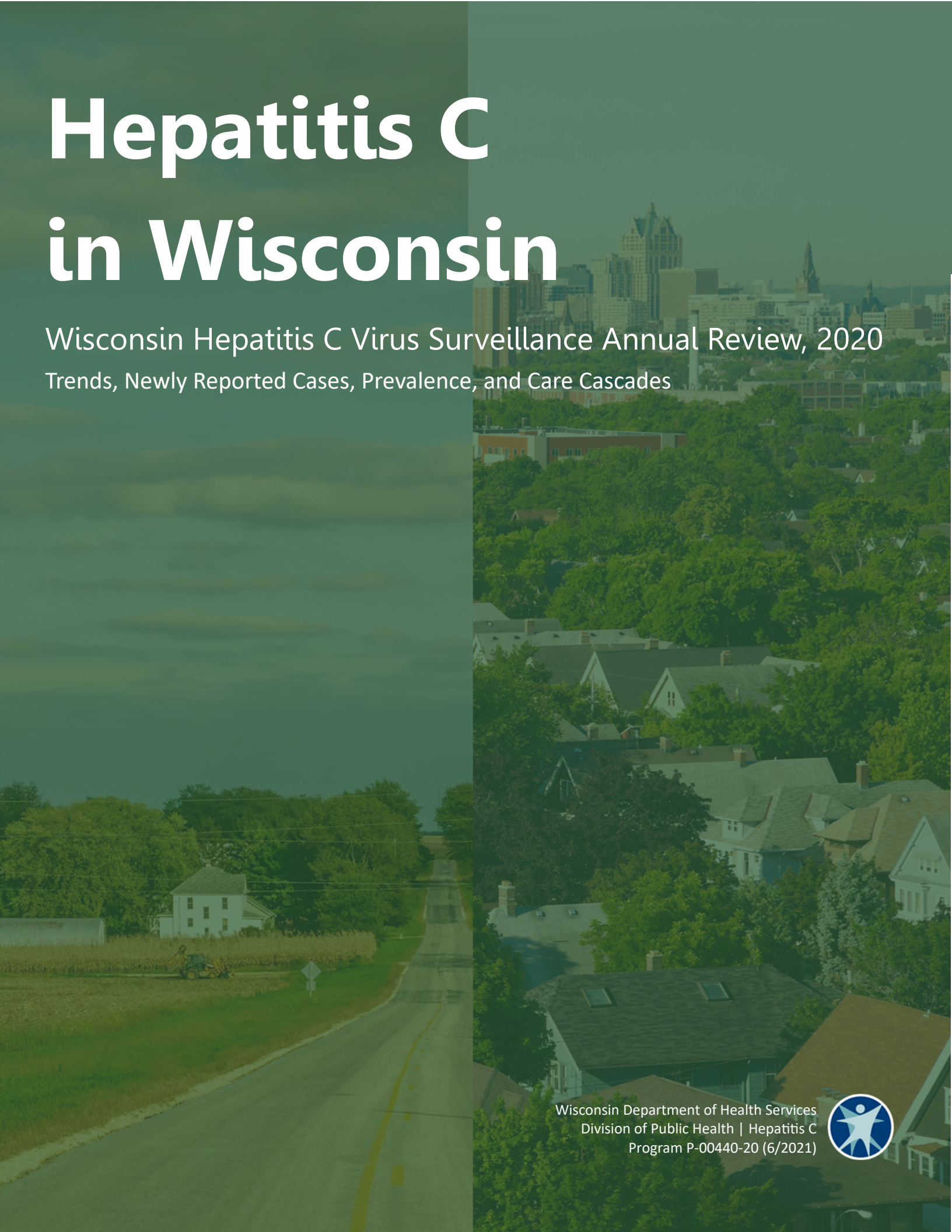
Hepatitis C in Wisconsin

Wisconsin Hepatitis C Virus Surveillance Annual Review, 2020

Trends, Newly Reported Cases, Prevalence, and Care Cascades



Wisconsin Department of Health Services
Division of Public Health | Hepatitis C
Program P-00440-20 (6/2021)

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SUMMARY

Hepatitis C virus infection is the most common blood-borne infection in the U.S., impacting an estimated 1% of the population or 2.4 million people.[1] In the U.S. and Wisconsin, there are two populations most commonly affected by hepatitis C:

- Younger adults who were most likely recently infected through injection drug use.
- Older adults, including baby boomers born during 1945–1965, who were most likely infected many years ago but are only now being diagnosed with hepatitis C.

This report summarizes data reported to the Wisconsin Department of Health Services (DHS) regarding people with positive hepatitis C test results and focuses on results reported during 2020.

HOW THE EVENTS OF 2020 IMPACTED THE DATA IN THIS REPORT

Three events occurred during 2020 that impacted the data presented in this report. The most impactful of these events was the statewide disruption in hepatitis C testing caused by the COVID-19 pandemic. Because of the reduction in testing, the total number of hepatitis C cases reported for 2020 was lower than expected. This decrease in reported cases should not be interpreted as a decrease in hepatitis C occurrence.

TRENDS

Over the past decade, new hepatitis C infections have increased as a result of increased injection drug use. Most new infections were reported among white people, but rates of new hepatitis C infections are highest and have increased substantially among Native Americans. The number of women of childbearing age with hepatitis C has increased. This is especially concerning considering mothers can pass hepatitis C to their infants around the time of birth.

The number of baby boomers diagnosed with hepatitis C increased following the release in 2012 of national recommendations to screen for hepatitis C all people born in this birth cohort. In recent years, however, new diagnoses among baby boomers have decreased.

2020 CASES

In 2020, there were 1,941 hepatitis C cases newly reported: 8 perinatal cases, 96 acute cases, and 1,837 chronic cases.

- Injection drug use was the most commonly reported risk factor among acute cases.
- Although most newly reported cases reside in the urban southeastern part of Wisconsin, the rates of newly reported hepatitis C were highest in many rural counties in northern Wisconsin.

PREVALENCE ESTIMATES

According to data reported to DHS, 26,303 people age 18 and older (0.59% of Wisconsin adults) are currently living with hepatitis C infection in Wisconsin. However, because estimates suggest that only approximately half of people with hepatitis C have been diagnosed and reported, DHS estimates the actual number of Wisconsin adults living with chronic hepatitis C infection is 47,000 (1.0% of Wisconsin adults).

CARE CASCADES

Among people confirmed with hepatitis C in 2018–2020, 26% (1,474 people) had negative hepatitis C RNA results at their most recent test, suggesting they had cleared the infection either naturally or through treatment. Only 20% of people ages 15–29 had test results indicating infection had cleared, compared to 37% of baby boomers.

DEFINITIONS AND NOTES

Acute hepatitis C case—refers to a case of hepatitis C that included evidence indicating the infection occurred within the past six months. Cases are subclassified as confirmed (hepatitis C RNA detected) or probable. The complete case definition can be found at the National Notifiable Diseases Surveillance System, Hepatitis C, Acute.

Chronic hepatitis C case—refers to a case of hepatitis C that did not include evidence indicating the infection occurred within the past six months. Cases are subclassified as confirmed (hepatitis C RNA detected) or probable (no hepatitis C RNA result reported). The complete case definition can be found at the National Notifiable Diseases Surveillance System, Hepatitis C, Chronic.

Perinatal hepatitis C case—refers to a case of hepatitis C that occurred in a child aged 2 to 36 months and was assumed to have been transmitted from mother to infant. The complete case definition can be found at the National Notifiable Diseases Surveillance System, Hepatitis C, Perinatal Infection.

All hepatitis C cases—refers to all reported cases of hepatitis C, including cases meeting the definition of acute, chronic, and perinatal hepatitis C.

People newly reported with positive hepatitis C test results—refers to people newly reported with a positive hepatitis C antibody result or a positive hepatitis C RNA result or a reported case of confirmed or probable hepatitis C. This definition of hepatitis C occurrence is used for the purpose of monitoring trends because it is not impacted by negative hepatitis C RNA reporting, which began in April 2017.

Baby boomer—refers to a person born during the years 1945 through 1965. Because of the high prevalence of hepatitis C among people in this birth cohort, since 2012, the Centers for Disease Control and Prevention (CDC) recommends all baby boomers be tested for hepatitis C.

Rate or Rate per 100,000 people—refers to the number of people with hepatitis C in a particular group (for example, Native American people or residents of a particular county) compared to the number of people in that group in Wisconsin. Rates are calculated to compare groups of people of different sizes.

Prevalence—refers to the number of people living with the disease in Wisconsin. Prevalence can also be described as a percentage of the population.

Women of childbearing age—refers to women aged 15–44. Cases among this population are concerning because there is an approximately 6% risk that babies born to women with hepatitis C will become infected around the time of birth.

Addressing health disparities and inequities is a priority for public health. Race or ethnicity does not make a person more or less likely to acquire hepatitis C. Other factors such as structural racism, stigma, and poverty, as well as unequal access to health care, education, and housing affect communities of color disproportionately and can put individuals at greater risk for acquiring hepatitis C.

IMPACT OF 2020 ON THIS REPORT

During 2020, three events occurred that impacted the number of hepatitis C cases reported in 2020. These events, and how they impacted the data in this report, are described below.

Change to hepatitis C screening recommendations

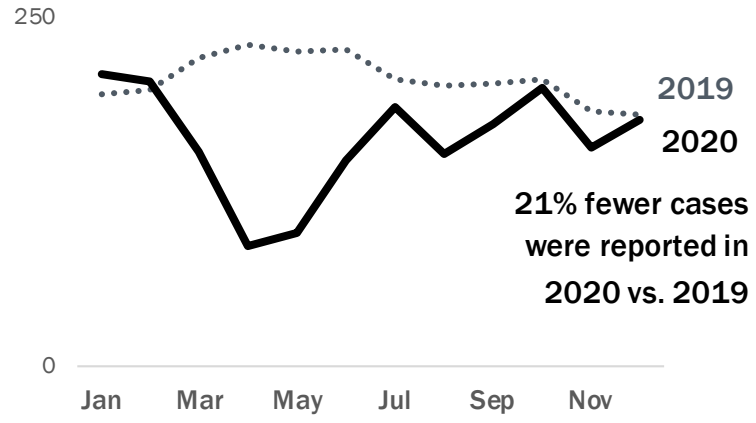
In the spring of 2020, the U.S. Preventive Services Task Force[2] and the CDC[3] augmented their existing hepatitis C testing recommendations to recommend that all adults receive at least one-time screening for hepatitis C. CDC also recommends that all pregnant people be screened during every pregnancy. If COVID-19 had not disrupted hepatitis C testing during 2020, as described in the next section, the number of adults diagnosed and reported with hepatitis C would have been expected to be higher than what was reported. Preliminary Wisconsin Medicaid claims data from the last quarter of 2020 suggest that the rate of hepatitis C screening is now increasing among adults born after 1965.

Disruption to hepatitis C testing as a result of the COVID-19 pandemic

In response to COVID-19, hepatitis C testing services were disrupted statewide in both traditional health care and outreach settings. For example, Wisconsin Medicaid claims data indicate hepatitis C testing during January–June 2020 was 26% less compared to January–June 2019. In addition, reports of hepatitis C testing at syringe services programs were approximately 75% less in 2020 compared to 2019.

As a result of this decrease in testing, the total number of hepatitis C cases reported to DHS in 2020 (N=1,941) was 21% less than the total number of cases reported in 2019 (N=2,467). The fewest cases were reported during April and May of 2020 (see Figure A) when settings with hepatitis C testing were the most disrupted by COVID-19 closures.

Figure A. Number of hepatitis C cases reported to DHS by month of first positive test result, 2020 versus 2019



Because the number of cases reported in 2020 is lower than would have been expected if COVID-19 had not disrupted hepatitis C testing, figures in this report showing trends by year include an asterisk "*" next to the year 2020, and the line segment connected to the year 2020 is dotted. This has been done to indicate that **the decline in the number of hepatitis C cases reported in 2020 is because of decreased hepatitis C testing and should not be interpreted as a decrease in hepatitis C occurrence.**

Change to hepatitis C case definition

Starting in January 2020, the case definitions for acute and chronic hepatitis C used by the National Notifiable Diseases Surveillance System were revised to improve the detection, classification, and monitoring of acute cases of hepatitis C. As a result of this change, during 2020, 31 cases that previously would have been classified as chronic hepatitis C were classified as acute hepatitis C. These 31 cases represented 32% of the 96 acute cases reported during 2020.

TRENDS

Trends in New Infections

Today, hepatitis C is most commonly transmitted through the sharing of contaminated equipment used to prepare or inject drugs. Since 2010, as a result of increased injection drug use related to the opioid epidemic, the number of people newly infected with hepatitis C has increased nationwide and in Wisconsin.[4]

Monitoring trends in new hepatitis C infections is challenging for several reasons. Only 1 in 5 people newly infected with hepatitis C develops symptoms of acute hepatitis C infection. As a result, many people newly infected with hepatitis C are not immediately diagnosed or reported to public health. The CDC estimates that for every one case of acute hepatitis C reported to public health, another 13 cases go unreported.[5]

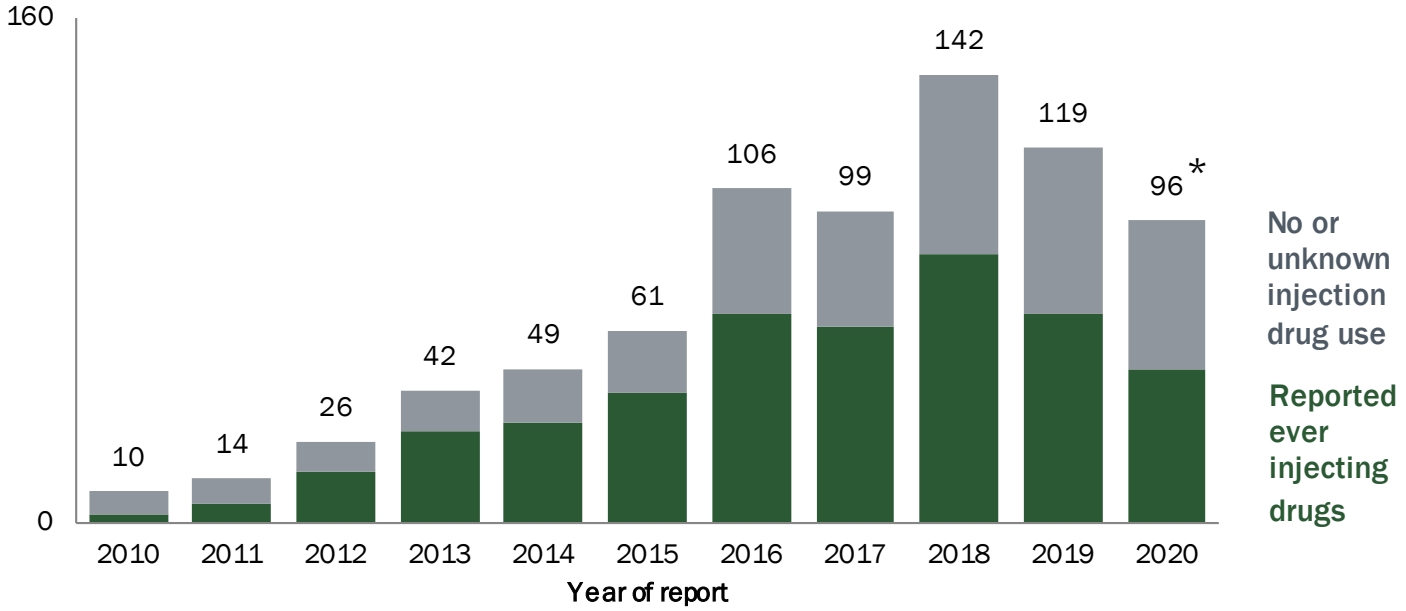
Trends in new hepatitis C infections are monitored using several methods. Trends in reported acute hepatitis C cases are monitored. In addition, because local and national data suggest that the majority of hepatitis C infections among young people in recent years have been associated with injection drug use,[4, 6, 7] trends in newly reported positive test results among younger adults are also monitored.

Overall, hepatitis C surveillance data indicate the number and rate of new hepatitis C infections have increased substantially in the past 10 years, and both rural and urban areas of Wisconsin have been affected. Rates of hepatitis C are highest and have increased the most among Native Americans.

FIGURE 1

During the past 10 years, the number of acute hepatitis C cases has increased substantially, and most reported injection drug use.

Number of reported acute hepatitis C cases, by year of report, Wisconsin, 2010–2020

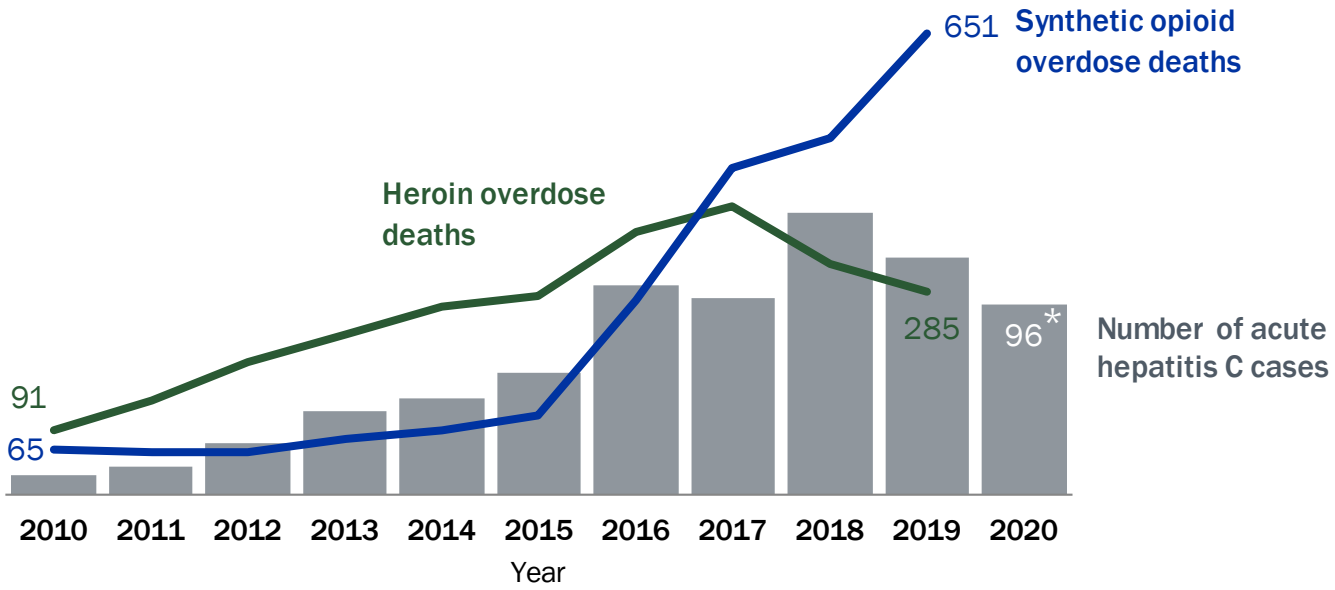


Notes: In 2016 and 2020, the case definition of acute hepatitis C changed to be more inclusive. In 2017, the surveillance system began receiving negative RNA results allowing more acute cases to be detected in subsequent years. In 2018, surveillance procedures changed to identify more acute cases. *In 2020, acute case detection was impacted by reduced testing and reduced case follow-up as a result of COVID-19 (see page 5).

FIGURE 2

The increase in the number of acute hepatitis C cases mirrors the increase in heroin and synthetic opioid overdose deaths in Wisconsin.

Number of reported acute hepatitis C cases and number of heroin overdose deaths, by year, Wisconsin, 2010–2020



Notes: Synthetic opioid overdose deaths include deaths from fentanyl and fentanyl analogues. Deaths from methadone are excluded. Heroin and synthetic opioid overdose deaths data are from the Wisconsin Interactive Statistics on Health opioids data. *In 2020, acute case detection was impacted by reduced testing and reduced case follow-up as a result of COVID-19 (see page 5).

FIGURE 3

In 2020, the number of counties reporting cases of acute hepatitis C was more than four times higher than in 2010.

Number of reported cases of acute hepatitis C, Wisconsin, 2010 and 2020

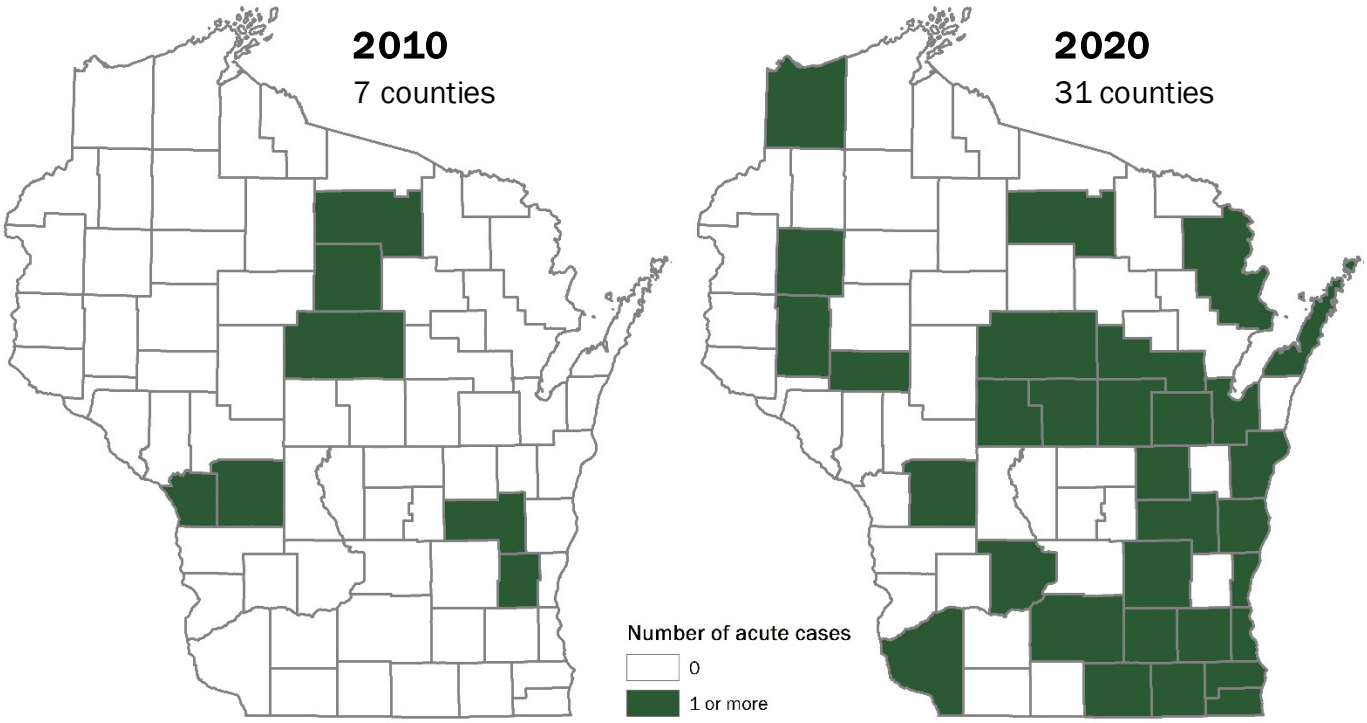
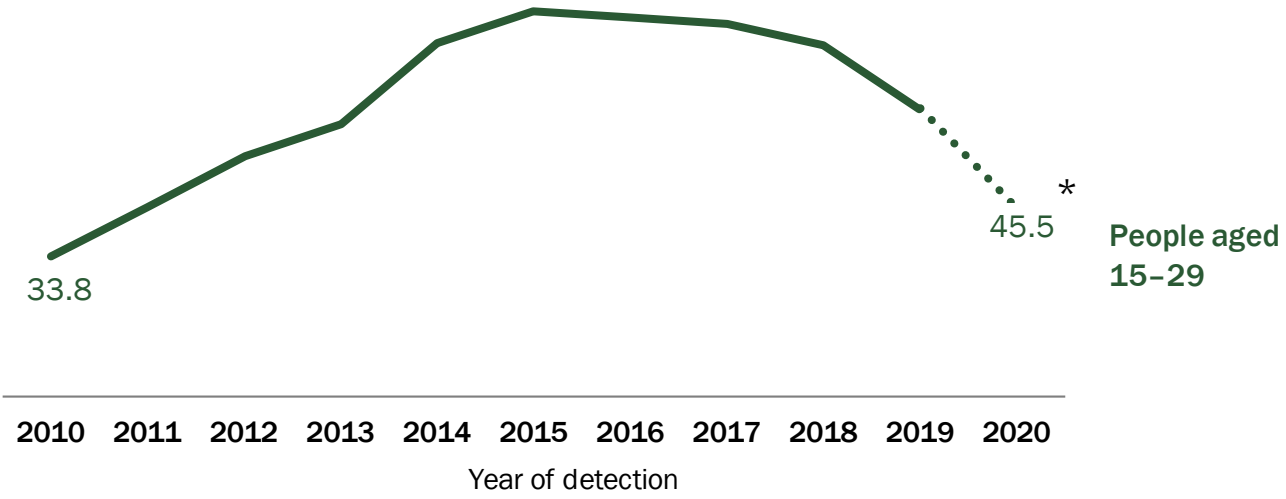


FIGURE 4

The rate of new positive hepatitis C test results among people aged 15–29 increased substantially from 2010 to 2015, remained elevated from 2016 to 2019, and was impacted by reduced testing in 2020*.

Rate per 100,000 of people newly reported with positive hepatitis C test results† among people aged 15–29, Wisconsin, 2009–2019

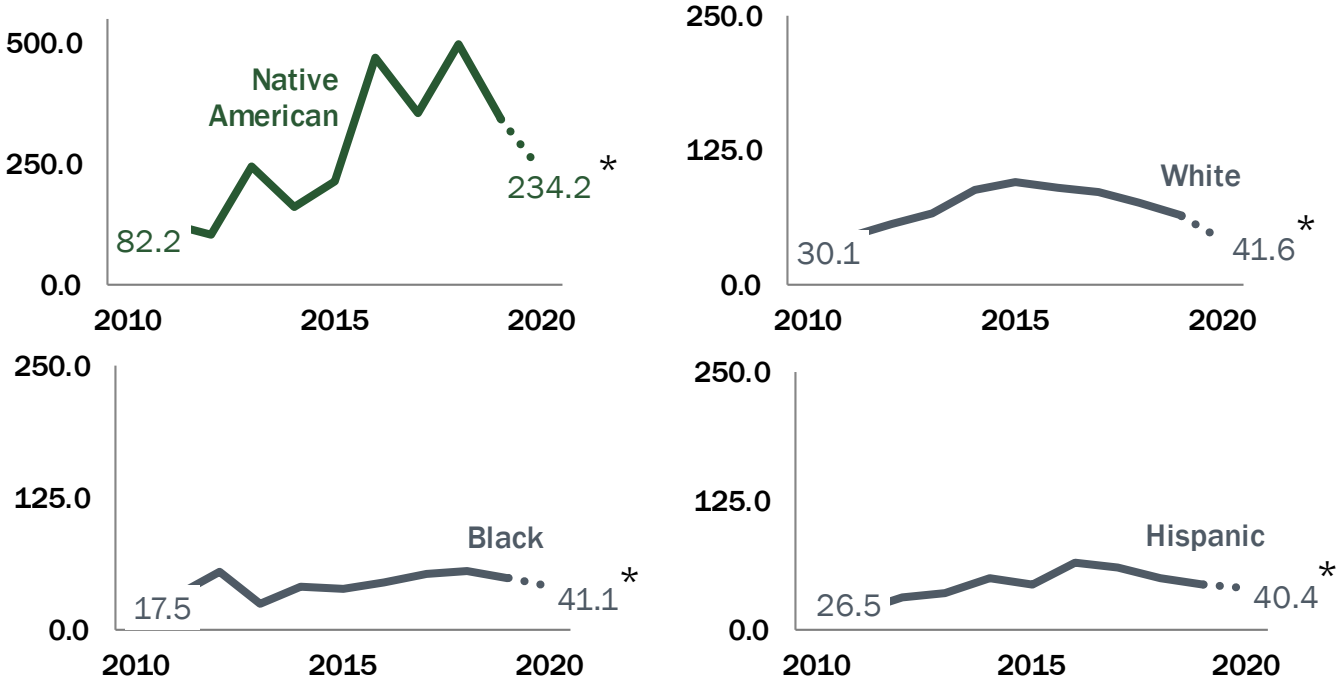


Notes: †The numerator includes people with positive hepatitis C antibody or positive hepatitis C RNA results or a confirmed or probable case of hepatitis C. *In 2020, detection of hepatitis C was impacted by reduced testing as a result of COVID-19 (see page 5).

FIGURE 5

During the past decade, the rate of new positive hepatitis C test results among young people increased the most and was the highest among Native Americans.

Rate per 100,000 of people newly reported with positive hepatitis C test results† among people aged 15–29, by race/ethnicity, Wisconsin, 2010–2020



Notes: †The numerator includes people with positive hepatitis C antibody or positive hepatitis C RNA results or a confirmed or probable case of hepatitis C. *In 2020, detection of hepatitis C was impacted by reduced testing as a result of COVID-19 (see page 5).

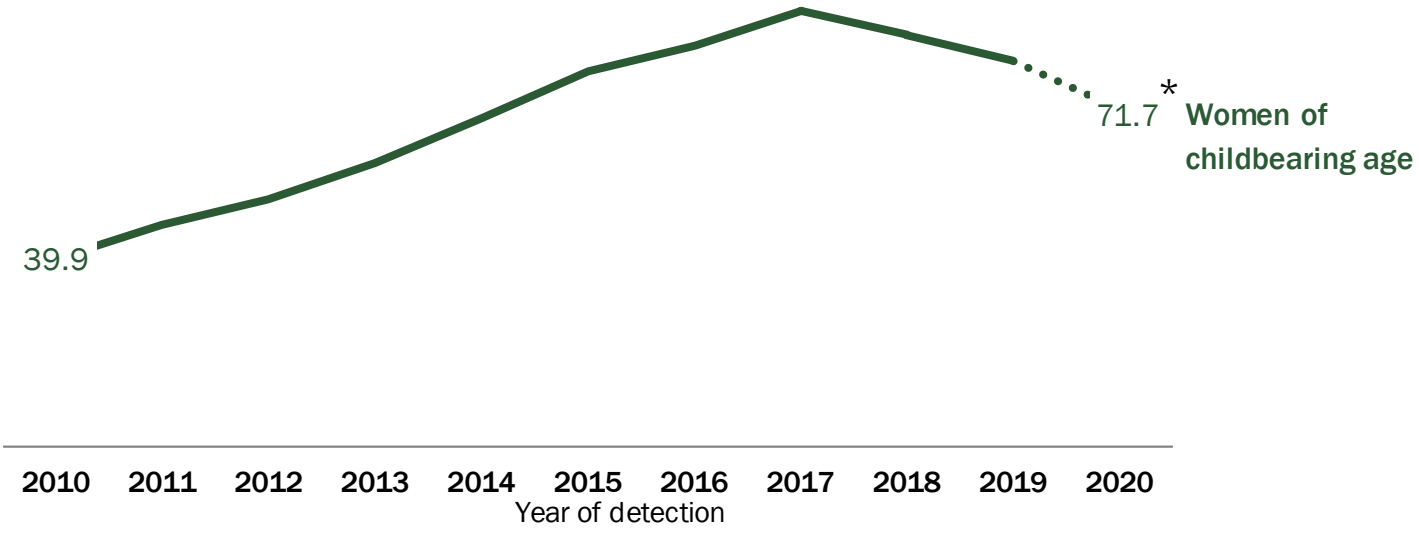
It is important to consider differences in trends in hepatitis C by race and ethnicity to understand which communities are being impacted and where attention is needed to improve health equity. Race or ethnicity does not make a person more or less likely to acquire hepatitis C. Other factors such as structural racism, stigma, and poverty, as well as unequal access to health care, education, and housing affect communities of color disproportionately and can put individuals at greater risk for acquiring hepatitis C.

The increasing trend of new hepatitis C infections among women of childbearing age is concerning because infants born to women with hepatitis C are at risk for perinatal hepatitis C infection. Approximately 6% of infants born to women with hepatitis C will become infected, and the risk is higher among women with a high hepatitis C viral load and women with HIV.

FIGURE 6

Over the last 10 years, the annual rate of new positive hepatitis C test results among women of childbearing age increased substantially and remained elevated.

Rate per 100,000 of people newly reported with positive hepatitis C test results† among women aged 15–44, Wisconsin, 2010–2020



Notes: †The numerator includes people with positive hepatitis C antibody or positive hepatitis C RNA results or a confirmed or probable case of hepatitis C. *In 2020, detection of hepatitis C was impacted by reduced testing as a result of COVID-19 (see page 5).

Trends in New Diagnoses Among Baby Boomers

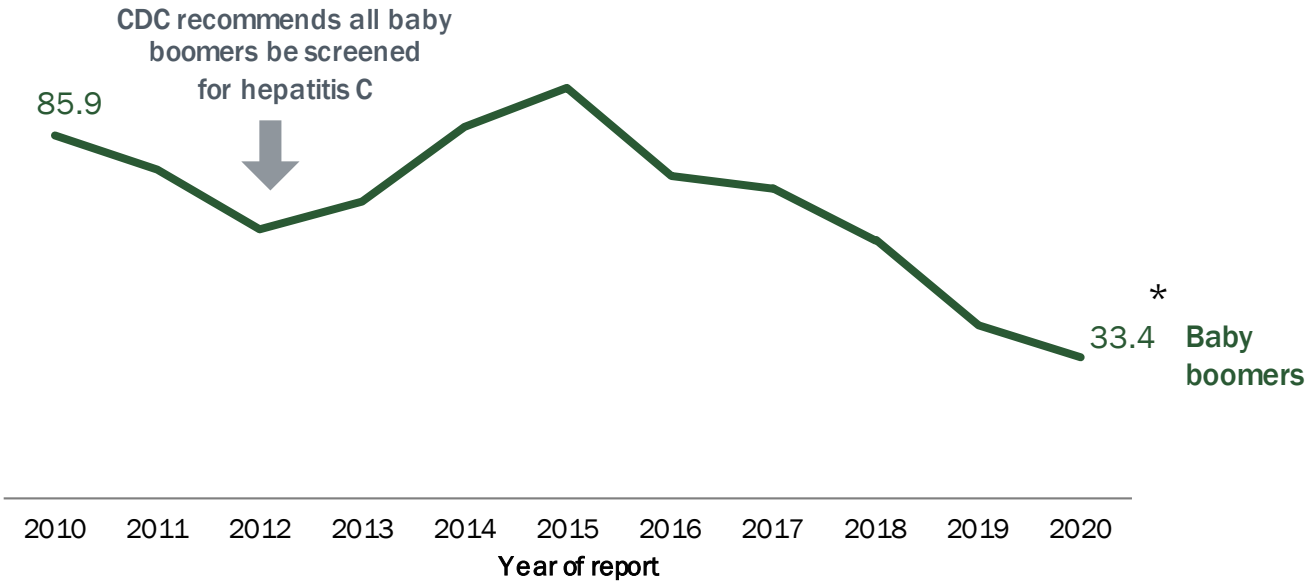
National prevalence data indicate that people born during 1945–1965, so called "baby boomers," are five times more likely than other adults to have hepatitis C infection.[8] The reason that baby boomers have high rates of hepatitis C is not completely understood. Most baby boomers are believed to have become infected during the 1960s through the 1980s when transmission of hepatitis C was highest, and before routine screening of the blood supply for hepatitis C started in 1992.

It has been estimated that approximately half of people with hepatitis C do not know they are infected. To identify and treat hepatitis C among baby boomers, since 2012, CDC has recommended all adults born during 1945–1965 receive one-time testing for hepatitis C, regardless of history of risk.[8]

FIGURE 7

New diagnoses among baby boomers increased after CDC recommended one-time screening for all people in this age cohort, but in recent years the rate of new diagnoses has declined.

Rate per 100,000 of confirmed hepatitis C infections among people born during 1945–1965, by year of report, Wisconsin, 2010–2020



Notes: The numerator includes people with a confirmed case of hepatitis C or positive hepatitis C RNA or genotype results. *In 2020, hepatitis C testing was reduced as a result of COVID-19 (see page 5).

Reasons for the decline in diagnoses among baby boomers are not understood. Other states have reported decreasing rates of hepatitis C screening among this age cohort and speculate it may be a result of decreasing awareness among providers about the recommendation to screen all baby boomers.[9] Additionally, baby boomers who have not yet been screened might not be engaged in the health care system.[9]

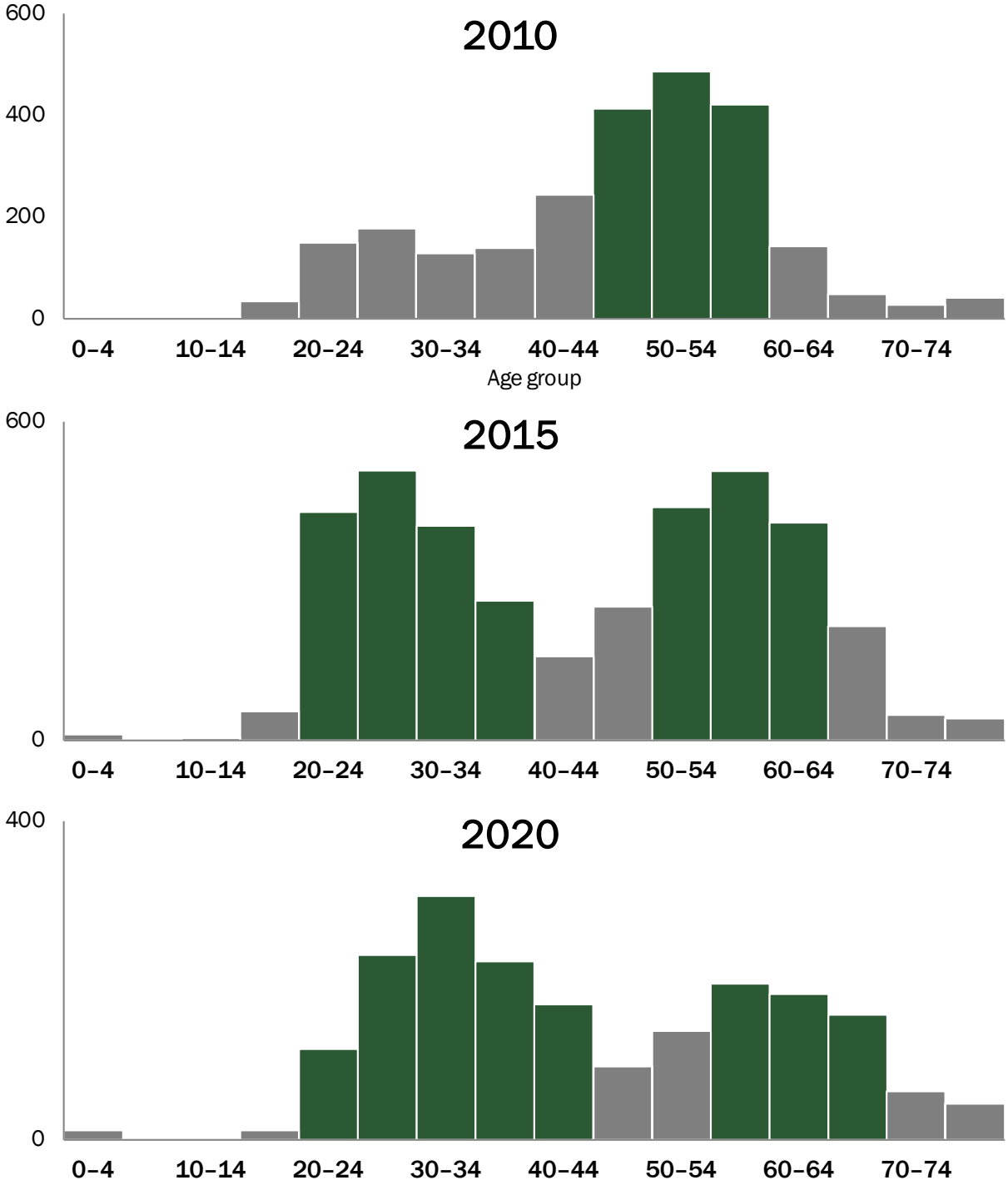
Trends in the Age Distribution of Newly Reported Cases

As baby boomers continue to be diagnosed with hepatitis C and as more young adults become newly infected with hepatitis C, the age distribution of cases newly reported to public health has shifted from one peak among baby boomers to two peaks among baby boomers and younger adults. In 2020, the peak among young adults was higher than among baby boomers.

FIGURE 8

Over the past 10 years, the age distribution of people newly reported with hepatitis C has shifted.

Number of reported hepatitis C cases, by age group, Wisconsin, 2010, 2015, 2020



2020 CASES

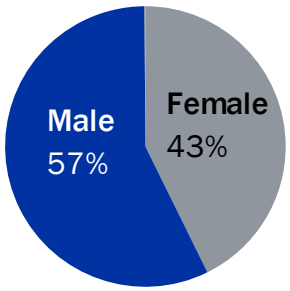
All Cases, 2020

In 2020, there were 1,941 hepatitis C cases newly reported: 8 met the definition of confirmed perinatal hepatitis C, 96 (92 confirmed, 4 probable) met the definition of acute hepatitis C, and 1,837 (1,332 confirmed, 505 probable) met the definition of chronic hepatitis C. This section summarizes all 1,941 cases.

FIGURE 9

In 2020, 57% of people newly reported with hepatitis C were male.

Percent of newly reported hepatitis C cases by gender, Wisconsin, 2020

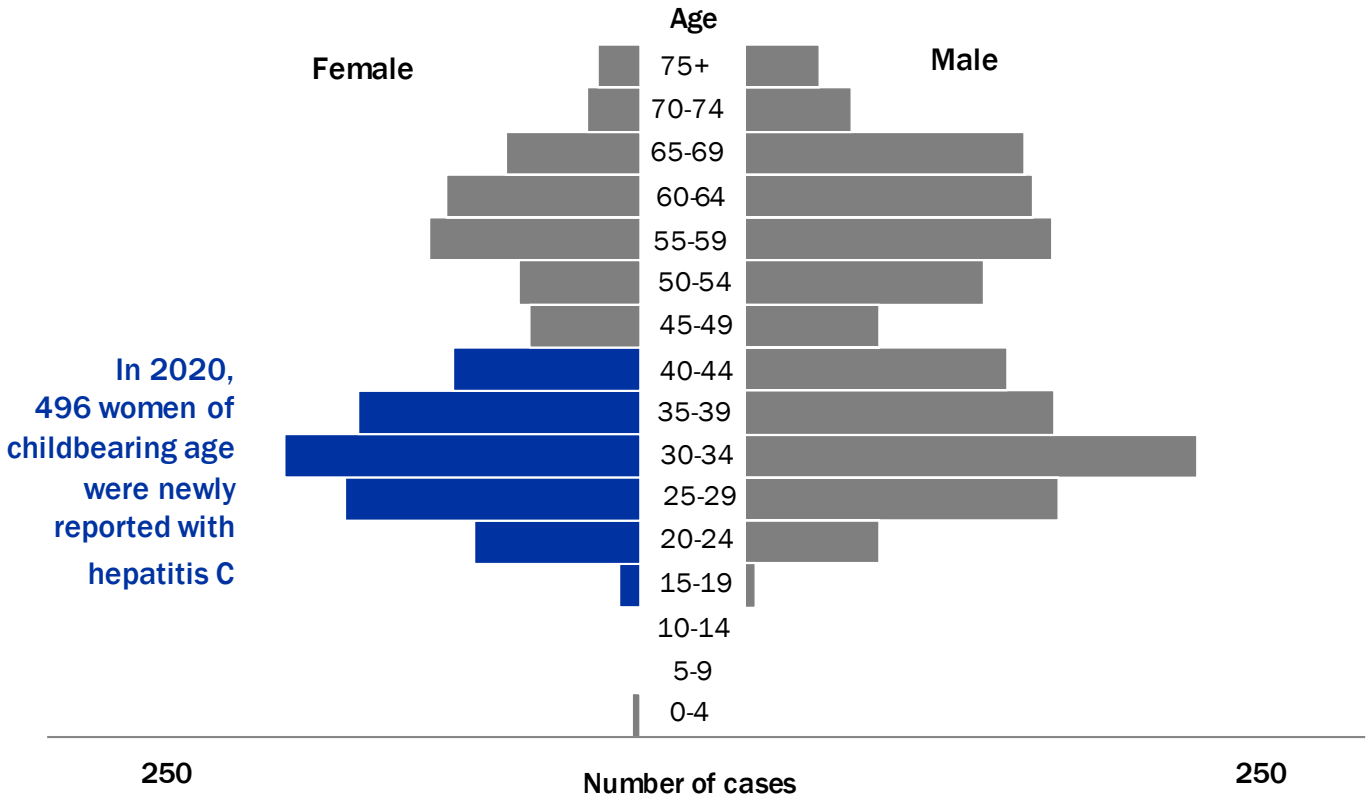


Notes: Two people (<1%) newly reported with hepatitis C had unknown gender.

FIGURE 10

There were a high number of cases among young adults and older adults in 2020.

Number of newly reported hepatitis C cases by age group and gender, Wisconsin, 2020

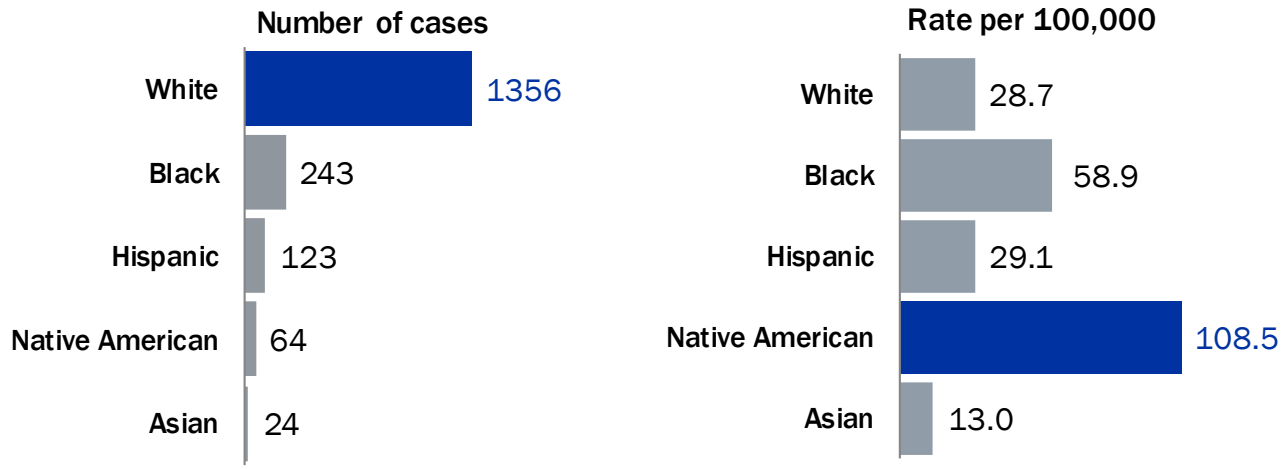


In 2020, most (70%) of the newly reported cases of hepatitis C were among white people. However, the rate was highest among Native Americans. This indicates that hepatitis C is being reported more often among Native Americans than among other racial and ethnic groups in Wisconsin.

FIGURE 11

Most newly reported cases of hepatitis C were among white people, but the rate of hepatitis C was highest among Native Americans.

Number and rate per 100,000 of hepatitis C cases by race/ethnicity, Wisconsin, 2019

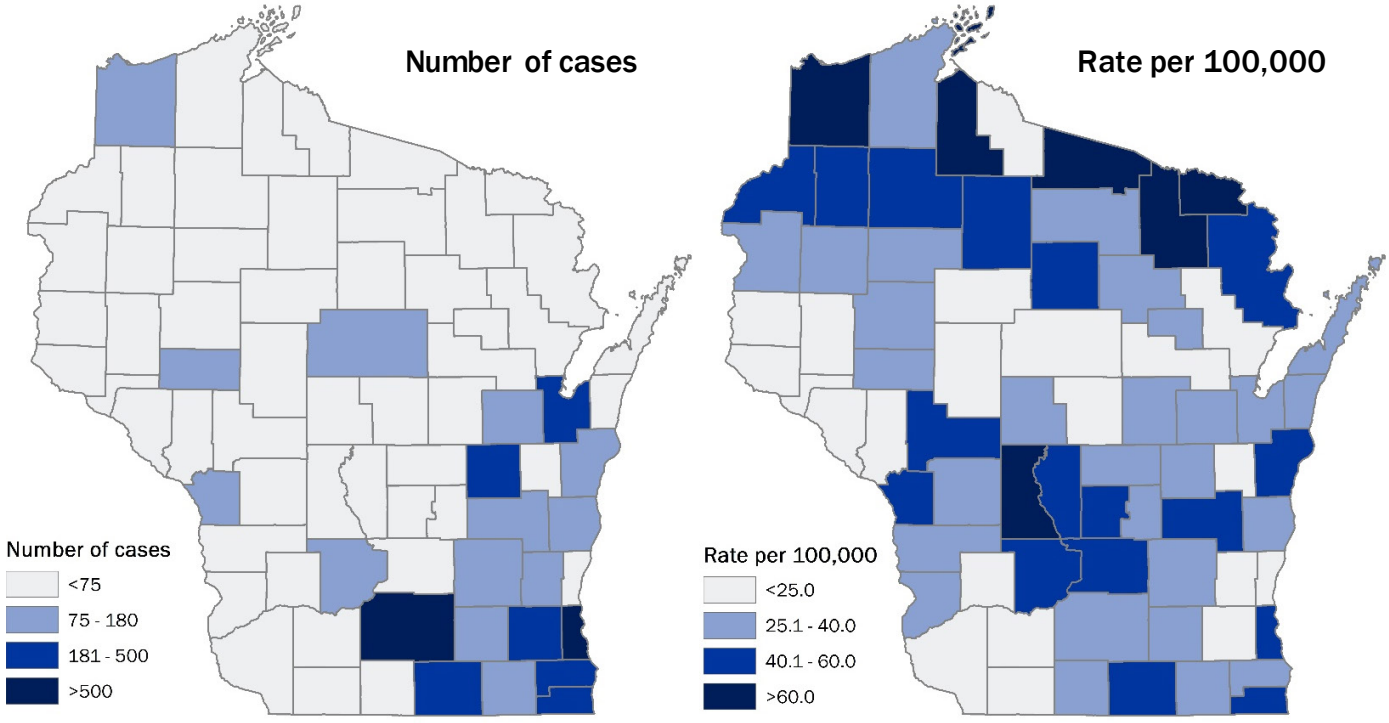


Notes: Data are not shown for 131 people (7% of cases) with unknown (N=82), other (N=45), and multiple (N=4) race/ethnicity.

FIGURE 12

Most cases newly reported during 2018–2020 resided in the urban south and east, but rates were highest among counties in rural areas.

Number and rate of newly reported hepatitis C cases, by county of residence, Wisconsin, 2018–2020



Notes: Maps exclude cases reported from the Department of Corrections.

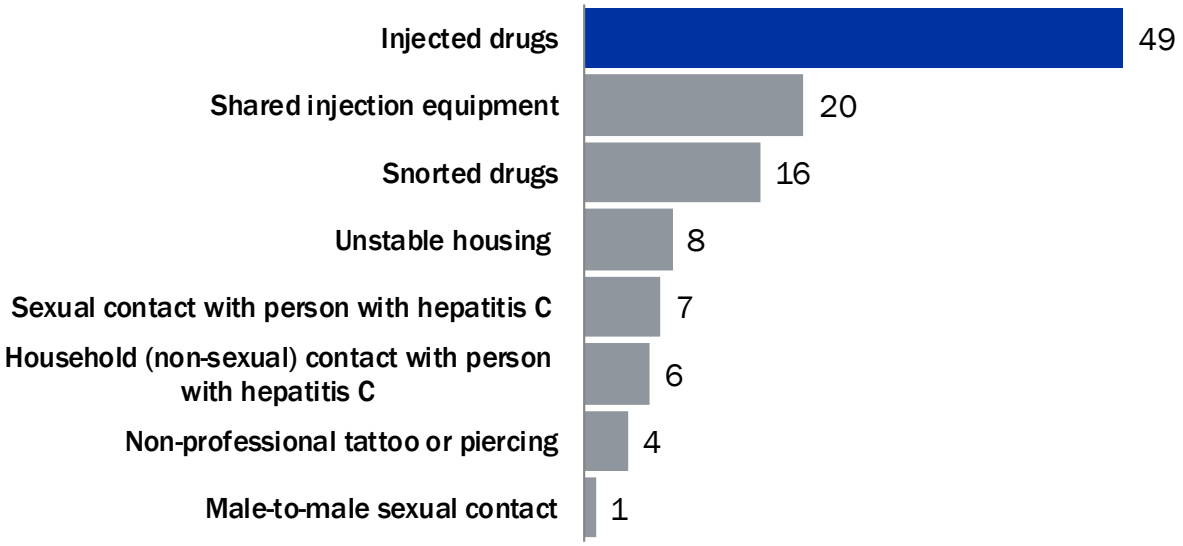
Acute Cases, 2020

Among the 1,941 cases reported in 2020, 96 (5%) met the definition of acute hepatitis C. This section summarizes these 96 cases. Among the 96 acute cases, 67 (70%) had risk information available.

FIGURE 13

Injection drug use was the most commonly reported risk factor among people with acute hepatitis C.

Number of acute hepatitis C cases that reported each risk behavior or exposure, Wisconsin, 2020



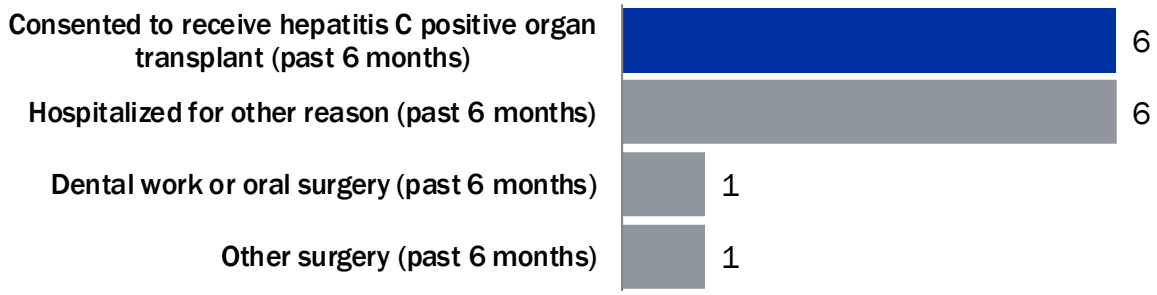
Notes: The numbers of people who reported not having the risk behavior or for which the response is unknown are not shown.

In recent years, consenting to receive an organ known to be positive for hepatitis C has become a more common medical procedure. In 2020, six cases of acute hepatitis C were reported with this exposure. Rarely, hepatitis C can be acquired unknowingly in health care settings through contaminated instruments. Of 96 people with acute hepatitis C, six reported hospitalization in the last six months for reasons not related to transplantation with a hepatitis C positive organ. Since more than one risk or exposure may be indicated, this may represent overlapping risk and not necessarily the source of exposure.

FIGURE 14

Health care settings are possible sources of exposure to hepatitis C, including by consenting to receive organ transplantation with hepatitis C positive organs.

Number of acute hepatitis C cases that reported each risk exposure, Wisconsin, 2020

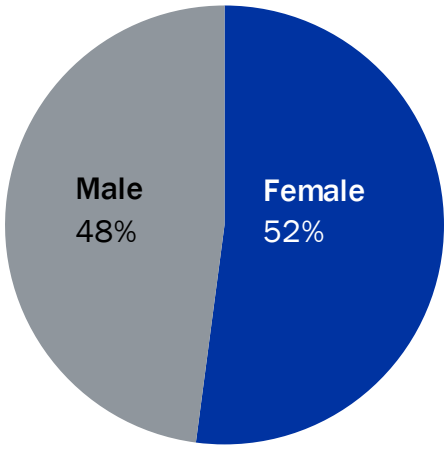


Notes: The numbers of people who reported not having the exposure or for whom the response is unknown are not shown.

FIGURE 15

In 2020, 52% of reported cases of acute hepatitis C were female.

Percent of acute hepatitis C cases, by gender, Wisconsin, 2020

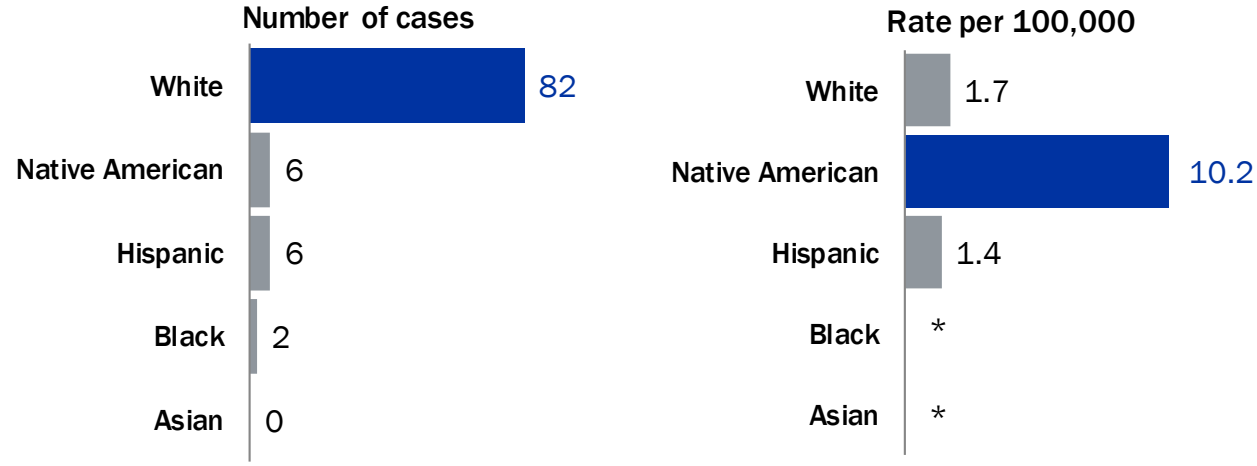


In 2020, most (85%) reported cases of acute hepatitis C were among white people. However, the rate of reported acute hepatitis C was highest among Native Americans. This indicates that acute hepatitis C is being reported more often among Native Americans than among other racial and ethnic groups in Wisconsin.

FIGURE 16

Most reported cases of acute hepatitis C were among white people, but the rate was highest among Native Americans.

Number and rate per 100,000 of acute hepatitis C cases by race/ethnicity, Wisconsin, 2020



Notes: *Rates were suppressed for categories with fewer than five cases.

In 2019, the median age of people newly reported with acute hepatitis C was 33 years, and 70% (67 people) were under age 40.

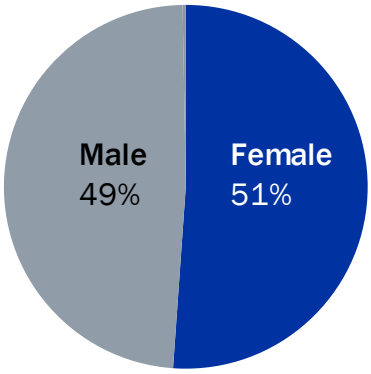
Cases Among People Aged 15–29, 2020

Among the 1,941 cases newly reported in 2020, 358 (18%) were among people aged 15–29. This section summarizes these 358 cases.

FIGURE 17

In 2020, 51% of people aged 15–29 newly reported with hepatitis C were female.

Percent of newly reported hepatitis C cases among people aged 15–29, by gender, Wisconsin, 2020



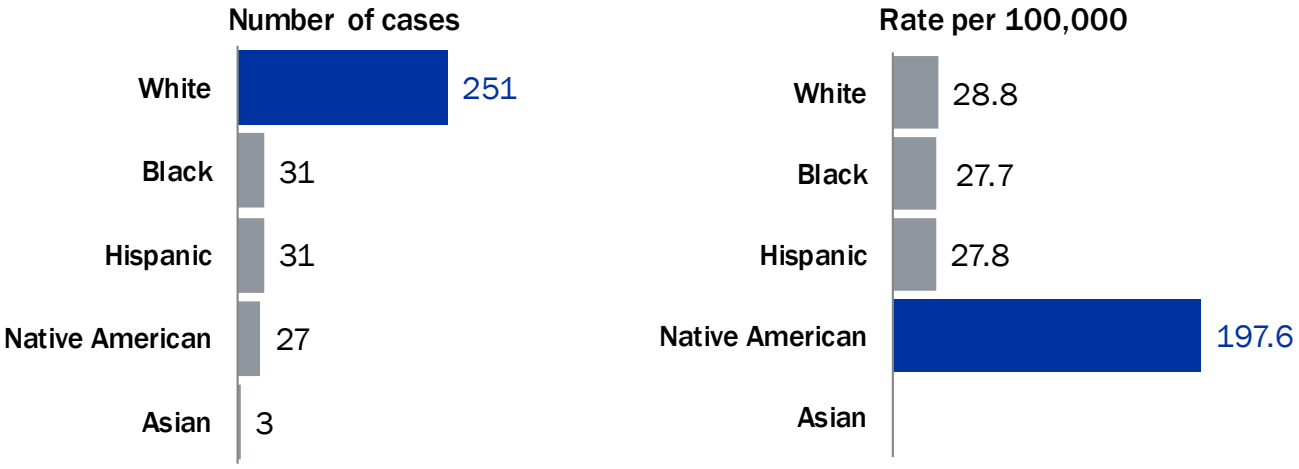
Notes: One person (<1%) newly reported with hepatitis C had unknown gender.

Among people aged 15–29, most (70%) newly reported cases of hepatitis C were among white people. However, the rate was highest among Native Americans. This indicates that, in this age group, hepatitis C is being reported more often Native Americans than among other racial and ethnic groups in Wisconsin.

FIGURE 18

Among people aged 15–29, most cases of hepatitis C were among white people, but the rate was highest among Native Americans.

Number and rate per 100,000 of hepatitis C cases among people aged 15–29, by race/ethnicity, Wisconsin, 2020

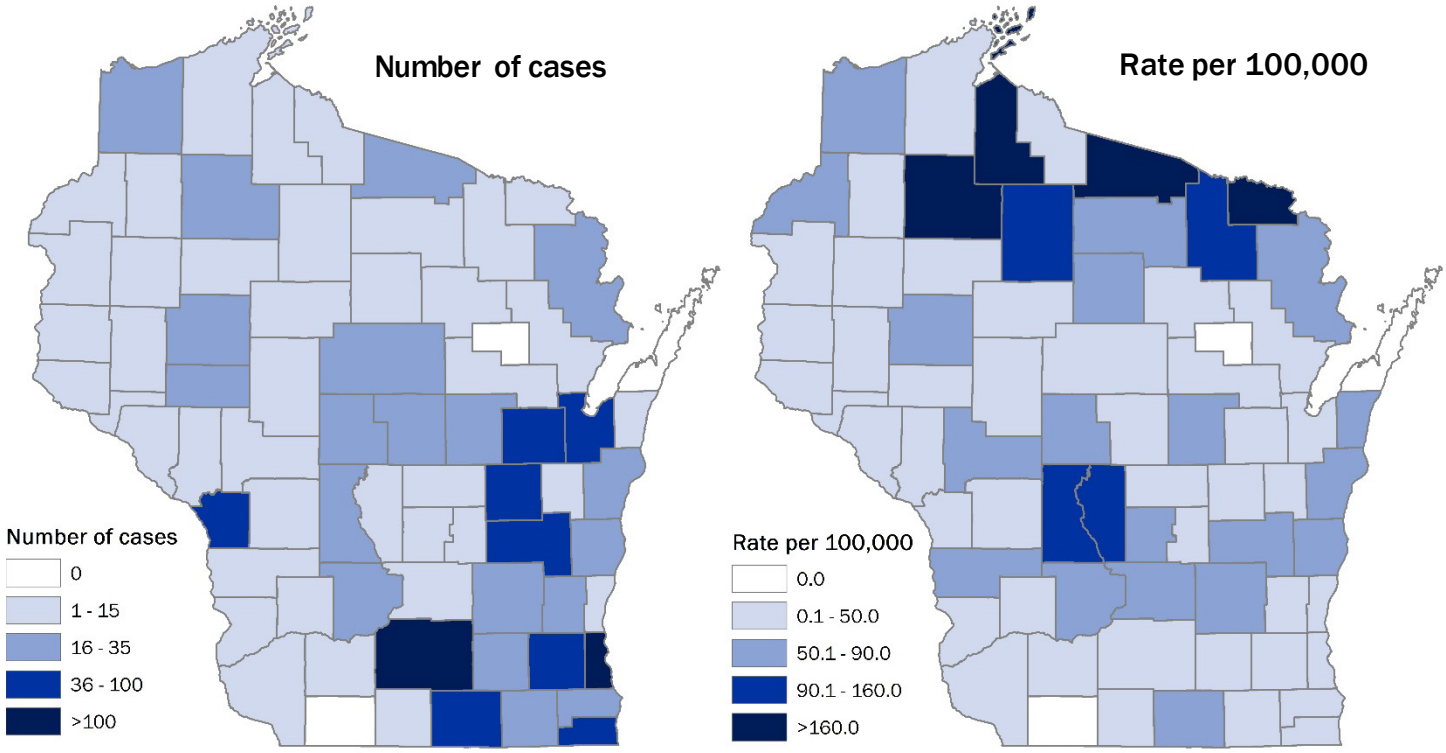


Notes: Excludes 15 people (4% of cases in this age range) with unknown (N=7) or other (N=8) race/ethnicity.

FIGURE 19

Most cases newly reported during 2018–2020 among people ages 15–29 resided in the urban south and east, but rates were highest among counties in rural areas.

Number and rate of newly reported hepatitis C cases among people aged 15–29, by county of residence, Wisconsin, 2018–2020



Notes: Maps exclude cases reported from the Department of Corrections.

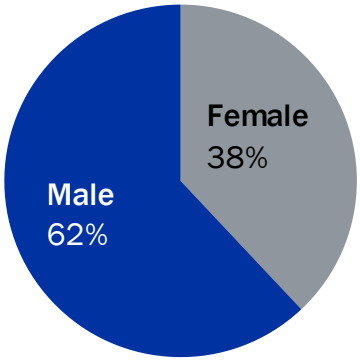
Cases Among Baby Boomers, 2020

Among the 1,941 cases newly reported in 2020, 616 (32%) were among people born during 1945–1965. This section summarizes these 616 cases.

FIGURE 20

In 2020, 62% of baby boomers newly reported with hepatitis C were male.

Percent of newly reported hepatitis C cases among people born during 1945–1965, by gender, Wisconsin, 2020

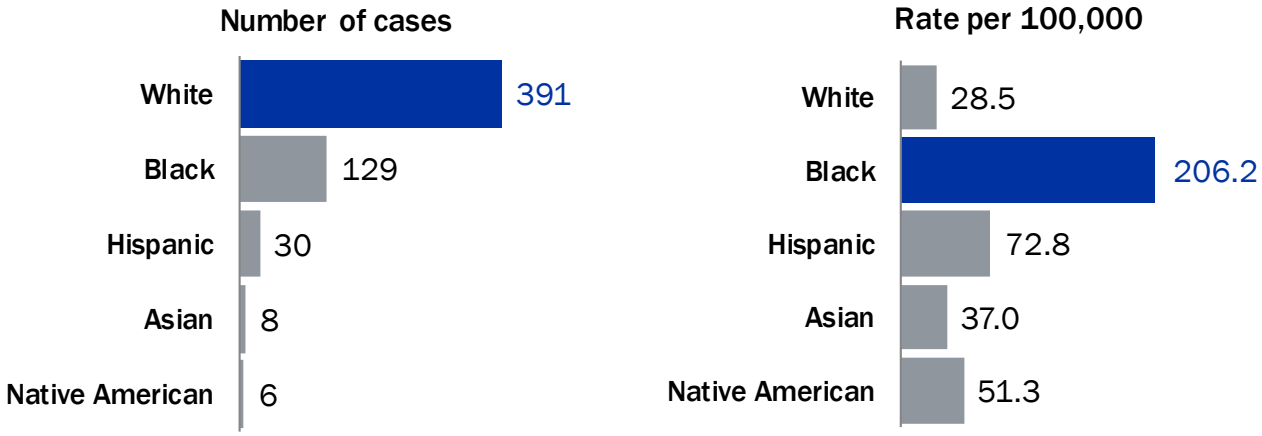


Among baby boomers, the majority (63%) of newly reported cases of hepatitis C were among white people. However, the rate was highest among black people. This indicates that, in this cohort, hepatitis C was reported more often among black people than among other racial and ethnic groups in Wisconsin.

FIGURE 21

Among baby boomers, the majority of cases of hepatitis C were among white people, but the rate was highest among black people.

Number and rate per 100,000 of hepatitis C cases among people born during 1945–1965, by race/ethnicity, Wisconsin, 2020

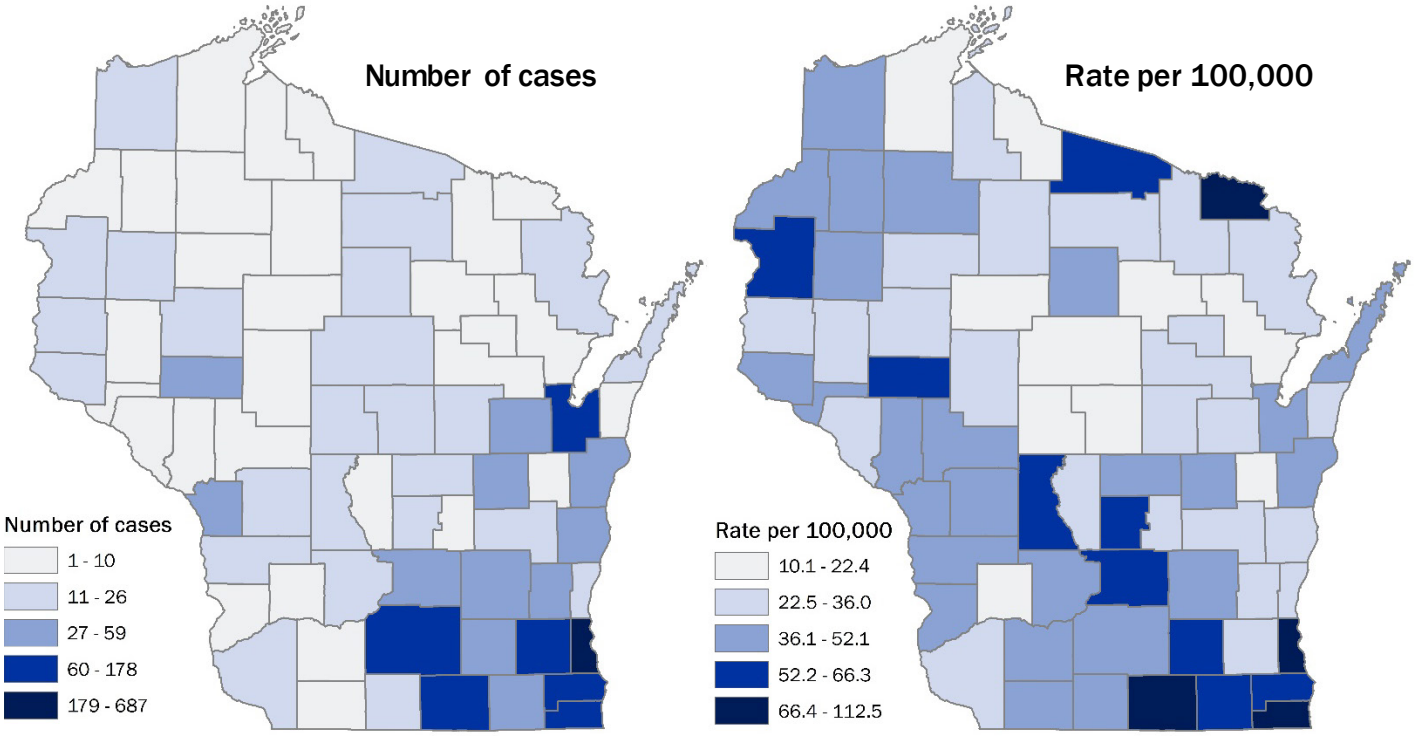


Notes: Data not shown for 52 people (8% of people in this cohort) with unknown (N=41) or other (N=11) race/ethnicity.

FIGURE 22

Most cases newly reported during 2018–2020 among baby boomers resided in southeastern counties.

Number and rate of newly reported hepatitis C cases among people born during 1945-1965, by county of residence, Wisconsin, 2018–2020



Notes: Maps exclude cases reported from the Department of Corrections.

Cases Identified by the Department of Corrections, 2020

Among the 1,941 cases newly reported in 2020, 168 (9%) were reported from the Wisconsin Department of Corrections. This section summarizes these 168 cases.

Rates of hepatitis C in correctional institutions are much higher than the general U.S. population. One reason for this is that some populations affected by incarceration, such as people who inject drugs, are also more likely to have hepatitis C infection. Before October 2019, the Wisconsin Department of Corrections offered hepatitis C testing to incoming inmates with a risk factor and to people born during 1945–1965. Starting in October 2019, all inmates are offered hepatitis C testing.

FIGURE 23

Among people newly reported with hepatitis C from the Department of Corrections, 76% were male.

Number of newly reported hepatitis C cases from the Department of Corrections, by gender, Wisconsin, 2020

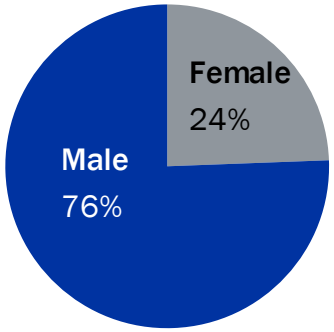


FIGURE 24

Among people newly reported with hepatitis C from the Department of Corrections, 76% of females and 68% of males were under age 40.

Number of newly reported hepatitis C cases from the Department of Corrections, by gender and age group, Wisconsin, 2020

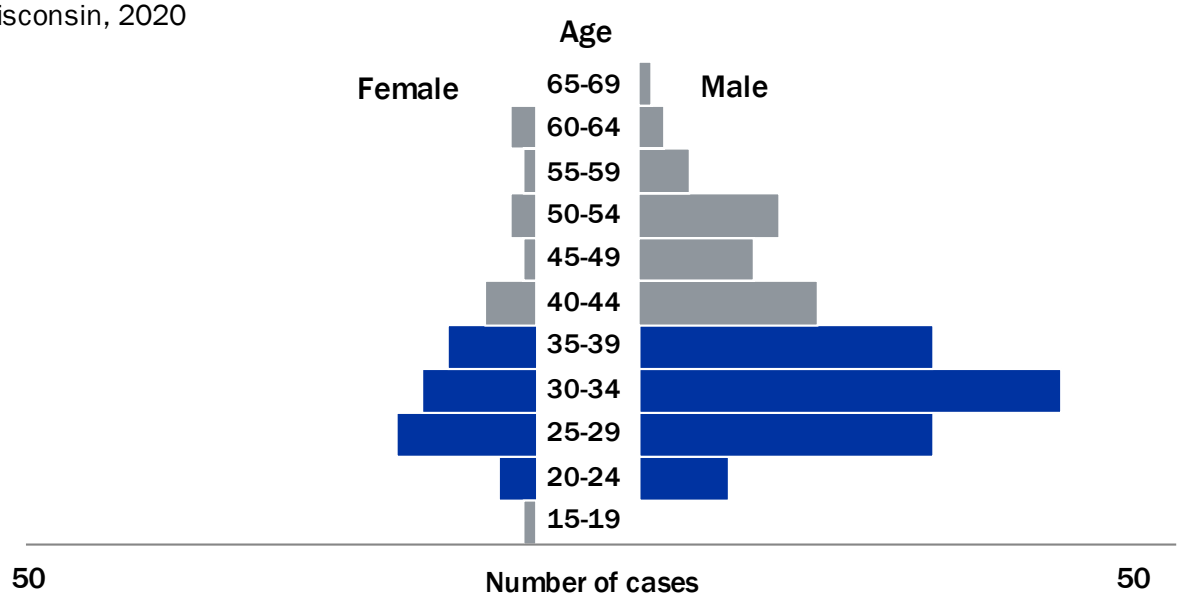
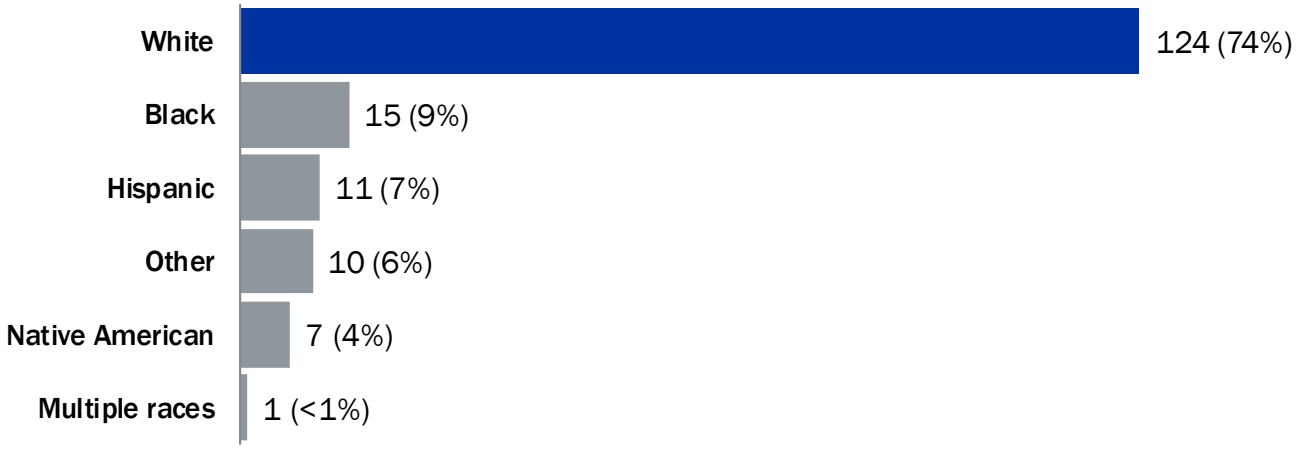


FIGURE 25

Most newly reported cases of hepatitis C from the Department of Corrections were among white people.

Number and percent of newly reported hepatitis C cases from the Department of Corrections, by race/ethnicity, Wisconsin, 2020



Perinatal Cases, 2020

Beginning in 2018, perinatal hepatitis C infection is a condition that is required to be reported to public health in Wisconsin. As the number of women of childbearing age with hepatitis C has increased, the number of infants at risk of perinatal hepatitis C infection has also increased. An estimated 6% of infants born to women with hepatitis C will be infected around the time of birth.

Beginning in April 2020, CDC recommended that all pregnant people receive hepatitis C screening during every pregnancy. Because infants born to women with hepatitis C often do not receive the appropriate testing needed to determine if they have been infected perinatally,[10] the number of perinatal cases reported to public health is an extreme underestimation of the number of true perinatal cases each year.

In 2020, eight children met the case definition of having perinatal hepatitis C infection, which includes having RNA positive results between the ages of 2 and 36 months. Of these eight cases, 63% were male. Sixty-three percent were white, 12% were Asian and 25% had unknown race/ethnicity. Counties reporting cases included: Columbia (2 cases), Dane (1 case), Marathon (1 case), Milwaukee (1 case), Racine (1 case), Waukesha (1 case), and Winnebago (1 case).

PREVALENCE ESTIMATES

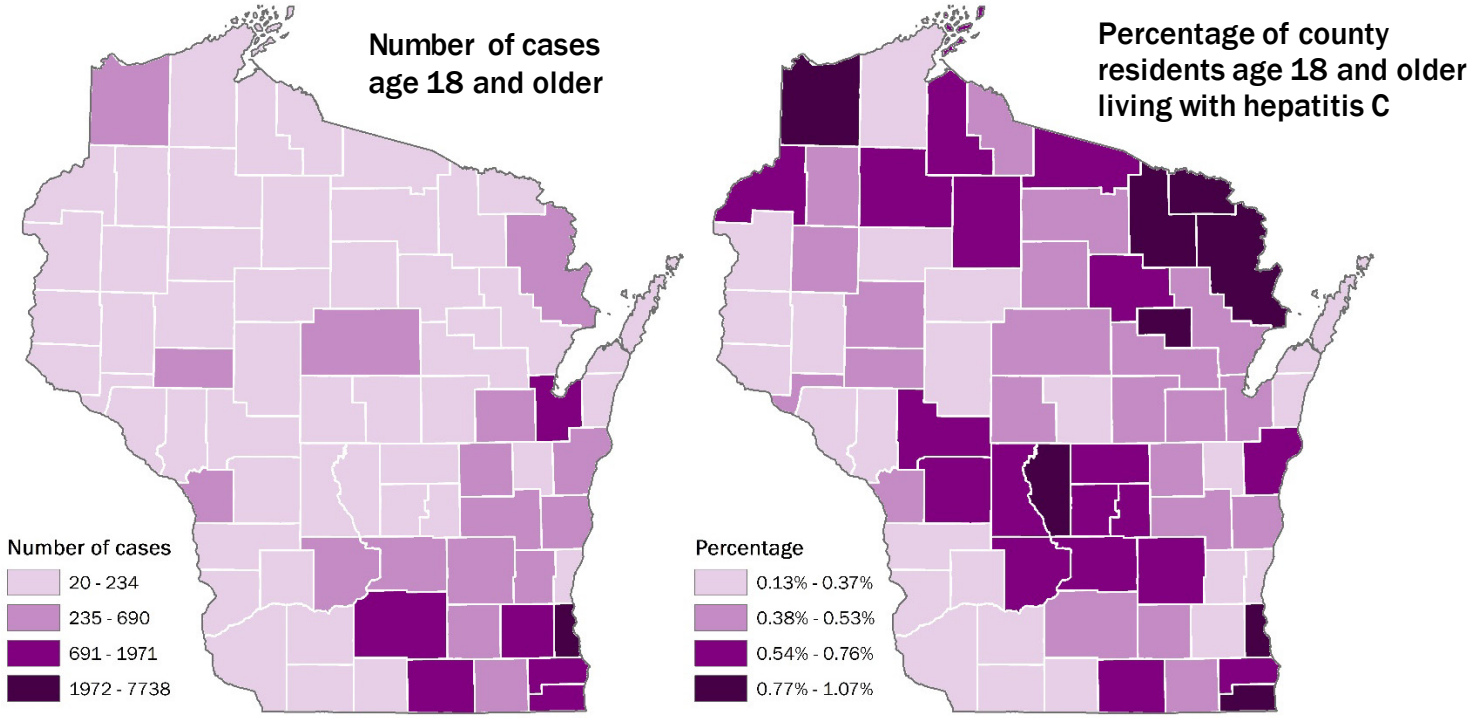
National prevalence estimates suggest that 2.4 million people age 18 years and older in the U.S. (1% of all adults) are living with chronic hepatitis C infection.[1] However, it is estimated that only 56% of people living with hepatitis C are aware of their diagnosis.[11] This suggests that 44% of people living with hepatitis C in the U.S. have not been tested, diagnosed or reported to public health. As a result, the true number of Wisconsin residents with hepatitis C is not known. Using methods described elsewhere,[12] DHS estimates that approximately 47,000 Wisconsin residents age 18 and older (1.0% of Wisconsin adults) are living with chronic hepatitis C.

Although the true number of people living with hepatitis C in Wisconsin is not known, each year DHS reports the prevalence of *reported* hepatitis C in Wisconsin. Prevalence of reported hepatitis C is calculated by adding together all of the cases reported to public health during 2000 through 2020, subtracting people matched to state death records, and subtracting people whose last reported hepatitis C RNA result was negative, indicating they had cleared the infection naturally or through treatment. This year, additional steps were taken to exclude people who died in another state and exclude people who had moved out of state. Using this method, at the end of 2020, 26,419 Wisconsin residents of all ages (0.45% of all Wisconsin residents) and 26,303 Wisconsin residents who were age 18 or older in 2020 (0.59% of Wisconsin adults) were living with hepatitis C in Wisconsin. Reported prevalence data for people age 18 and older are presented below by county of residence. All counties had a prevalence above 0.1%.

FIGURE 26

Most adults with reported hepatitis C reside in southeastern Wisconsin, but prevalence rates are also high in northern and central Wisconsin.

Number and percentage of the population age 18 and older with reported prevalent hepatitis C, by county of residence, Wisconsin, 2020



Note: In this section on hepatitis C prevalence, age is the age of the person in 2020. It is not the age of the person when they were reported to public health with hepatitis C.

HEPATITIS C CARE CASCADES

Care cascades describe how many people received appropriate hepatitis C confirmatory testing and can also estimate how many people with hepatitis C infection cleared the infection, either naturally or through treatment. Among 11,442 people with positive hepatitis C test results first reported to public health in 2018–2020, 89% (10,143 people) had a confirmatory RNA test conducted. Of these, 57% (5,760 people) had positive RNA results confirming the diagnosis of hepatitis C. Among people with positive RNA results, 59% (3,399 people) had a subsequent RNA test possibly indicating linkage to care. Among people with posititve RNA results, 26% (1,474 people) had negative hepatitis C RNA results at their most recent test, suggesting the person had cleared the infection either naturally or through treatment. Only 20% of people aged 15–29 had test results indicating the infection had cleared compared to 37% of baby boomers. This information suggests that only a small percentage of people newly reported with hepatitis C in 2018–2020 received hepatitis C treatment, and younger people received treatment less often.

Negative RNA results have been reportable to the Wisconsin Department of Health Services since April 2017. Nevertheless, a small number of laboratories still do not routinely report negative HCV RNA results. As a result, the data shown here underestimate the number and percentage of people who received RNA confirmatory testing, subsequent RNA testing, and negative RNA results at last test.

FIGURE 27

Among people with positive hepatitis C RNA test results first reported in 2018–2020, only 26% had test results indicating infection had cleared through treatment or naturally.

Number and percent of people in each step of the care cascade among people newly reported with positive hepatitis C test results, 2018–2020

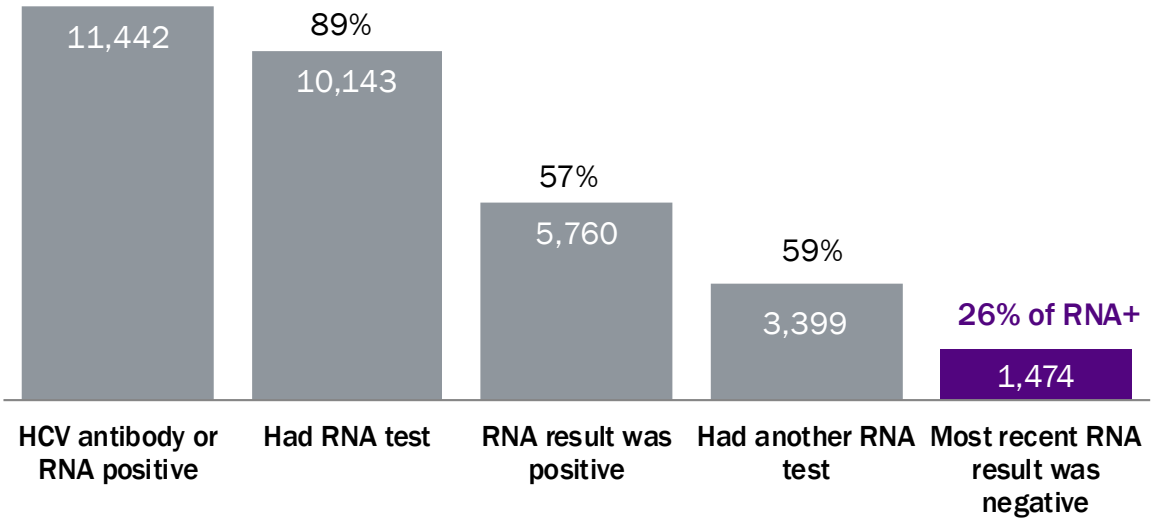


FIGURE 28

Among people aged 15–29 with positive hepatitis C RNA test results first reported in 2018–2020, only 20% had test results indicating infection had cleared through treatment or naturally.

Number and percent of people in each step of the care cascade among people aged 15–29 newly reported with positive hepatitis C test results, 2018–2020

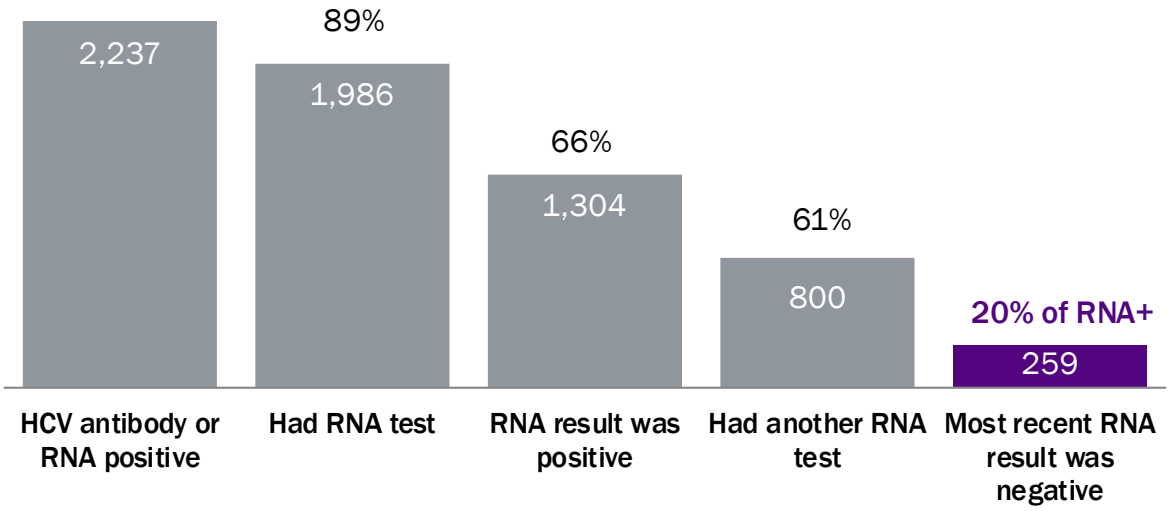
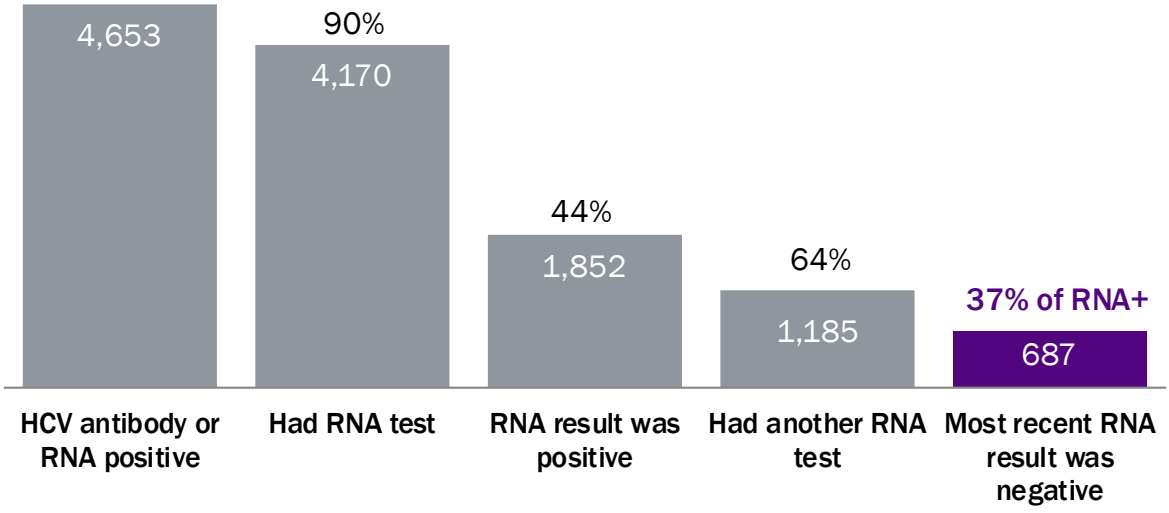


FIGURE 29

Among baby boomers with positive hepatitis C RNA test results first reported in 2018–2020, 37% had test results indicating infection had cleared through treatment or naturally.

Number and percent of people in each step of the care cascade among people born during 1945–1965 newly reported with positive hepatitis C test results, 2018–2020



APPENDICES

Data Tables

TABLE 1

Number and rate per 100,000 of reported hepatitis C cases, by case classification and year of report, Wisconsin, 2010–2020

Year	Past/Present and Chronic		Acute		Perinatal		Total	
	N	Rate per 100,000	N	Rate per 100,000	N	Rate per 100,000	N	Rate per 100,000
2010	2,453	43.1	10	0.2	--	--	2,463	43.3
2011	2,549	44.7	14	0.2	--	--	2,563	44.9
2012	2,589	45.3	26	0.5	--	--	2,615	45.8
2013	2,596	45.3	42	0.7	--	--	2,638	46.0
2014	3,168	55.1	49	0.9	--	--	3,217	56.0
2015	3,684	63.9	61	1.1	--	--	3,745	64.9
2016	3,821	66.2	106	1.8	--	--	3,927	68.1
2017	2,968	51.4	99	1.7	--	--	3,067	53.1
2018	2,600	45.0	142	2.5	2	--	2,744	47.5
2019	2,348	40.6	119	2.1	0	--	2,467	42.7
2020*	1,837	31.6	96	1.7	8	--	1,941	33.4

Notes: Cases were classified according to the National Notifiable Diseases Case Classifications. Case counts include both confirmed and probable cases. Starting in 2016, the case definitions for chronic hepatitis C and acute hepatitis C changed. Starting in 2017, negative RNA results were reportable to DPH, which reduced the number of reports classified as probable chronic hepatitis C. This change also allowed more acute cases to be detected. In 2018, surveillance procedures changed to identify more acute cases. Reporting for the perinatal case definition began in 2018. In 2020, case definitions for acute and chronic hepatitis C changed.

*In 2020, case detection was impacted by reduced testing as a result of COVID-19 (see page 5).

Rates not shown for perinatal hepatitis C.

N = Number of cases

Rate per 100,000 = Number of cases divided by the population of Wisconsin and multiplied by 100,000

TABLE 2
Number and rate per 100,000 of newly reported hepatitis C cases, by county, Wisconsin, 2020 and 2018–2020

	All cases			Cases age 15-29			Baby boomers		
County	N (2020)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2020)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2020)	N (3 yrs)	Rate per 100,000 (3yrs)
Adams	7	29	46.9	2	9	114.4	3	8	32.4
Ashland	10	40	83.9	2	14	163.2	1	5	35.2
Barron	13	42	30.5	1	3	14.1	4	21	50.1
Bayfield	5	13	28.5	0	1	18.0	2	4	20.9
Brown	69	213	27.2	12	45	28.9	27	77	41.1
Buffalo	1	10	24.7	0	2	31.4	0	4	30.7
Burnett	9	25	53.9	3	4	64.2	4	9	52.1
Calumet	8	25	16.1	2	5	18.1	2	8	20.6
Chippewa	13	52	26.9	2	17	51.2	5	14	26.6
Clark	1	14	13.4	0	1	5.3	0	7	27.5
Columbia	19	70	40.8	1	15	51.8	9	29	60.4
Crawford	4	16	32.2	2	2	27.1	1	7	42.6
Dane	186	507	31.8	32	102	27.3	62	178	49.2
Dodge	30	107	40.0	8	30	66.2	12	36	49.4
Door	10	25	29.7	0	0	0.0	5	16	50.1
Douglas	18	83	62.9	3	20	82.8	3	14	38.0
Dunn	7	25	18.6	1	4	10.5	2	10	30.0
Eau Claire	31	114	36.8	4	25	29.5	14	39	53.8
Florence	4	15	113.6	0	4	252.5	3	5	94.6
Fond du Lac	40	140	45.1	10	39	69.7	4	24	28.2
Forest	5	22	80.0	1	6	127.5	1	3	35.0
Grant	7	24	15.3	1	4	9.9	3	12	30.2
Green	5	38	34.3	0	9	49.8	2	15	47.8
Green Lake	4	20	34.9	0	3	33.1	1	5	28.1
Iowa	5	16	22.4	0	2	17.6	3	8	37.7
Iron	1	4	22.8	0	1	45.0	0	1	14.5
Jackson	11	32	51.5	1	7	69.6	3	7	37.5
Jefferson	27	90	35.5	7	18	35.4	8	40	60.9
Juneau	14	61	75.5	1	16	126.3	4	16	62.6
Kenosha	50	236	46.7	4	42	39.9	22	103	85.8
Kewaunee	7	16	25.8	4	7	68.6	1	6	33.3
La Crosse	42	148	41.6	10	40	44.5	8	41	47.0
Lafayette	2	10	19.7	0	0	0.0	1	6	43.1
Langlade	2	16	26.9	0	4	43.7	0	2	10.1
Lincoln	5	35	41.1	2	10	73.8	1	13	46.6
Manitowoc	27	110	45.6	6	32	80.0	6	34	47.0
Marathon	25	79	19.5	5	18	24.9	5	14	13.3
Marinette	13	55	44.7	1	17	87.8	3	13	32.2
Marquette	5	27	58.3	0	4	64.3	3	11	61.4
Menominee	1	4	30.6	0	0	0.0	0	1	31.5

County	All cases			Cases age 15-29			Baby boomers		
	N (2020)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2020)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2020)	N (3 yrs)	Rate per 100,000 (3yrs)
Milwaukee	416	1666	58.6	60	274	40.8	175	687	112.5
Monroe	21	49	35.5	3	7	29.3	5	15	39.7
Oconto	10	20	17.5	2	5	28.4	6	7	19.1
Oneida	11	38	35.1	6	11	74.1	2	11	29.0
Outagamie	46	164	29.6	9	51	48.6	15	37	27.1
Ozaukee	16	42	15.8	2	7	14.9	5	19	24.6
Pepin	1	4	18.2	1	1	31.0	0	3	41.7
Pierce	8	23	18.3	1	4	12.4	5	13	42.2
Polk	13	42	31.8	2	8	37.3	8	25	63.8
Portage	15	47	22.2	6	16	28.7	2	12	22.4
Price	1	17	41.2	0	7	130.7	0	4	25.7
Racine	54	211	35.9	7	28	26.1	26	100	64.3
Richland	6	13	24.5	0	2	22.9	2	2	12.5
Rock	74	273	56.5	18	62	66.3	20	105	87.6
Rusk	3	12	27.6	0	2	30.7	0	4	26.8
Saint Croix	12	42	15.8	2	8	16.8	6	21	33.8
Sauk	29	97	51.3	4	19	57.9	9	26	50.9
Sawyer	7	29	58.0	3	16	228.7	3	8	44.7
Shawano	11	24	19.4	1	3	14.8	3	10	27.1
Sheboygan	33	123	35.6	7	31	50.6	8	34	36.0
Taylor	0	10	16.2	0	2	20.6	0	3	16.8
Trempealeau	4	21	23.7	1	6	40.2	2	10	41.9
Vernon	5	30	33.0	2	8	51.9	2	12	46.4
Vilas	14	55	84.0	4	19	231.1	4	16	62.9
Walworth	21	115	37.2	2	20	31.2	8	55	66.3
Washburn	5	20	42.1	3	3	47.5	1	7	40.7
Washington	27	91	22.5	4	20	29.0	9	36	32.2
Waukesha	74	253	21.1	17	64	30.2	21	92	27.0
Waupaca	11	57	36.7	2	18	74.3	4	13	27.7
Waushara	6	23	31.5	0	3	27.0	2	11	44.5
Winnebago	39	183	35.9	6	51	46.0	9	59	46.1
Wood	23	65	29.3	7	22	59.8	5	12	18.4
Federal Corrections	14	25	–	3	6	–	0	0	–
State Corrections	168	654	–	45	193	–	11	42	–
Wisconsin	1,941	7,146	41	358	1,579	46	616	2,377	53

Notes: Case counts include all cases meeting the definition of acute, chronic, or perintatal hepatitis C. Cases were classified according to the National Notifiable Diseases Case Classifications.

N (2020) = Number of cases reported in 2020

N (3 yrs) = Total number of cases reported in the three years of 2018–2020

Rate per 100,000 (3 yrs)= Three-year average rate of newly reported cases: Number of cases reported in 2018–2020 divided by the total population of the jurisdiction each year and multiplied by 100,000

Three-year average rates are presented so that each county could be represented without suppression of small numbers.

TABLE 3
Number of reported prevalent hepatitis C cases and percentage of the population with hepatitis C, among all ages and among people age 18 and older, by county of residence, Wisconsin, at the end of 2020

	All ages		Age 18 and older	
County	N	Percent	N	Percent
Adams	182	0.88	181	1.02
Ashland	77	0.48	77	0.62
Barron	149	0.32	149	0.41
Bayfield	43	0.28	43	0.34
Brown	989	0.38	986	0.50
Buffalo	20	0.15	20	0.19
Burnett	77	0.50	76	0.60
Calumet	88	0.17	87	0.22
Chippewa	233	0.36	233	0.47
Clark	67	0.19	66	0.27
Columbia	258	0.45	256	0.57
Crawford	41	0.25	40	0.30
Dane	1,977	0.37	1,971	0.47
Dodge	461	0.52	460	0.65
Door	74	0.26	74	0.32
Douglas	296	0.67	296	0.86
Dunn	102	0.23	102	0.29
Eau Claire	359	0.35	356	0.44
Florence	29	0.66	29	0.79
Fond du Lac	434	0.42	433	0.53
Forest	59	0.64	59	0.82
Grant	92	0.18	92	0.23
Green	105	0.28	105	0.37
Green Lake	89	0.47	89	0.60
Iowa	63	0.26	63	0.35
Iron	26	0.44	26	0.52
Jackson	108	0.52	107	0.66
Jefferson	323	0.38	322	0.50
Juneau	165	0.61	165	0.76
Kenosha	1,062	0.63	1,054	0.82
Kewaunee	44	0.21	43	0.27
La Crosse	354	0.30	353	0.38
Lafayette	38	0.22	37	0.30
Langlade	106	0.53	106	0.66
Lincoln	108	0.38	107	0.47
Manitowoc	412	0.51	411	0.65
Marathon	408	0.30	407	0.40
Marinette	257	0.63	257	0.78
Marquette	88	0.57	88	0.69
Menominee	27	0.62	27	0.86

	All ages		Age 18 and older	
County	N	Percent	N	Percent
Milwaukee	7,764	0.82	7,738	1.07
Monroe	219	0.48	219	0.64
Oconto	137	0.36	137	0.45
Oneida	156	0.43	155	0.52
Outagamie	538	0.29	536	0.38
Ozaukee	221	0.25	219	0.32
Pepin	25	0.34	25	0.43
Pierce	74	0.18	74	0.23
Polk	106	0.24	105	0.31
Portage	168	0.24	167	0.30
Price	72	0.52	72	0.63
Racine	1,060	0.54	1,055	0.70
Richland	40	0.23	40	0.30
Rock	834	0.52	829	0.67
Rusk	42	0.29	39	0.34
Saint Croix	115	0.13	115	0.17
Sauk	345	0.55	341	0.70
Sawyer	94	0.56	94	0.70
Shawano	155	0.37	154	0.47
Sheboygan	471	0.41	469	0.52
Taylor	21	0.10	20	0.13
Trempealeau	57	0.19	56	0.25
Vernon	70	0.23	70	0.31
Vilas	128	0.58	126	0.69
Walworth	386	0.37	382	0.48
Washburn	61	0.39	61	0.48
Washington	375	0.28	374	0.36
Waukesha	984	0.25	979	0.31
Waupaca	200	0.39	199	0.48
Waushara	114	0.47	113	0.57
Winnebago	691	0.41	690	0.52
Wood	235	0.32	234	0.40
Wisconsin	26,419	0.45	26,303	0.59

Notes: Prevalence of reported hepatitis C is calculated by adding together all of the cases reported to public health during 2000 through 2020 and subtracting people matched to state or national death records and subtracting people whose last reported hepatitis C RNA result was negative, indicating they had cleared the infection naturally or through treatment. In addition, this year, county of residence was updated to be the most recent residence address available from a national address locator service. Persons residing in correctional facilities are included in the county of the address of the facility. The Wisconsin state total includes 571 people (563 of whom were age 18 or older in 2020) with unknown county of residence.

N = Number of cases

Percent = Number of cases divided by the population of the jurisdiction and multiplied by 100

Technical Notes

This report was compiled by the Wisconsin Department of Health Services, Division of Public Health, Communicable Disease Harm Reduction Section and is based on reports of hepatitis C infection submitted by laboratories and local health departments to the Wisconsin Electronic Disease Surveillance System. Per Wis. Admin. Code ch. DHS 145, hepatitis C is a reportable communicable disease. When cases are reported, local health departments contact people with hepatitis C infection to provide health education, risk reduction counseling, hepatitis A and B vaccine, and medical referral as needed.

This report is based on hepatitis C surveillance data from the Wisconsin Electronic Disease Surveillance System as of April 13, 2020. Because the Wisconsin Electronic Disease Surveillance System is not a static database and cases can be updated daily, hepatitis C case numbers used in other reports or individual county reports may vary depending on the date data are accessed.

Many cases of hepatitis C infection are reported by laboratories. Since laboratories do not generally report demographic data, such as region, race, or age, surveillance summary data by demographic characteristics are often incomplete.

For the purpose of this report, Native American is used to describe persons reported with a race of American Indian or Alaska Native. The methods used to report and classify race and ethnicity data may inadvertently undercount certain groups of people. For example, in this report, people reported with multiple races (for example, Native American and white) would not be included as white or Native American, but would be reported as multiple race. Results of sensitivity analyses indicate that the trends by race and ethnicity would remain unchanged if these cases were included in the individual race categories.

Many reported cases of hepatitis C infection represent chronic disease in people who were infected years ago. People with acute infection are often unaware of their infection because it presents with few if any symptoms.

Changes in numbers and rates in a county or statewide may be due to an increase in new hepatitis C infections, changes in provider hepatitis C screening practices from year to year, differences in the amount of resources each jurisdiction has dedicated to hepatitis C surveillance, or differences in reporting of positive and negative hepatitis C test results to the Wisconsin Electronic Disease Surveillance System.

Starting in April 2017, negative RNA results became reportable to the Wisconsin Electronic Disease Surveillance System. Because of this change, the number of probable chronic hepatitis C cases has decreased. In addition, the surveillance system can now identify acute cases that had test conversion from negative RNA to positive RNA; therefore, the number of acute hepatitis C cases has increased. This change to the surveillance system was described in detail in the 2017 annual report.

Maps and tables include the three-year average rates (for years 2018–2020) so that each county could be represented without suppression for small numbers.

Prevalence estimates including people who have not yet been diagnosed or reported to public health were estimated using a modified version of the methods described in Bocour A, et al.[12]

Data regarding *reported* prevalence exclude Wisconsin residents matched to state or national death records. These data also exclude people whose last hepatitis C RNA results reported to the Wisconsin Electronic Disease Surveillance System were negative, indicating the infection had cleared naturally or through treatment. The numbers of people who had negative RNA results that were not reported to the Wisconsin Electronic Disease Surveillance System are not known and have not been subtracted from the prevalence estimate. This year, county of residence

was updated to be the most recent residence address available based on information from a national address locator service. Persons with residence addresses outside of Wisconsin were excluded.

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For more information

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