Hepatitis B and Hepatitis C in Philadelphia

2021 ANNUAL REPORT

MAY 2023

Department of Public Health
CITY OF PHILADELPHIA

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Introduction

This report by the Philadelphia Department of Public Health (PDPH) Division of Disease Control (DDC) serves as a high-level summary of the epidemiology of hepatitis B and hepatitis C in Philadelphia. This information should be used to inform residents and service providers about the importance of these two infectious diseases, and the need for enhanced attention and resources to prevent, diagnose, and treat hepatitis B and hepatitis C in Philadelphia.

The burden of these two diseases amongst Philadelphia residents is substantial, with steady trends of new infections each year. Diagnostic and clinical tools exist to prevent new hepatitis B and hepatitis C infections, and to diagnose, treat, and cure (in the case of hepatitis C) existing infections amongst Philadelphia residents. Many healthcare providers, clinics, and systems actively support vaccination, screening, and treatment of hepatitis B and hepatitis C. (see Phillyhepatitis.org and HepCap.org for some examples)

PDPH maintains a program focused on public health surveillance of hepatitis B and hepatitis C in tandem with work with patients, communities, and providers. This work includes community, patient, and provider education, care navigation support, and facilitating improving access to hepatitis B and hepatitis C services in Philadelphia.

The existing work of PDPH and other stakeholders in Philadelphia is a meaningful foundation for addressing the impacts of hepatitis B and hepatitis C. In 2023, PDPH will release the Philadelphia Hepatitis B and Hepatitis C Elimination Plan to inform future activities through 2030. PDPH hopes this report supports local efforts to work towards elimination of hepatitis B and hepatitis C.

Background

Hepatitis B and hepatitis C are infections of the liver and are caused by two different viruses, hepatitis B virus and hepatitis C virus, respectively. Both infections cause inflammation of the liver and have an acute (short-term) and a chronic (long-term) phase. After an exposure some people will develop hepatitis B or hepatitis C infection, and the first six months are considered an acute phase of the infection. For some, their body will fight off the virus and they will no longer have infection. For others, infection will become chronic and treatment is required. In the case of hepatitis B, vaccination can support the body being able to prevent infection happening at all. Many people do not experience symptoms of these infections or know they might have been exposed to hepatitis B or hepatitis C. Some people live for decades before being diagnosed.

Hepatitis B and hepatitis C are spread through contact with blood or semen of a person living with the infection or vertically (from a birthing person to infant). Hepatitis B is also spread through vaginal fluid. Both epidemiology profiles show a duality of transmission and populations: For example, many people living in Philadelphia with hepatitis B today acquired the infection perinatally or in young childhood when born in a country where hepatitis B is endemic.

Of people with chronic hepatitis C, transmission occurred among the baby boomer generation due to the presence of hepatitis C in medical procedures and a variety of behavioral exposures. More recent transmission in Philadelphia for both hepatitis B and hepatitis C has been largely due to exposure to blood or body fluids among adults, primarily through injection drug use.

Clinical monitoring for anyone with chronic hepatitis B and hepatitis C is critical, as these long-term infections can lead to liver damage, cancer, and death. Hepatitis B medications can limit the liver damage and regular cancer screenings are important. Hepatitis C is curable, with medications that can be taken for as few as eight weeks.

For more information about hepatitis B and hepatitis C:

https://www.phillyhepatitis.org/

https://www.cdc.gov/hepatitis/abc/index.htm

https://www.hepb.org/what-is-hepatitis-b/what-is-hepb/

https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html

Acute Hepatitis B

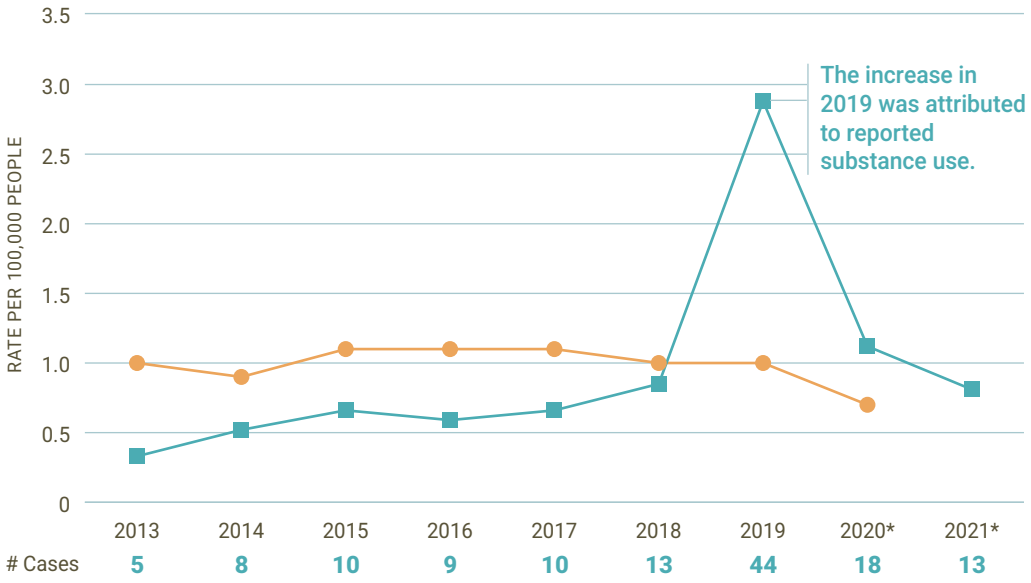
Number of People Reported with Acute Hepatitis B in 2021:

13

Rate of Acute Hepatitis B in 2021:

0.8 per 100,000 people

Figure 1: **Rates of Reported Acute Hepatitis B: Philadelphia and United States, 2013–2021**



Note: National data has not been published for 2021.
*Totals for 2020 and 2021 may have been impacted by the COVID-19 pandemic

While the increase of acute hepatitis B cases in 2019 was primarily among people with substance use disorder, the increase and subsequent decrease in 2020 is likely due to a combination of changes to how people accessed hepatitis B testing including increases due to a hepatitis A outbreak in 2019 and testing decreases in 2020 and 2021 due to the COVID-19 pandemic.

Number of People Reported with Acute Hepatitis B in 2021:

84%
(n=11) were 25–44 Years of Age and Mean Age of 35 years

69%
(n=9) were Non-Hispanic White

96%
(n=9) Had a History of Substance Use

Note: Many patients with acute or chronic hepatitis B or C are asymptomatic; as a result, many cases are not diagnosed or reported. Therefore, surveillance data underestimate the true level of acute and chronic hepatitis B and C in Philadelphia.

Chronic Hepatitis B

24,633 people (**1.5% of Philadelphia residents**) are estimated to be living with chronic Hepatitis B in Philadelphia.

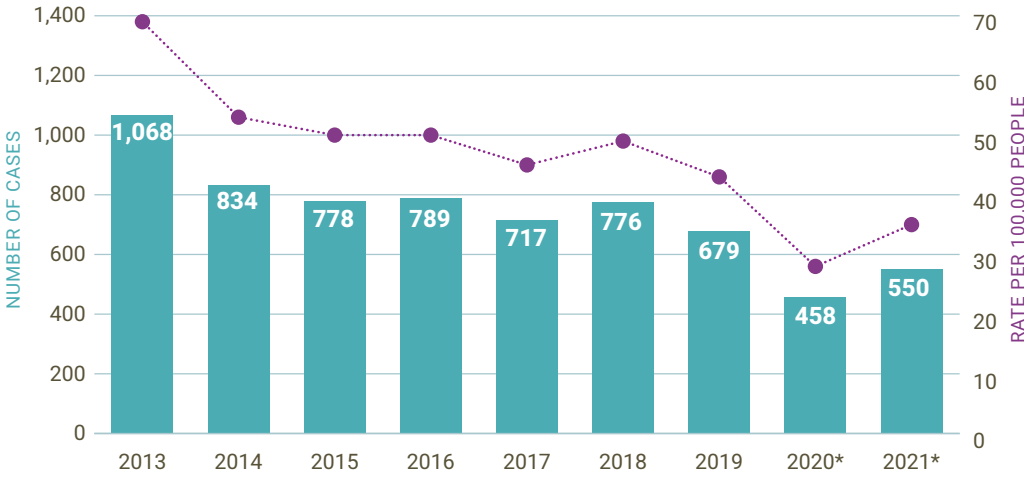
Number of People Newly Reported with Chronic Hepatitis B in 2021:

550

Rate of Newly Reported Chronic Hepatitis B in 2021:

34.9 per 100,000 people

Figure 2: **Number & Rate of People Newly Reported with Chronic Hepatitis B in Philadelphia by Year of First Report, 2013–2021**



*Totals for 2020 and 2021 may have been impacted by the COVID-19 pandemic

Characteristics of People Newly Reported with Chronic Hepatitis B in 2021:

Figure 3: **By Sex as Reported by Provider**

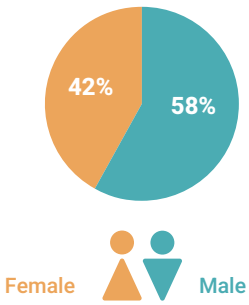
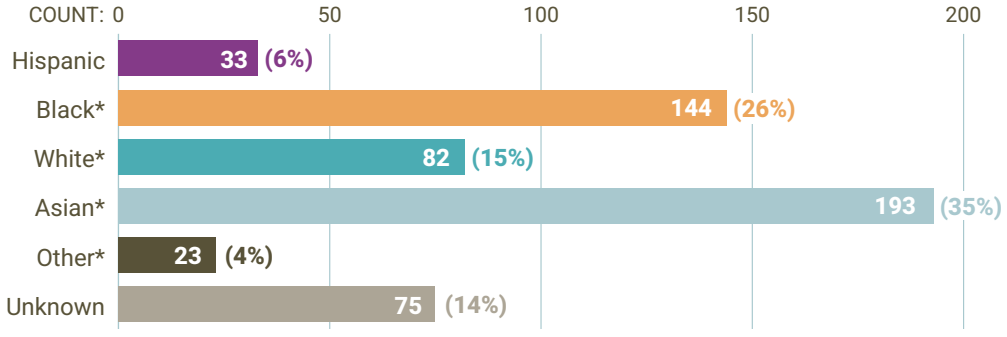
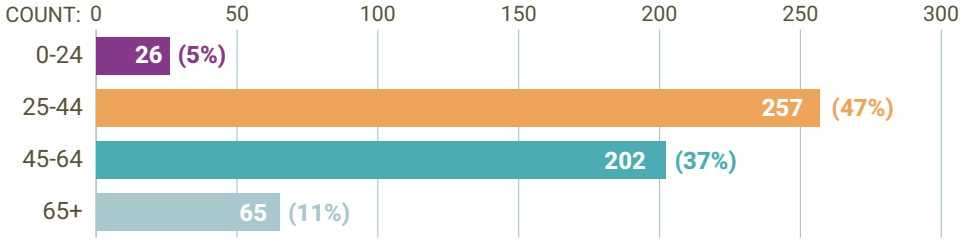


Figure 4: **By Race/Ethnicity**



* Non-Hispanic

Figure 5: **By Age (in years) at Time of Report**



Vital Statistics: Hepatitis B

Perinatal Hepatitis B

People (age 15–44) Who Could Become Pregnant living with Chronic Hepatitis B in 2021:

Number:

5,745

Rate:

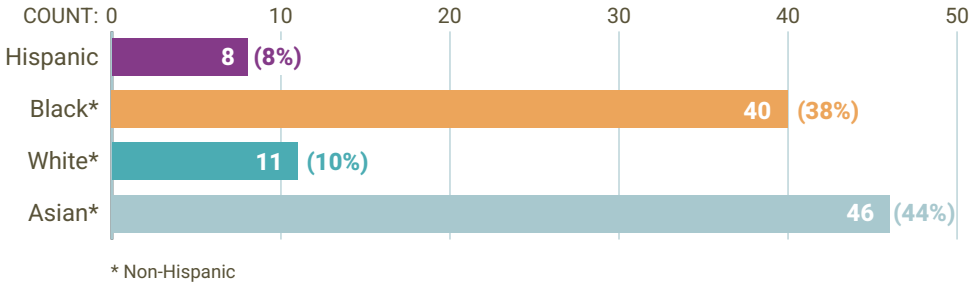
1,576 per 100,000 people

Infections from Perinatal HBV Transmission Among Infants Born to Persons Living with Chronic Hepatitis B in 2021:*

0

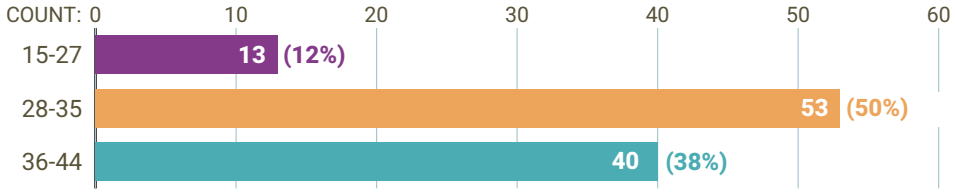
Number of Infants Born to a Pregnant Person Living with Chronic Hepatitis B, Live Births: **106**

Figure 6: **By Race/Ethnicity**



* Non-Hispanic

Figure 7: **By Age (in years) at Time of Report**



Of Note: A CDC Funded Perinatal Hepatitis B Prevention Program works with patients and providers to ensure that infants receive post-exposure prophylaxis (Hepatitis B Immunoglobulin and hepatitis B vaccine) on first day of life.

Deaths Reported as Caused by Hepatitis B in 2020

21 Deaths

Rate of **1.3** per 100,000 people

NOTES:

Deaths occurring outside Philadelphia are not included.

Both underlying and contributing causes of death are included.

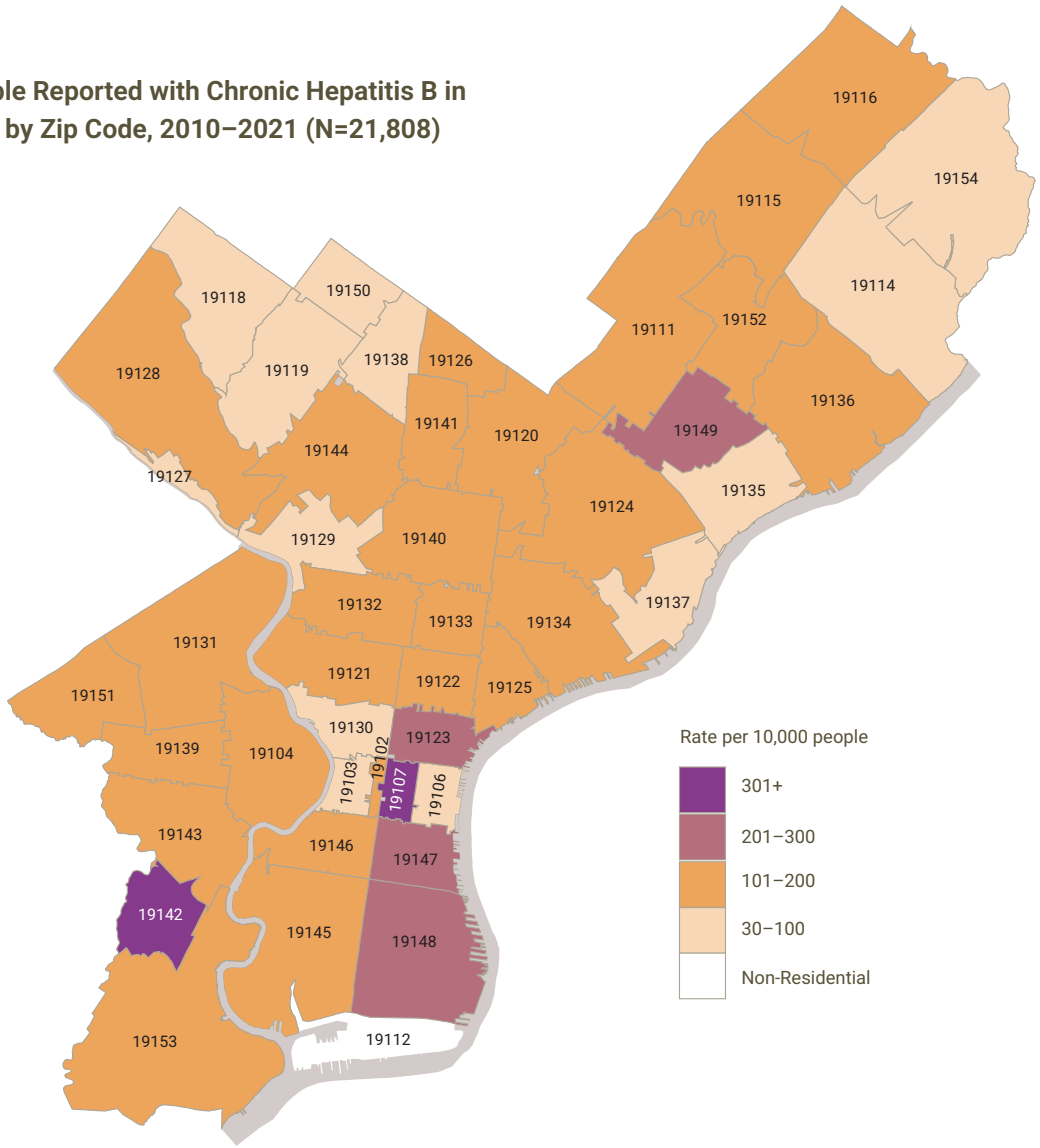
Underlying cause of death is the disease or condition that set off the chain of events leading to death. Contributing causes of death are diseases, morbid conditions or injuries that either resulted in or contributed to death.

Both acute hepatitis B and C, chronic hepatitis B and C, and liver cancer (hepatocellular carcinoma) are included as causes of death.

Death data provided by the Pennsylvania Vital Registration System

Prevalence: Hepatitis B

Map 1: **Rate of People Reported with Chronic Hepatitis B in Philadelphia by Zip Code, 2010–2021 (N=21,808)**



Acute Hepatitis C

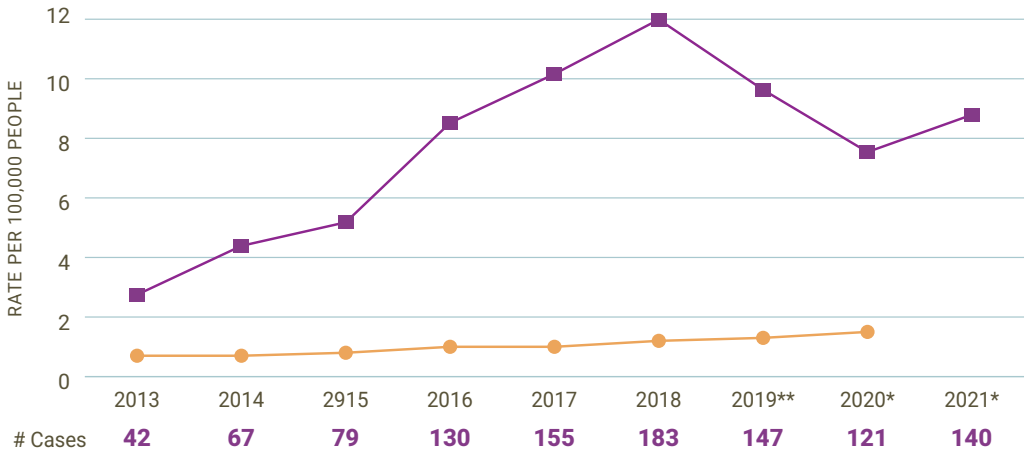
Number of People Reported with Acute Hepatitis C In in 2021:

140

Rate of Acute Hepatitis C in 2021:

8.7 per 100,000 people

Figure 8: **Rates of Reported Acute Hepatitis C: Philadelphia and United States, 2013-2021**



*Totals for 2020 and 2021 may have been impacted by the COVID-19 pandemic.

**A local hepatitis A outbreak in 2019 related to substance use occurred. PDPH, following the CDC's case definition for acute hepatitis C could not count all suspected acute hepatitis C cases because the definition has limits when a concurrent hepatitis A diagnosis exists (https://ndc.services.cdc.gov/case-definitions/hepatitis-c-acute-2020/). Therefore, it is suspected that additional acute hepatitis C cases occurred in 2019 that are not shown here."

Number of People Reported with Acute Hepatitis C in 2021:

Figure 9: **By Age (in years) at Time of Report**

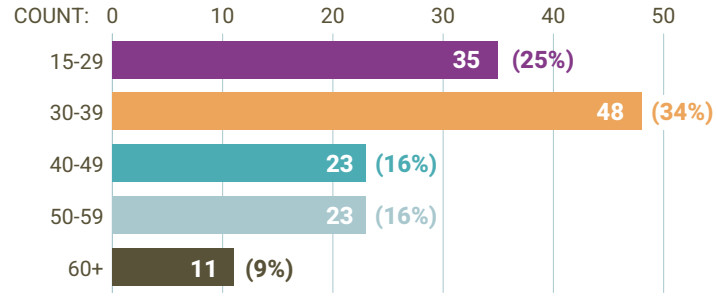


Figure 10: **By Reported Risk Factors**

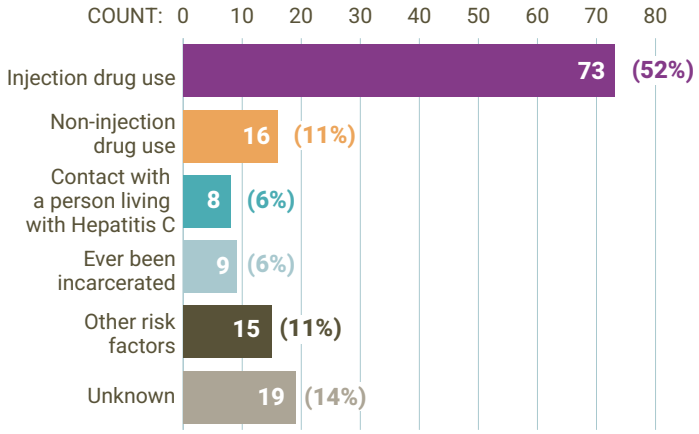
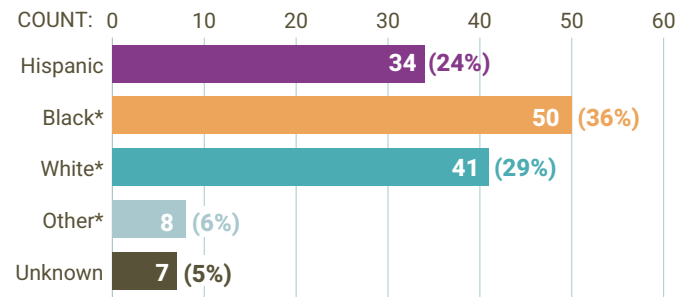


Figure 11: **By Reported Race/Ethnicity**



* Non-Hispanic

Contact with a person living with hepatitis C: includes contact with a sexual or needle sharing partner.

Other risk factors: Men who have sex with men (MSM), non-commercial tattoo, healthcare related exposure, transplant of a hepatitis C positive organ, born in an hepatitis C endemic country, or ever homeless

Chronic Hepatitis C

52,640 people (**3.3% of Philadelphia residents**) are estimated to be living with chronic Hepatitis C in Philadelphia.

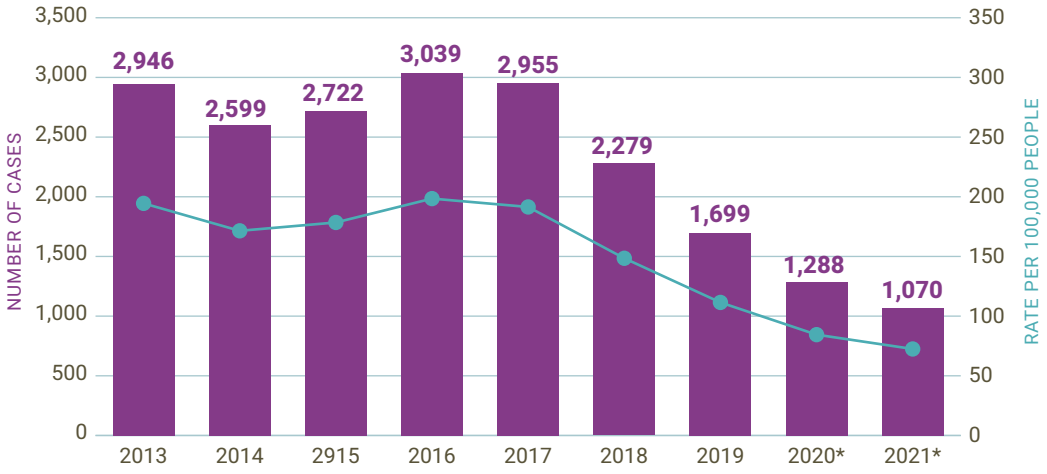
Number of People with Newly Reported Chronic Hepatitis C in 2021:

1,070

Rate of Newly Reported Chronic Hepatitis C in 2021:

68 per 100,000 people

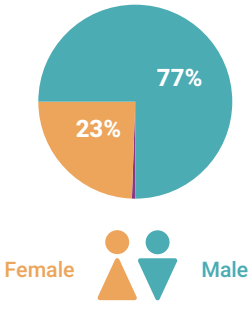
Figure 12: **Number & Rate of People Newly Reported with Chronic Hepatitis C in Philadelphia by Year of First Report, 2013–2021**



*Totals for 2020 and 2021 may have been impacted by the COVID-19 pandemic

Characteristics of People Newly Reported with Chronic Hepatitis C in 2021:

Figure 13: **By Sex as Reported by Provider**



<1% Unknown

Figure 14: **By Age (in years) at Time of Report**

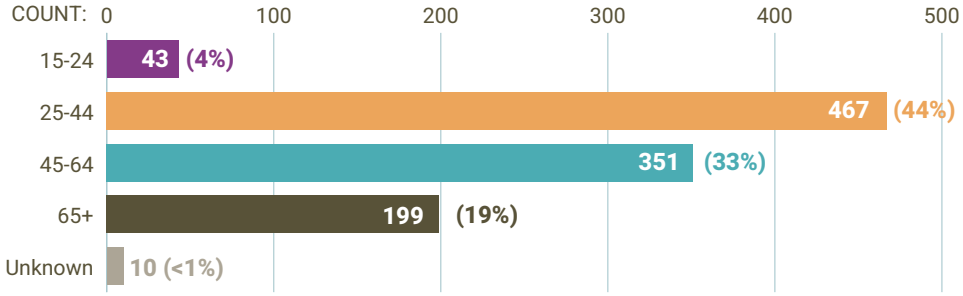
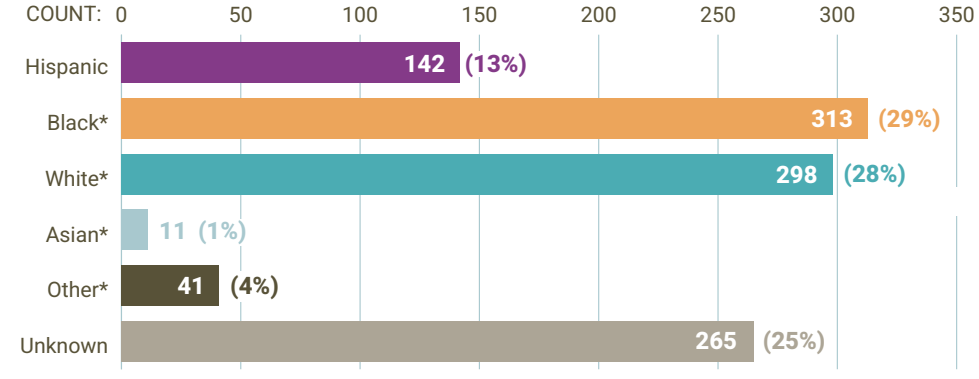


Figure 15: **By Reported Race/Ethnicity**



* Non-Hispanic

Vital Statistics: Hepatitis C

Perinatal Hepatitis C

People (Age 15–44) Who Could Become Pregnant Living with Chronic Hepatitis C in 2021:

Number:

4,910

Rate:

1,347 per 100,000 people

Percent of Infants Born to Persons Living with Chronic Hepatitis C in 2019, Tested Appropriately:

63%

New Infections from Perinatal Hepatitis C Transmission Among Infants Born to Persons Living with Chronic Hepatitis C in 2021:

2

Number of Infants Born to a Pregnant Person Living with Chronic Hepatitis C, Live Births: **80**

Figure 16: **By Race/Ethnicity**

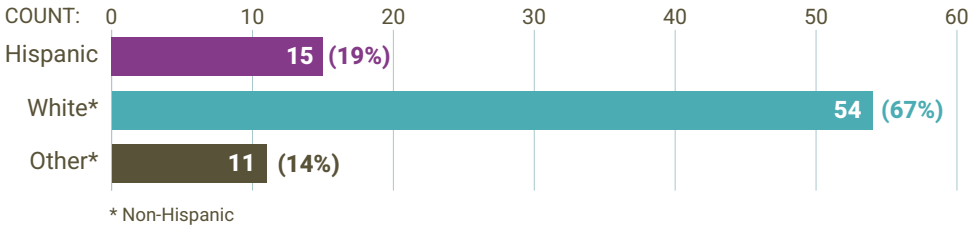
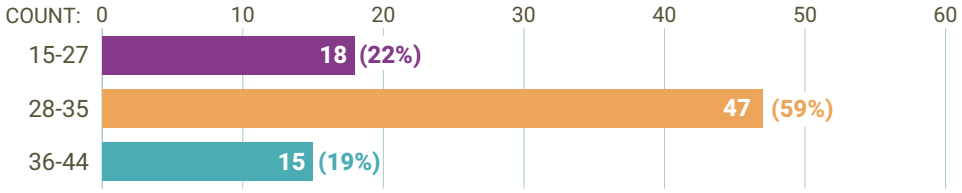


Figure 17: **By Age (in years)**



Deaths Reported as Caused by Hepatitis C in 2020

143 Deaths Rate of **8.8** per 100,000 people

NOTES:

Deaths occurring outside Philadelphia are not included.

Both underlying and contributing causes of death are included.

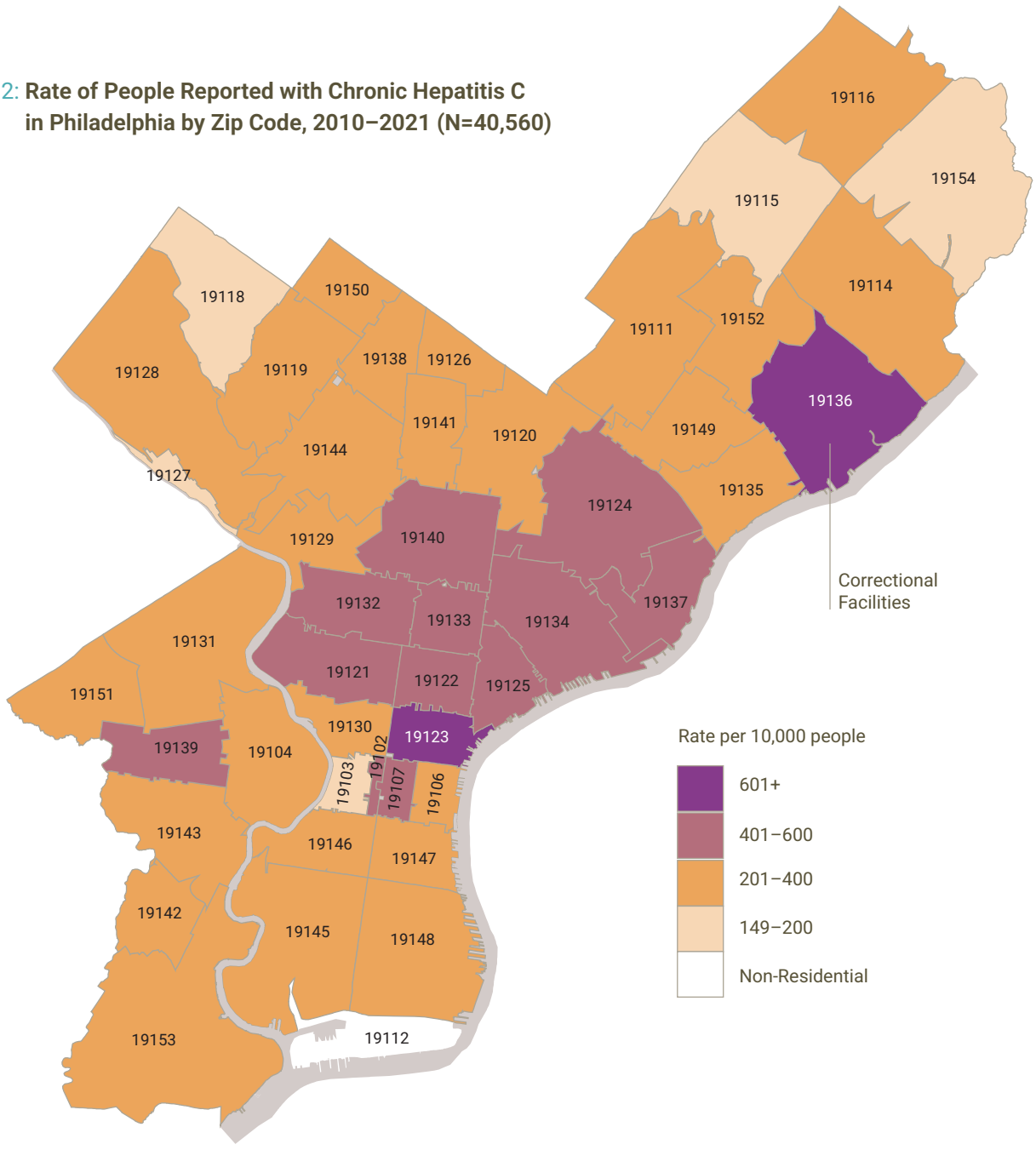
Underlying cause of death is the disease or condition that set off the chain of events leading to death. Contributing causes of death are diseases, morbid conditions or injuries that either resulted in or contributed to death.

Both acute hepatitis B and C, chronic hepatitis B and C, and liver cancer (hepatocellular carcinoma) are included as causes of death.

Death data provided by the Pennsylvania Vital Registration System

Prevalence: Hepatitis C

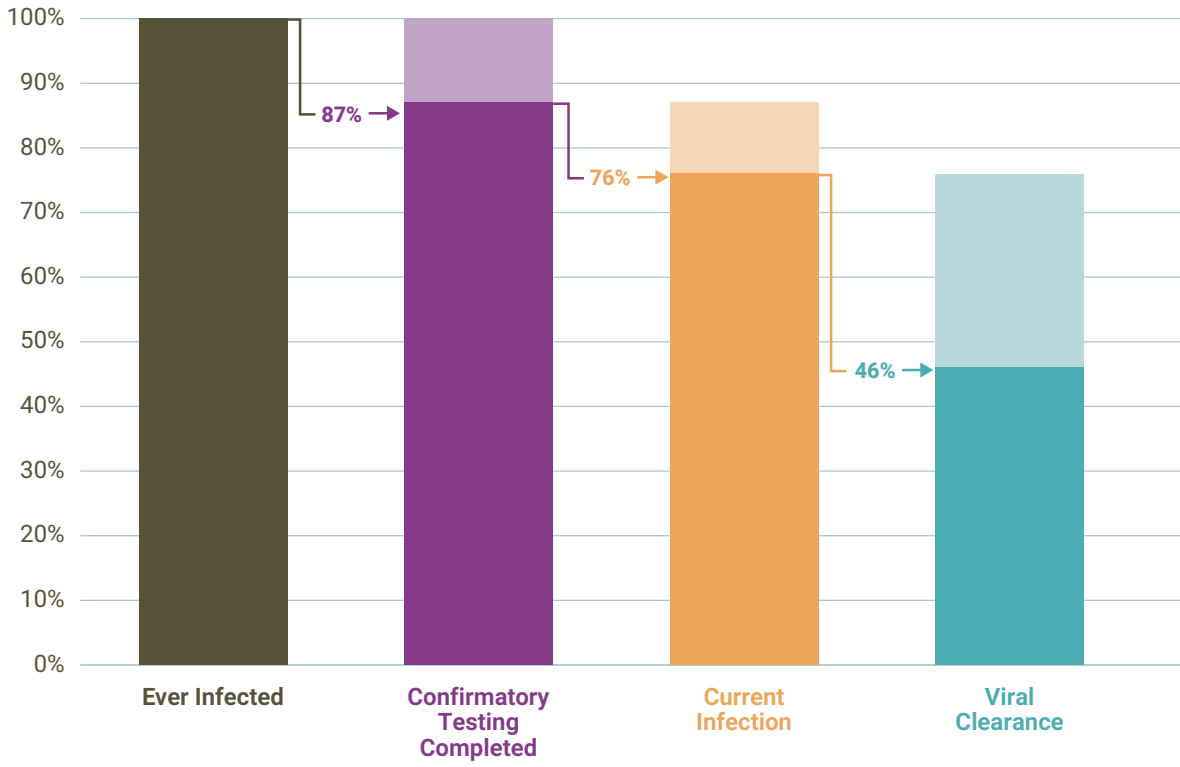
Map 2: **Rate of People Reported with Chronic Hepatitis C in Philadelphia by Zip Code, 2010–2021 (N=40,560)**



Continuum of Care: Hepatitis C

The Hepatitis C Continuum of Care is a way to visualize the progress of people through each step of care for hepatitis C, from diagnosis to viral clearance. The figure below shows progress, or lack of progress, of individuals from one bar to the next, with each bar representing a step in the continuum. A percentage is indicated from each bar to the next showing the proportion of people who have progressed to the next step. The ultimate goal of elimination efforts is for the Viral Clearance group to equal 100% of the people with a Current hepatitis infection, indicating that all people who need to be treated for Hepatitis C have received those services and are cured.

Figure 18:
Laboratory-Based Hepatitis C Continuum of Care, 2021 (N=50,052)



Elimination Goals
Impact Target

PDPH, in collaboration with local communities and stakeholders has developed a plan to eliminate hepatitis B and hepatitis C in Philadelphia. Upon the plan's release in early 2023, PDPH will continue to collaborate citywide to achieve the elimination targets by 2030. The Hepatitis B and Hepatitis C Elimination Plan will contain strategies and activities to achieve these goals, and metrics will be updated annually to track and inform progress.

WHO Indicator	WHO 2030 Targets
New Cases of Chronic Hepatitis B Infections	90% reduction
New Cases of Chronic Hepatitis C Infections	
Hepatitis B Deaths	65% reduction
Hepatitis C Deaths	

Source:
World Health Organization. Global Health Sector Strategy on Viral Hepatitis, 2016-2021: Towards Ending Viral Hepatitis. 2016.

Philadelphia Indicator	Baseline (2019)	2021 Philadelphia Data	Percent Change
Newly Reported Cases of Chronic Hepatitis B	679	672	1% Reduction
Newly Reported Cases of Chronic Hepatitis C	1,699	1,070	37% Reduction
% of People with Hepatitis B Who Died Prematurely*	65%	51%	22% Reduction
% of People with Hepatitis C Who Died Prematurely*	59%	44%	25% Reduction

Note: World Health Organization. (2016) Combating hepatitis B and C to reach elimination by 2030: advocacy brief. World Health Organization.

*Death occurring before age 65 years

The PDPH Viral Hepatitis Program (HEP) coordinates public health surveillance and epidemiology- related activities including direct education and outreach to people living with hepatitis B and hepatitis C. Using data to inform activities, HEP programming includes prevention activities including education and some direct care navigation for perinatal hepatitis B and hepatitis C, as well as for people living with a substance use disorder. Additional work includes outreach and engagement through leadership of the local hepatitis C coalition, Hepatitis C Allies of Philadelphia, technical assistance for providers to integrate hepatitis B and hepatitis C services into their practices, as well as support for provider treatment training programs.

Abbreviations and Technical Notes

Abbreviations

HBV: Hepatitis B virus, the virus that causes hepatitis B infections

HCV: Hepatitis C virus, the virus that causes hepatitis C infections

PDPH: Philadelphia Department of Public Health

RNA: Ribonucleic acid

Technical Notes

Acute Hepatitis B: A new HBV infection, reported with evidence of symptoms of acute viral hepatitis, jaundice or elevated alanine aminotransferase (ALT) levels, and HBsAg and Immunoglobulin M (IgM) antibody to hepatitis B core antigen (IgM anti-HBc) positive (if done). Alternatively, a reported HBV infection with a negative HBsAg result followed by an HBsAg or HBV DNA positive result within six months.

Acute Hepatitis C: A new HCV infection in a person older than 3 years of age, reported with jaundice, elevated bilirubin or ALT levels, no evidence of a more likely diagnosis, AND a positive HCV RNA result. Alternatively, a reported HCV infection with a negative anti-HCV antibody and/or HCV RNA laboratory test result followed by positive anti-HCV antibody and/or HCV RNA laboratory test result within twelve months.

Chronic Hepatitis B: An HBV infection reported to PDPH with at least one positive laboratory test result for hepatitis B surface antigen (HBsAg), hepatitis B e antigen (HBeAg), or nucleic acid test for hepatitis B virus DNA (HBV DNA) AND not known to have an acute HBV infection in the same year.

Chronic Hepatitis C: An HCV infection reported to PDPH with at least one positive anti-HCV antibody and/or HCV RNA laboratory test result. If an undetected HCV RNA result was reported, the infection is considered cleared or cured.

Inclusion Criteria: All data pertains to people who were Philadelphia residents who were not known to have died or moved as of December 31st, 2021.

Perinatal Hepatitis B: Hepatitis B infection in infant or child due to HBV transmission from the birthing parent occurring during pregnancy or during labor and delivery.

Perinatal Hepatitis C: Hepatitis C infection in infant or child due to HCV transmission from the birthing parent occurring during pregnancy or during labor and delivery.

Prevalence: Prevalence: Hepatitis B and C prevalence estimates were updated for 2021 and included individuals who had a positive diagnostic hepatitis B laboratory test reported to PDPH from January 1, 1987- December 31, 2021 or a positive hepatitis C laboratory test reported to PDPH from January 1, 2002- December 31, 2021. Individuals were excluded if they were reported to PDPH to have died or were no longer a resident of Philadelphia throughout the identified time period. The hepatitis C estimate also excludes individuals who had resolved (most recent hepatitis C RNA was negative) infection through 2021.

Definitions of Hepatitis C Care Continuum Categories

Ever Infected: Ever reported with a positive HCV antibody or HCV RNA or HCV genotype between January 1, 2013, & December 31,2020

Confirmatory Testing Completed: An HCV RNA or HCV genotype test of any result reported between January 1, 2013, & December 31, 2021

Current Infection: Ever reported with a positive HCV RNA test

Viral Clearance: A reported negative HCV RNA test result following a positive HCV RNA over any time period.

Appendices

Data Sources

All surveillance data is collected by the Philadelphia Department of Public Health as a part of mandated reporting of hepatitis B and hepatitis C infections among Philadelphia residents. In addition, pregnancy among these individuals is also reportable. In addition, supplementary information on demographics, transmission risk factors, and clinical care are collected through patient and provider interviews.

Birth and Death data sourced from the Pennsylvania Vital Registration System.

Population estimates for Philadelphia residents sourced from the U.S. Census Bureau; American Community Survey, 2021 American Community Survey 1-Year Estimates.

References to U.S. rates of acute hepatitis B and acute hepatitis C were sourced from Centers for Disease Control and Prevention. United States Viral Hepatitis Surveillance Reports, 2013 – 2020.

Authorship

This report was prepared by the Philadelphia Department of Public Health's Viral Hepatitis Program epidemiologists — Danica Kuncio, MPH, Eman Addish, MPH, and Emily Waterman, MPH — with additional support from the Viral Hepatitis Program team. Additional support provided by the Philadelphia Department of Public Health's Division of Disease Control and Health Commissioner's Office.

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