in order to avoid treatment interruptions.²⁰ Most HCV DAA treatment courses are only 8 or 12 weeks, which makes it feasible to treat patients with much shorter sentences, and some correctional systems have shortened their minimal sentence requirements.²¹

Currently, while there is no official minimal sentence time requirement to receive treatment for hepatitis C while in DDOC, there does need to be a reasonable expectation that the patient will remain in the system long enough to complete both the treatment and post-treatment evaluation. Accordingly, treatment is routinely offered for patients with sentences of at least six months. Patients whose sentence time is long enough to complete treatment but not post-treatment monitoring may be offered treatment if there is a reasonable expectation that the patient will follow up for post-treatment evaluation in the community after release. Patients with very short sentences are not treated, but are encouraged to follow up with the ID specialist in the community after release. Many of these patients have, in fact, done so and have been successfully treated post-incarceration.

Jails, which are usually run by local law enforcement and/or local government agencies, are designed to hold inmates awaiting trial or serving a short sentence. As mentioned above, the DDOC is a unified correctional system that includes detainees who are awaiting trial in addition to inmates who have been sentenced. DDOC HCV patients who are awaiting sentencing undergo baseline evaluation and receive contact information for community care. HCV treatment has been historically uncommon in jails, primarily because of the short duration of incarceration.²² A recent observational cohort study demonstrated the feasibility of initiating and completing DAA HCV treatment in a jail setting.²³ In this study, 104 detainees in the New York City jail system received DAA treatment; most completed treatment successfully but some were released before post-treatment viral load testing could be completed. A small number of DDOC HCV patients who were not yet sentenced, but who were expected to remain in DDOC long enough to complete treatment, have been treated. Most of them successfully completed treatment, however, some of them were released sooner than expected - several before the treatment was completed - and have been lost to follow up. The ID Specialist regularly monitors for the possible return of these individuals; a few have recidivated and have completed post-treatment testing.

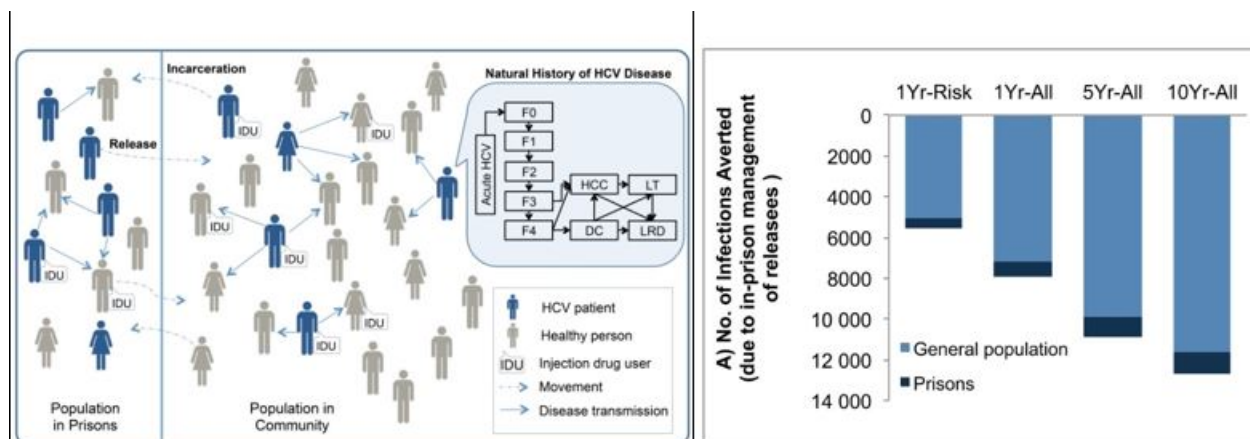
Hepatitis C Screening, Prevention, and Linkage to Care

Many HCV-infected individuals, including those in correctional facilities, are unaware of their infection.²⁴ The high prevalence of hepatitis C, coupled with the fact that up to 30% of all persons with HCV infection in the U.S. spend at least part of the year in a correctional institution,^{9,25} suggest that correctional facilities may provide an excellent opportunity to offer screening to a large population of at-risk individuals. Several HCV management guidelines recommend screening for all incarcerated individuals.^{10,16} However, recent surveys of state prison medical directors and department of corrections health authorities indicate that although some form of HCV testing is performed in the majority of prisons, only a minority of them screen for HCV universally or routinely (i.e., HCV screening is included in normal health assessments for all patients and not based on risk).^{18,26}

DDOC offenders are offered screening for hepatitis C in accordance with recommendations from the Centers for Disease Control, including adults who were born between 1945 and 1965; report history of risk behaviors and/or exposures, and other circumstances (e.g. HIV infection, unexplained chronic liver disease and/or chronic hepatitis). HCV screening consists of HCV-antibody testing followed by confirmatory HCV-RNA testing if antibody-positive. Chronically infected individuals receive counseling and education about HCV infection. Individuals who may be released before they get evaluated and/or treated are provided linkage to follow-up community healthcare for further evaluation and treatment of HCV upon release.

Currently, screening for HCV in DDOC is not universal, however, efforts are being made to increase screening by educating providers on current screening recommendations. In addition, the DDOC is in the process of converting to opt-out screening for HCV in its facilities. Universal opt-out HCV screening in prisons has been demonstrated to be highly cost-effective and would be expected to reduce HCV transmission and HCV-associated diseases primarily in the outside community (See Figure 4).²⁷

Figure 4 (left panel). Model schematic of HCV disease transmission and progression in prisons and in the general population. (right panel). Projected reduction of hepatitis C virus (HCV) transmission.



In the United States, at least 95% of incarcerated individuals, including those with HCV infection, will be eventually released into the community.²⁸ It has been estimated that individuals released from the criminal justice system may account for up to 29% to 43% of the 2.7 million to 3.9 million persons infected with hepatitis C in the United States.²⁴ The criminal justice system may be an ideal setting to efficiently identify and cure the greatest number of HCV-infected people.²⁹

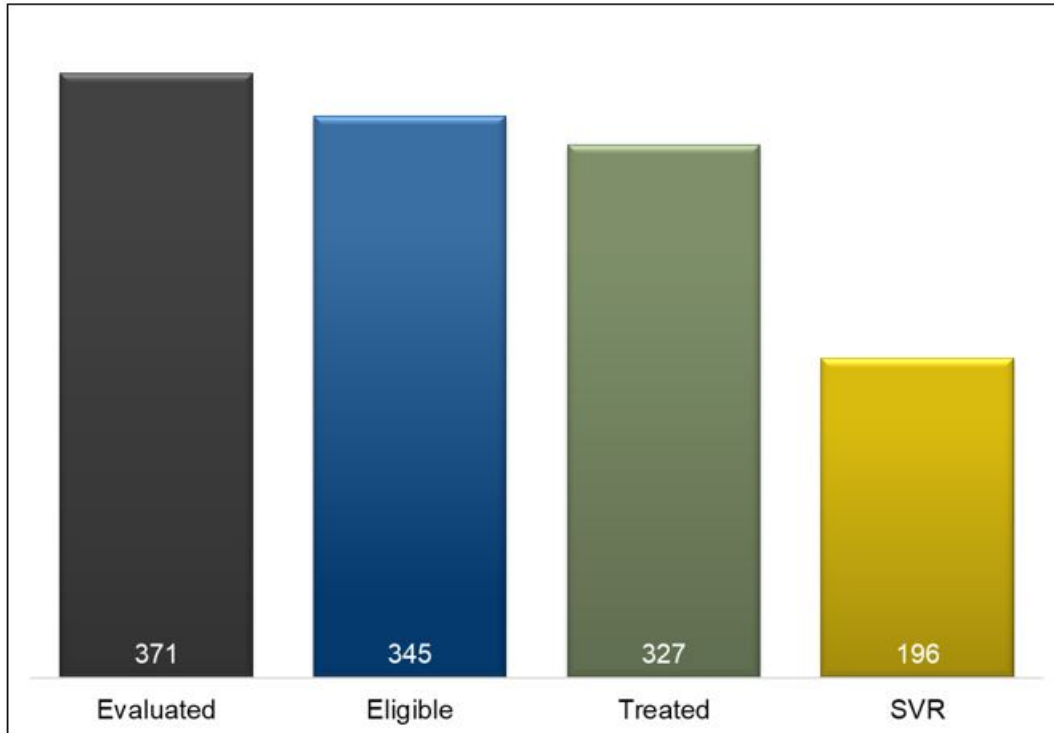
In an effort to reduce risk factors and decrease the potential for spread of HCV, the DDOC has taken steps to address injection drug use predominantly related to opioid addiction. The DDOC has historically provided substance use rehabilitation and counseling programs on a volunteer basis or to fulfill sentencing requirements. More recently, a Medication Assisted Treatment program for opioid use disorder has been launched and continues to expand. This program lies parallel to a robust discharge planning and re-entry process to connect inmates with a history of substance abuse to community service providers after incarceration.

DE DOC Hepatitis C Treatment Data

As of March 2019, there were 371 DDOC patients with confirmed chronic HCV infection and complete baseline evaluations; this number includes patients who were previously identified and were awaiting treatment when the DAA treatment program began in 2015. Of these patients, 345 are/were eligible for treatment based on sentence duration. There are twenty-six current DDOC patients who have been evaluated but have sentences that are too short to complete treatment or have not yet been sentenced; all of these patients have received referrals for community follow up and have been encouraged to follow up there in the event they get released. Unsentenced patients who receive sentences that are long enough to complete treatment will be offered treatment. A total of 327 patients have initiated treatment; this represents approximately 95% of eligible current HCV patients. All of the remaining eighteen patients have stage F0 fibrosis and are scheduled for treatment initiation by May 2019. Twelve current DDOC HCV patients have refused lab evaluation; they have been scheduled to meet with the ID specialist to discuss management options.

Of the 327 patients who have initiated treatment, 196 have achieved sustained virologic response (SVR), defined as an undetectable HCV viral load 12 weeks after treatment. Eighty-five patients are either still on treatment or have recently completed treatment so have not yet had a post-treatment viral load measurement. Data is missing for thirteen patients: eleven were released, one transferred to another state, and one patient died while on treatment (unrelated to HCV). There have been ten treatment failures (Figure 5): seven have successfully achieved SVR following retreatment; two patients were recently retreated and are awaiting SVR labs; one patient was released soon after the post-treatment viral load was drawn and is currently lost to follow up. To date, there are 199 patients who have initiated treatment and who have SVR data available; 196 of these have achieved SVR (98.4%).

Figure 5. DDOC HCV Patient Disposition as of March 31, 2019.



Microenvironmental Eradication of Hepatitis C

Prison-based screening and treatment may be a highly effective strategy for reducing the burden of human immunodeficiency virus (HIV), tuberculosis, HCV, and some sexually transmissible infections among prisoners and the general community.³⁰ The concept of a prison microenvironment that provides a promising location to intervene in the care of blood-borne transmitted diseases is compelling, since this population carries a high prevalence of disease, commonly engages in high-risk behaviors, and could be readily accessible by providers for testing and treatment. Prisons are a particularly attractive microenvironment for HCV treatment considering that DAA regimens require only 8–12 weeks to achieve cure.³¹

As outlined above, all of the identified, eligible (sentenced) cases of chronic hepatitis C in DDOC will have been treated by May 2019. Applying this concept of microenvironmental eradication to the DDOC experience, it can reasonably be concluded that the system is rapidly approaching this benchmark with regard to chronic HCV infection. Clearly, it will never be possible to completely eradicate all hepatitis C from the DDOC because there will always be an influx of new inmates, many of whom are already chronically infected. Also, the current achievement may prove to be just a preliminary state of microenvironmental eradication, as additional cases are likely to be discovered among the existing population. If this occurs the newly identified cases will be treated expeditiously. Perhaps more interesting is the notion that moving forward, the DDOC will enter a “maintenance phase”, during which it will be feasible to treat all new cases of HCV in real time, regardless of their severity of disease progression.

Discussion

Hepatitis C virus (HCV) is the most common blood-borne infection in the United States and disproportionately affects correctional populations, including the Delaware Department of Correction. Several years ago, the Department responded to this situation by deciding to treat

patients with hepatitis C in accordance with community standards. A prioritization approach was developed to assure that the patients who were at highest risk of attributable morbidity and mortality would receive treatment as quickly as possible. As of the time of this writing, nearly all of the identified, treatment eligible (sentenced) hepatitis C patients have been treated and the remaining cases, all of whom have no hepatic fibrosis, are expected to initiate treatment by May 2019. Including successful re-treatment of initial treatment failures, 98.4% of patients with available post-treatment data have achieved SVR. There are several important factors that have contributed to the success of the DDOC experience, but three key elements warrant discussion: 1) the emphasis on maximizing cost-effectiveness; 2) the involvement of a small group of healthcare professionals; and 3) treatment prioritization.

The high cost of HCV medications has been a significant barrier to treatment both in and out of prisons. The DDOC has been committed to meet the challenge of HCV treatment head on despite these barriers. Prices of DAAs have decreased considerably over time, but some are still very expensive. Fortunately, treatment of HCV has been demonstrated to be very cost-effective. By maintaining strict adherence to AASLD/IDSA Guidance, all DDOC patients are assured community standard treatment. And by routinely selecting the most cost-effective treatment options, the overall cost of treatment has remained reasonable and the average cost-per-treatment has steadily decreased.

As previously noted, a single, part-time ID specialist treated all of the HCV patients with the help of a few dedicated staff employees at each facility. This small group of individuals spends a significant portion of their time working on HCV, and therefore is very focused. They continuously review the referral and evaluation processes, which are unique for each site, and make frequent refinements in order to provide excellent care as efficiently as possible. Since 2015, these processes have become much more streamlined, which has resulted in an acceleration in the rate of treatment. A less specialized, less focused management approach would be less likely to have evolved as much and as quickly.

Several years ago, AASLD/IDSA Guidance removed language recommending prioritizing patients with advanced fibrosis for treatment, suggesting that all patients who have chronic hepatitis C should be treated immediately. Although most community healthcare systems operate with resource limitations, this may be feasible. However, in a semi-closed environment with significant resource limitations, such as a prison system, there are potential advantages to prioritizing treatment based on hepatic fibrosis. This is evidenced by current FBOP Clinical Guidance for HCV management, which recommends treatment for all sentenced inmates with chronic HCV infection but continues to endorse priority criteria based on severity of disease.¹⁶ Arguably, the most significant advantage of such an approach is that patients who are at highest risk of experiencing morbidity or mortality receive the benefits of SVR as quickly as possible. The alternative would be to treat patients on a “first come first served” basis. If the DDOC had taken this approach, patients with advanced fibrosis could be among those who are still waiting for treatment, all the while remaining at risk of disease related adverse events. Instead, all DDOC patients with advanced fibrosis were treated by early 2017. Since then, newly identified patients who were found to have advanced fibrosis have received expedited treatment.

Some readers may attribute the success of this treatment program to the small size of the DDOC relative to other state prison systems. The DDOC operates with similar resource limitations as other prison systems, including staffing, clinical space, time, and of course, financial. Despite these limitations, a small, focused team has successfully treated nearly all known cases of HCV

within a few short years. All of this could be replicated on a larger scale and so is generalizable to larger systems. Correctional systems with significant numbers of untreated HCV patients at all levels of hepatic fibrosis may want to consider implementing HCV treatment programs that focus on cost-effectiveness and prioritizing treatment for patients who are at greatest risk of disease complications.

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