Hepatitis C in Wisconsin

Wisconsin Hepatitis C Virus Surveillance Annual Review, 2018

Trends, Newly Reported Cases, Prevalence, and Care Cascades

Wisconsin Department of Health Services
Division of Public Health | Hepatitis C Program
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SUMMARY

Hepatitis C virus infection is the most common bloodborne 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, Division of Public Health, regarding people with positive hepatitis C test results.

TRENDS

Over the past 10 years, new hepatitis C infections have increased dramatically.

- Most new infections were reported among white people, but rates of new hepatitis C infections are highest and have increased substantially among American Indian people.
- 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.

Baby boomers, who are recommended to receive one-time testing for hepatitis C, continue to be diagnosed with chronic hepatitis C infection.

2018 CASES

In 2018, there were 2,744 hepatitis C cases newly reported: 2 perinatal cases, 142 acute cases, and 2,600 chronic cases.

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

PREVALENCE ESTIMATES

According to surveillance data, 39,516 people (0.7% of Wisconsin residents) have been reported and are assumed to be living with hepatitis C infection in Wisconsin. However, because approximately half of people with hepatitis C do not know their diagnosis, it is estimated that 70,000–95,000 Wisconsin residents (1.3–1.8% of the population) have chronic hepatitis C infection.

CARE CASCADES

Among people confirmed with hepatitis C in 2018, 16% (361 people) had negative hepatitis C RNA results at their most recent test, suggesting they had cleared the infection either naturally or through treatment. Only 9% of people ages 15–29 had test results indicating infection had cleared, compared to 29% of baby boomers.

DEFINITIONS

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. National prevalence data indicate that 75% of people living with hepatitis C were born during this time period. Because of this, 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, American Indian 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.

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.[2]

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 14 cases go unreported.[3]

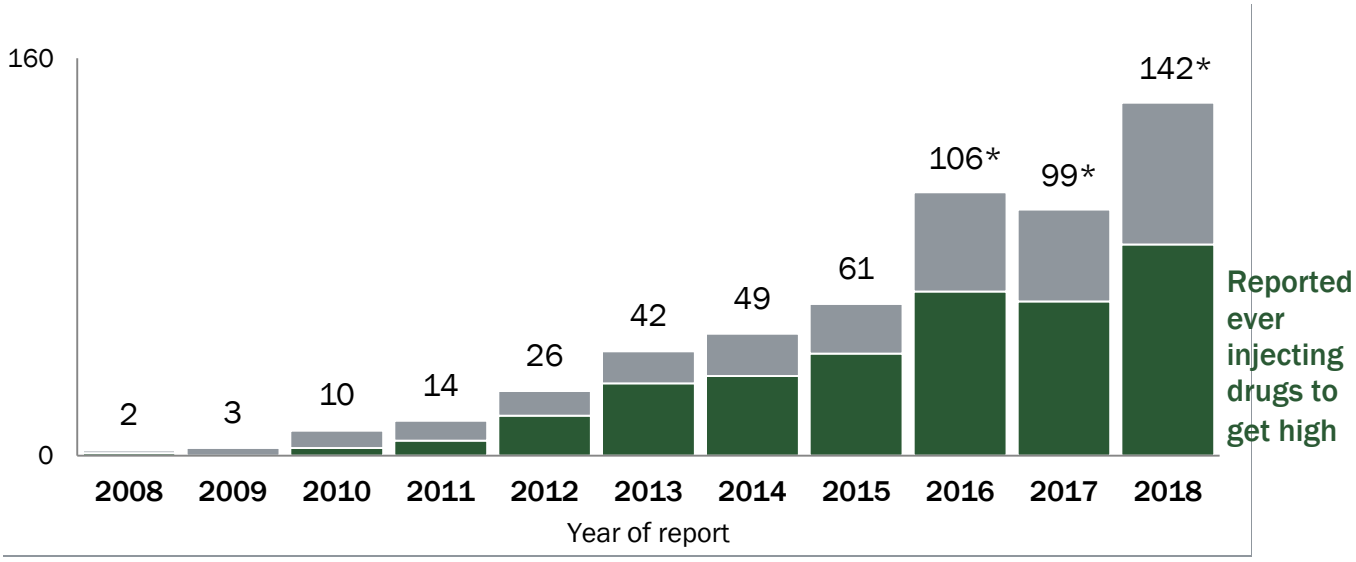
Trends in new hepatitis C infections are monitored using several methods. Trends in reported acute hepatitis C cases are monitored. In addition, because local and national data suggest that the majority of hepatitis C infections among young people in recent years have been associated with injection drug use,[2, 4, 5] 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 dramatically among American Indian people.**

FIGURE 1

During the past 10 years, the number of acute hepatitis C cases has increased substantially, and most people reported injecting drugs.

Number of reported acute hepatitis C cases, by year of report, Wisconsin, 2008–2018

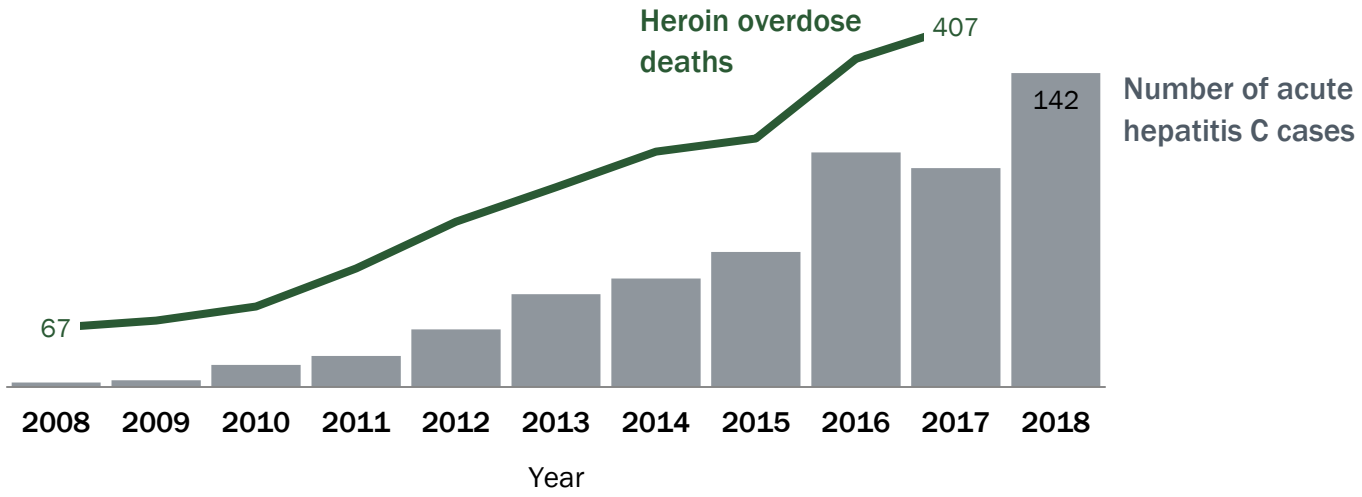


Notes: *In 2016, the case definition of acute hepatitis C changed. In 2017, the surveillance system began receiving negative RNA results allowing more acute cases to be detected in subsequent years. In 2018, surveillance procedures changed to identify more acute cases.

FIGURE 2

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

Number of reported acute hepatitis C cases and number of heroin overdose deaths, by year, Wisconsin, 2008–2018

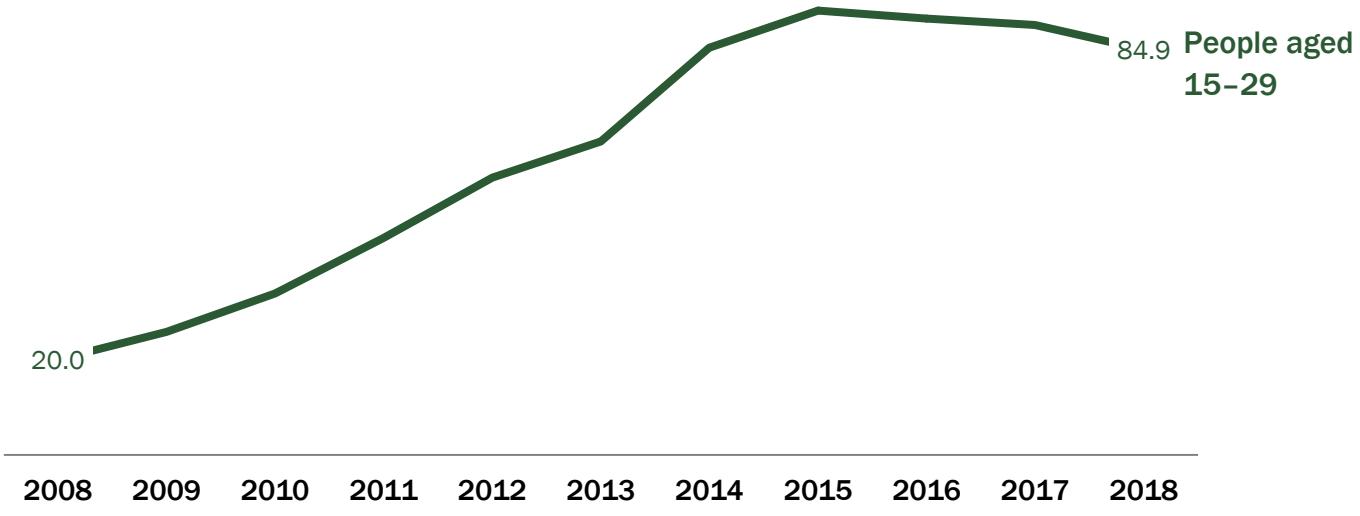


Notes: Heroin overdose deaths data are from the Wisconsin Interactive Statistics on Health opioids data.

FIGURE 3

During the last 10 years, the rate of new positive hepatitis C test results among people aged 15–29 increased 324%.

Rate per 100,000 of people newly reported with positive hepatitis C test results* among people aged 15–29, Wisconsin, 2008-2018



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.

FIGURE 4

During the last 10 years, the number of hepatitis C cases among people aged 15–29 nearly tripled and more counties are reporting cases.

Number of acute and chronic hepatitis C cases among people aged 15–29, Wisconsin, 2008 and 2018

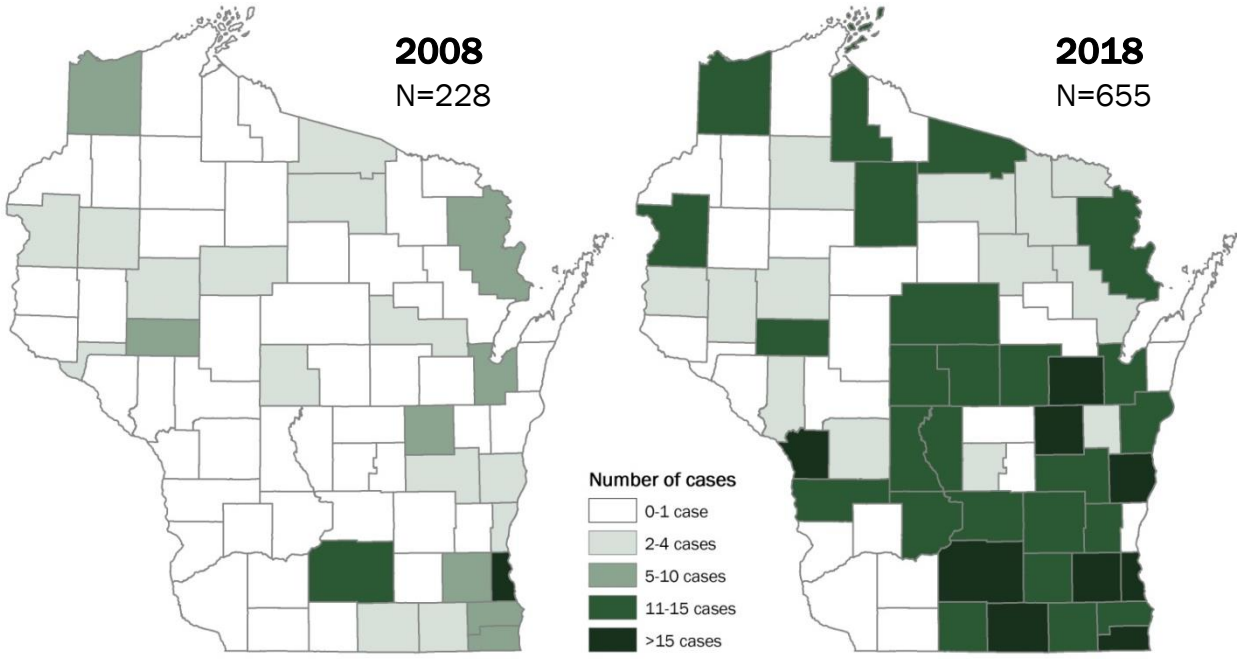
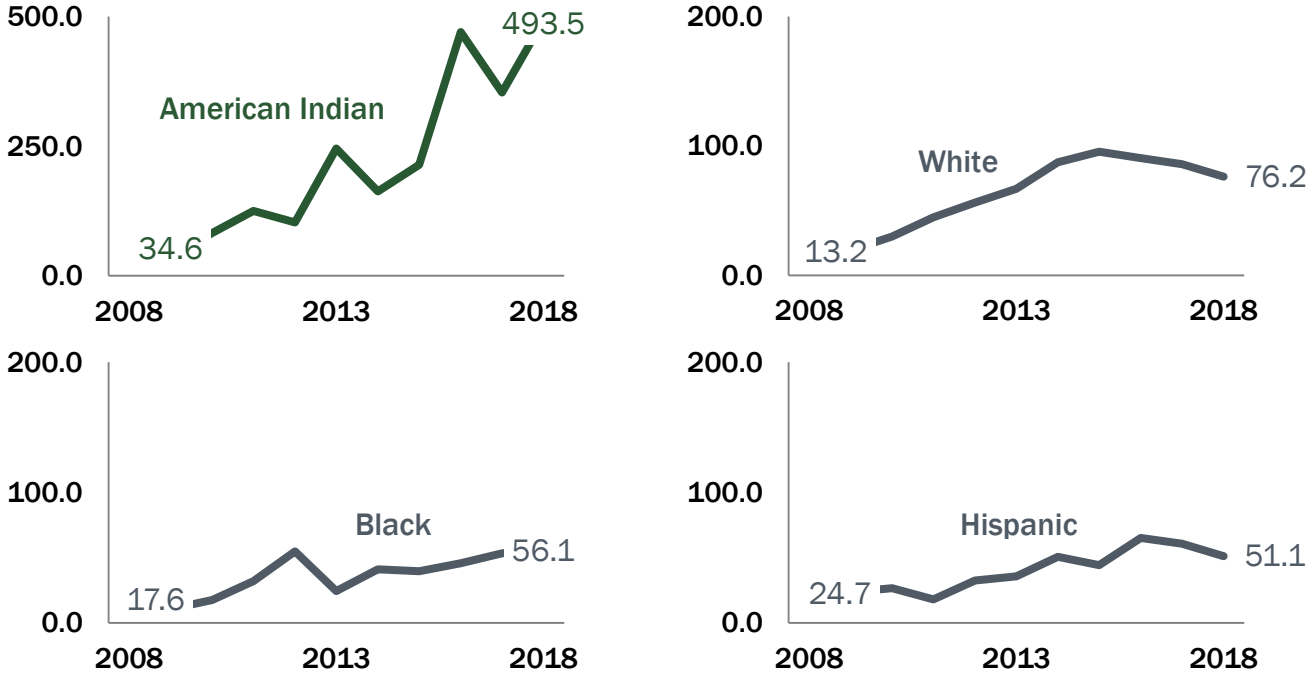


FIGURE 5

During the last 10 years, the rate of new positive hepatitis C test results among American Indian people aged 15–29 increased more than 1,300%.

Rate per 100,000 of people newly reported with positive hepatitis C test results* among people aged 15–29, by race/ethnicity, Wisconsin, 2008–2018



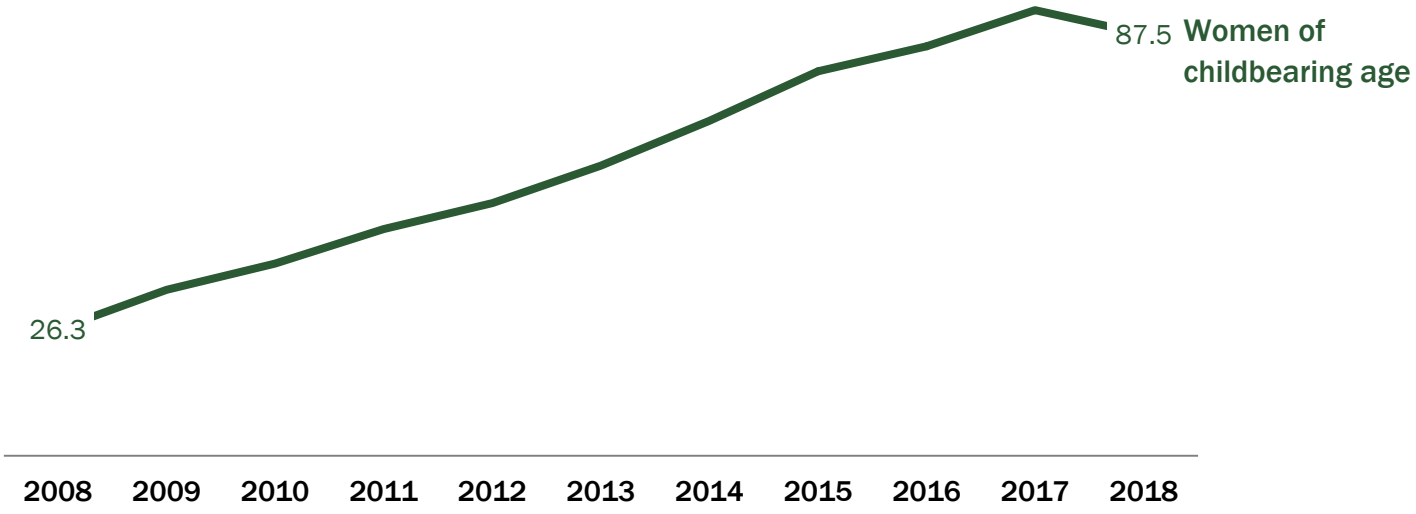
Notes: *The numerator includes people with positive hepatitis C antibody or positive hepatitis C RNA results or a confirmed or probable case of hepatitis C.

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

During the last 10 years, the rate of new positive hepatitis C test results among women of childbearing age increased 233%.

Rate per 100,000 of people newly reported with positive hepatitis C test results* among women aged 15–44, Wisconsin, 2008-2018



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.

Trends in New Diagnoses Among Baby Boomers

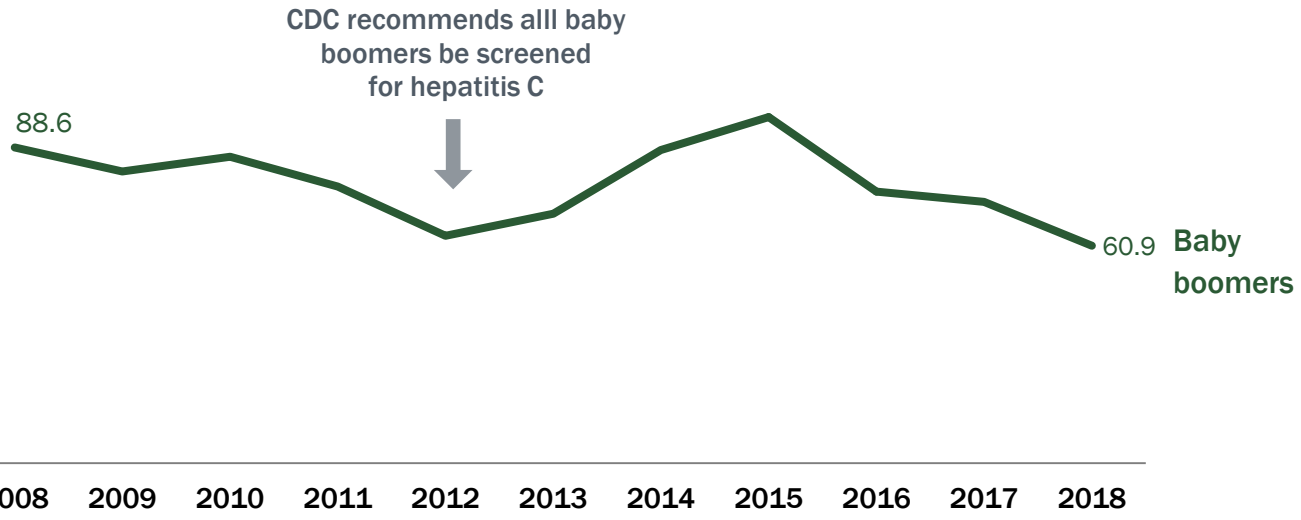
National prevalence data indicate that people born during 1945–1965, so called "**baby boomers," are five times more likely than other adults to have hepatitis C infection.**[6] The reason that baby boomers have high rates of hepatitis C is not completely understood. Most baby boomers are believed to 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.[6]

FIGURE 7

Baby boomers continue to be diagnosed with hepatitis C infection.

Rate per 100,000 of confirmed hepatitis C infections among people born during 1945–1965, by year of report, Wisconsin, 2008–2018



Notes: The numerator includes people with a confirmed case of hepatitis C or positive hepatitis C RNA or genotype results.

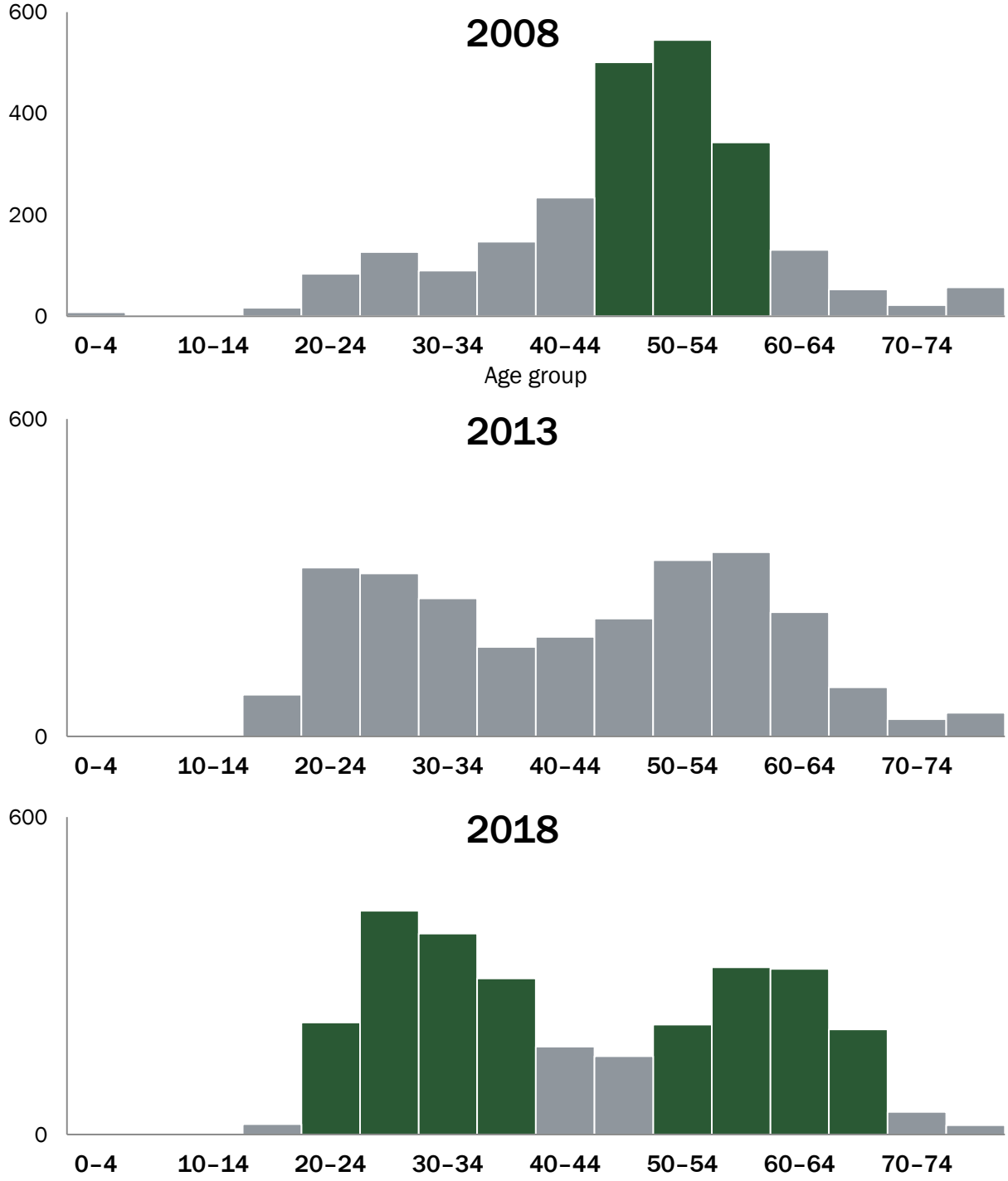
Trends in the Age Distribution of Newly Reported Cases

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.

FIGURE 8

In 10 years, the age distribution of people newly reported with hepatitis C has shifted from one peak among older adults to two peaks among older and younger adults.

Number of reported hepatitis C cases, by age group, Wisconsin, 2008, 2013, 2018



2018 CASES

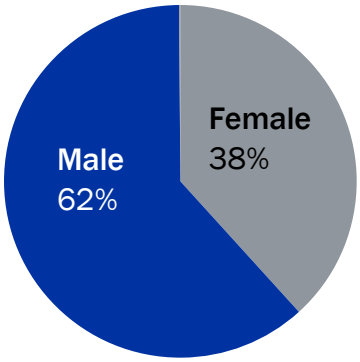
All Cases, 2018

In 2018, there were 2,744 hepatitis C cases newly reported: 2 met the definition of perinatal hepatitis C, 142 (134 confirmed, 8 probable) met the definition of acute hepatitis C, and 2,600 (2,114 confirmed, 486 probable) met the definition of chronic hepatitis C. This section summarizes all 2,744 cases.

FIGURE 9

In 2018, 62% of people newly reported with hepatitis C were male.

Percent of newly reported hepatitis C cases by sex, Wisconsin, 2018

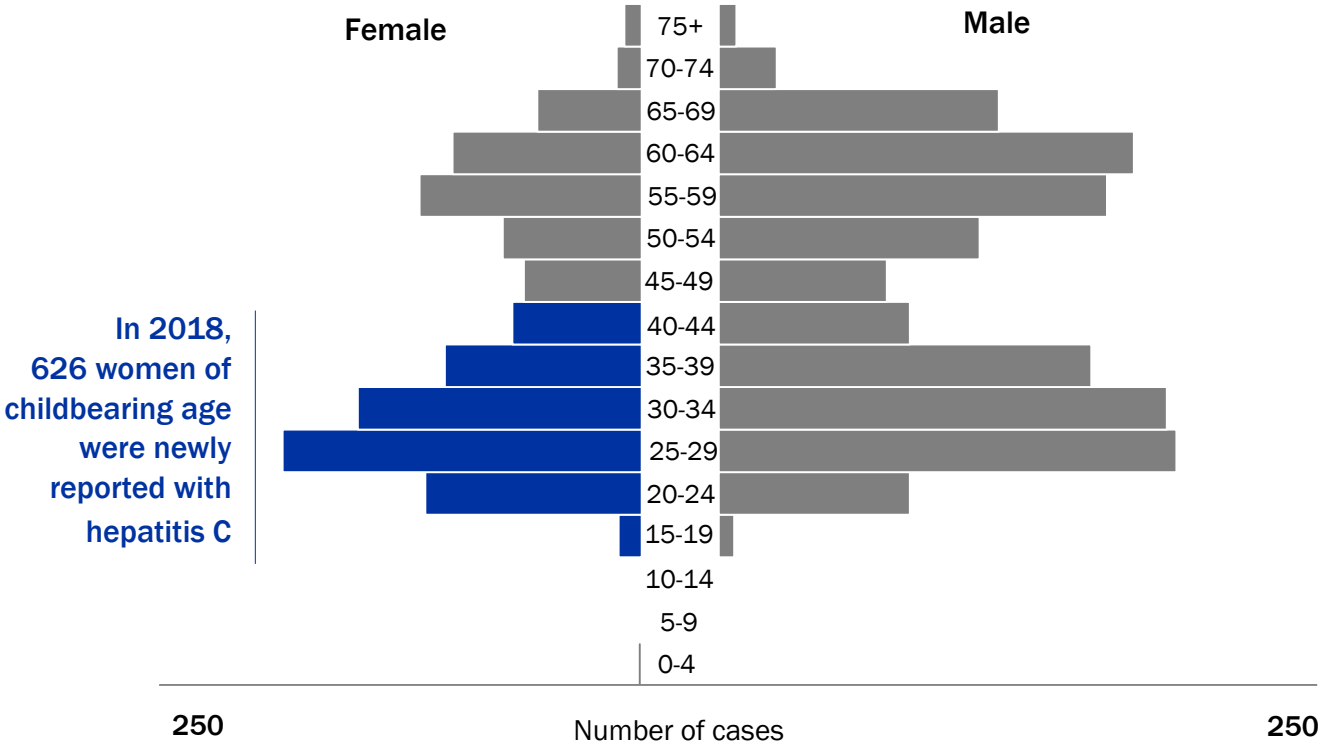


Notes: Three people (<1%) newly reported with hepatitis C identified as transgender.

FIGURE 10

There were a high number of cases among young adults and older adults in 2018.

Number of newly reported hepatitis C cases by age group and sex, Wisconsin, 2018



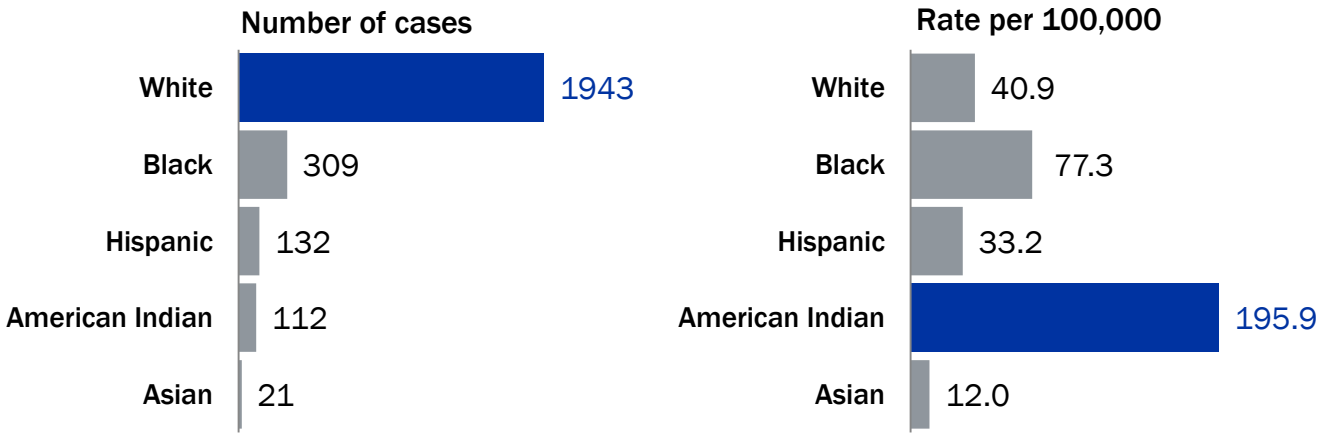
In 2018, 626 women of childbearing age were newly reported with hepatitis C

In 2018, most (71%) of the newly reported cases of hepatitis C were among white people. However, the rate was highest among American Indian people. This indicates that hepatitis C is occurring more often among American Indian people 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 American Indian people.

Number and rate per 100,000 of hepatitis C cases by race/ethnicity, Wisconsin, 2018

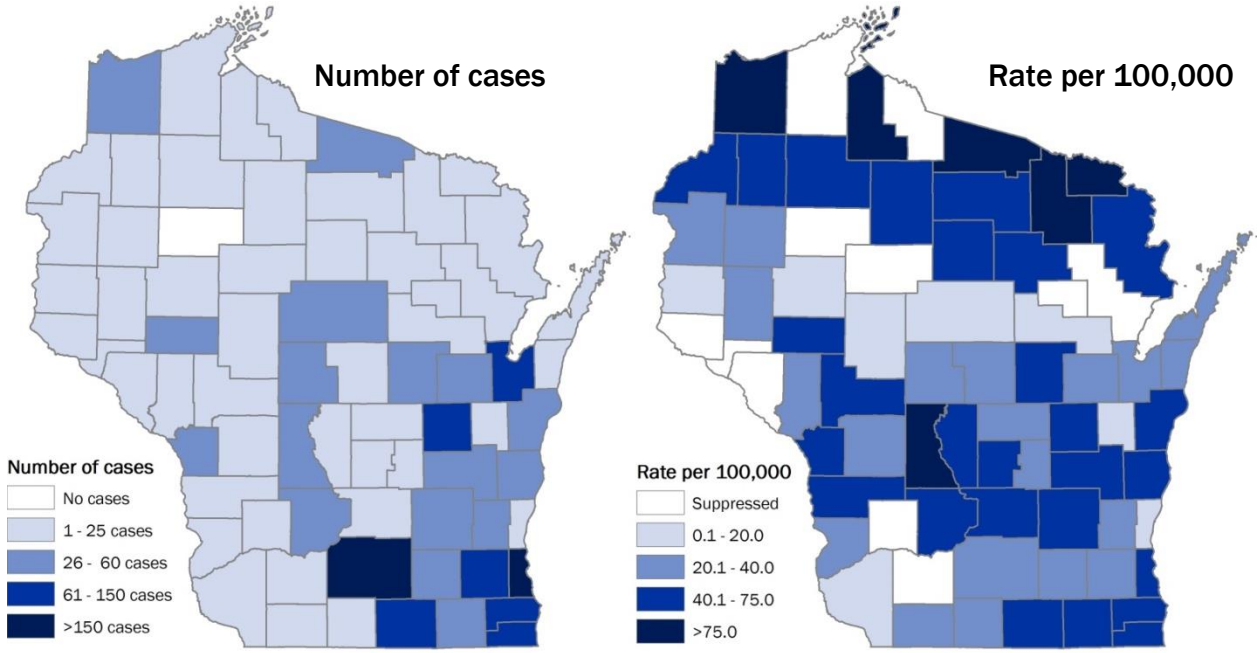


Notes: Data are not shown for 227 people with multiple, other, or unknown race/ethnicity.

FIGURE 12

Most newly reported cases resided in the urban southeast, but the highest rates were among counties in the rural north.

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



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

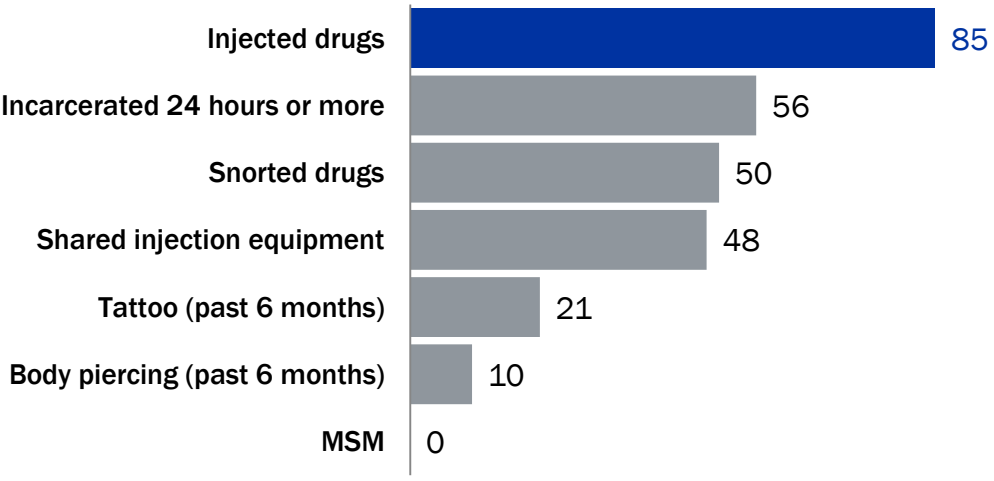
Acute Cases, 2018

Among the 2,744 cases reported in 2018, 142 (5%) met the definition of acute hepatitis C. This section summarizes these 142 cases. Among the 142 acute cases, 108 (76%) 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, Wisconsin, 2018



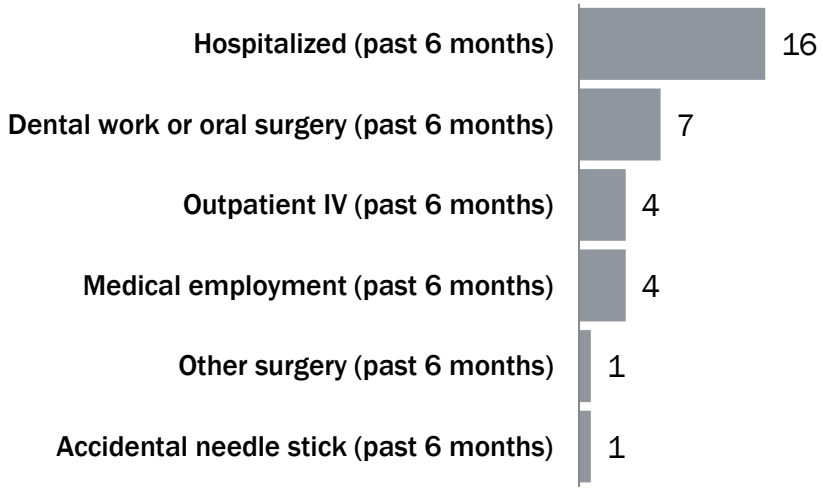
Notes: The numbers of people who reported not having the risk behavior or for which the response is unknown are not shown.

The spread of hepatitis C in health care settings in Wisconsin is rare, but can occur through contaminated needles, syringes, or other sharp instruments. Of 142 people with acute hepatitis C, 16 reported recent hospitalization in the last six months. 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.

Number of acute hepatitis C cases that reported each risk exposure, Wisconsin, 2018

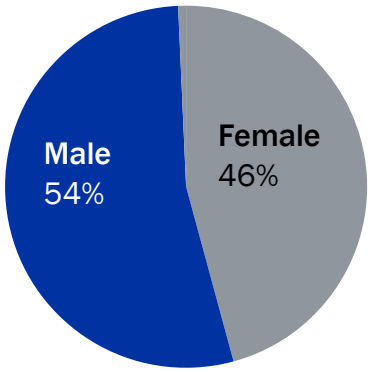


Notes: The numbers of people who reported not having the exposure or for whom the response is unknown are not shown.

FIGURE 15

In 2018, 54% of people newly reported with acute hepatitis C were male.

Percent of acute hepatitis C cases, by sex, Wisconsin, 2018



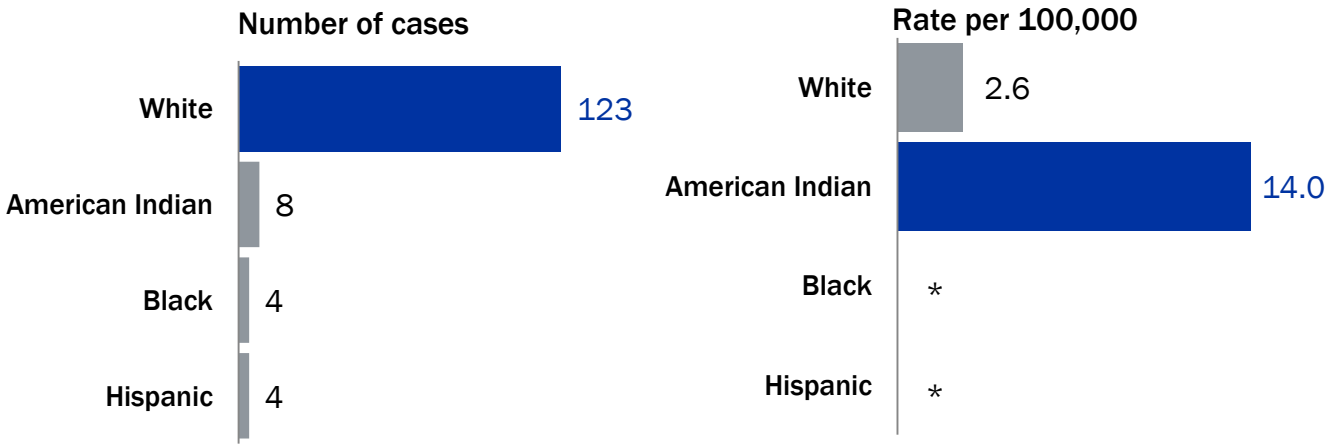
Notes: One person (<1%) newly reported with hepatitis C identified as transgender.

In 2018, most (87%) reported cases of acute hepatitis C were among white people. However, the rate of reported acute hepatitis C was highest among American Indian people. This indicates that acute hepatitis C is occurring more often among American Indian people 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 American Indian people.

Number and rate per 100,000 of acute hepatitis C cases by race/ethnicity, Wisconsin, 2018



Notes: *Rates were suppressed for categories with fewer than five cases. Data for three people with unknown or other race/ethnicity are not shown.

In 2018, the median age of people newly reported with acute hepatitis C was 30 years, and 79% (112 people) were under age 40.

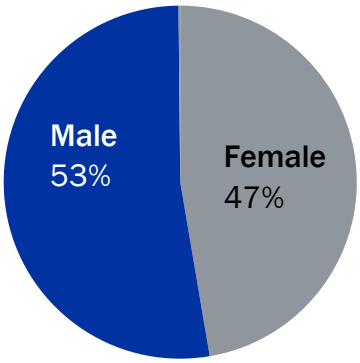
Cases Among People Aged 15–29, 2018

Among the 2,744 cases newly reported in 2018, 655 (24%) were among people aged 15–29. This section summarizes these 655 cases.

FIGURE 17

In 2018, 53% of people aged 15–29 newly reported with hepatitis C were male.

Percent of newly reported hepatitis C cases among people aged 15–29, by sex, Wisconsin, 2018



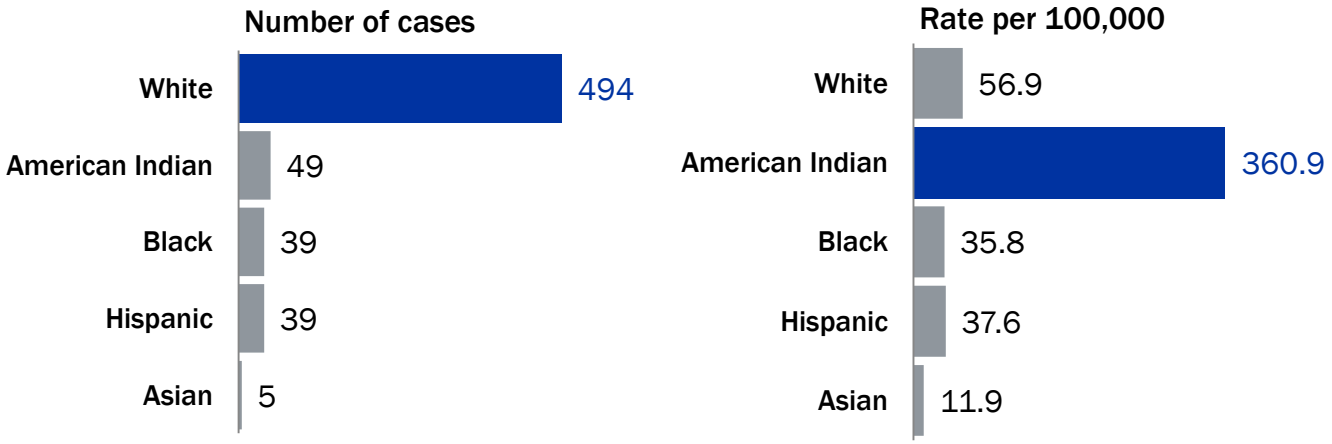
Notes: One person (<1%) newly reported with hepatitis C identified as transgender.

Among people aged 15–29, most (75%) newly reported cases of hepatitis C were among white people. However, the rate was highest among American Indian people. This indicates that, in this age group, hepatitis C is occurring more often among American Indian people 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 American Indian people.

Number and rate per 100,000 of hepatitis C cases among people aged 15–29, by race/ethnicity, Wisconsin, 2018

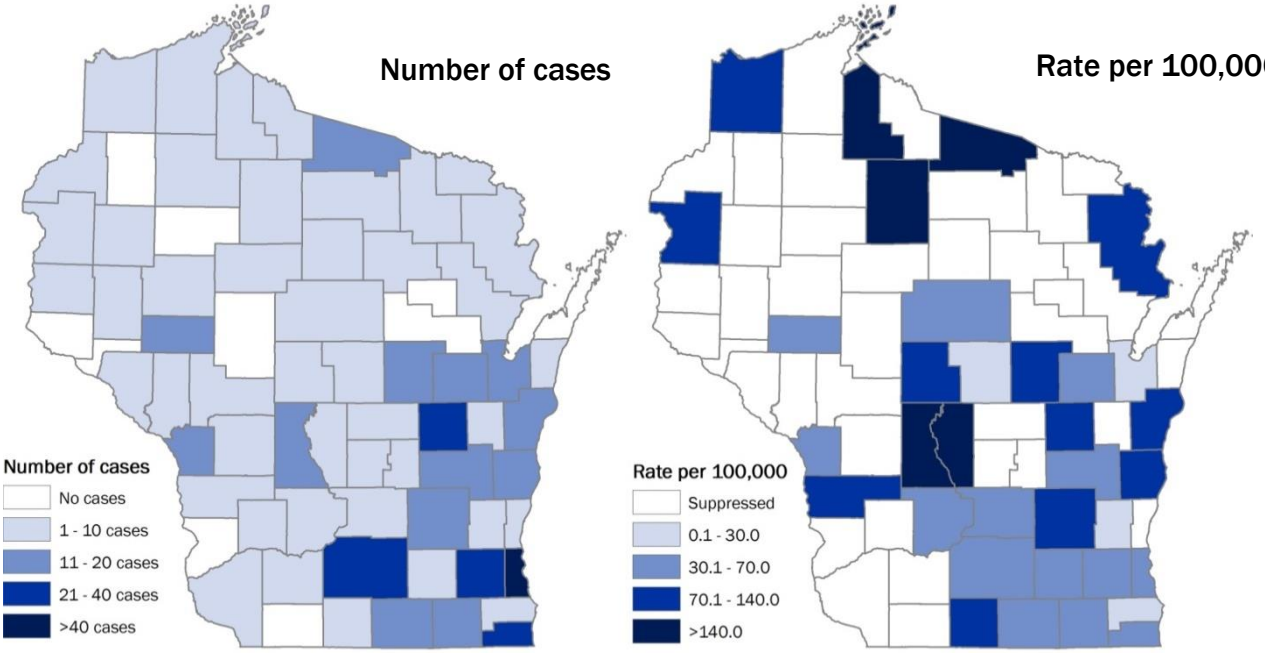


Notes: Excludes 29 people with multiple, other, or unknown race/ethnicity.

FIGURE 19

Most newly reported cases among people aged 15–29 resided in the southeast, but counties with the highest rates were in rural areas.

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



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

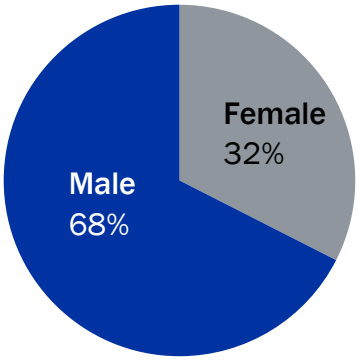
Cases Among Baby Boomers, 2018

Among the 2,744 cases newly reported in 2018, 985 (36%) were among people born during 1945–1965. This section summarizes these 985 cases.

FIGURE 20

In 2018, 68% of baby boomers newly reported with hepatitis C were male.

Percent of newly reported hepatitis C cases among people born during 1945–1965, by sex, Wisconsin, 2018

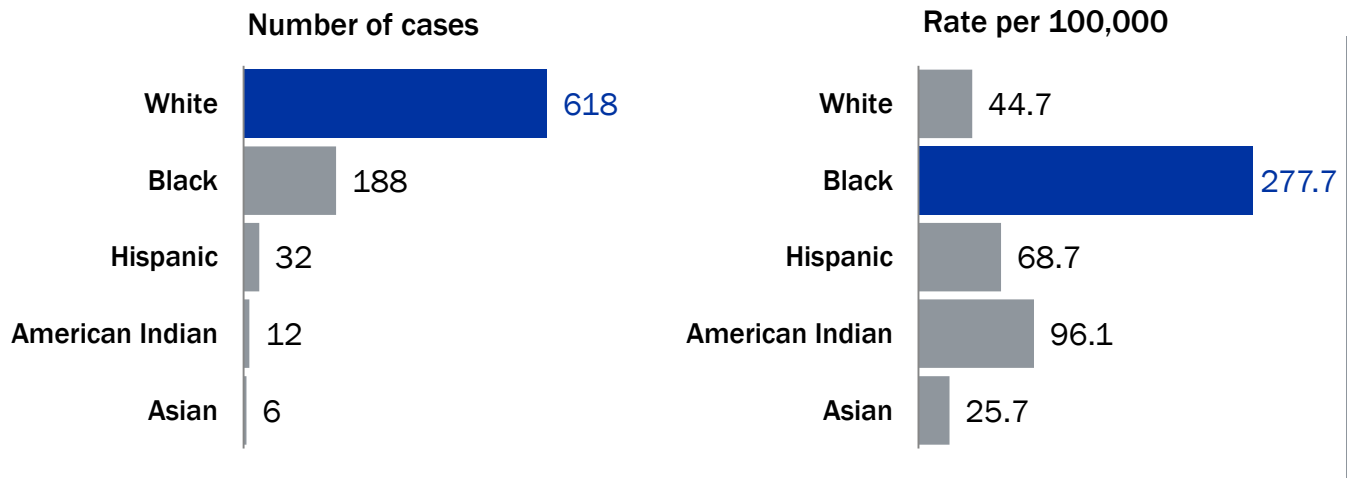


Among baby boomers, the majority (63%) of newly reported cases of hepatitis C were among white people. However, the rate was highest among black people. This indicates that, in this cohort, hepatitis C was reported more often among black people than among other racial and ethnic groups in Wisconsin.

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, 2018

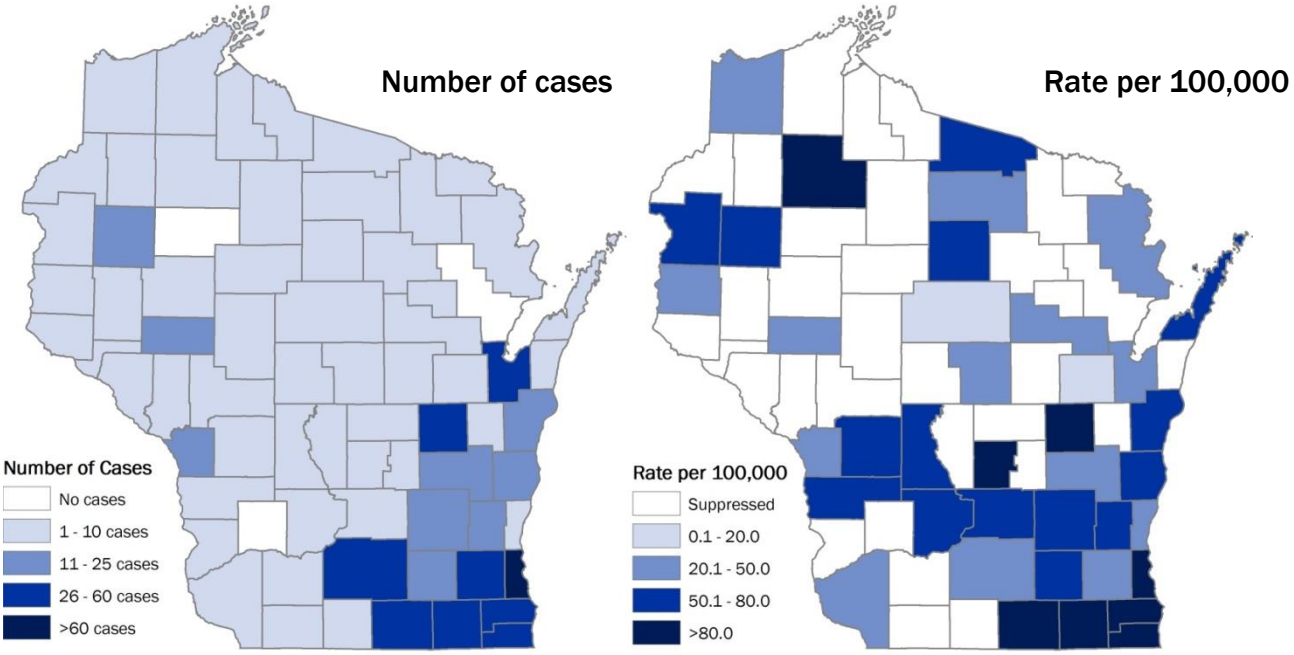


Notes: Data not shown for 129 people with multiple, other, or unknown race/ethnicity.

FIGURE 22

Most newly reported cases 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



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

Cases Identified by the Department of Corrections, 2018

Among the 2,744 cases newly reported in 2018, 214 (8%) were reported from the Wisconsin Department of Corrections. This section summarizes these 214 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. The Wisconsin Department of Corrections offers hepatitis C testing to people who enter prison with a risk factor and to people born during 1945–1965.

FIGURE 23

Among people newly reported with hepatitis C from the Department of Corrections, 82% were male.

Number of newly reported hepatitis C cases from the Department of Corrections, by sex, Wisconsin, 2018

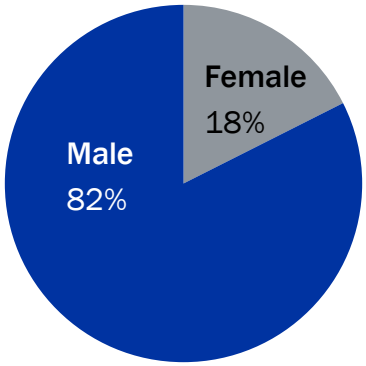


FIGURE 24

Among people newly reported with hepatitis C from the Department of Corrections, 82% of females and 73% of males were under age 40.

Number of newly reported hepatitis C cases from the Department of Corrections, by sex and age group, Wisconsin, 2018

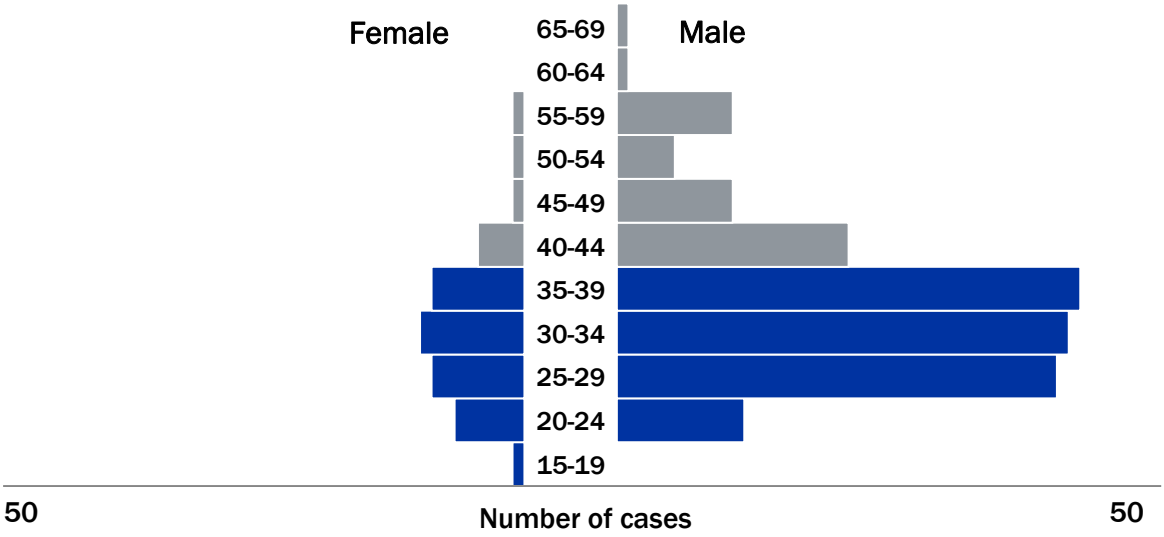
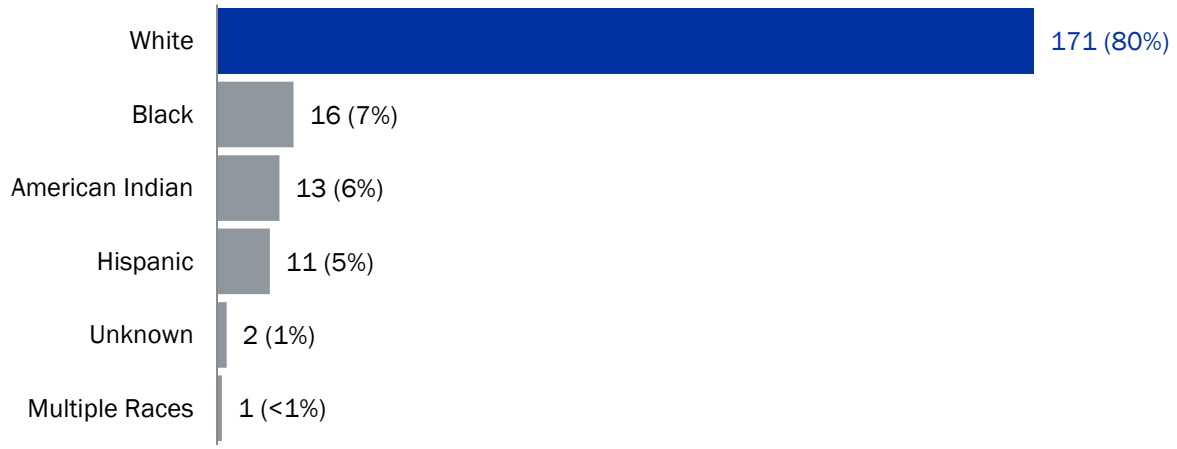


FIGURE 25

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, 2018



Perinatal Cases, 2018

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.

Because pregnant women are not routinely screened for hepatitis C and because infants born to women with hepatitis C often do not receive the appropriate testing needed to determine if they have been infected perinatally,[7] the number of perinatal cases reported to public health is an extreme underestimation of the number of true perinatal cases each year. In 2018, only two children met the case definition of having perinatal hepatitis C infection.

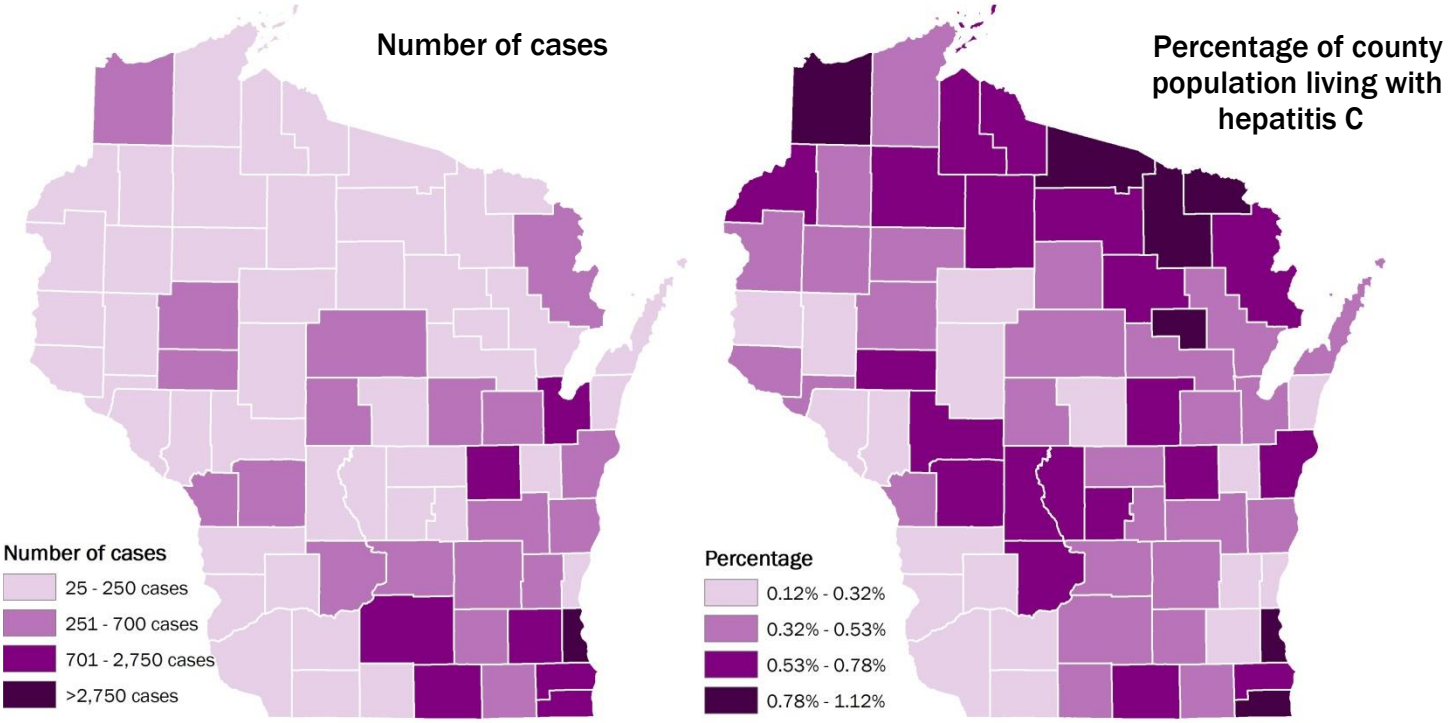
PREVALENCE ESTIMATES

National prevalence estimates suggest that 2.4 million people in the U.S. (1% of the population) are living with chronic hepatitis C infection.[1] In Wisconsin, hepatitis C prevalence is estimated by adding together all of the cases reported to public health during 2000 through 2018 and subtracting people matched to Wisconsin 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, an estimated 39,516 people (0.68% of Wisconsin residents) were estimated to be living with hepatitis C in Wisconsin as of the end of 2018. The CDC estimates that 45% to 85% of people with hepatitis C have not been tested or identified, so the true number of Wisconsin residents with hepatitis C is unknown. Based on state and national estimates of age, sex, and race-specific prevalence of hepatitis C antibody, an estimated 70,000–95,000 Wisconsin residents (1.3–1.8% of the Wisconsin population) have chronic hepatitis C.

FIGURE 26

Most hepatitis C cases reside in southeastern Wisconsin, but prevalence rates are also high in northern Wisconsin.

Number of prevalent hepatitis C cases and percentage of county residents living with hepatitis C, by county of residence, Wisconsin, 2018



HEPATITIS C CARE CASCADES

Care cascades desribe how many people received appropriate hepatitis C confirmatory testing and can also estimate how many people with hepatitis C infection cleared infection, either naturally or through treatment. Among 4,392 people with positive hepatitis C test results first reported to public health in 2018, 89% (3,911 people) had a confirmatory RNA test conducted. Of these, 58% (2,250 people) had positive RNA results confirming the diagnosis of hepatitis C. Among people confirmed with hepatitis C in 2018, 48% (1,080 people) had a subsequent RNA test possibly indicating linkage to care. Among people confirmed with hepatitis C in 2018, 16% (361 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 9% of people aged 15–29 had test results indicating infection had cleared compared to 29% of baby boomers. This information suggests that only a small percentage of people newly reported with hepatitis C in 2018 received hepatitis C treatment.

FIGURE 27

Among people with positive hepatitis C RNA test results first reported in 2018, only 16% 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

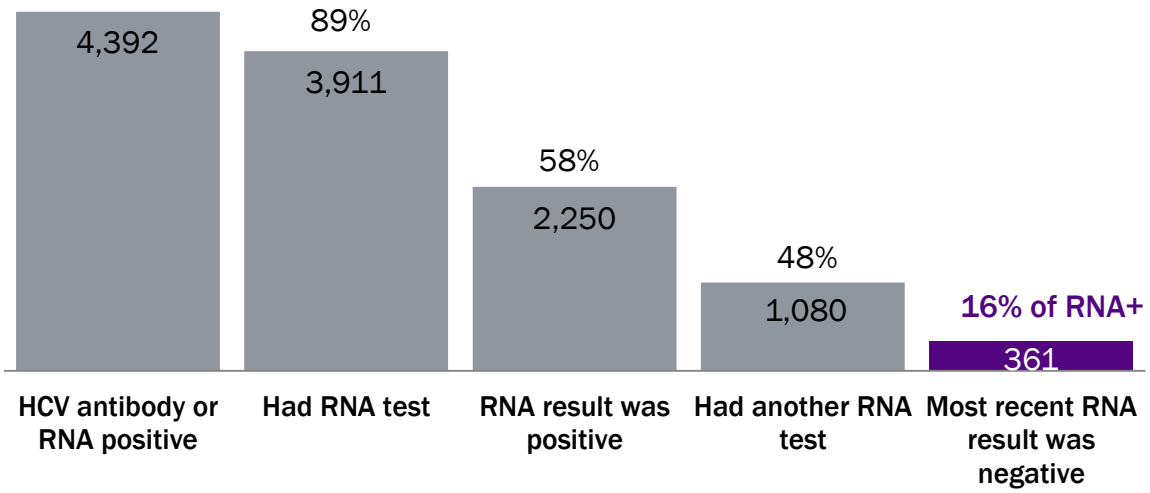


FIGURE 28

Among people aged 15–29 with positive hepatitis C RNA test results first reported in 2018, only 9% 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

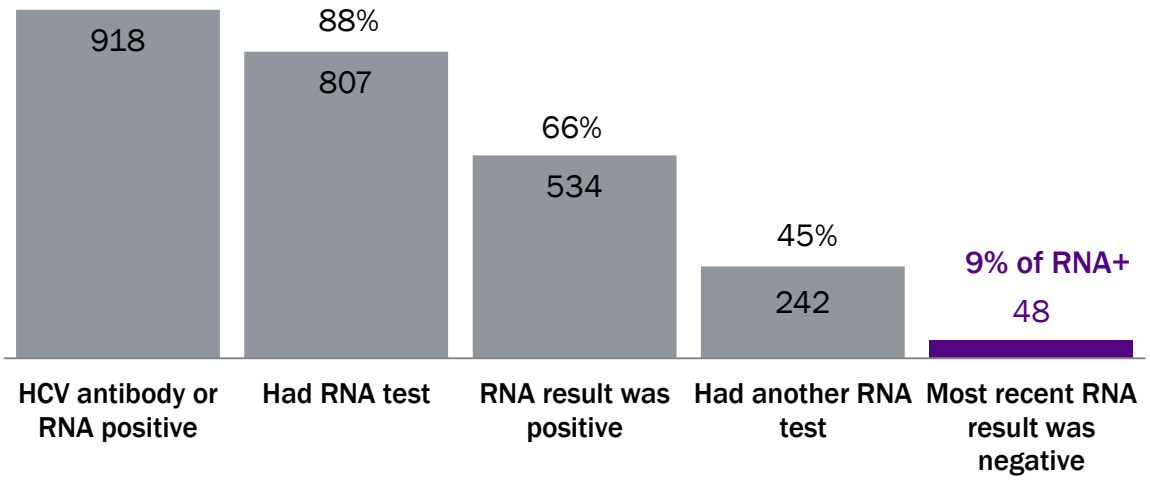
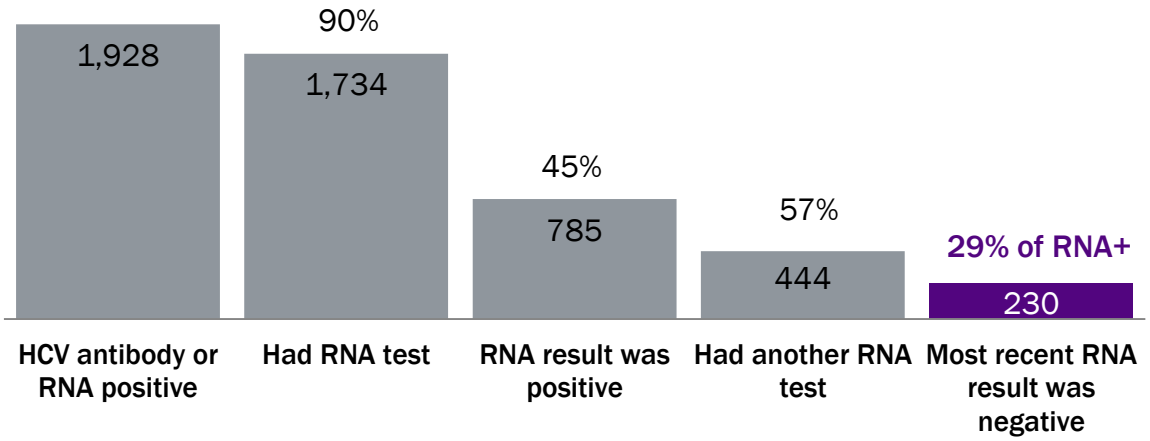


FIGURE 29

Among baby boomers with positive hepatitis C RNA test results first reported in 2018, 29% 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



APPENDICES

Data Tables

TABLE 1

Number and rate per 100,000 of reported hepatitis C cases, by case classification and year of report, Wisconsin, 2008-2018

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
2008	2,371	41.8	2	--	--	--	2,373	41.8
2009	2,435	42.9	3	--	--	--	2,438	42.9
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

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. For years with numbers of cases less than 5, rates have been suppressed.

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, 2018

	All Cases		Cases Age 15-29		Baby Boomers	
County	N	Rate per 100,000	N	Rate per 100,000	N	Rate per 100,000
Adams	12	58.5	6	232.3	1	--
Ashland	15	94.9	6	207.2	3	--
Barron	17	36.9	1	--	11	77.8
Bayfield	4	--	1	--	1	--
Brown	77	29.8	13	24.9	30	47.5
Buffalo	4	--	1	--	2	--
Burnett	7	45.2	1	--	2	--
Calumet	7	13.8	2	--	3	--
Chippewa	11	17.2	4	--	2	--
Clark	6	17.2	0	--	4	--
Columbia	25	43.8	6	63.1	9	55.3
Crawford	5	30.2	0	--	4	--
Dane	161	30.8	38	31	57	47
Dodge	44	49.3	12	79.2	15	61
Door	9	32.3	0	--	8	75.7
Douglas	34	77.1	7	84.2	6	48.1
Dunn	10	22.4	2	--	3	--
Eau Claire	50	48.9	14	50.3	12	49.4
Florence	5	112.7	3	--	1	--
Fond du Lac	42	40.8	11	58.7	11	38.6
Forest	12	130.7	3	--	1	--
Grant	9	17	1	--	6	44.6
Green	12	32.5	6	101.5	3	--
Green Lake	6	31.6	1	--	3	--
Iowa	3	--	1	--	1	--
Iron	2	--	1	--	1	--
Jackson	9	43.6	1	--	3	--
Jefferson	31	36.7	9	53.2	14	63.3
Juneau	26	96.8	12	287.1	5	58.4
Kenosha	106	63.2	23	65.2	49	120.6
Kewaunee	6	29.1	1	--	4	--
La Crosse	54	45.8	18	60.9	14	47.8
Lafayette	5	29.6	0	--	4	--
Langlade	9	45.7	4	--	2	--
Lincoln	12	42.2	1	--	7	75
Manitowoc	39	48.3	13	97.5	16	65.5
Marathon	27	19.9	8	33.1	7	19.5
Marinette	23	56	6	93	5	36.9
Marquette	11	71.4	2	--	6	100.7
Menominee	1	--	0	--	1	--

County	All Cases		Cases Age 15-29		Baby Boomers	
	N	Rate per 100,000	N	Rate per 100,000	N	Rate per 100,000
Milwaukee	701	73.7	125	56.3	289	138.1
Monroe	18	39.4	2	--	9	71
Oconto	3	--	2	--	0	--
Oneida	17	47.4	3	--	6	47.3
Outagamie	53	28.9	20	57.2	8	17.3
Ozaukee	11	12.5	1	--	7	26.9
Pepin	2	--	0	--	2	--
Pierce	4	--	0	--	3	--
Polk	15	34.1	5	71.5	8	60.4
Portage	16	22.6	5	27.1	6	33.2
Price	10	72	6	342.1	1	--
Racine	85	43.5	9	25.1	43	81.6
Richland	4	--	1	--	0	--
Rock	104	64.6	20	64.4	49	120.2
Rusk	0	--	0	--	0	--
St. Croix	13	14.9	4	--	7	33.3
Sauk	31	49.4	6	55.2	10	57.7
Sawyer	9	54	3	--	5	83.3
Shawano	7	16.8	0	--	5	40.1
Sheboygan	60	52.1	16	78.6	18	56.2
Taylor	3	--	1	--	1	--
Trempealeau	7	23.8	4	--	2	--
Vernon	14	46.2	5	100.5	7	79.8
Vilas	28	129.1	11	416.4	6	71
Walworth	58	56.4	12	56.2	31	110.9
Washburn	9	56.6	0	--	4	--
Washington	37	27.6	5	22.3	23	61
Waukesha	103	25.9	33	47.9	37	32.2
Waupaca	27	51.9	11	137.3	4	--
Waushara	8	32.7	1	--	4	--
Winnebago	90	53.1	28	76.2	35	81
Wood	27	36.2	10	80.7	3	--
Federal Corrections	8	--	3	--		--
State Corrections	214	--	64	--	15	--
Wisconsin	2,744	47.5	655	57.2	985	64.5

Notes: Case counts include all cases meeting the definition of acute, chronic/past or present, or perintatal hepatitis C. Cases were classified according to the National Notifiable Diseases Case Classifications. For counties with numbers of cases less than 5, rates have been suppressed.

N = Number of cases

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

TABLE 3
Number of reported prevalent hepatitis C cases, as a rate per 100,000, and as a percentage of the population, by county, Wisconsin, as of 2018

County	N	Rate per 100,000	Percentage
Adams	161	785.0	0.78
Ashland	89	563.1	0.56
Barron	189	410.6	0.41
Bayfield	70	463.5	0.46
Brown	1177	455.0	0.45
Buffalo	38	280.9	0.28
Burnett	120	774.2	0.77
Calumet	132	259.4	0.26
Chippewa	273	426.9	0.43
Clark	93	266.7	0.27
Columbia	299	523.4	0.52
Crawford	48	289.5	0.29
Dane	2750	526.7	0.53
Dodge	350	392.1	0.39
Door	110	395.2	0.40
Douglas	485	1100.1	1.10
Dunn	144	322.8	0.32
Eau Claire	559	547.3	0.55
Florence	40	901.3	0.90
Fond du Lac	492	478.2	0.48
Forest	83	903.9	0.90
Grant	111	209.9	0.21
Green	129	349.6	0.35
Green Lake	89	468.4	0.47
Iowa	76	319.5	0.32
Iron	42	722.1	0.72
Jackson	130	629.3	0.63
Jefferson	351	415.9	0.42
Juneau	196	730.0	0.73
Kenosha	1426	849.9	0.85
Kewaunee	50	242.6	0.24
La Crosse	537	455.6	0.46
Lafayette	34	201.5	0.20
Langlade	130	660.3	0.66
Lincoln	136	478.0	0.48
Manitowoc	444	549.6	0.55
Marathon	484	356.5	0.36
Marinette	311	756.7	0.76
Marquette	103	668.6	0.67
Menominee	36	822.3	0.82

County	N	Rate per 100,000	Percentage
Milwaukee	10683	1123.0	1.12
Monroe	320	700.3	0.70
Oconto	138	363.3	0.36
Oneida	208	579.7	0.58
Outagamie	687	374.6	0.37
Ozaukee	246	279.8	0.28
Pepin	26	352.6	0.35
Pierce	144	347.4	0.35
Polk	188	427.3	0.43
Portage	226	319.2	0.32
Price	81	583.2	0.58
Racine	1314	671.7	0.67
Richland	50	280.4	0.28
Rock	1147	712.9	0.71
Rusk	57	390.7	0.39
St. Croix	227	260.6	0.26
Sauk	392	624.6	0.62
Sawyer	120	720.1	0.72
Shawano	168	404.3	0.40
Sheboygan	496	430.3	0.43
Taylor	25	121.2	0.12
Trempealeau	88	299.3	0.30
Vernon	81	267.1	0.27
Vilas	205	945.2	0.95
Walworth	499	485.6	0.49
Washburn	83	522.1	0.52
Washington	387	288.2	0.29
Waukesha	1140	287.0	0.29
Waupaca	290	557.3	0.56
Waushara	93	380.0	0.38
Winnebago	950	560.5	0.56
Wood	308	413.3	0.41
Wisconsin	39,516	683.8	0.68

Notes: Hepatitis C prevalence is estimated by adding together all of the cases reported to public health during 2000 through 2018 and subtracting people matched to Wisconsin death records and subtracting people whose last reported hepatitis C RNA result was negative, indicating they had cleared the infection naturally or through treatment.
N = Number of cases
Rate per 100,000 = Number of cases divided by the population of the jurisdiction and multiplied by 100,000

Technical Notes

This report was compiled by the Wisconsin Viral Hepatitis Program 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.

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.

Most 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.

This report is based on hepatitis C surveillance data from the Wisconsin Electronic Disease Surveillance System as of April 23, 2019. 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.

Rates for 2018 are expressed as the number per 100,000 population in Wisconsin in 2017.

Prevalence estimates exclude Wisconsin residents who had death records reported to the Wisconsin Vital Records registry of deaths through 2018. The prevalence estimates also exclude people whose last hepatitis C RNA results reported to the Wisconsin Electronic Disease Surveillance System were negative, indicating the infection had cleared. The numbers of people with hepatitis C who have moved out of Wisconsin or who had negative RNA results that were not reported to Wisconsin Electronic Disease Surveillance System are not known and have not been subtracted from the prevalence estimate.

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