

5-2018

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Meghan Rousselle

*University of Southern Maine, Muskie School of Public Service*

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### **Recommended Citation**

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Hepatitis C in Injection Drug Users: A Study of a Detoxification Program in Maine

MPH Capstone Project

Meghan Rousselle, MPH Candidate

Muskie School of Public Service

## Abstract

The opiate epidemic has had an impact on the lives of millions of people in this county. As we explore ways to address this issue, it is important to consider the long-term consequences that the epidemic will have. One long-term consequence is the spread of the hepatitis C virus (or HCV). Approximately 3.2 million people in the United States are chronically infected with this virus. Without consideration about ways to treat this virus and prevent its transmission, there will be large numbers of people who will die from complications of HCV in the future. These losses will contribute to the tragedies already sustained from the opiate epidemic. The following paper examines trends among individuals with a self-reported HCV positive status upon admission to Milestone Recovery, an acute detox facility in Portland, Maine. Findings include: that there were more male clients than female clients who presented with HCV in 2017, the median age of clients was 37 years, and there were high rates of both opiate and poly substance abuse among those with HCV. Also, there were high rates of needle sharing, lack of insurance coverage, high unemployment rates, and most clients were not connected with a primary care provider. Additionally, most of these clients reside in Cumberland County and had engaged in injection drug use in the past six months. An intervention is proposed at the end of this paper with a goal to connect hepatitis C positive clients from Milestone Recovery to healthcare and to treatment for HCV. This is a step towards reducing rates of HCV among high-risk and vulnerable individuals and a step towards reducing transmission of the disease to others.

## Introduction

The hepatitis C virus (HCV) is a growing health concern in the United States. Approximately 3.2 million individuals in the U.S. are chronically infected with HCV (Schackman, B., Leff, J., Barter, D., DiLorenzo, M., Feaster, D., Metsch, L., Freedberg, K., & Linas, B., 2014). This number does not account for individuals who are hepatitis C positive and are unaware of their status (approximately 54% according to the U.S. Department of Health and Human Services) (DHHS, 2017). Without prompt intervention from the medical and public health community, hepatitis C threatens to impact the lives of millions of people and overwhelm the healthcare system.

## Background

Hepatitis C is a disease of the liver; the hepatitis C virus damages liver cells, which can lead to liver cancer or liver failure. HCV is the most common reason for liver transplantation in the United States (Loftis, J., Matthews, A., & Hauser, P., 2006). Without treatment for HCV, 60 to 70 percent of individuals will develop chronic liver disease, 5 to 20 percent will develop cirrhosis (permanent damage and scarring of the liver), and 1 to 5 percent of individuals will die (Laraque, & Varma, 2017). HCV-related deaths have surpassed rates of death related to the HIV virus in recent years.

## Transmission

Hepatitis C is transmitted via the bloodstream or through sexual contact. It has a high level of potential for infectiousness upon entering the body through the blood and is therefore most likely to enter the body through this route (Sorenson, J., Masson, C., & Perlman, D., 2002). Unlike hepatitis A and B, there is no vaccine available. Injection drug users (IDU's) represent a vulnerable group of the population who are highly susceptible to contracting hepatitis C. Intravenous (IV) drug use creates optimal conditions for HCV transmission. Equipment used for drug injection (including cotton swabs, cookers, and needles) serve as vehicles of transmission for HCV. In some studies, 80 percent of injection drug users tested positive for HCV and 67 percent of injection drug users were chronically infected with the virus, meaning that they could not clear HCV from their bodies on their own (Murphy, S., Doveik, D., McPherson, S., & Roll, J.M., 2015). Furthermore, hepatitis C lives on surfaces (including in dried blood) for long periods time, which increases its infectiousness.

## Treatment

Safe and effective treatment exists for hepatitis C but can be difficult to access given its cost and due to treatment criteria of insurance companies. Medicaid programs tightened qualification criteria for hepatitis C in 2014 following increased spending for treatment. HCV treatment is over 90 percent effective in curing the disease and medical research suggests HCV treatment (even in active IV drug users) is effective, as reinfection rates are low in those who return to drug use (Murphy et al., 2015). Insurance and pharmaceutical companies are perpetuating rates of HCV by limiting access to treatment and raising costs of medications that effectively treat this

## HEPATITIS C IN INJECTION DRUG USERS

disease. Hepatitis C is a virus that has many implications, both on individual health outcomes and on long-term impacts on the healthcare system. The cost of HCV treatment for an individual is approximately \$84,000 but has a high cure rate and minimal side effects (Liao & Fischer, 2017). Comparatively, the cost of a liver transplant is approximately \$577,000 (Sutter Health, 2014). Injection drug users represent a population of people who are heavily burdened by HCV but who face significant barriers to testing and treatment. It is estimated that 70 percent of new HCV cases are in injection drug users (DHHS, 2017).

<b>Liver Transplant</b>	<b>Hepatitis C Treatment</b>
<b>~ \$577,000</b>	<b>~\$84,000</b>

### Barriers to Treatment

The DHHS National Viral Hepatitis Action Plan outlines these additional barriers to the treatment and cure of HCV:

- **Limited data:** Outbreaks of HCV often go undetected, making interventions difficult to implement. Injection drug users face stigma and barriers related to substance abuse. They can also be impacted by other factors that increase vulnerability, such as homelessness, mental health illness, and socioeconomic disadvantage. Opportunities for injection drug users to be linked with medical care and to disclose their status (if known) and receive treatment are limited. Therefore, chances to collect data about hepatitis C in substance users is a valuable way to link individuals with treatment.
- **Low provider awareness:** Providers can miss opportunities to screen patients for HCV. Even if screened, primary care providers often refer patients with HCV positive antibody tests to infectious disease specialists, which creates additional steps and barriers to treatment.
- **Limited public health and health system response:** Services to address hepatitis C are fragmented. Collaboration among healthcare organizations leads to increased rates of diagnosis and treatment.
- **Stigma:** Given its mode of transmission, hepatitis C is a stigmatized health condition. Individuals often do not get screened and if they do test positive for HCV, do not disclose their status or seek treatment. This increases rates of transmission to others and increases the risk of liver damage in individuals due to delays in treatment (DHHS, 2017).

The remainder of this report will summarize findings related to numbers of hepatitis C positive individuals presenting for admission to Milestone Recovery, an acute detoxification facility in Portland, Maine. An intervention to address these findings will also be introduced. This project was carried out with a goal of having more understanding about trends in hepatitis C individuals who have substance use disorders and to begin thinking about how to connect these clients with medical care and HCV treatment.

## Milestone Recovery

Milestone Recovery is a non-profit organization that provides services for individuals with substance use disorders and/or who are homeless. Founded in 1967, Milestone has expanded to include a detoxification program that accepts all Maine residents, regardless of their ability to pay. In addition there is a housing navigator program that assists with transitioning homeless individuals into stable housing, a HOME team that provides outreach and transportation to individuals throughout the City of Portland who are struggling with substance abuse or mental health disorders, a long-term residential treatment program in Old Orchard Beach, and an emergency shelter that is the only shelter in Maine that specializes in substance abuse (Milestone Recovery, 2018). Together, the services provide valuable resources for vulnerable members of the community.



The detoxification program at Milestone Recovery is a three to seven-day in-patient program. The detox unit at Milestone consists of 16 beds for both men and women. Clients detox from substances such as alcohol, opiates, benzodiazepines, and crack/cocaine in a 24 hour, medically managed environment that allows for safe detox. Clients also see a medical doctor during their time on the detox unit and meet with counselors to determine long-term substance abuse treatment plans. The detox program at Milestone is often the first step in an individual's long-term recovery.

## Methods

### Data Source

Data for this project were obtained from client records at Milestone Recovery from January 2017 through December 2017 (one calendar year). A paper documentation system is currently used at Milestone. During a client's admission to the detox unit, a Registered Nurse collects information about the client, including their demographic information, substances used, HIV/HCV status, use of needles for IV drug use, medical conditions, mental health diagnosis, etc. There were over 900 individuals admitted to the detox unit at Milestone Recovery last year.

### Collection

From the 900 client charts that were assembled from admissions last year, information about clients who self-reported a positive hepatitis C status was examined for this project. The following information about hepatitis C individuals was gathered: gender, age range, substances used, housing status, county of residence, insurance status, intravenous drug use, employment status, and connection with a primary care provider. The goal of looking at these trends among

## HEPATITIS C IN INJECTION DRUG USERS

hepatitis C positive individuals who presented for admission to Milestone Recovery in 2017 was to identify ways that clients from this organization can connect with care and treatment for HCV. These numbers also provide valuable information about a population that is disproportionately affected by this disease.

## Results

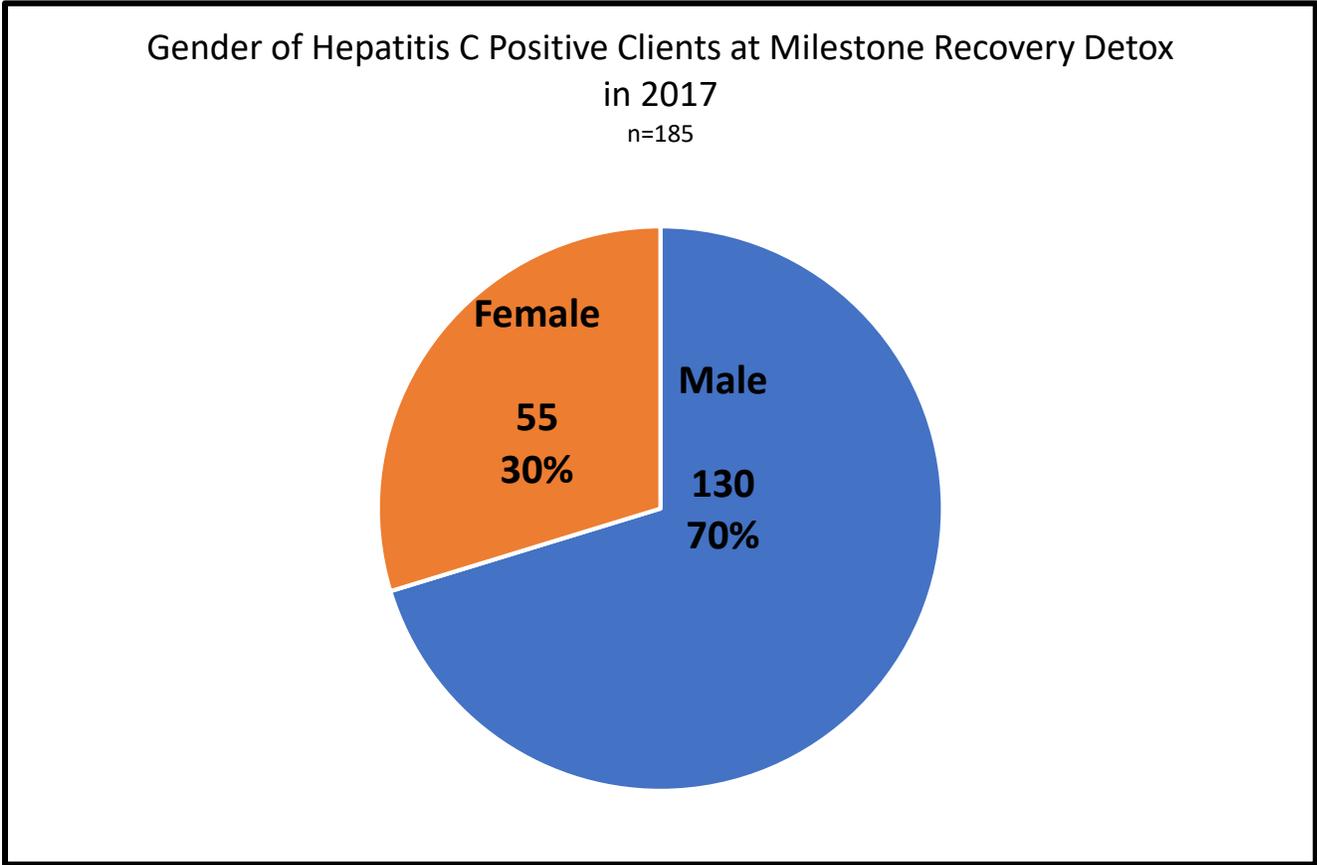
### Results Key

- **Gender:**
  - Male or Female
- **Age Range:**
  - 18-24
  - 25-34
  - 35-44
  - 45-54
  - 55-64
- **Substance(s) used:**
  - Opiates (Heroin, Suboxone, Fentanyl)
  - Alcohol (ETOH)
  - Benzodiazepines (Examples include Xanax, Klonopin, and Ativan)
  - Cocaine
  - Poly (three or more of any of the above substances)
- **Housing status:**
  - Homeless
  - Independent living with others
  - Independent living alone
  - Dependent living
- **County:**
  - York
  - Cumberland
  - Androscoggin
  - Other
- **Insurance:**
  - Uninsured
  - MaineCare
  - Medicare
  - Private insurance
- **IV drug use:**
  - Never
  - In the last 6 months
  - In the last 5 years
  - Prior to 5 years ago

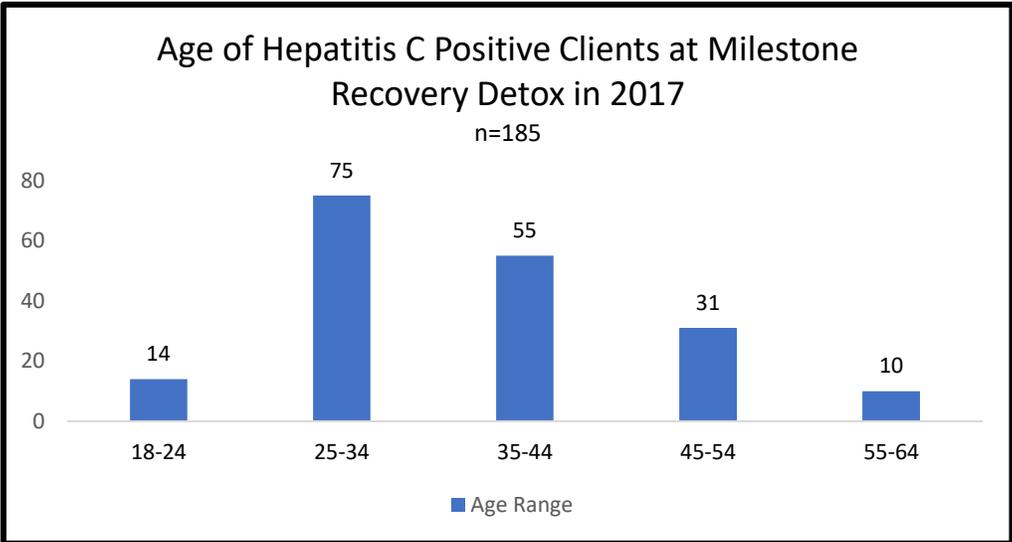
## HEPATITIS C IN INJECTION DRUG USERS

- **Sharing of Needles (in the past 6 months)**
  - Yes
  - No
  - N/A (could indicate that sharing occurred over 6 months ago)
  - No answer
- **Employment**
  - Full-time
  - Part-time
  - Irregular (less than part-time hours)
  - Not employed
  - Not in labor force (for example, client has a disability)
  - No answer
- **Primary Care Provider**
  - Yes or No

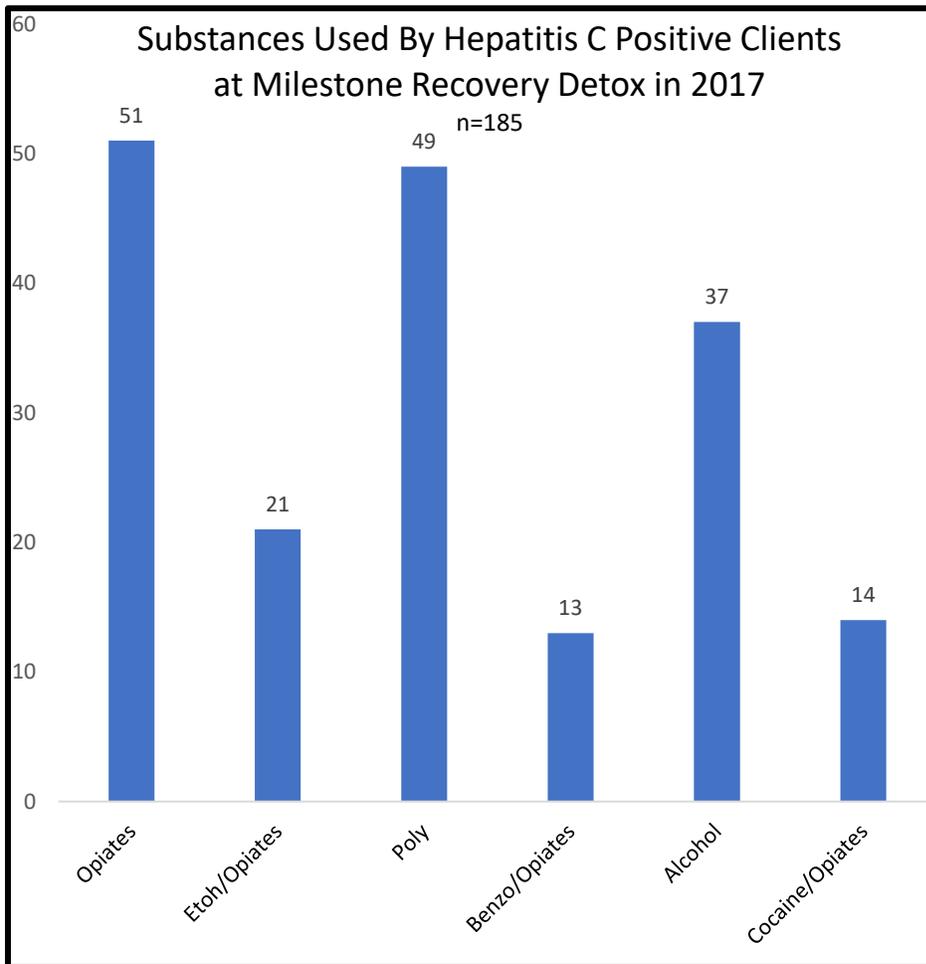
I. Gender



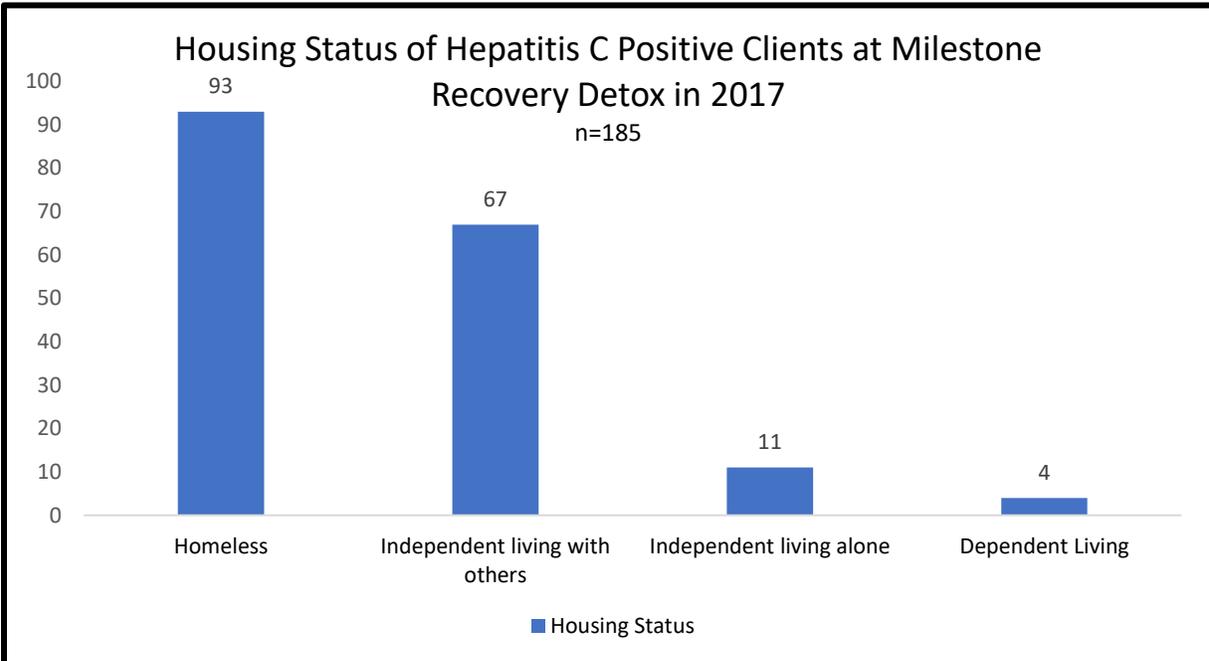
II. Age Range



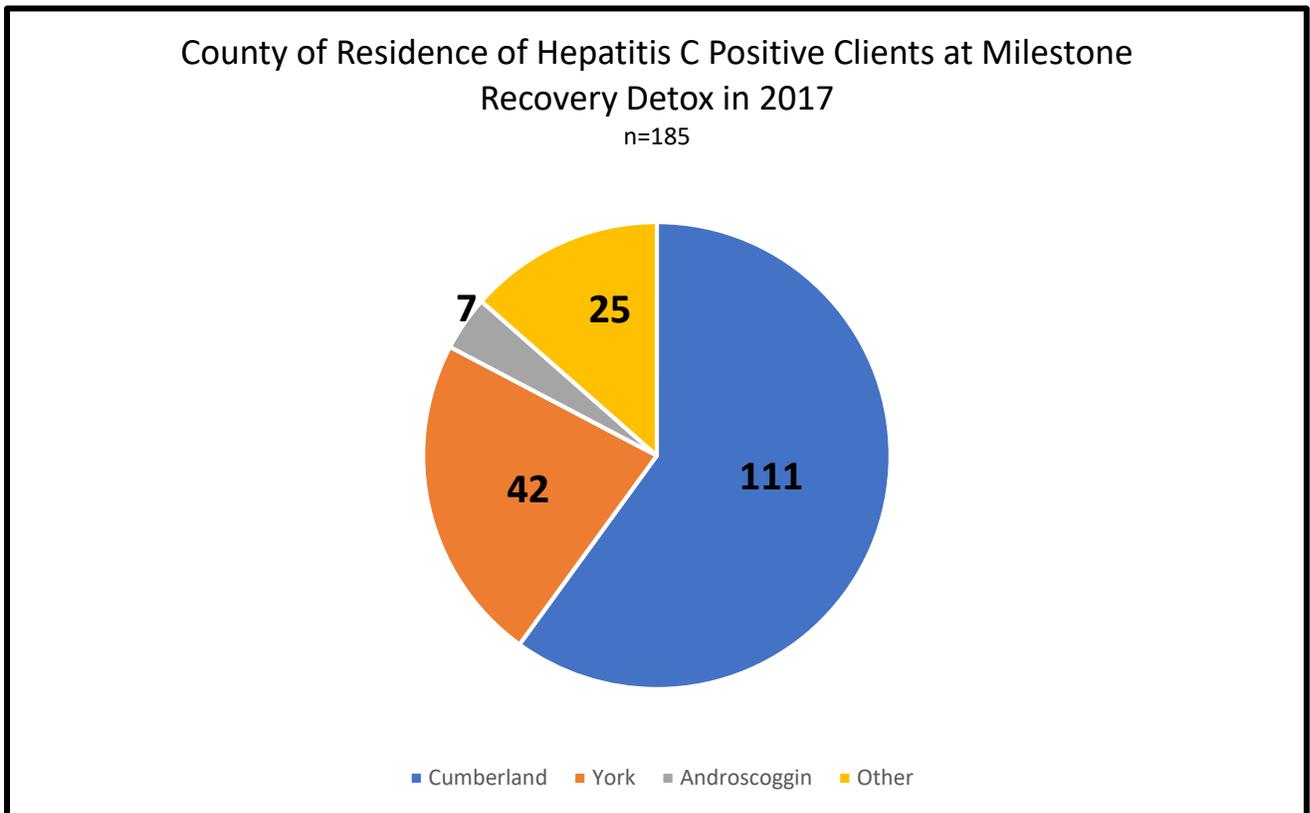
### III. Substance(s) used



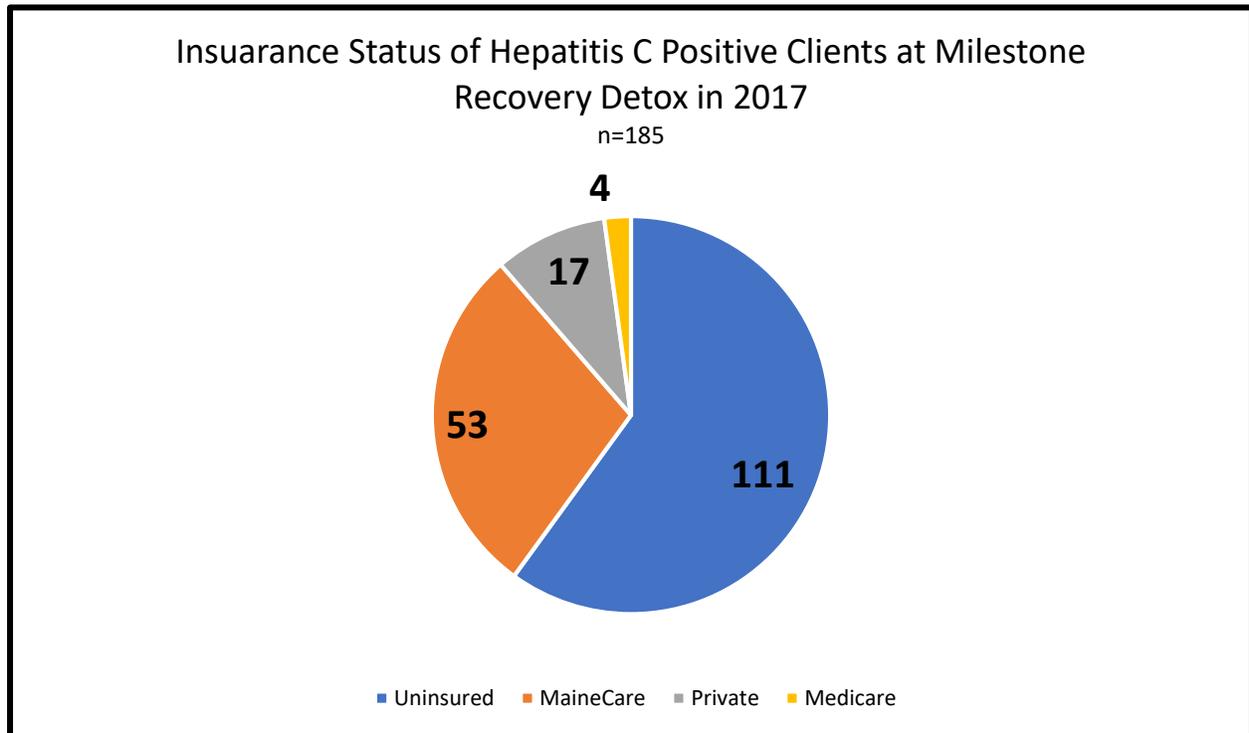
### IV. Housing Status



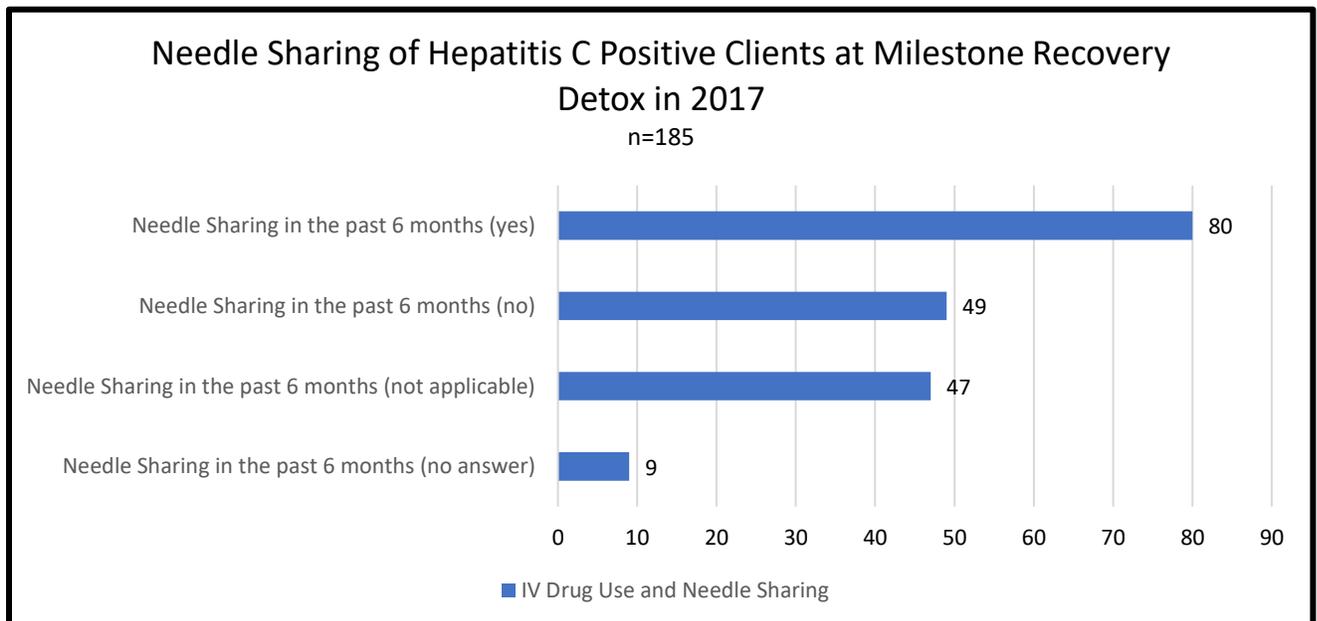
### V. County



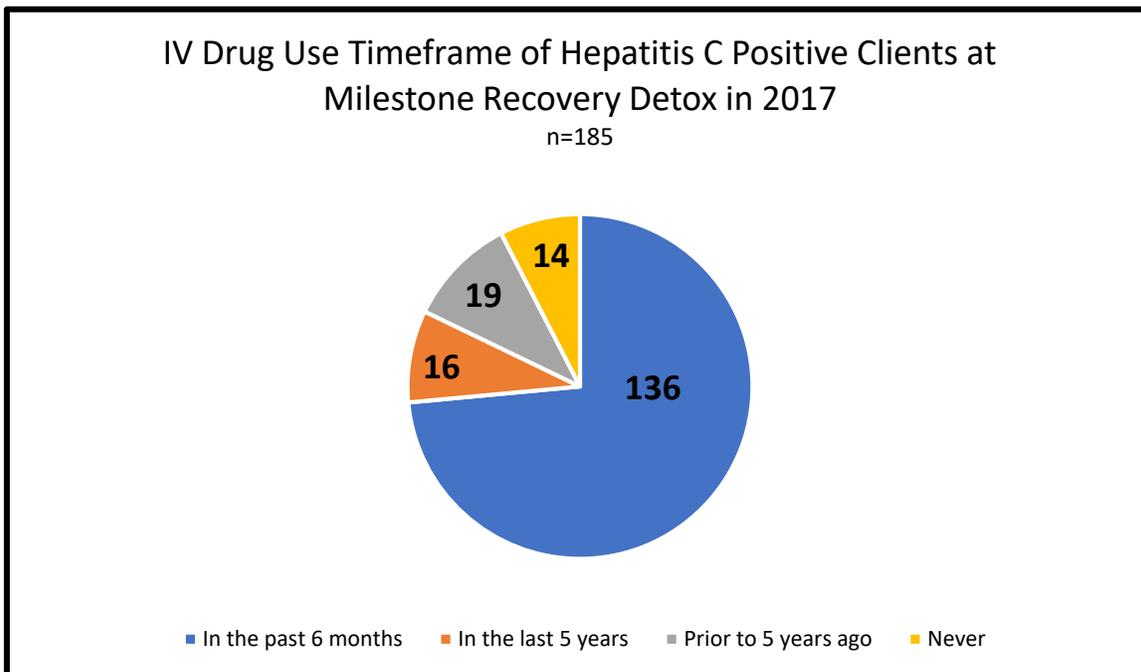
## VI. Insurance



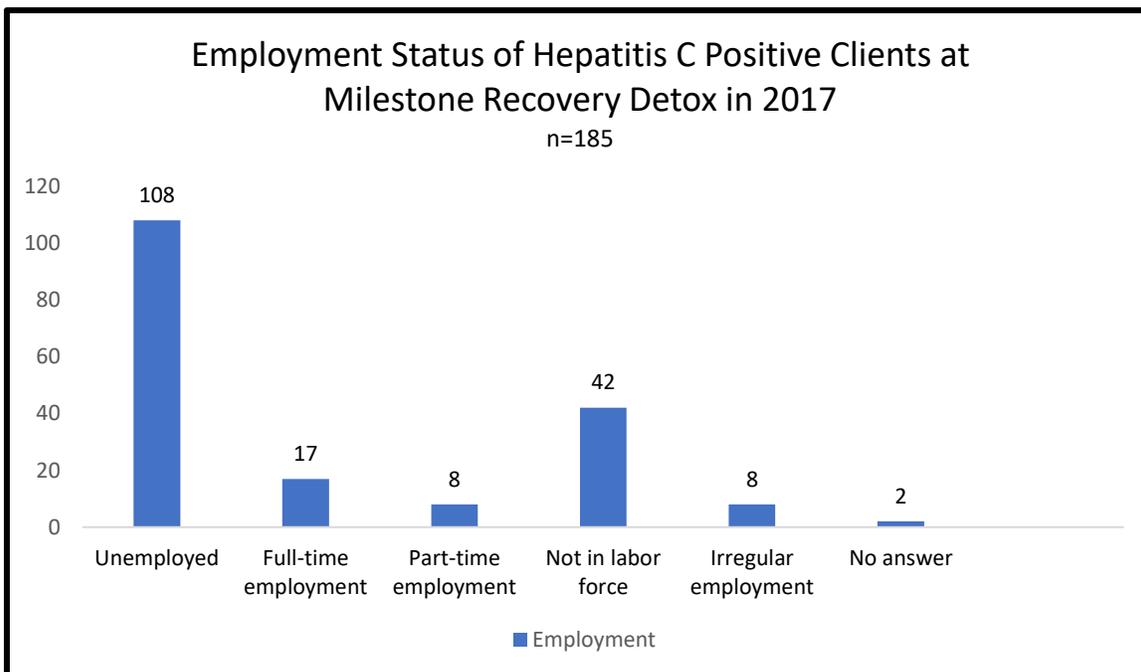
## VII. IV Drug use and Needle Sharing



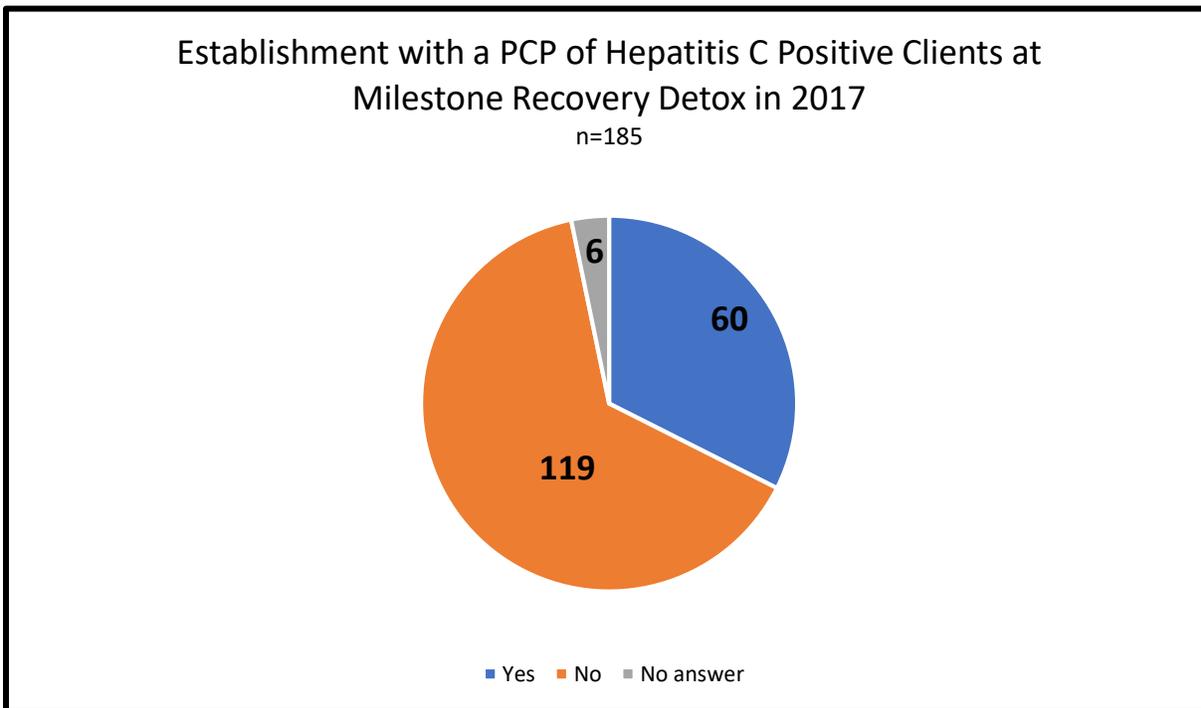
### VIII. IV Drug Use Timeframe



### IX. Employment



### X. Primary Care Provider



## Discussion

70% of individuals who reported a positive Hepatitis C status upon admission to Milestone Recovery in 2017 were male and 30% were female. According to data from the Maine Center for Disease Control and Prevention, 58% of individuals with reported chronic HCV in Maine were male in 2016 (Maine CDC, 2017). The female to male ratio of clients at Milestone Recovery is typically about 1:5 and the gender of HCV positive individuals who were admitted in 2017 aligns with data from the Maine CDC.

Most clients who self-reported hepatitis C upon admission to Milestone Recovery were between the ages of 25 and 34 years old, with the median age being 37. Comparatively, this is similar to the median age of individuals with chronic hepatitis C in Maine in 2017, which was 34 years of age (Maine CDC, 2017).

Most clients who reported a positive hepatitis C status at Milestone Recovery in 2017 were opiate or poly substance users (51 and 49 individuals respectively or over half of all total substances). Poly substance use is defined as the use of three or more substances (which often includes opiates). This demonstrates that many of the individuals who were hepatitis C positive were using more substances than just opiates, which is a critical piece of information to consider when thinking about how to educate substance users with HCV. For example, alcohol use accelerates liver damage in those with the virus (DHHS, 2017). While opiates are often linked with injection drug use, numbers from Milestone indicate that other substances are also being injected frequently (such as suboxone, methamphetamines, and crack/cocaine). When thinking about treatment for hepatitis C in injection drug users, it is important for healthcare providers and public health professionals to consider injection drug use beyond opiates and ask clients what other substances they are using. Furthermore, it is important to obtain an accurate substance use history; 20% of individuals who reported an HCV positive status in 2017 report alcohol as the only substance they *currently* use. This suggests that the virus was acquired through past IV drug use or through other means (for example, though maternal/fetal transmission, contact via tattoo needles or blood transfusions, or through sexual contact). Obtaining an accurate substance use history ensures that appropriate education around transmission and progression of the disease is given to the patient.

Over half of individuals who presented to Milestone Recovery in 2017 who had a self-reported hepatitis C status were homeless. Homelessness creates barriers to linkage with medical care and opportunities for hepatitis C treatment. Once an individual is established with care and once HCV treatment is made available, other variables come into play that could potentially interfere with treatment, such as difficulty maintaining follow up appointments and storage of medications. This is an important factor to consider when thinking about the best ways to make HCV treatment accessible and successful.

Most HCV clients who presented to Milestone Recovery in 2017 (over 60%) reside in Cumberland County. Although clients come to Milestone from all over the state, an intervention that would assist with connection to HCV treatment in Cumberland County would benefit the majority of those in need of treatment from Milestone.

## HEPATITIS C IN INJECTION DRUG USERS

60% of individuals with HCV who were admitted to Milestone were not insured. When thinking practically about referrals for HCV treatment in the community, this is an important factor to consider. 30% of clients had MaineCare coverage.

43% of individuals who presented to Milestone were aware that they were HCV positive had also shared needles with others in the past 6 months. Only 26% who were aware of their status had not shared needles. This indicates that there is still a significant amount of work to do around education about needle sharing. Resources to promote safe IV drug use are essential (such as needle exchange programs). The large percentage of people who knew their status and still shared needles with others in the past 6 months is also troubling because it does not account for needle sharing among those who do not know their HCV status. Furthermore, HCV is one of several other diseases that can be transmitted via IV drug use; HIV, hepatitis B, and hepatitis A are also cause for concern.

Most clients who presented to Milestone Recovery in 2017 and were HCV positive had participated in IV drug use in the past six months (nearly 74%). This information aligns with current numbers around the magnitude of the opiate epidemic and the surge in this form of substance abuse. It also indicates that it is necessary to address health issues that stem from the epidemic now rather than waiting for the consequences of this epidemic to accumulate over time.

58% of clients in this study were unemployed and only 9% were employed full time. This points to issues around income, health insurance, and the possibility of HCV treatment and cure for those who are unemployed and who lack health insurance. Additional options for treatment are going to have to be made available to those who are uninsured and unemployed to slow transmission of HCV in IV drug users in the population. Some studies suggest the development of government programs (that compare to those used to contain tuberculosis) would be effective. In Louisiana, where the opiate epidemic and HCV rates are also increasing, policy makers and healthcare workers are asking the federal government to invoke a law that would use companies' drug patents for government purposes and would cost as little as \$1,000 for the full course of treatment for an individual patient (Johnson, C., 2017). It is evident that other large-scale interventions need to be explored to address this issue fully.

Finally, 65% of those with self-reported HCV did not have a primary care provider. Again, these are individuals who know their status and does not include those who have not been tested. It also highlights the complexity involved in linking these individuals with treatment for HCV; even once a PCP is established, a referral to a specialist is usually made, followed by confirmatory lab tests and a liver ultrasound, all of which require additional steps and expense and create barriers to treatment. Once the diagnostic component is complete, it is not guaranteed that a client will qualify for treatment if they do not have health insurance or if there are strict qualifications for treatment made by their insurance company. Hepatitis C treatment has many layers of complexity but also needs to be addressed to stop preventable deaths from the virus.

## Limitations

- Information was collected about clients with a *self-reported* HCV positive status. To confirm a diagnosis of HCV, two sets of lab tests are required: a positive antibody test along with a detected HCV viral load. It is possible that some individuals included in this project cleared the virus on their own and will not require further treatment.
- Some information was excluded in charts about the hepatitis C status of clients. These individuals were not included in this project, although they could be HCV positive.

## Proposed Intervention Based on Data

Greater Portland Health (GPH) is a Federally Qualified Healthcare Center that provides healthcare to individuals in the community and offers a sliding fee scale to those with no insurance and little or no income. They also serve patients who have MaineCare and private health insurance. GPH is a “healthcare home” that offers several services at their three locations (two in Portland and one in South Portland) including primary care, mental health services, dental care, Medication Assisted Treatment (MAT), and infectious disease follow up. An intervention is proposed (based on the information found in this project) that connects individuals from Milestone Recovery who have hepatitis C and no primary care provider with medical care at GPH. Clients from Milestone detox are currently referred to the City of Portland Needle Exchange program for HCV testing but there are no existing links for those who have known HCV. This process would entail:

1. Identifying clients who report that they are HCV positive on a weekly basis.
2. If the client has already been treated for HCV, has a primary care provider (primary care needs to be established at GPH to access other services at the clinic), or lives outside the greater Portland area, the client will not be considered for a referral. Educational materials will be made available to these clients.
3. Milestone nursing staff will meet with qualified clients, do a brief HCV education session, discuss their interest in a referral to GPH, and if they are interested in a referral, have them sign a release for a GPH referral.
4. It will be ensured that the counseling staff at Milestone have not made a referral for primary care to GPH, to avoid duplication of services.
5. A referral sheet will be faxed to GPH along with a release of information from Milestone to facilitate the referral process.
6. GPH will reach out to the client to make an initial appointment. The GPH CHOW worker (who is located at 63 Preble Street in Portland) will assist with this.
7. All clients who are screened and referred will be kept track of to monitor the success of this intervention.
8. This system will change to improve the process as needed.
9. This has been reviewed and approved by the Director of Nursing at Milestone Recovery and its anticipated implementation date is June 1, 2018.

## Conclusion

The opiate epidemic in our state and country has had a devastating impact on individuals and families. If its long-term effects are not considered, we run the risk of having additional detrimental outcomes related to infectious disease. Information that has been gathered from Milestone Recovery about individuals who are hepatitis C positive supports the complexity, urgency, and importance of this situation in meeting the needs of some of the most vulnerable members of our community. By educating clients and connecting them with other providers, there is potential for this issue to be addressed, although bigger policy changes are also needed. Providing timely hepatitis C treatment to individuals who have been infected with the virus will help prevent transmission of the disease to others, reduce long-term healthcare spending, and improve individual health outcomes. Furthermore, it links opiate and other substance users to medical care and sends a message to them that the medical community values their well-being. These actions provide additional support around recovery efforts are steps towards ending an epidemic that has already taken too many lives.

## Appendix A

## Milestone Recovery

TODD GOODWIN  
Board President

TOM RANELLO  
Board Vice President



RON HOUSLEY  
Board Treasurer

BOB FOWLER  
Executive Director

## Hepatitis C Referral Form

**Name:**

**Date of Birth:**

**Address:**

**Phone Number:**

**Insurance:**

**Date of Diagnosis:**

**Location of Diagnosis:**

**Substance(s) Used:**

**Medical Diagnosis:**

**Allergies:**

**Additional Notes:**

SHELTER AND DETOXIFICATION PROGRAM  
65 India St  
Portland, ME 04101  
TEL (207) 775-4790 FAX (207) 775-5231

EXTENDED CARE PROGRAM  
PERMANENT & TRANSITIONAL HOUSING  
OUTPATIENT SERVICES  
P.O Box T, 28 Portland Avenue  
Old Orchard Beach, ME 04064  
TEL (207)934-5231 FAX (207) 934-5139

Appendix B

# Hepatitis C Referral Process

Client presents for admission to Milestone Recovery and is HCV positive



HCV positive clients are identified weekly



RN reviews charts of HCV positive clients



No previous treatment, does not have a PCP, lives in Portland or South Portland



Previous treatment, has a PCP, or lives outside of Portland



RN meets with client and provides education about HCV/information about referral to GPH



Client requests referral to GPH



Client declines referral to GPH



Referral is placed



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