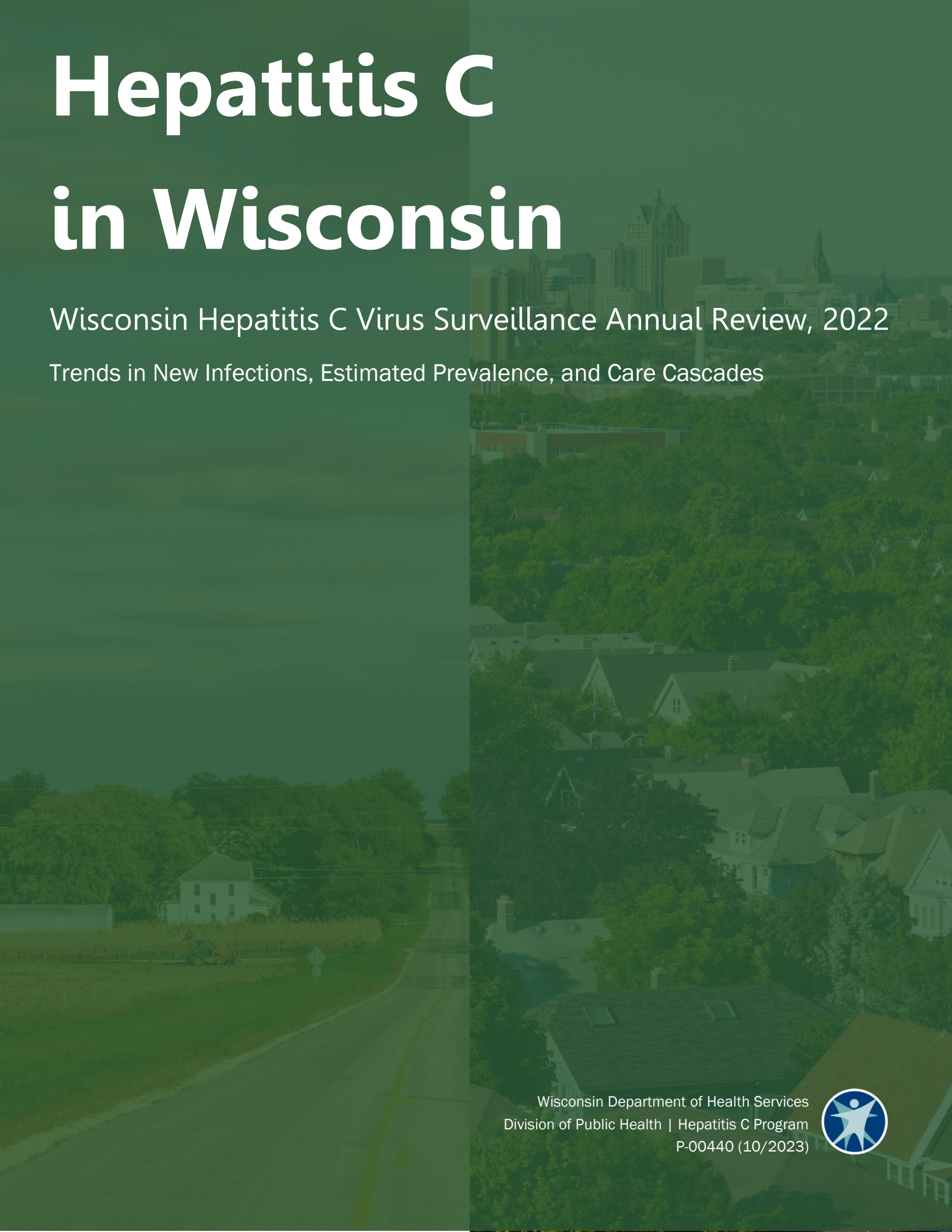
Hepatitis C in Wisconsin

Wisconsin Hepatitis C Virus Surveillance Annual Review, 2022

Trends in New Infections, Estimated Prevalence, and Care Cascades



Wisconsin Department of Health Services
Division of Public Health | Hepatitis C Program
P-00440 (10/2023)

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DEFINITIONS AND NOTES

Acute hepatitis C case refers to a case of hepatitis C that included evidence indicating the infection occurred within the past 12 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, Acute.

Chronic hepatitis C case refers to a case of hepatitis C that did not include evidence indicating the infection occurred within the past 12 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 CDC (Centers for Disease Control and Prevention) 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. Since April 2020, the CDC recommends every pregnant person be tested for HCV infection with each pregnancy. Further information on HCV management, including testing and treatment, can be found at the American Association for the Study of Liver Diseases.

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.

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] During the first several decades after the discovery of HCV in 1989, Baby Boomers (b. 1945-1965) were disproportionately impacted by hepatitis C. Since 2016, however, adults younger than 45 have been most impacted by HCV in the U.S. and Wisconsin, most likely due to increases in the burden of injection drug use.

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 2022.

Trends

Wisconsin experienced the highest numbers of newly reported cases from 2014 – 2018, followed by continuing decreases in newly reported cases, with the year 2022 representing the lowest number of cases reported in over 20 years.

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

2022 cases

In 2022, there were 1,702 hepatitis C cases newly reported: two perinatal cases, 100 acute cases, and 1,600 chronic cases.

- Injection drug use was the most commonly reported risk factor among acute cases.
- Although the southeastern part of Wisconsin has the highest rate of newly reported cases, many rural counties in northern Wisconsin have the highest rate from a county-level perspective (see page 5).

Prevalence estimates

According to data reported to DHS in 2022, 25,467 people aged 18 and older (0.48% of Wisconsin adults) are currently living with hepatitis C infection in Wisconsin. However, because estimates suggest that only about 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 about 47,000 (1.0% of Wisconsin adults).

Care cascades

Among people confirmed with hepatitis C in 2020–2022, 28% (1,182 people) had negative hepatitis C RNA results at their most recent test, suggesting they had cleared the infection either naturally or through treatment. Persons aged 60+ had the highest infection clearence at 36% (305 people), which has decreased from 2019–2021, followed by persons aged 15–29 with 23% (179 people), and lastly, persons aged 30–44 had the lowest infection clearance at 13% (415 people). Infection clearence has continued to decrease post-pandemic, illustrating a need for intentional medical and public health intervention.

Limitations of this report

The COVID-19 pandemic had numerous effects on health care and prevention services, especially during 2020–2021. Statewide disruption in hepatitis C testing likely caused the total number of C cases reported for 2020 and 2021 to be lower than expected. This observed decrease in reported cases should be interpreted with caution, as it does not likely reflect a true decrease in hepatitis acute hepatitis C.

Report Highlights

Call to Action

Approximately 30% (517 people) of cases presented in 2022 were classified as 'Probable,' indicating incomplete testing. CDC recommends that all samples needed to diagnose hepatitis C be collected in a single visit and HCV RNA testing be performed automatically when the HCV antibody is reactive. Information on operational guidance when testing for hepatitis C can be found here: Updated Operational Guidance for Implementing CDC's Recommendations on Testing for Hepatitis C Virus Infection | MMWR.

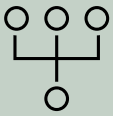
All adults should receive at least one-time screening for hepatitis C, based on the 2020 revision of hepatitis C testing recommendations from the U.S. Preventive Services Task Force[2] and the CDC[3].

Hepatitis C Surveillance – Health Equity Key Takeaways:

In 2022, 1,702 cases of hepatitis C were newly reported to DHS, including two perinatal, 100 acute, and 1,600 newly reported chronic cases. Chronic cases accounted for 94% of all newly reported cases, and acute cases for 6%. Perinatal cases accounted for less than 1% of all reports. Combined newly reported cases in 2022 are 21% less than 2021 cases, 14% less than 2020 cases, and 45% less than 2019 cases.

Rate of new hepatitis C cases is highest in Native American and Black persons

The rate of new hepatitis C among Native American and Black persons were 4.0 times and 1.1 times greater, respectively, than the rate of new hepatitis C cases among white persons.



Acute hepatitis C and injection drug use as a risk factor

Injection drug use was the most commonly reported risk factor for persons with acute hepatitis C (43%) with risk information present.

Persons in childbearing age who may become pregnant remain a key priority population to combat perinatal transmission

Cases in persons able to become pregnant, aged 15–44 (reproductive age) accounted for 61% of all cases in females.

Specific Wisconsin counties remain disproportionately impacted

The highest number of reported cases were in Milwaukee and Dane counties, with 522 and 120 cases. The largest rates per 100,000 population were in Sawyer (86.2), Burnett (70.4), Marinette (57.2), and Milwaukee (56.2) counties. Based on case rates across Wisconsin regions, southeastern Wisconsin remains more disproportionately impacted compared to other regions in the state.

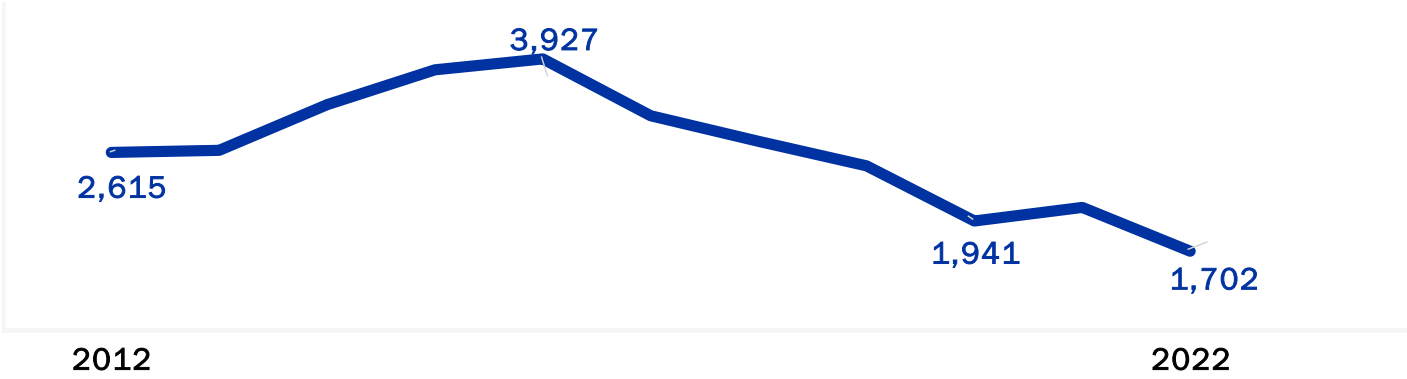
TRENDS

Trends in new infections

FIGURE 1

Over the past 10 years, the number of new HCV cases reported each year in Wisconsin has slowly declined.

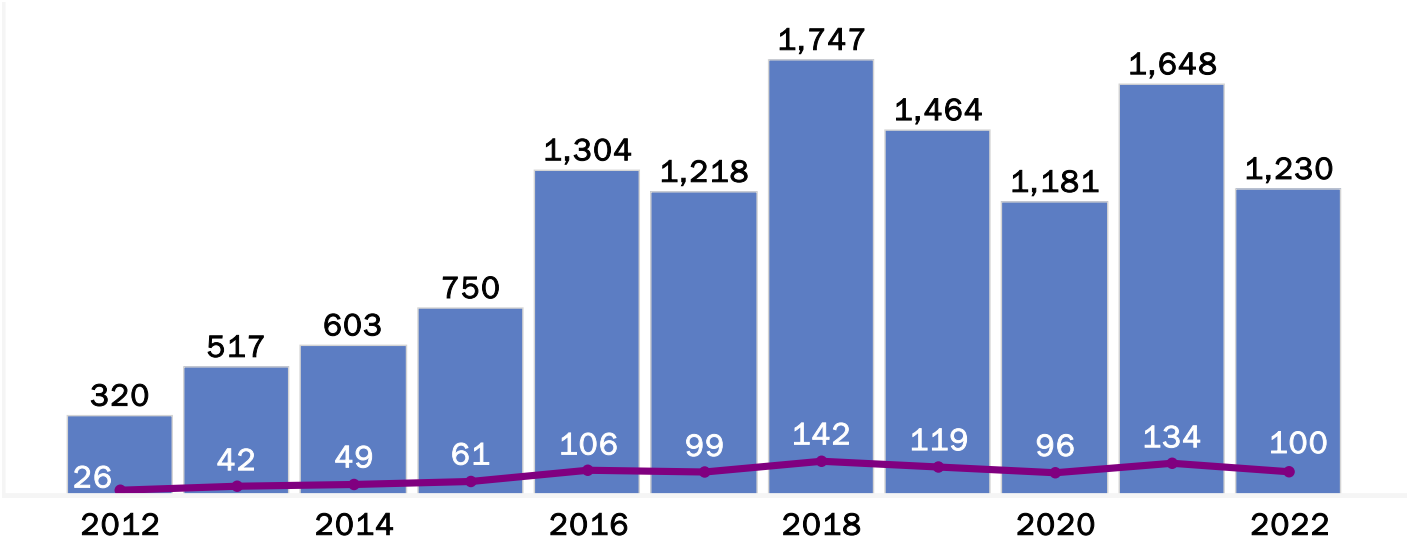
Number of reported hepatitis C cases, by year of report, Wisconsin, 2012–2022



Notes: Since 2012, trendline analysis indicates a statistically significant decrease in newly reported hepatitis C cases (p–value: 0.04), with the greatest number of cases reported from 2014–2018. Concurrently, the years 2020–2022 represent the lowest number of reported cases in over 20 years. While it is currently unknown why a decrease in cases continues to emerge, analyses are underway to determine if this reduction in cases is related to other trends.

FIGURE 2

Number of reported cases of acute hepatitis C virus infection and estimated infection* - Wisconsin, 2012–2022

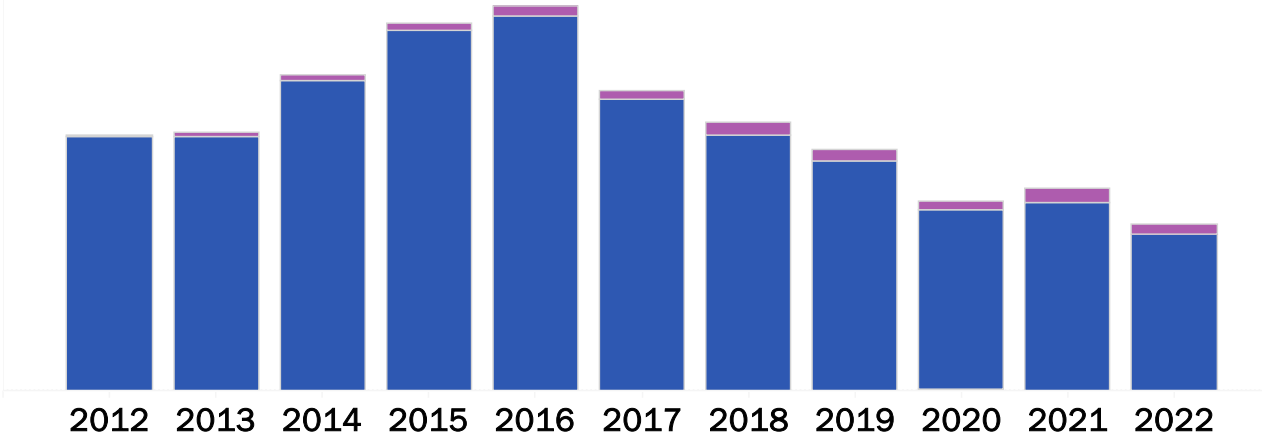


Notes: *For every reported individual with acute HCV, there are estimated to be about 12.3 new infections. The estimated infection in the blue bar, while based on that year's acute number of infections, represents the true number of infections that exist that aren't being accounted for as significant underreporting continues to persist. [1]

FIGURE 3

Newly reported cases of acute, chronic, and perinatal hepatitis C have decreased in recent years.

Number of reported hepatitis C cases, by disease classification, Wisconsin, 2012–2022



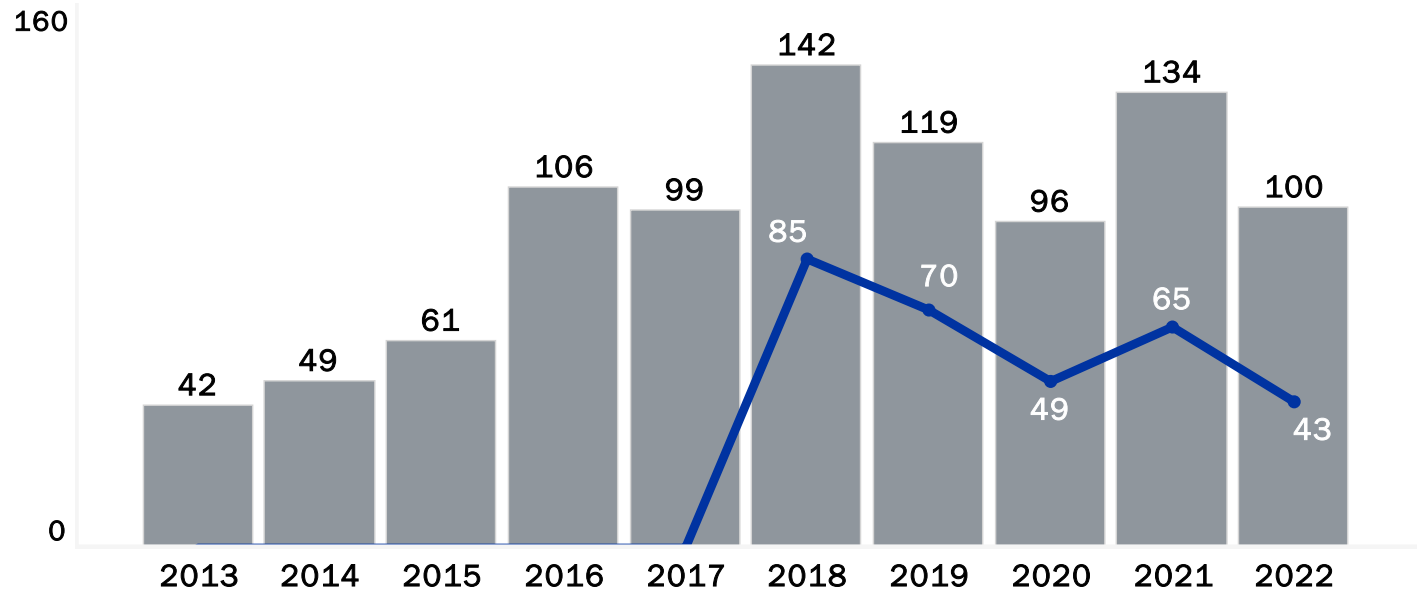
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
ACUTE	26	42	49	61	106	99	142	119	96	134	100
CHRONIC	2,589	2,597	3,169	3,684	3,821	2,968	2,600	2,348	1,837	1,921	1,600
PERINATAL							2		8	4	2

Notes: Combined newly reported cases in 2022 are 21% less than 2021 cases, 14% less than 2020 cases, and 45% less than 2019 cases.

FIGURE 4

The number of acute hepatitis C cases with injection drug use exposure has continued to increase since 2013.

Number of reported acute hepatitis C cases, by year of report, Wisconsin, 2013 – 2022

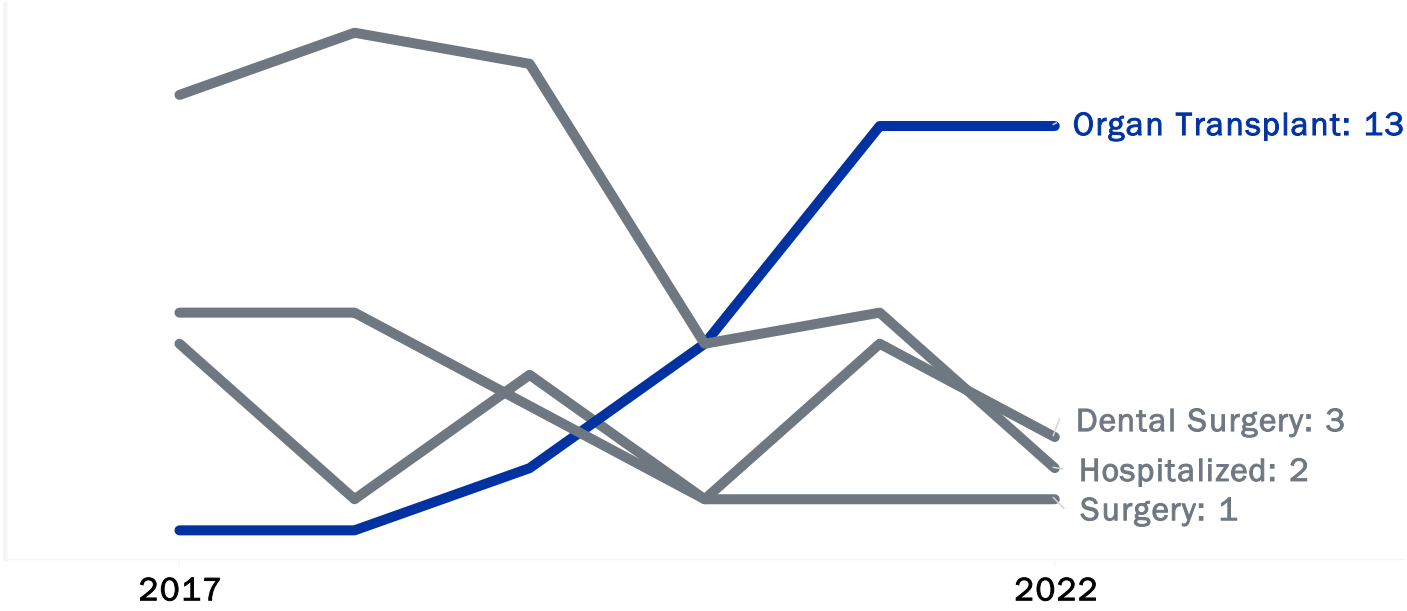


Notes: Trendline analysis indicates that injection drug use (IDU) exposure has decreased at a statistically insignificant rate (p-value: 0.07), despite the decreases demonstrated since 2018.

FIGURE 5

Among many healthcare-associated exposures, acute HCV cases with indication of organ transplantation has continued to increase since 2017.

Number of health care exposures reported in acute cases, by year of report, Wisconsin, 2017-2022

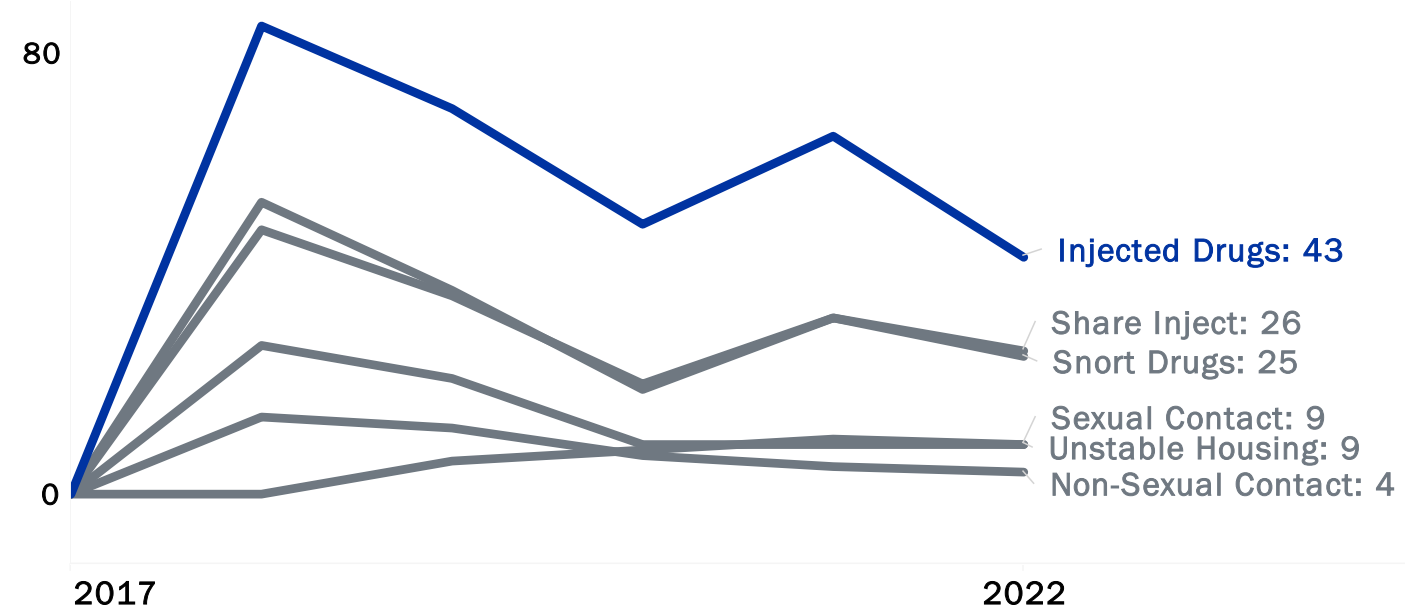


Notes: People can report multiple exposure factors. Consenting to receive a hepatitis C positive organ has more than doubled since 2020.

FIGURE 6

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

Number of exposure factors reported in acute cases, by year of report, Wisconsin, 2017 – 2022

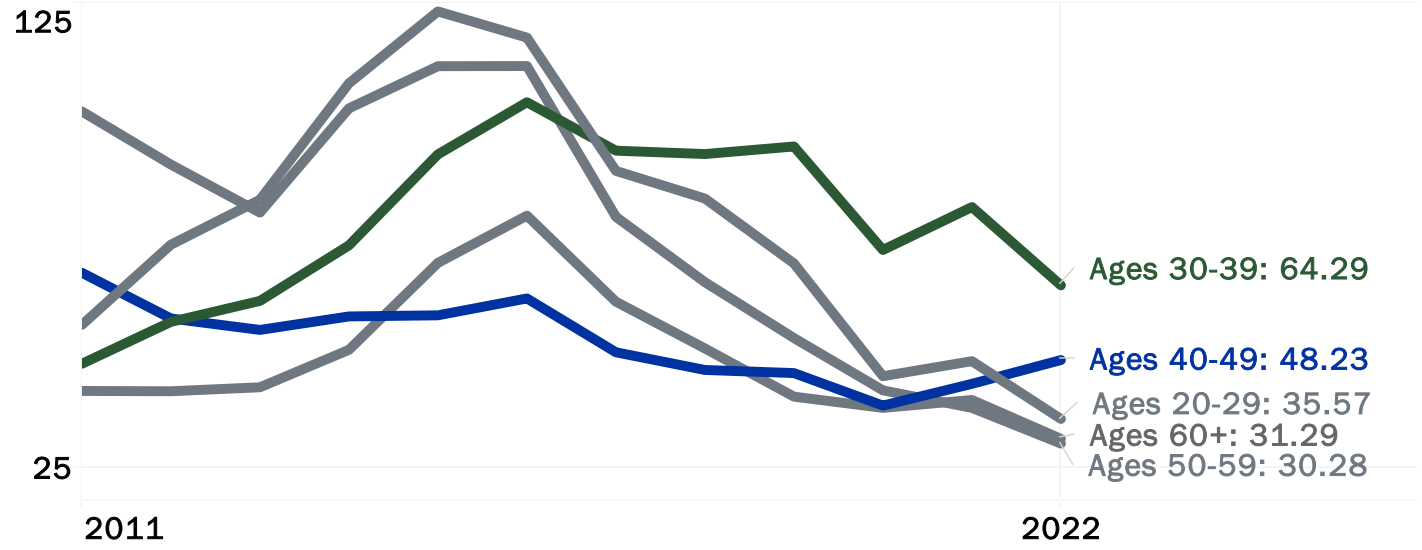


Notes: People can report multiple exposure factors.

FIGURE 7

In 2022, the rate of newly reported hepatitis C cases was the highest among persons aged 30–39 years, followed by persons aged 40–49 years, compared to other age categories.

Rate per 100,000 of people newly reported with positive hepatitis C test results across age categories, Wisconsin, 2011–2022

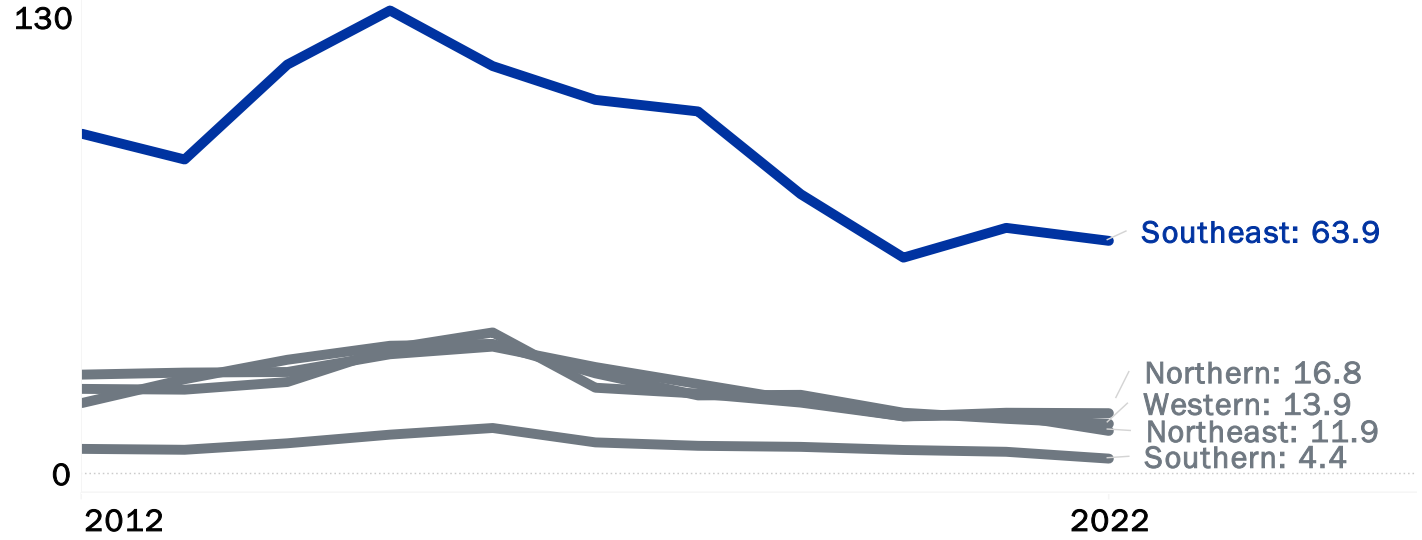


Notes: In 2022, the rate of newly reported hepatitis C cases was the highest among persons aged 30–39 years (64.29 cases per 100,000 population), followed by persons aged 40–49 years (48.23 cases per 100,000 population), compared to other age categories, illustrating a significant shift in disease burden from older (above 60 years old) to younger persons.

FIGURE 8

In the past 10 years, the southeastern region of Wisconsin continues to have the highest rate of newly reported HCV cases

Rate per 100,000 of people newly reported hepatitis C cases, by region, Wisconsin, 2012–2022

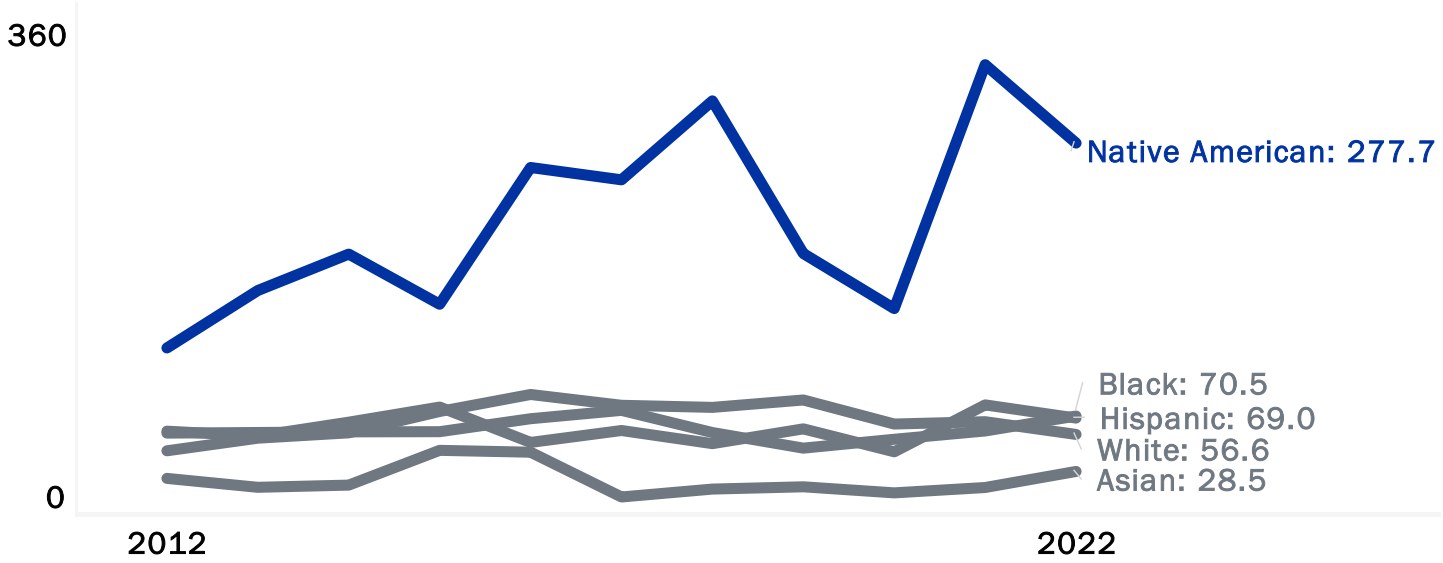


Notes: The southeastern region of the state encompasses the following counties: Jefferson, Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha. In this region, the highest number of reported cases were in Milwaukee and Waukesha, with 522 and 73 cases, respectively.

FIGURE 9

During the past decade, the rate of new positive hepatitis C test results among persons aged 30–44 continue to be the highest among Native Americans.

Rate per 100,000 of people newly reported with positive hepatitis C test results† among people aged 30–44, by race/ethnicity, Wisconsin, 2012–2022



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 2020-2021, detection of hepatitis C was impacted by reduced testing because of COVID-19.

In the past 10 years, trendline analysis indicates a statistically significant increase in the rate of new positive hepatitis C cases among Asian (p-value: 0.04) and Black (p-value: 0.03) persons. While trendlines indicate a continual decrease in the rate of new positive hepatitis C cases among Native American persons, this population continues to be disproportionately impacted.

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 persons who may become pregnant is concerning because infants born to persons with hepatitis C are at risk for perinatal hepatitis C infection. Approximately 6% of infants born to birth persons with hepatitis C will become infected, and the risk is higher among those with a high hepatitis C viral load and women with HIV.

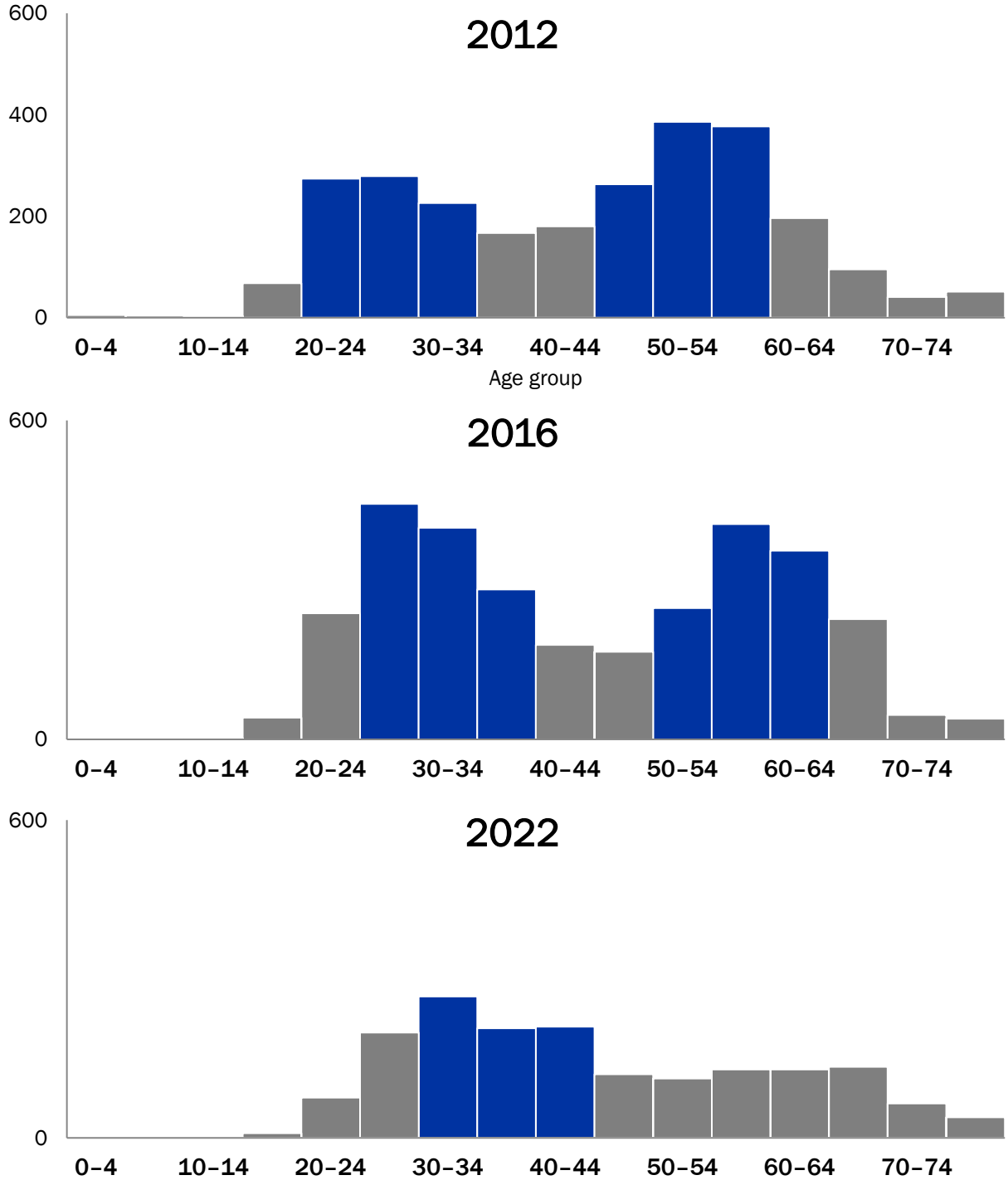
Trends in the age distribution of newly reported cases

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 two peaks among baby boomers and younger adults to now one peak among adults under age 45.

FIGURE 10

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, 2012, 2016, 2022



2022 CASES

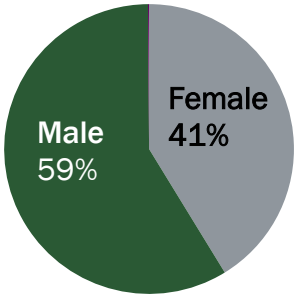
All cases, 2022

In 2022, there were 1,702 hepatitis C cases newly reported: two met the definition of confirmed perinatal hepatitis C, 100 (98 confirmed, two probable) met the definition of acute hepatitis C, and 1,600 (1,085 confirmed, 515 probable) met the definition of chronic hepatitis C. This section summarizes all 1,702 cases.

FIGURE 11

In 2022, 59% of people newly reported with hepatitis C were male.

Percent of newly reported hepatitis C cases by gender, Wisconsin, 2022



Notes: Two people (<1%) newly reported with hepatitis C were transgender-woman.

FIGURE 12

The highest number of cases were reported among adults aged 25–44 in 2022.

Number of newly reported hepatitis C cases by age group and gender, Wisconsin, 2022

In 2022, 432 women of childbearing age were newly reported with hepatitis C

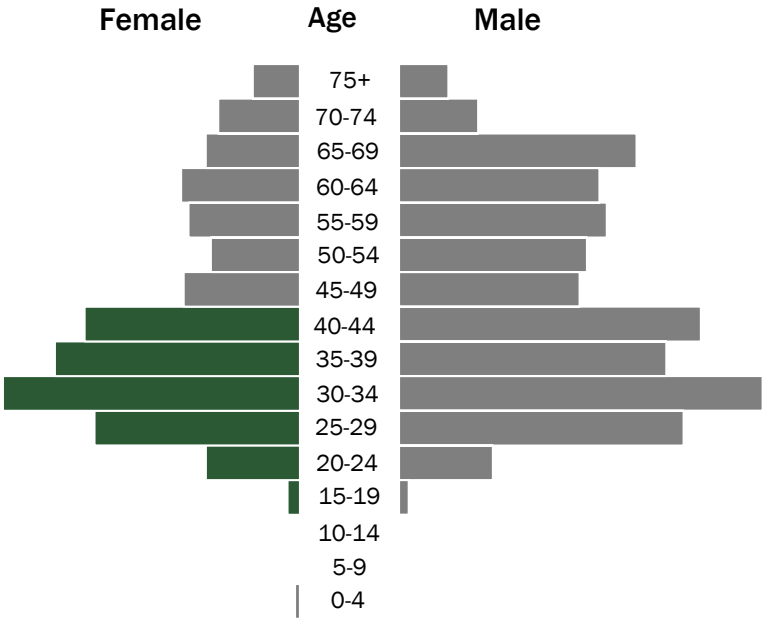
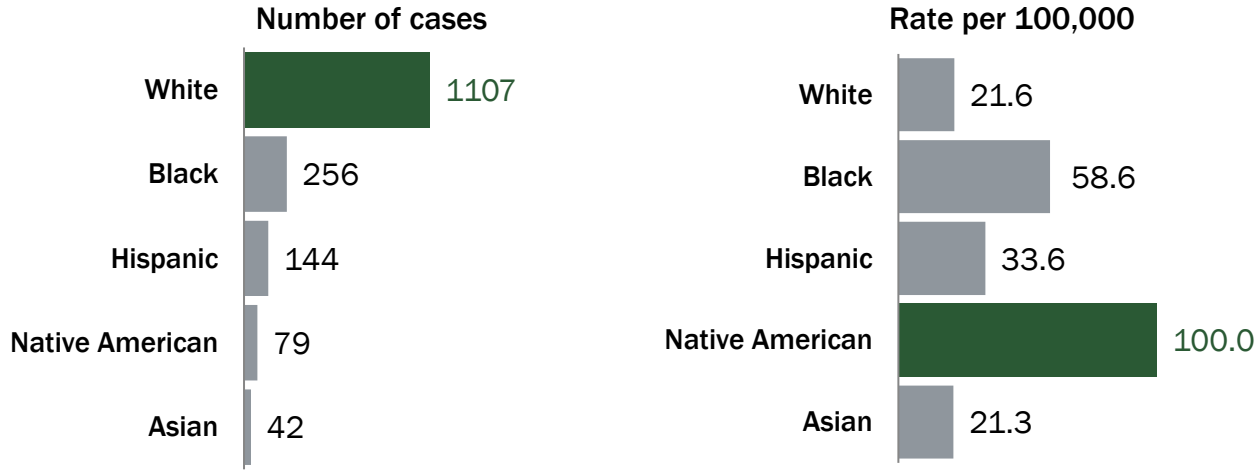


FIGURE 13

Most newly reported cases of hepatitis C were among White people (67%), 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, 2022

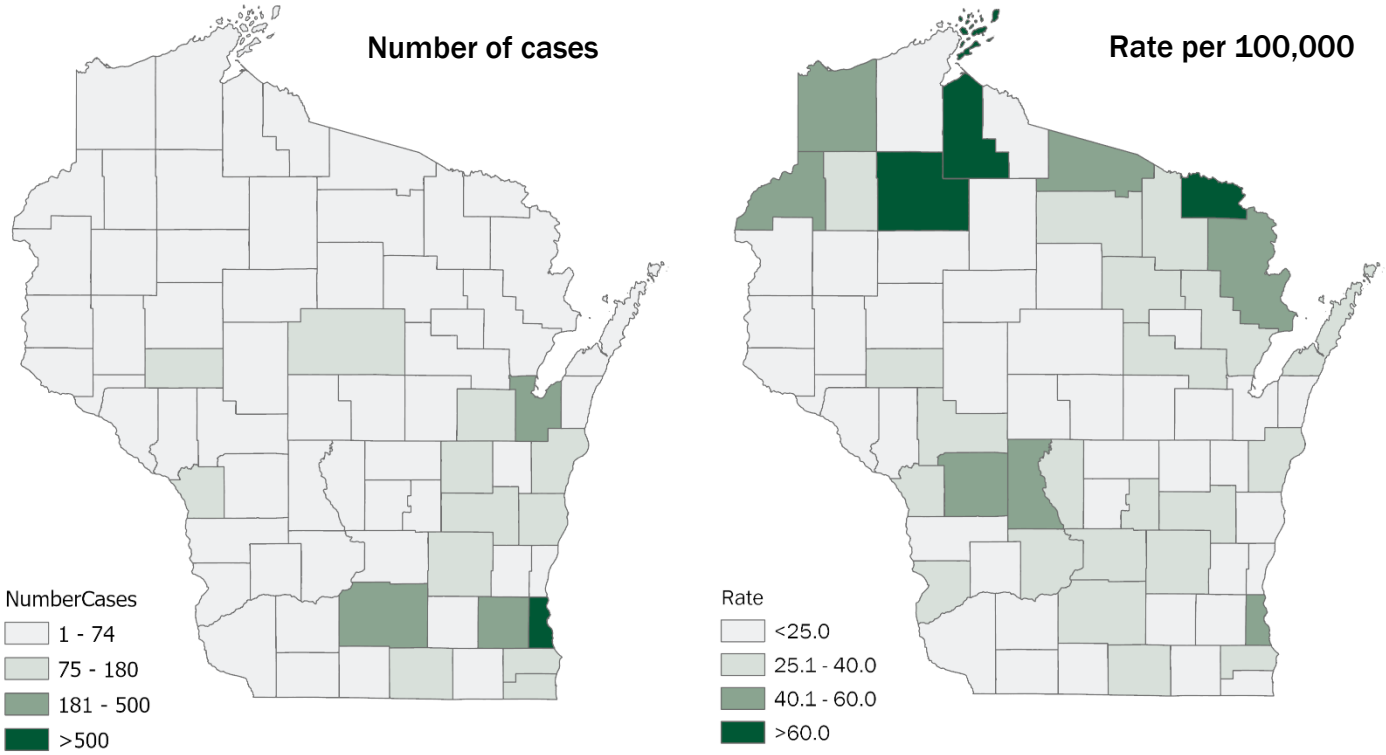


Notes: Data are not shown for 74 people (4.4% of cases) with unknown (N=37), other (N=29), multiple (N=5), and Native Hawaiian or Other Pacific Islanders (N=3) race/ethnicity.

FIGURE 14

Most cases newly reported during 2020–2022 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, 2020–2022



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

Acute cases, 2022

Among the 1,702 cases reported in 2022, 100 (5.8%) met the definition of acute hepatitis C. This section summarizes these 100 cases.

FIGURE 15

In 2022, 43% of reported cases of acute hepatitis C were female.

Percent of acute hepatitis C cases, by gender, Wisconsin, 2022

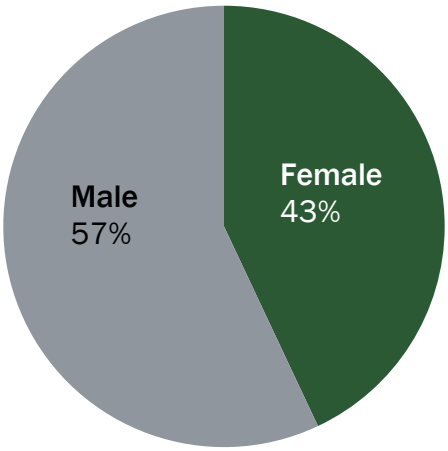
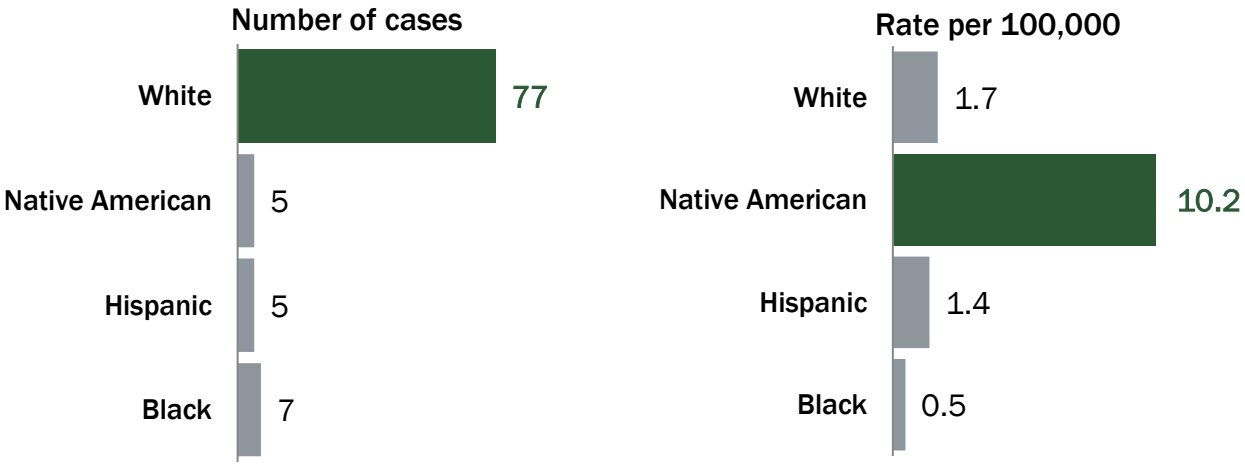


FIGURE 16

Most reported cases of acute hepatitis C were among White people (77%), but the rate was highest among Native Americans.

Number and rate per 100,000 of acute hepatitis C cases by race/ethnicity, Wisconsin, 2022



Notes: *Rates were suppressed for categories with fewer than five cases. Excludes 4 people (2% of cases) with multiple (N=2) or other (N=2) race/ethnicity.

In 2022, the median age of people newly reported with chronic hepatitis C was 42 years, and 59% (57 people) were under age 40.

Chronic cases, 2022

Among the 1,702 cases reported in 2022, 1,600 (5.8%) met the definition of chronic hepatitis C. This section summarizes these 1,600 cases.

FIGURE 17

In 2022, 41% of reported cases of chronic hepatitis C were female.

Percent of chronic hepatitis C cases, by gender, Wisconsin, 2022

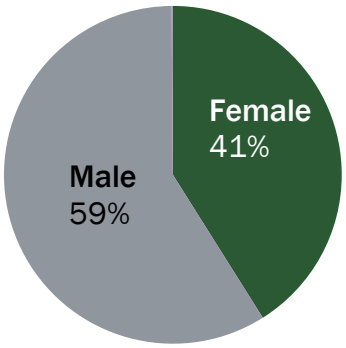
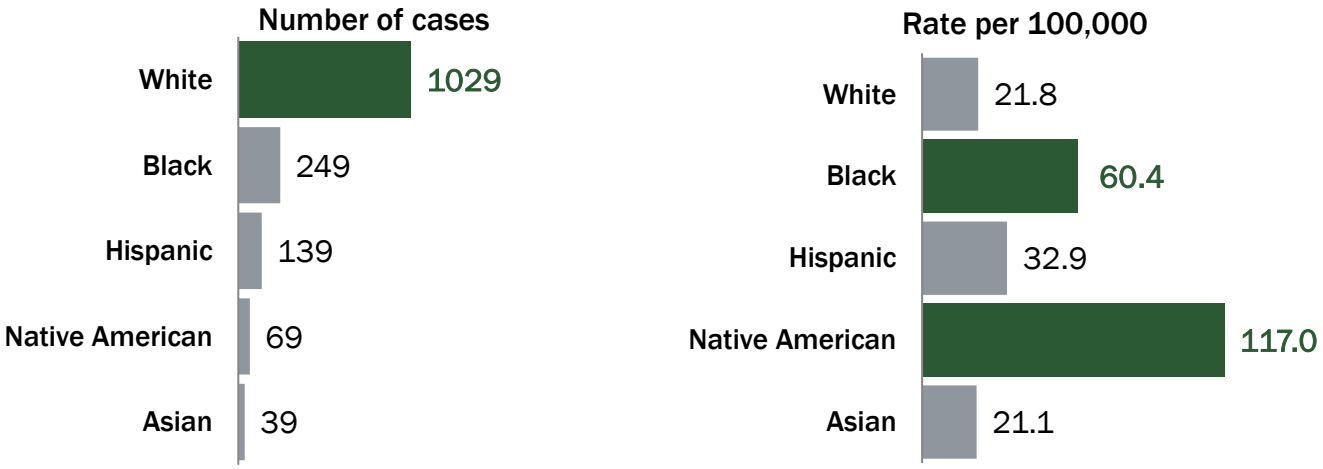


FIGURE 18

Most reported cases of chronic hepatitis C were among White people (77%), but the rate was highest among Native American and Black persons.

Number and rate per 100,000 of acute hepatitis C cases by race/ethnicity, Wisconsin, 2022



Notes: *Rates were suppressed for categories with fewer than five cases. Excludes 75 people (4.7% of cases) with multiple (N=8), unknown (n=37), other (N=27), or suppressed race/ethnicity categories.

In 2022, the median age of people newly reported with chronic hepatitis C was 35 years, and 44% (701 people) were under age 40.

Cases among people aged 30–44, 2022

Among the 1,702 cases newly reported in 2022, 684 (40%) were among people aged 30–44. This section summarizes these 684 cases.

FIGURE 19

In 2022, 47% of people aged 30–44 newly reported with hepatitis C were female.

Percent of newly reported hepatitis C cases among people aged 30–44, by gender, Wisconsin, 2022

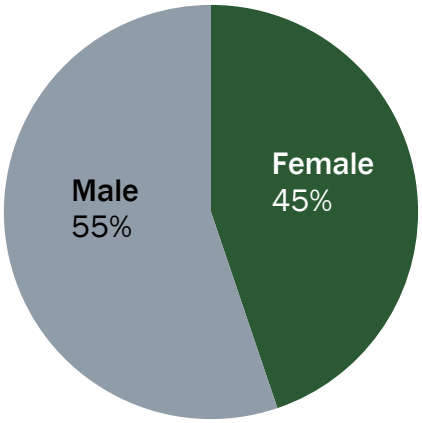
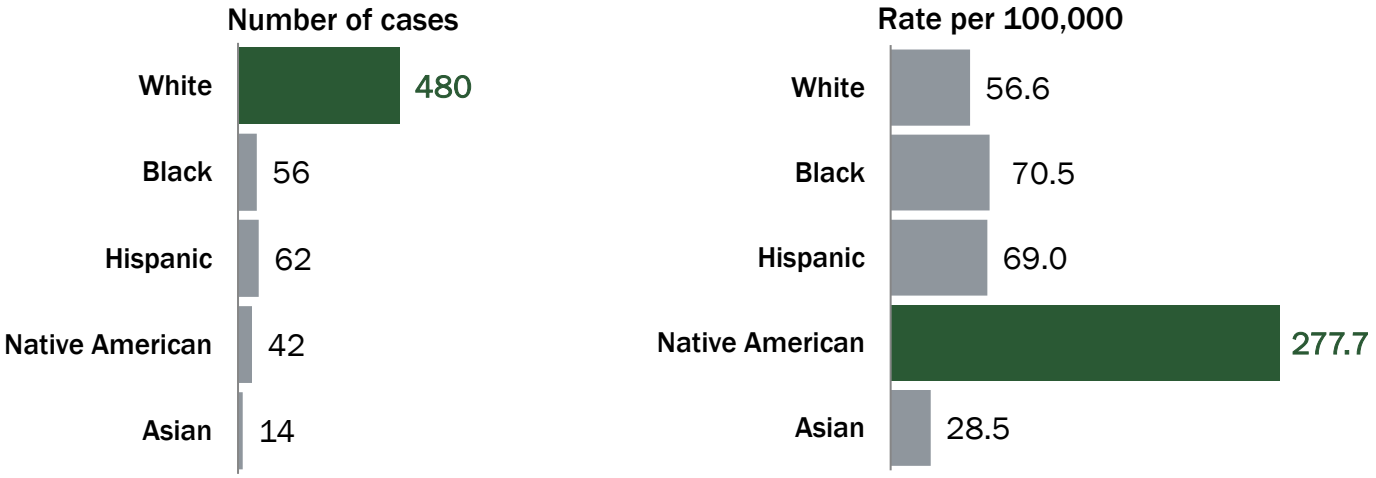


FIGURE 20

Among people aged 30–44, most cases of hepatitis C were among White people (70%), but the rate was highest among Native Americans.

Number and rate per 100,000 of hepatitis C cases among people aged 30–44, by race/ethnicity, Wisconsin, 2022

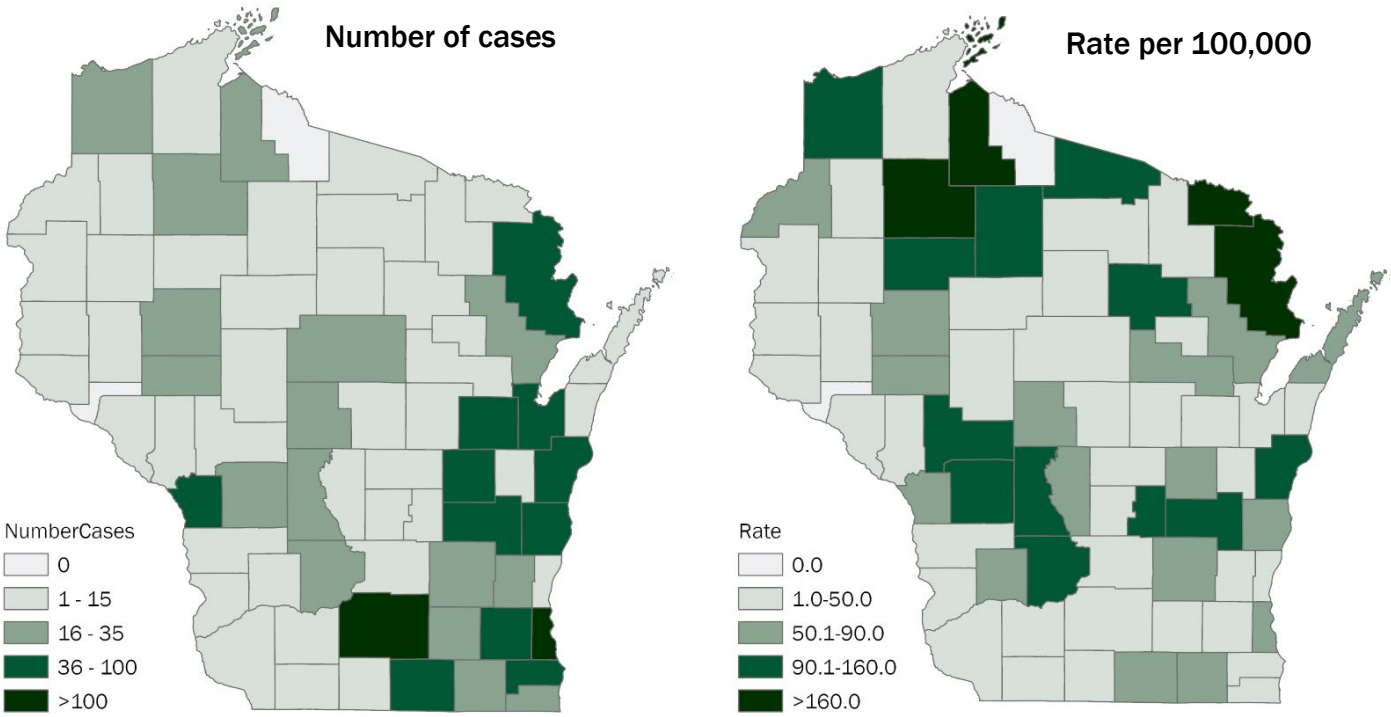


Notes: Excludes 30 people (4.4% of cases in this age range) with unknown (N=11), other (N=12), multiple (N=6), or rate suppressed race/ethnicity categories.

FIGURE 21

Most cases newly reported during 2020–2022 among people ages 30–44 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 30–44, by county of residence, Wisconsin, 2020–2022



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

Cases identified by the Department of Corrections, 2022

Among the 1,702 cases newly reported in 2022, 120 (7%) were reported from the Wisconsin Department of Corrections. This section summarizes these 120 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 and treatment.

FIGURE 22

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, 2022

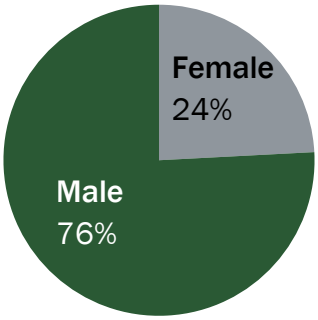


FIGURE 23

Among people newly reported with hepatitis C from the Department of Corrections, 69% of females and 57% of males were under age 40.

Number of newly reported hepatitis C cases from the Department of Corrections, by gender and age group, Wisconsin, 2022

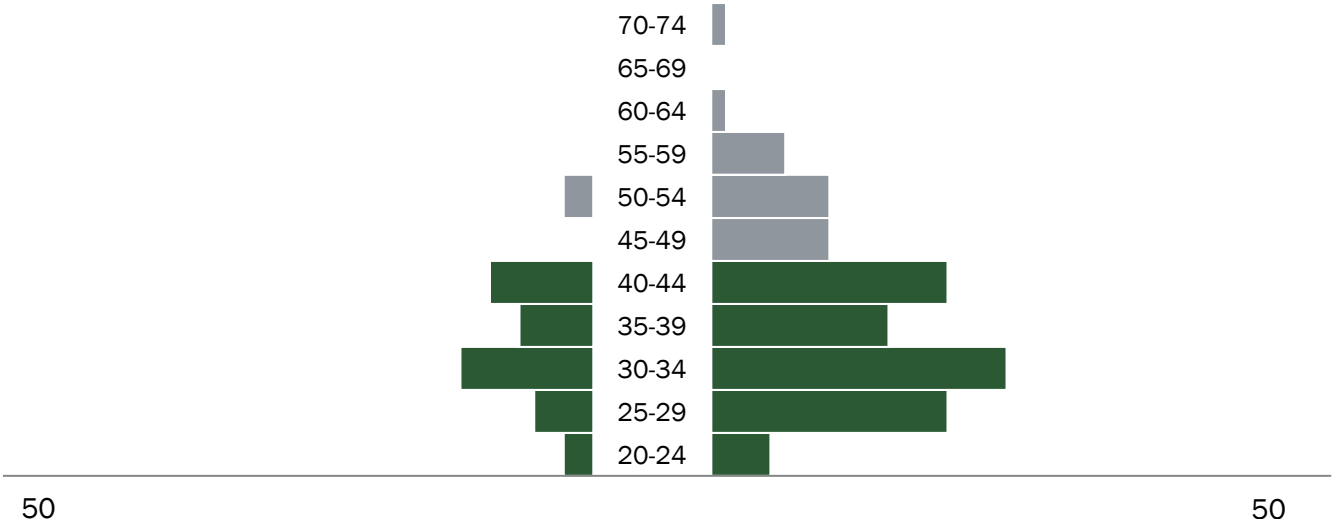
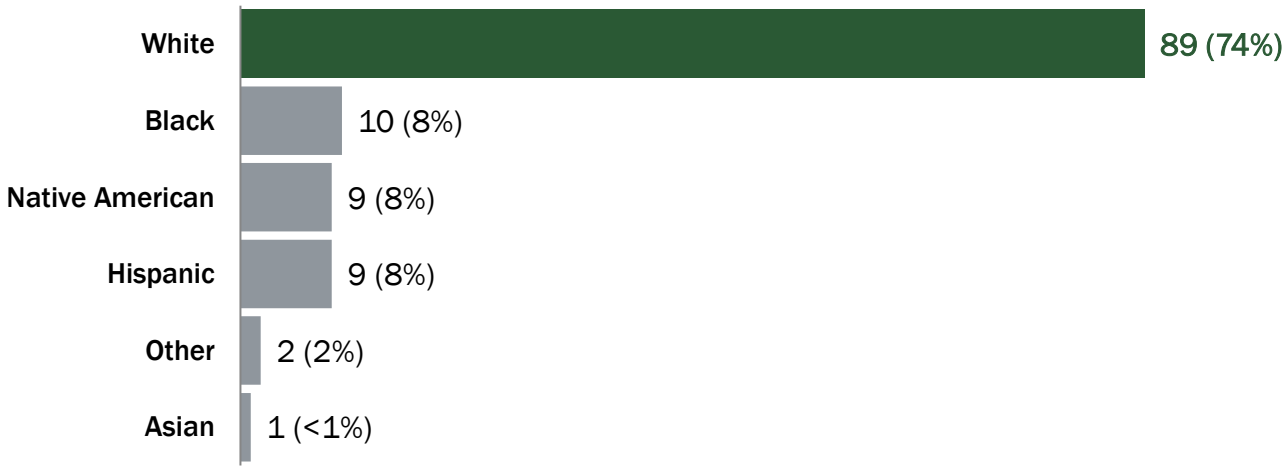


FIGURE 24

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, 2022



Perinatal cases, 2022

Beginning in 2018, perinatal hepatitis C infection 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 2022, two 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. Both cases were female, one was Asian and the other White. Counties reporting cases included: Milwaukee (one case) and Rock (one case).

PREVALENCE ESTIMATES

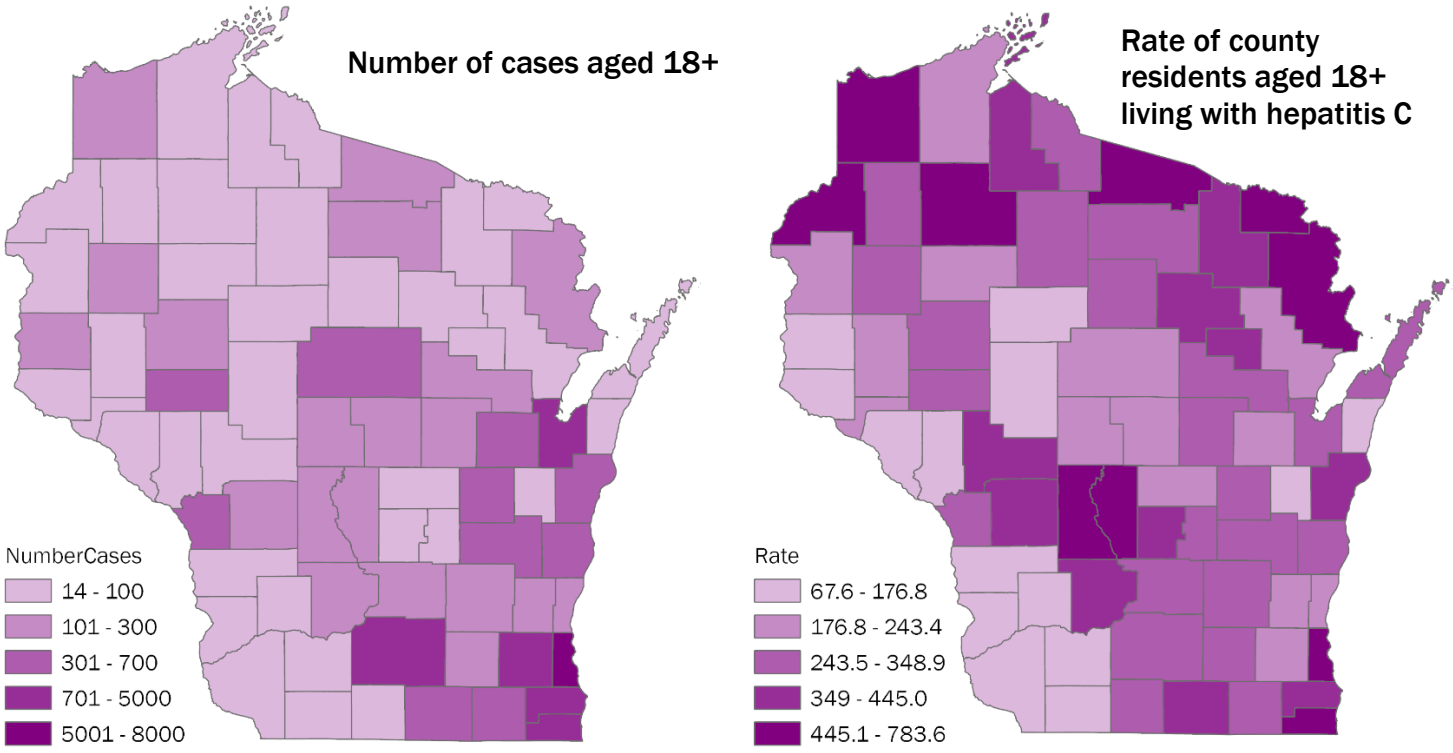
National prevalence estimates suggest that 2.4 million people aged 18 years and older in the U.S. (1% of all adults) are living with chronic hepatitis C infection.[1] However, it is estimated that only 56% of people living with hepatitis C are aware of their diagnosis.[5] This suggests that 44% of people 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,[6] DHS estimates that approximately 47,000 Wisconsin residents aged 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 publishes the prevalence of *reported* hepatitis C in Wisconsin. Prevalence of reported hepatitis C is calculated by adding together all the cases reported to public health during 2000 through 2022, 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. Using this method, at the end of 2022, 21,943 Wisconsin residents of all ages (0.37% of all Wisconsin residents) and 21,700 Wisconsin residents who were age 18 or older in 2022 (0.48% of Wisconsin adults) were living with hepatitis C in Wisconsin. Reported prevalence data for people aged 18 and older are presented below by county of residence. All counties had a prevalence above 0.1%.

FIGURE 25

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, 2022



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

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 cleared the infection, either naturally or through treatment. Among 10,279 people with positive hepatitis C test results first reported to public health in 2020–2022, 85% (8,716 people) had a confirmatory RNA test conducted. Of these, 48% (4,221 people) had positive RNA results confirming the diagnosis of hepatitis C. Among people with positive RNA results, 58% (2,443 people) had a subsequent RNA test, possibly indicating linkage to care. Among people with posititve RNA results, 28% (1,182 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 23% of people aged 15–29, 13% of people aged 30-44, and 36% of people 60+ had test results indicating the infection had cleared. This information suggests that only a small percentage of people newly reported with hepatitis C in 2020–2022 received hepatitis C treatment, and younger and middle-aged 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 26

Among people with positive hepatitis C RNA test results first reported in 2020–2022, only 28% had test results indicating infection had cleared through treatment or naturally, a decrease from prior years.

Number and percent of people in each step of the care cascade among people newly reported with positive hepatitis C test results, 2020–2022

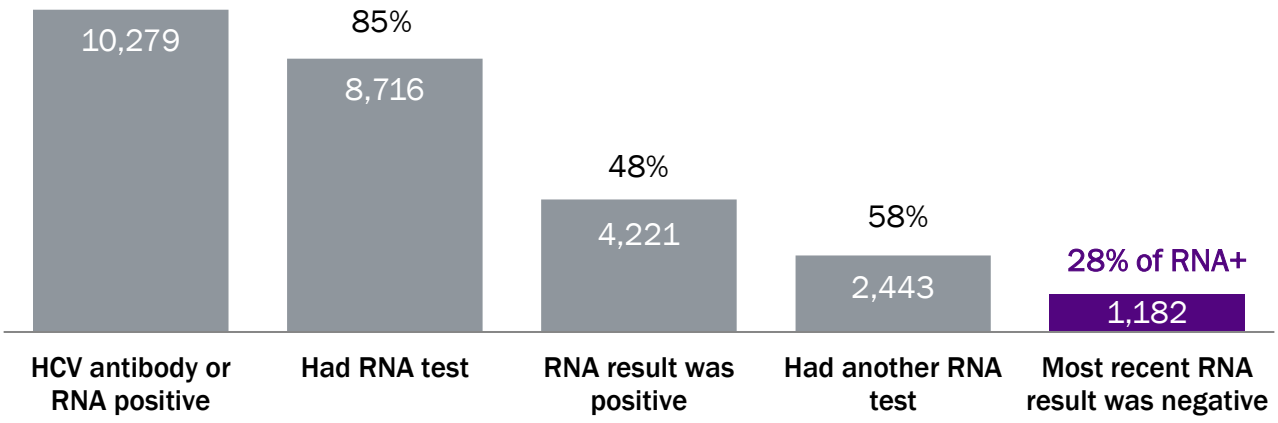


FIGURE 27

Among people aged 15–29 with positive hepatitis C RNA test results first reported in 2020–2022, only 23% 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, 2020–2022

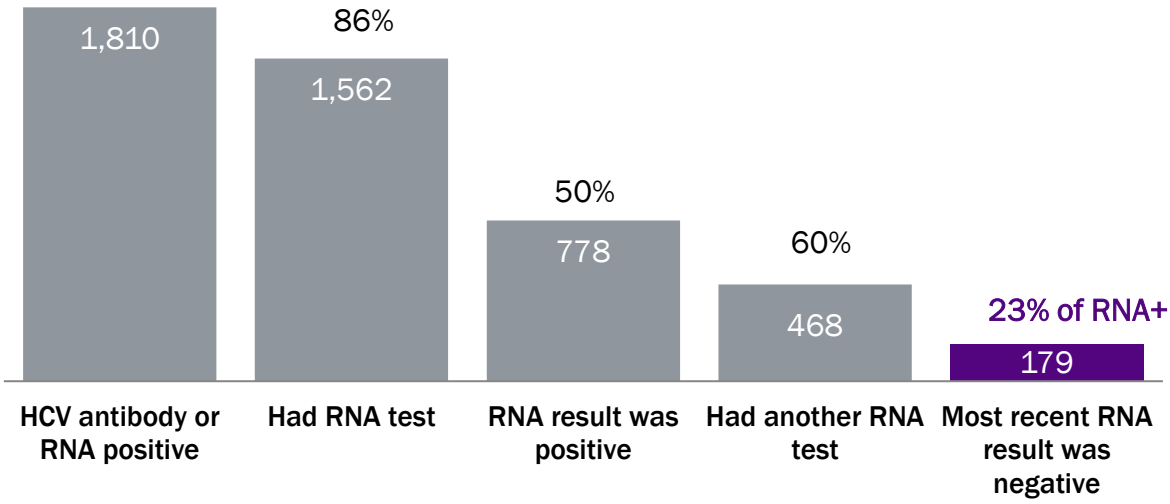


FIGURE 28

Among people aged 30–44 with positive hepatitis C RNA test results first reported in 2020–2022, only 13% 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 30–44 newly reported with positive hepatitis C test results, 2020–2022

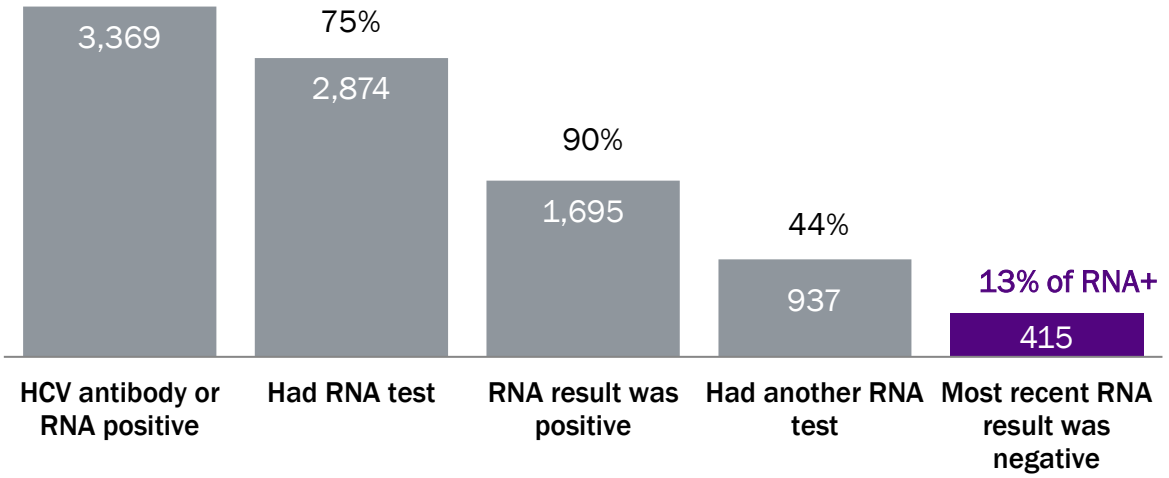


FIGURE 29

Among people who can become pregnant aged 15–39 with positive hepatitis C RNA test results first reported in 2020–2022, only 27% had test results indicating infection had cleared through treatment or naturally.

Number and percent of people in each step of the care cascade among female-identified people aged 15–39 newly reported with positive hepatitis C test results, 2020 – 2022

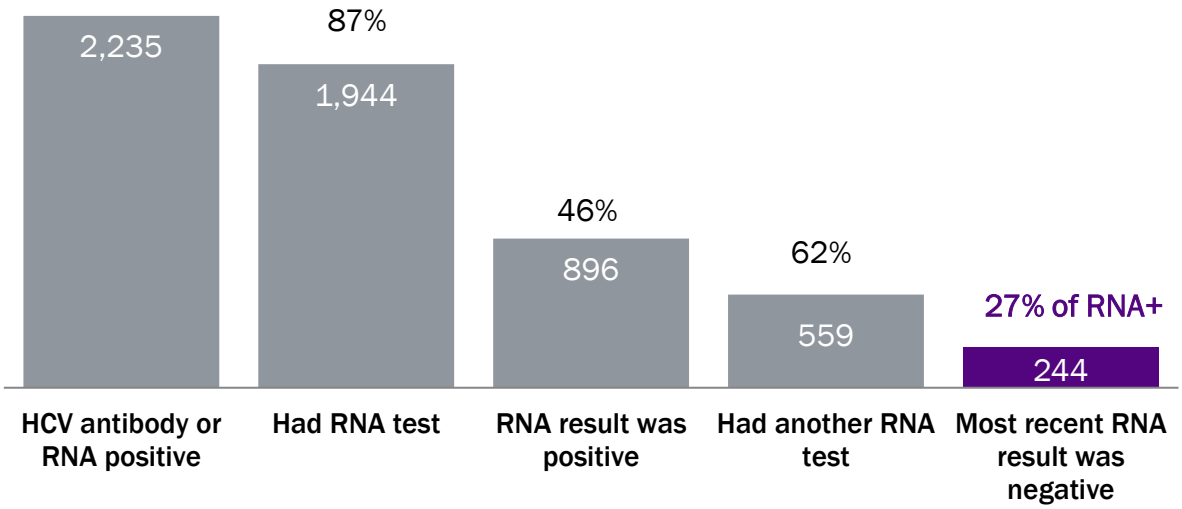
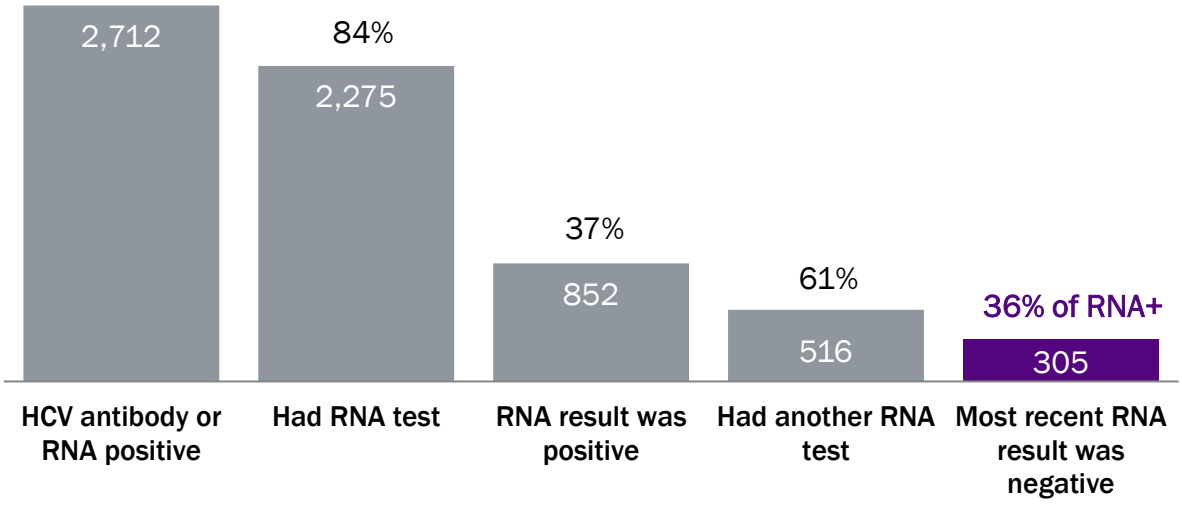


FIGURE 30

Among people aged 60 and older with positive hepatitis C RNA test results first reported in 2020–2022, 36% 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 60+ newly reported with positive hepatitis C test results, 2020–2022



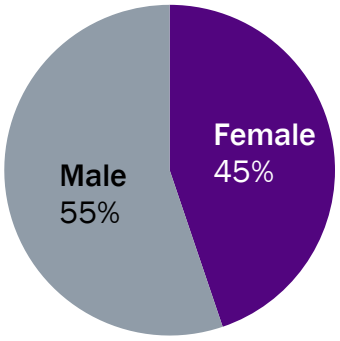
Resolved cases, 2020-2022

Among people with posititve RNA results identified from 2020–2022, 28% (1,182 people) had negative hepatitis C RNA results at their most recent test, suggesting the person had cleared the infection either naturally or through treatment. This section summarizes all 1,182 hepatitis C cases with resolved infection.

FIGURE 31

From 2020–2022, 45% of persons with resolved infection were female.

Percent of persons with resolved infection, Wisconsin, 2020-2022



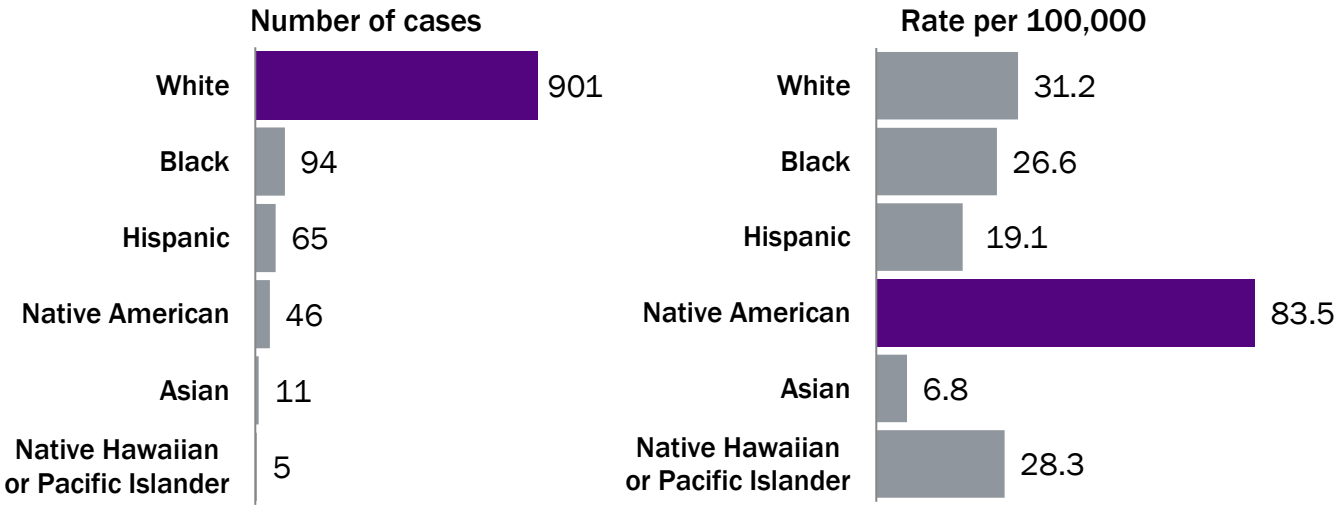
Notes: Excludes 2 people (0.2% of cases) with unknown (N=2) gender.

Among all cases with cleared infections, most (80%) newly reported cases of hepatitis C were among White persons. However, the rate of hepatitis C cases reported per 100,000 population was highest among Native American persons.

FIGURE 32

Among all resolved cases, most were among White people, but the rate was highest among Native Americans.

Number and rate per 100,000 of hepatitis C cases resolved cases among, by race/ethnicity, Wisconsin, 2020-2022

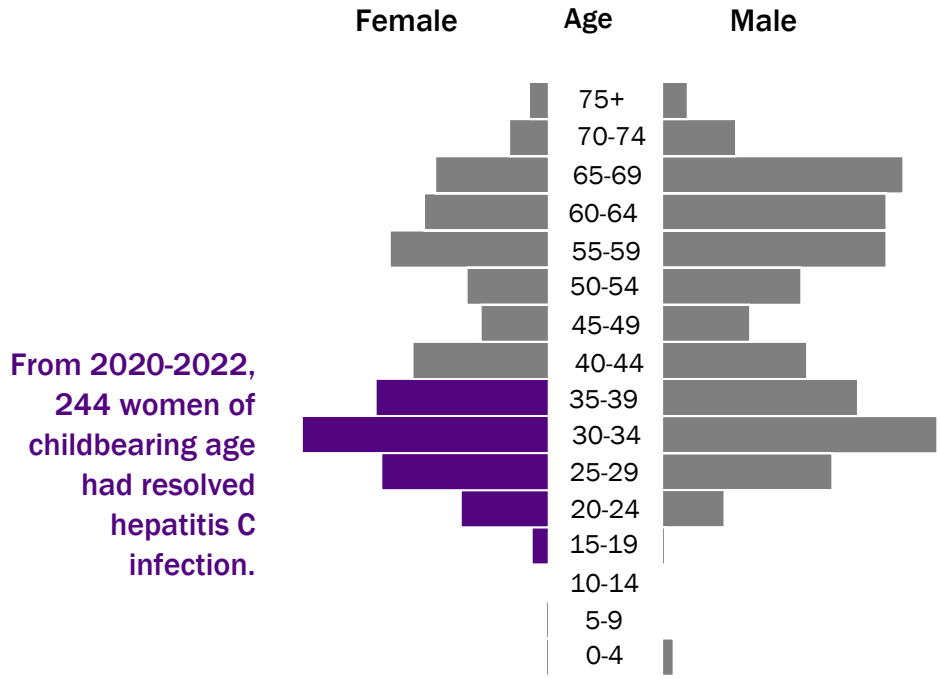


Notes: Excludes 60 people (5.1% of cases) with unknown (N=35), other (N=23), or multiple (N=2) race/ethnicity categories.

FIGURE 33

There were a high number of cases among young adults and older adults in 2022.

Number of newly reported hepatitis C cases by age group and gender, Wisconsin, 2022

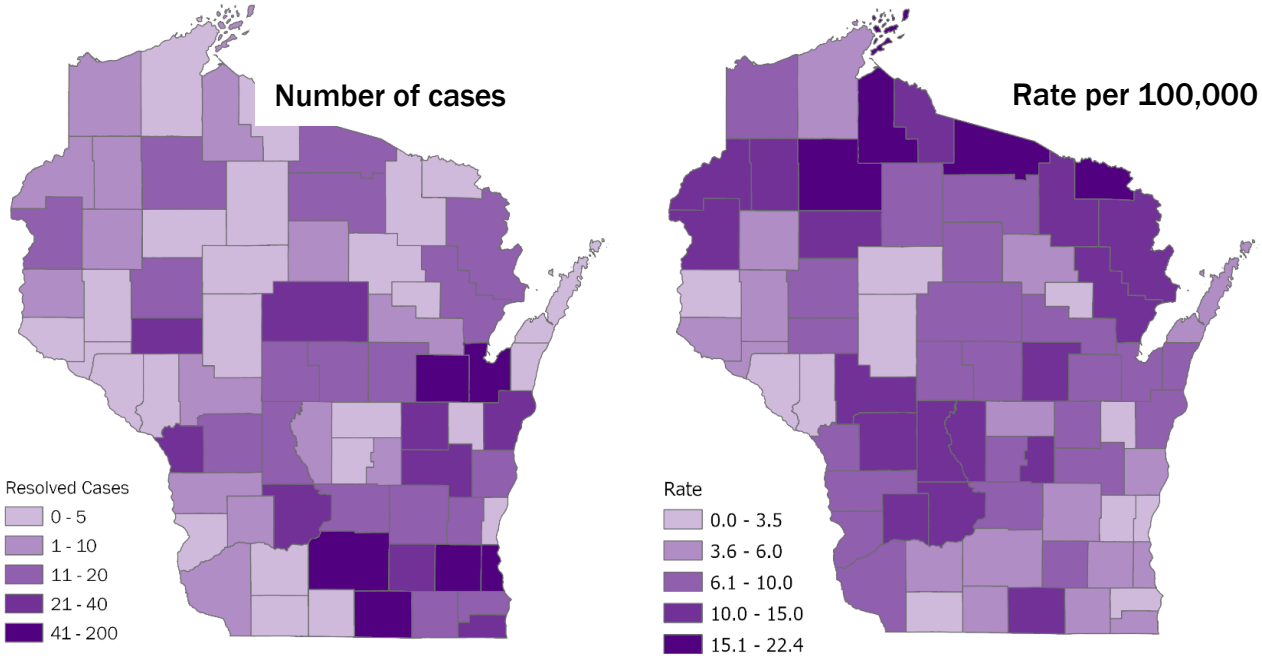


Notes: From 2020-2022, male-identifying persons had the greatest number of resolved infections (662 persons) compared to female-identifying persons (508 persons). Female-identifying persons had resolved their infection at a younger age (median age of 40 years) compared to male-identifying persons (median age of 48 years), yet 57.5% of all resolved infections were among persons aged 40 and older.

FIGURE 34

Most resolved cases of hepatitis C during 2020–2022 resided in the urban south and east, but rates were highest among counties in rural areas.

Number and rate of resolved hepatitis C, by county of residence, Wisconsin, 2020–2022



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

APPENDICES

Data Tables

TABLE 1
Number and rate per 100,000 of reported hepatitis C cases, by case classification and year of report, Wisconsin, 2011–2022

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
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
2021	1,921	32.9	134	2.3	4	--	2,059	35.3
2022	1,600	27.4	100	1.7	2	--	1,702	29.2

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 because of COVID-19.
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, 2022 and 2020–2022

County	All cases			Cases aged 30-44			Cases aged 60+		
	N (2022)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2022)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2022)	N (3 yrs)	Rate per 100,000 (3yrs)
Adams	5	22	35.6	3	8	87.1	2	8	31.7
Ashland	8	32	67.4	5	17	209.2	1	2	14.5
Barron	6	32	23.2	1	9	38.6	2	12	27.6
Bayfield	3	10	21.8	0	2	34.6	3	5	25.9
Brown	53	185	23.5	21	68	43.0	9	41	24.3
Buffalo	1	5	12.4	1	3	48.0	0	0	0.0
Burnett	12	26	55.8	2	5	80.1	6	11	61.8
Calumet	7	21	13.5	2	8	26.9	2	5	15.0
Chippewa	19	48	24.8	10	21	56.6	3	9	18.4
Clark	6	14	13.4	2	4	24.0	2	3	11.9
Columbia	11	54	31.4	4	15	46.7	1	14	31.6
Crawford	8	14	28.3	0	2	25.4	4	6	36.3
Dane	119	467	28.9	50	164	48.5	27	112	34.1
Dodge	20	82	30.7	10	32	61.6	2	17	24.2
Door	6	24	28.3	4	7	59.6	0	5	14.5
Douglas	17	59	44.5	12	27	105.6	2	9	25.9
Dunn	4	16	11.9	1	5	25.5	2	3	9.4
Eau Claire	29	81	26.1	14	33	63.3	2	14	19.9
Florence	2	11	83.2	2	6	343.8	0	3	58.8
Fond du Lac	27	100	32.1	15	57	98.3	4	14	16.9
Forest	1	8	29.2	0	2	47.4	1	4	46.2
Grant	6	18	11.5	0	2	8.9	1	4	9.8
Green	7	22	19.8	3	7	36.1	1	7	23.9
Green Lake	3	15	26.2	0	8	91.3	1	4	21.5
Iowa	1	8	11.2	0	1	8.2	0	4	20.9
Iron	1	4	22.8	0	0	0.0	1	2	27.5
Jackson	7	25	40.2	3	12	112.7	1	2	11.0
Jefferson	13	63	24.8	6	21	44.4	5	16	26.9
Juneau	11	36	44.3	4	16	114.1	0	5	20.0
Kenosha	36	122	24.0	13	32	31.6	6	42	40.7
Kewaunee	1	10	16.1	0	2	19.4	0	1	5.7
La Crosse	29	97	27.2	12	47	80.2	3	10	11.6
Lafayette	1	5	9.9	0	1	12.0	0	1	7.8
Langlade	10	21	35.4	6	12	130.7	1	3	15.2
Lincoln	3	13	15.2	2	6	46.9	0	3	11.0
Manitowoc	21	79	32.6	13	38	93.3	2	11	15.5
Marathon	32	85	20.9	9	31	41.5	5	8	8.0
Marinette	24	60	48.7	11	37	187.2	5	9	21.7
Marquette	2	9	19.4	0	2	31.2	0	0	0.0
Menominee	0	1	7.7	0	1	44.9	0	0	0.0

County	All cases			Cases aged 30-44			Cases aged 60+		
	N (2022)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2022)	N (3 yrs)	Rate per 100,000 (3yrs)	N (2022)	N (3 yrs)	Rate per 100,000 (3yrs)
Milwaukee	516	1457	52.4	166	448	76.2	143	438	79.5
Monroe	15	58	38.1	4	30	119.4	4	8	22.7
Oconto	8	36	30.5	5	16	83.6	3	10	30.0
Oneida	15	32	25.0	5	8	48.9	6	8	20.5
Outagamie	27	123	29.0	13	54	48.0	0	17	13.8
Ozaukee	10	37	15.8	3	11	24.4	6	15	19.9
Pepin	0	2	13.6	0	0	0.0	0	1	13.8
Pierce	3	17	19.8	2	4	19.6	1	6	22.2
Polk	6	29	28.0	2	6	26.6	3	11	29.8
Portage	9	36	20.2	5	12	36.0	1	6	11.7
Price	1	6	26.5	1	5	93.0	0	1	6.3
Racine	47	156	30.8	20	48	43.3	13	48	34.0
Richland	2	13	26.4	0	5	60.3	1	3	18.4
Rock	43	177	47.4	17	74	80.3	11	35	30.9
Rusk	2	9	36.6	2	7	120.2	0	1	6.5
Saint Croix	11	36	15.7	4	12	21.1	7	16	30.4
Sauk	17	74	49.6	9	33	89.8	1	12	24.5
Sawyer	16	44	81.8	4	20	271.0	2	5	27.2
Shawano	8	37	28.2	4	15	74.3	1	7	18.9
Sheboygan	31	88	25.1	22	39	62.2	2	13	14.4
Taylor	2	4	14.6	1	3	29.9	0	0	0.0
Trempealeau	3	12	21.4	1	2	12.6	1	4	17.4
Vernon	4	20	29.6	1	7	49.0	1	6	23.7
Vilas	13	36	53.4	7	14	166.4	2	7	26.0
Walworth	21	65	25.8	10	27	52.2	4	21	27.1
Washburn	5	14	31.5	0	1	14.2	4	6	34.2
Washington	22	72	18.9	6	26	35.9	3	11	10.6
Waukesha	73	230	19.3	25	76	36.3	25	74	22.8
Waupaca	3	26	27.0	1	8	32.5	1	6	11.9
Waushara	3	12	24.6	0	1	8.3	1	6	24.6
Winnebago	31	118	27.6	15	54	57.9	6	21	17.4
Wood	18	55	23.4	6	20	53.5	3	8	12.1
Federal Corrections	25	58	--	13	32	--	2	3	--
State Corrections	120	509	--	69	281	--	2	14	--
Wisconsin	1,702	5,702	32.6	684	2,170	67.1	367	1,277	29.9

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 (2022) = Number of cases reported in 2022

N (3 yrs) = Total number of cases reported in the three years of 2020–2022

Rate per 100,000 (3 yrs)= Three-year average rate of newly reported cases: Number of cases reported in 2020–2022 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 aged 18 and older, by county of residence, Wisconsin, at the end of 2022

	All ages		Age 18 and older	
County	N	Percent	N	Percent
Adams	102	0.48	102	0.57
Ashland	67	0.42	66	0.53
Barron	124	0.26	123	0.34
Bayfield	28	0.17	27	0.21
Brown	777	0.29	769	0.38
Buffalo	18	0.13	18	0.17
Burnett	78	0.46	77	0.60
Calumet	82	0.16	81	0.20
Chippewa	181	0.27	178	0.36
Clark	54	0.16	53	0.22
Columbia	193	0.33	191	0.42
Crawford	29	0.18	29	0.22
Dane	1740	0.31	1727	0.40
Dodge	269	0.30	263	0.37
Door	76	0.25	75	0.31
Douglas	268	0.61	266	0.76
Dunn	83	0.18	81	0.23
Eau Claire	319	0.30	315	0.39
Florence	27	0.58	27	0.72
Fond du Lac	328	0.32	325	0.40
Forest	36	0.38	36	0.49
Grant	65	0.13	64	0.16
Green	99	0.27	99	0.35
Green Lake	63	0.33	63	0.42
Iowa	42	0.18	41	0.22
Iron	18	0.29	18	0.36
Jackson	88	0.42	87	0.53
Jefferson	238	0.28	234	0.36
Juneau	133	0.50	132	0.60
Kenosha	885	0.53	874	0.67
Kewaunee	35	0.17	34	0.21
La Crosse	310	0.26	309	0.33
Lafayette	21	0.12	20	0.16
Langlade	88	0.45	87	0.54
Lincoln	87	0.31	85	0.36
Manitowoc	322	0.40	319	0.50
Marathon	313	0.23	308	0.30
Marinette	206	0.49	204	0.61
Marquette	66	0.42	66	0.52
Menominee	19	0.45	19	0.59

	All ages		Age 18 and older	
County	N	Percent	N	Percent
Milwaukee	7418	0.81	7332	1.01
Monroe	177	0.38	176	0.50
Oconto	94	0.24	93	0.30
Oneida	126	0.33	124	0.41
Outagamie	419	0.22	411	0.28
Ozaukee	192	0.21	191	0.27
Pepin	14	0.19	14	0.24
Pierce	69	0.16	69	0.21
Polk	88	0.19	86	0.25
Portage	145	0.21	144	0.26
Price	45	0.32	45	0.39
Racine	855	0.44	848	0.55
Richland	29	0.17	29	0.21
Rock	664	0.40	656	0.53
Rusk	28	0.20	27	0.23
Saint Croix	103	0.11	101	0.15
Sauk	263	0.40	257	0.52
Sawyer	83	0.45	83	0.60
Shawano	115	0.28	113	0.34
Sheboygan	368	0.31	365	0.40
Taylor	14	0.07	14	0.09
Trempealeau	41	0.13	39	0.17
Vernon	54	0.17	54	0.24
Vilas	119	0.50	117	0.63
Walworth	311	0.30	308	0.38
Washburn	48	0.28	48	0.37
Washington	286	0.21	284	0.27
Waukesha	840	0.20	830	0.26
Waupaca	158	0.31	155	0.37
Waushara	58	0.23	58	0.29
Winnebago	564	0.33	562	0.42
Wood	177	0.24	175	0.30
Wisconsin	21,943	0.37	21,700	0.48

Notes: Prevalence of reported hepatitis C is calculated by adding together all of the cases reported to public health during 2000 through 2022 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. The Wisconsin state total includes 3,524 people (3,281 of whom were age 18 or older in 2022) with unknown county of residence or those who were residing in correctional facilities.
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 (WEDSS). 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 WEDSS as of May 8, 2023. Because WEDSS 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 that these data are accessed.

Case Definitions, Ascertainment, and Classification

Case ascertainment and classification are made according to the current CDC/Council of State and Territorial Epidemiologists (CSTE) case definitions using available laboratory testing results and clinical symptoms. Cases of acute hepatitis C, chronic hepatitis C, and perinatal hepatitis C, are recorded in WEDSS. Cases that meet the definition for a confirmed or probable case are summarized in this report.

The case definitions in effect during 2022 are:

Acute hepatitis C https://ndc.services.cdc.gov/case-definitions/hepatitis-c-acute-2020/

Chronic hepatitis C https://ndc.services.cdc.gov/case-definitions/hepatitis-c-chronic-2020/

Perinatal hepatitis C https://wwwn.cdc.gov/nndss/conditions/hepatitis-c-perinatal-infection/case definition/2018/

Note that changes in standardized case definitions result in counting cases differently and can profoundly impact the number of cases reported in each year. 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. Case definitions for 2016 were substantially different from the previous case definition. Consequently, comparing counts or rates of hepatitis C cases reported during 2016-2019 and 2020-2022 to those reported during 2015 and earlier years should be done with caution.

Changes to this report

For the purpose of this report, Native American is used to describe persons reported with a race of American Indian or Alaska Native (AI/AN). The methods used to report and classify race and ethnicity data may inadvertently undercount certain groups of people. Beginning in year 2022, data disaggregation will occur on all persons with any racial combination that includes the AI/AN racial category to preserve the representation of Indigenous communities in our state. Previously, if individuals identified as two or more racial or ethnic groups, they are placed in a category identified as “Multiple Races,” which may inadvertently undercount communities. In 2022, five individuals that previously would have been categorized as “Multiple Races” were re-categorized into the Native American racial group. 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, however, data disaggregation is considered a best practice by varied tribal equity institutions.

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 2019–2022) 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.[6]

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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