



Hepatitis C Virus: Hepatitis C is a liver disease caused by the hepatitis C virus (HCV). HCV is spread primarily by exposure to blood from an infected person. It is the most common blood-borne infection in the United States with approximately three million with chronic infection. The majority of infected persons are not aware of their infection because they are not clinically ill; however, they are a source of transmission to others and at risk for chronic liver disease. HCV is the number one reason for liver transplantation. Today, most people become infected with HCV by sharing needles or other equipment used to inject drugs. Although less common, it can also be spread sexually or from an infected mother to her infant.

Table 1. Hepatitis C virus (HCV) reports, 2014

Case definition	Number	Rate per 100,000
Hepatitis C, Past or Present*	3,168	55.3
Hepatitis C, Acute	49	0.9
Total	3,217	56.1

*Includes 2,545 confirmed and 672 probable.
 All acute cases are classified as confirmed.

Case Definitions and Classification:

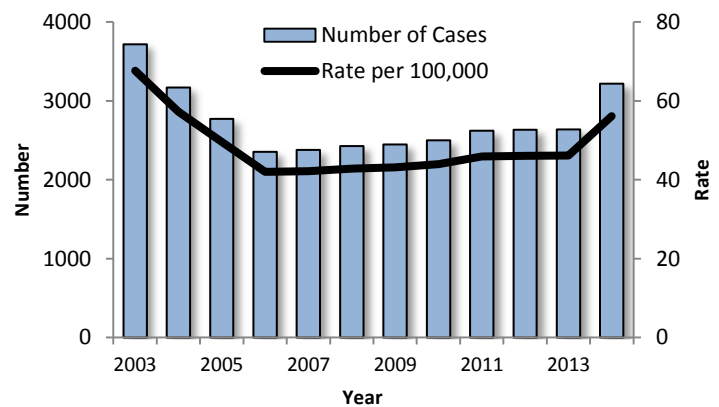
Hepatitis C, Past or Present, can be found at: [National Notifiable Diseases Surveillance System, Hepatitis C, Past or Present](#)

Hepatitis C, Acute, can be found at: [National Notifiable Diseases Surveillance System, Hepatitis C, Acute](#)

Table 2. History of HCV reports, 2004-2014

Year	Past or Present	Acute	Total	Rate per 100,000
2004	3,168	2	3,170	57.2
2005	2,769	2	2,771	49.6
2006	2,354	1	2,355	42.0
2007	2,379	0	2,379	42.2
2008	2,425	2	2,427	42.8
2009	2,445	3	2,448	43.1
2010	2,487	11	2,498	43.9
2011	2,605	15	2,620	45.9
2012	2,608	26	2,634	46.0
2013	2,596	42	2,638	46.2
2014	3,168	49	3,217	56.1

Figure 1. Number and rate of HCV reports, 2004-2014



Summary for 2014: During 2014, 3,217 past, present or acute HCV diagnoses were reported in Wisconsin at a rate of 56.1 cases per 100,000 people. From 2013 to 2014, the rate of all HCV reports increased by 21%. There were 49 reports of acute HCV reported in Wisconsin in 2014 at a rate of 0.9 cases per 100,000. For comparison, the most recently available national acute HCV diagnosis rate (2013) is 0.7 cases per 100,000. Based on routine investigation of acute HCV, the primary risk for new infection is injection drug use, reported by 65% of acute cases. The rate of past, present or acute HCV remained higher for American Indians and non-Hispanic Blacks compared to other racial and ethnic groups. The number and rate of HCV reports continued to increase among persons under age 30 and this age group comprised 28% of HCV reports in 2014. The availability of a rapid HCV antibody test since 2012 has improved detection of HCV infection particularly among this younger population; however, corresponding increases in substance abuse treatment data and overdose data suggest the increase in HCV is associated with these behavioral trends in Wisconsin.¹ More Wisconsin residents aged 50-69 years were reported with HCV in 2014 compared to 2013. The increase likely reflects HCV screening among those born during 1945 to 1965, consistent with Centers for Disease Control and Prevention recommendations since 2012 for identifying chronic HCV infection.

Reports by County

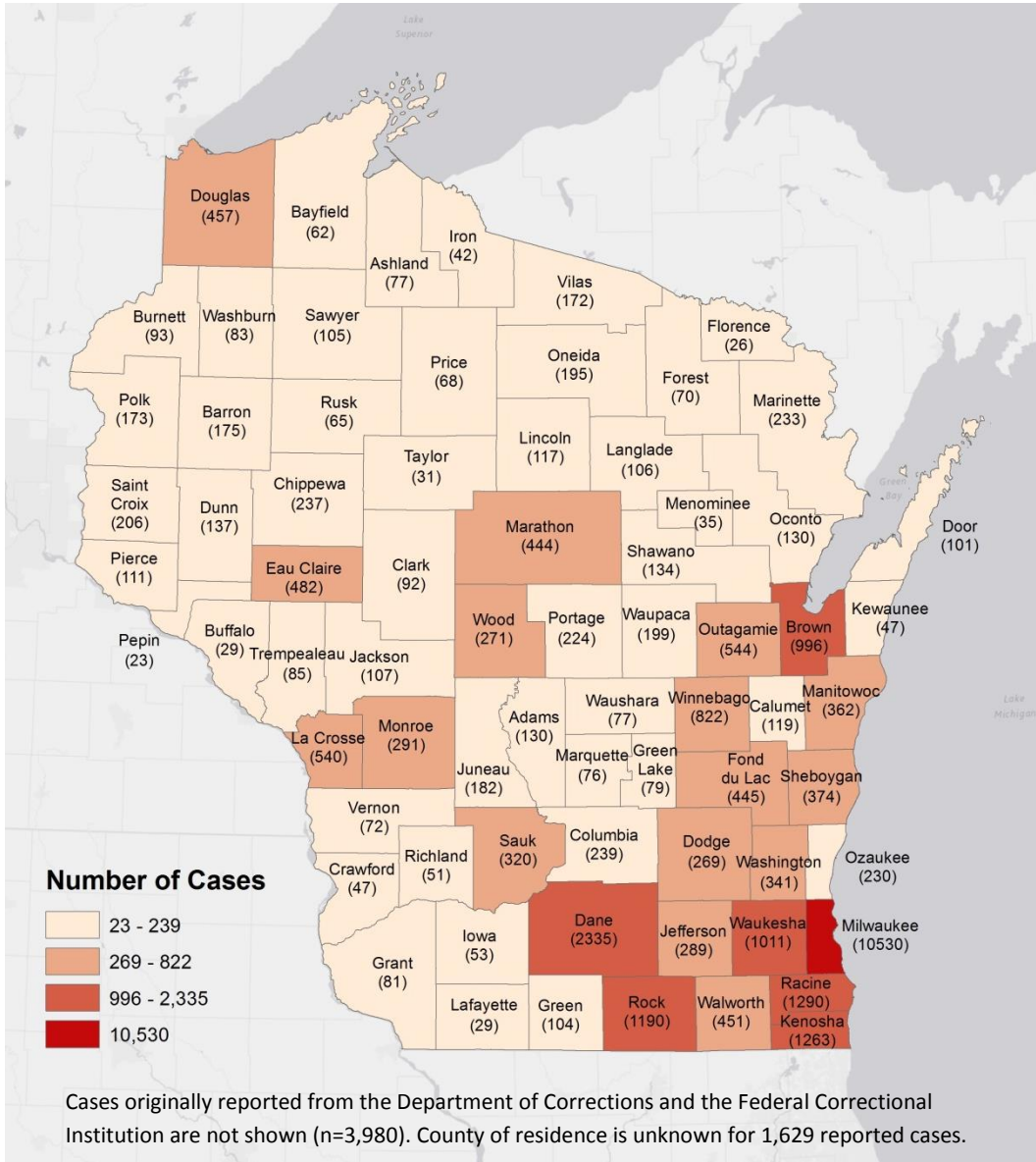
Table 3. Number, percent and rate of newly reported HCV cases by county of residence, 2014

County of Residence	Average Reported 2011-2013	Number Reported 2014	Percent of 2014 Reports	Rate per 100,000	County of Residence	Average Reported 2011-2013	Number Reported 2014	Percent of 2014 Reports	Rate per 100,000
Adams	11	11	0%	53.1	Marquette	6	9	0%	58.8
Ashland	7	13	0%	80.9	Menominee	4	2	0%	47.0
Barron	17	17	1%	37.1	Milwaukee	636	797	25%	83.7
Bayfield	4	10	0%	66.2	Monroe	20	50	2%	110.4
Brown	107	108	3%	42.7	Oconto	15	9	0%	23.8
Buffalo	2	3	0%	22.2	Oneida	20	12	0%	33.4
Burnett	6	11	0%	71.3	Outagamie	60	66	2%	36.7
Calumet	11	20	1%	40.3	Ozaukee	16	16	0%	18.4
Chippewa	24	25	1%	39.7	Pepin	2	5	0%	67.4
Clark	10	10	0%	28.8	Pierce	9	8	0%	19.5
Columbia	20	28	1%	49.3	Polk	13	17	1%	38.7
Crawford	5	3	0%	18.1	Portage	14	15	0%	21.2
Dane	177	218	7%	43.3	Price	6	8	0%	57.0
Dodge	22	20	1%	22.5	Racine	106	114	4%	58.4
Door	7	4	0%	14.3	Richland	3	15	0%	83.7
Douglas	34	50	2%	113.3	Rock	80	105	3%	65.5
Dunn	13	15	0%	34.1	Rusk	7	5	0%	34.1
Eau Claire	44	58	2%	57.7	Sauk	26	27	0%	43.2
Florence	6	1	0%	22.5	Sawyer	12	15	0%	90.3
Fond du Lac	37	39	1%	38.2	Shawano	12	8	0%	19.1
Forest	9	7	0%	76.1	Sheboygan	36	41	1%	35.6
Grant	7	13	0%	25.1	St. Croix	15	17	1%	19.8
Green Lake	7	9	0%	47.2	Taylor	3	2	0%	9.7
Green	7	12	0%	32.5	Trempealeau	7	13	0%	44.4
Iowa	4	6	0%	25.2	Vernon	6	7	0%	23.3
Iron	3	4	0%	68.0	Vilas	16	8	0%	37.3
Jackson	10	16	0%	77.6	Walworth	29	39	1%	37.9
Jefferson	24	42	1%	49.9	Washburn	7	10	0%	63.1
Juneau	13	19	1%	70.9	Washington	27	29	1%	21.8
Kenosha	95	122	4%	72.9	Waukesha	79	97	3%	24.7
Kewaunee	4	2	0%	9.7	Waupaca	16	49	2%	93.6
La Crosse	40	59	2%	50.7	Waushara	5	6	0%	24.5
Lafayette	3	8	0%	47.5	Winnebago	80	90	3%	53.4
Langlade	10	26	1%	131.6	Wood	27	30	1%	40.3
Lincoln	11	16	0%	55.4	Unknown	--	2	0%	--
Manitowoc	50	42	1%	51.8	Corrections [¶]	237	322	10%	--
Marathon	56	53	2%	39.3					
Marinette	26	32	1%	76.8	Total		3,217	100%	56.1

[¶]Includes cases reported from the Department of Corrections statewide, and the Federal Correctional Institution in Adams County, WI.

In 2013, new HCV cases were reported in all 72 counties. Milwaukee County accounted for 25%, Dane County for 7%, and Kenosha and Racine Counties each for 4% of HCV reports in 2014. Table 3 includes the average number of reported HCV in residents of each county for the three years prior to 2014 for comparison to reports in 2014. Changes in number and rates in a county may be due to an increase in new HCV infections, changes in provider HCV screening practices from year to year, or differences in the amount of resources each county has dedicated to HCV surveillance.

Figure 3. Prevalent past, present and acute HCV cases reported January 1, 2000 - December 31, 2014 by county of residence



Recent estimates of HCV infection in the United States indicate three million people are living with chronic HCV infection.² Infection is most prevalent among those born between the years 1945 and 1965, the majority of whom were likely infected during the 1970s and 1980s when rates were highest. Since 2000, approximately 36,000 HCV infections have been reported to DPH in individuals presumed to be alive as of 2013 (see Technical notes for details). Of reported cases alive in Wisconsin, 65% were born during 1945-1965. The CDC estimates that 45%-85% of HCV infected persons have not been tested or identified; therefore, the true number of those with HCV in Wisconsin is unknown. As of 2010, 1.3% of the United States population is estimated to have evidence of HCV infection, which translates to approximately 74,000 in Wisconsin.²

Age of people reported with HCV

Figure 4. Trend in percent of HCV reports, by age, 2003-2014

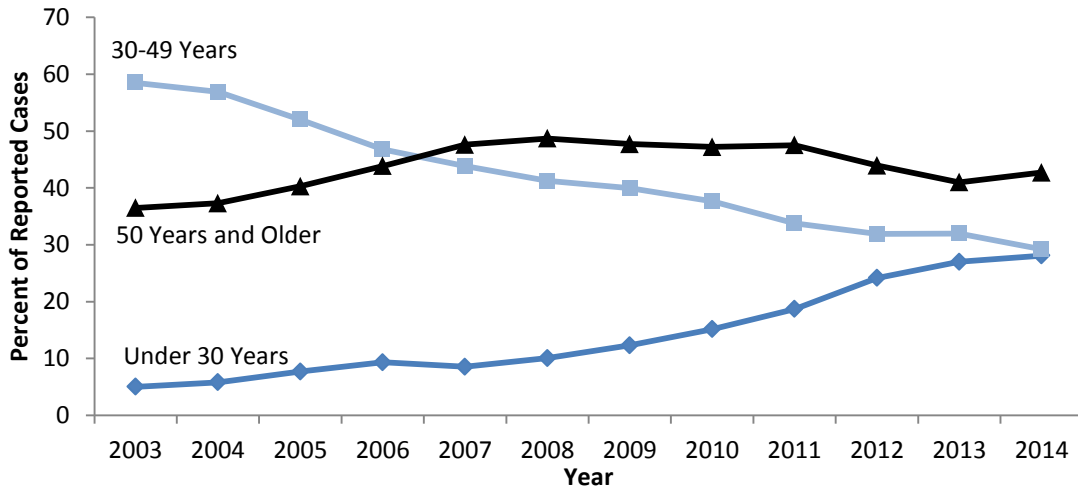


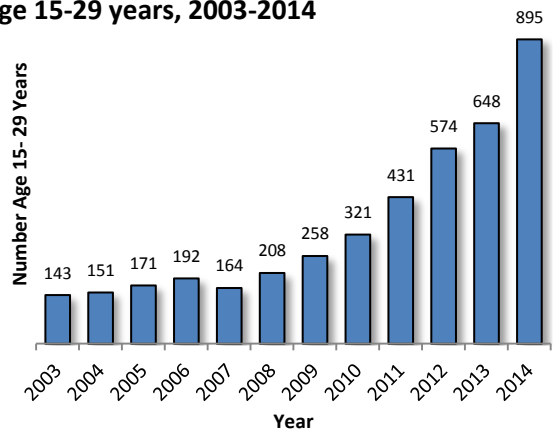
Table 4. Age at report of HCV positive test, 2014

Age group (Years)	Average Reported 2011-2013	Number Reported 2014	Percent of WI Reports	Rate per 100,000
0-14	8	8	0%	0.7
15-19	64	75	2%	19.5
20-29	534	820	26%	108.1
30-39	384	520	16%	73.7
40-49	463	420	13%	55.9
50-59	765	873	27%	102.4
60-69	296	418	13%	67.7
70+	90	83	2%	14.3
Total	2,605	3,217	100%	56.1

From 2013 to 2014, the rate increased from 62 to 78 per 100,000 among young persons aged 15-29 and from 70 to 88 per 100,000 among those aged 50-69. The increasing rates and large number of reported cases in these two age groups highlight the public health issue of HCV in Wisconsin among two distinct populations: 1) young people most often infected through injection drug use and 2) those born from 1945 to 1965 who have the highest rates of HCV in the United States.

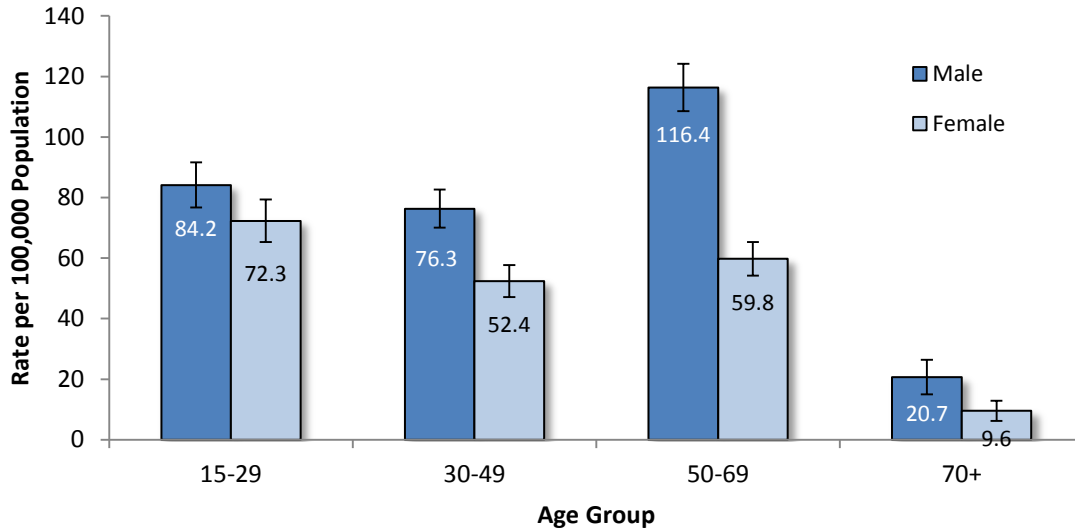
Figure 5. Increase in HCV reports among young persons, age 15-29 years, 2003-2014

During 2014, 895 persons aged 15-29 were reported with HCV infection in Wisconsin, an increase in cases of 526% compared to 2003. Infections in this age group are attributed to a rise in injection drug use in Wisconsin during the past several years. HCV transmission occurs when people who are infected with HCV share syringes and injecting equipment.



Sex

Figure 6. Rate of HCV reports, by sex and age, 2014



Error bars show 95% confidence intervals for the rate. If error bars overlap, categories are not significantly different from each other. Age represents age at date of positive HCV test.

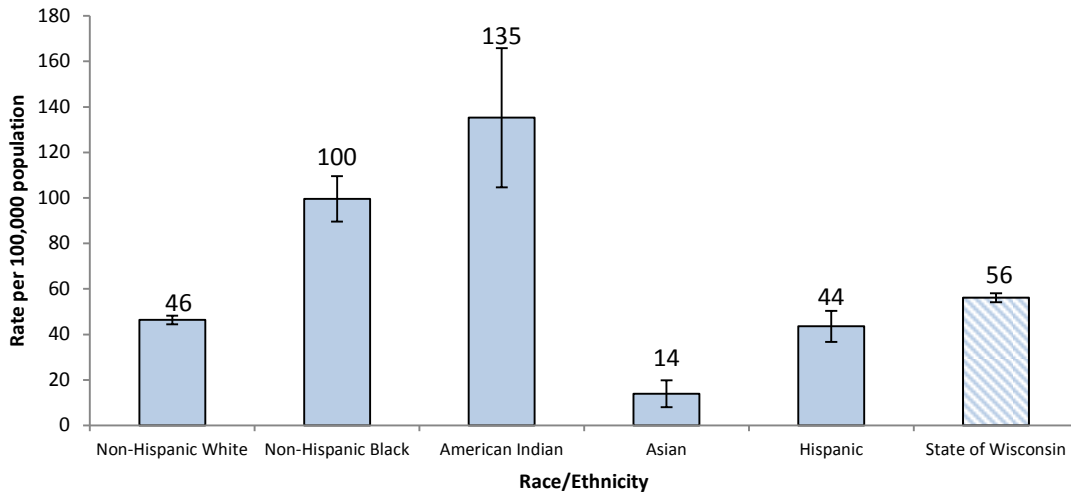
Table 5. Sex of HCV reports, 2014

Sex	Average Reported 2011-2013	Number Reported 2014	Percent of WI Reports	Rate per 100,000
Female	1,037	1,263	39%	43.8
Male	1,567	1,954	61%	68.6
Total	2,605	3,217	100%	56.1

During 2014 there were 1,263 females and 1,954 males reported with HCV infection in Wisconsin. From 2013 to 2014, rates increased by 10% among females and 30% among males. The disparity among sex is most pronounced among men aged 50-69 where the rate of HCV report is almost twice as high as women of the same age group.

Race and Ethnicity

Figure 7. Rate of HCV reports, by race and ethnicity, 2014



Numbers shown above each bar are the rate per 100,000 population. The error bars show 95% confidence intervals for the rate. If error bars overlap, categories are not significantly different from each other. Rates were not calculated for multiple race or other race due to small sample size. Race was unknown in 329 reports (10%).

Table 6. Race and ethnicity of HCV reports, 2014

Non-Hispanic Whites comprise the majority of HCV reports in Wisconsin. From 2013 to 2014, rates increased 23% among non-Hispanic Whites. Rates for other racial and ethnic groups were not statistically different from 2013. During 2014, rates of HCV remained disproportionately high for American Indian and non-Hispanic Blacks relative to other racial and ethnic groups. The rate in American Indians was more than three times higher than that in non-Hispanic Whites. The rate among non-Hispanic Blacks was more than two times higher than among non-Hispanic Whites.

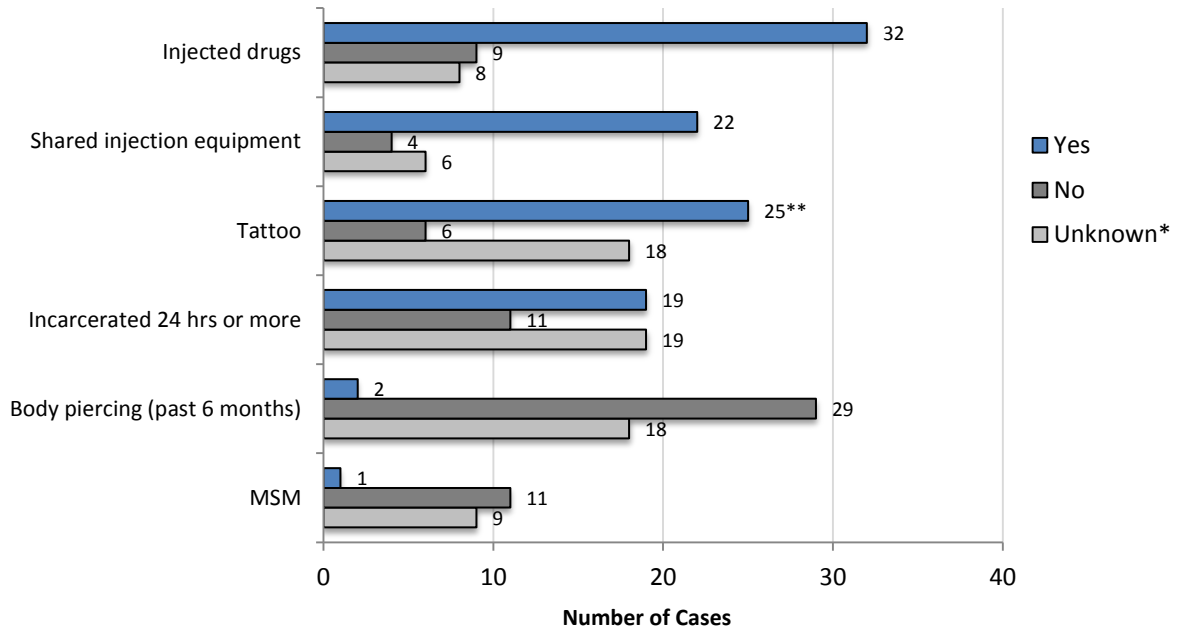
Race/Ethnicity	Average Reported 2011-2013	Number Reported 2014	Percent of WI Reports	Rate per 100,000
White, non-Hispanic	1,653	2,213	69%	46.3
Black, non-Hispanic	348	385	12%	99.6
Hispanic or Latino	133	158	5%	43.5
American Indian	63	75	2%	135.2
Asian	33	21	1%	13.9
Other	10	19	1%	--
Multiple Races	12	17	1%	--
Unknown	352	329	10%	--
Total	2,605	3,217	100%	56.1

Rates among American Indians and non-Hispanic Blacks have not increased with statistical significance; however, they have remained higher relative to non-Hispanic Whites for the past five years. The disparity of higher rates of acute HCV among American Indian/Alaska Native race is reported at the national level.³

Risk

Case follow-up and investigation of risk factors for HCV was completed for 84% of acute HCV infections in 2014. The primary risk factor for acute HCV infection was injection drug use, reported by 32 (65%) of 49 persons with acute HCV. Among those who reported injection drug use, 69 percent reported sharing “works” or injection equipment. Syringes and cookers were the most common reported items shared. Of 21 men, 1 reported sexual activity with a male.

Figure 8. Acute HCV reports, by risk behavior, 2014



A total of 49 case reports of acute hepatitis C were received in 2014. More than one risk behavior may be indicated on each case report. *Risk data not reported. **Only one case reported a tattoo in the past six months.

References:

1. Wisconsin State Council on Alcohol and Other Drug Abuse Prevention Committee, Heroin Ad-hoc Committee. Analysis and Recommendations for Reducing Heroin Abuse in Wisconsin. July 2014. Available at: <http://scaoda.state.wi.us/docs/main/SCAODAHeroinReportFinal063014.pdf> (Accessed on 5/18/2015).
2. Denniston, MM, Jiles RB, Drobeniuc J, et al. Chronic hepatitis C virus infection in the United States, National Health and Nutrition Examination survey 2003 to 2010. *Ann Intern Med* 2014; 160:293-300.
3. Centers for Disease Control and Prevention. Surveillance for Viral Hepatitis – United States, 2013. Available at: <http://www.cdc.gov/hepatitis/Statistics/2013Surveillance/Slide4.4.htm> (Accessed on 5/18/2015).

Technical notes:

1. This report is compiled by the Wisconsin Adult Viral Hepatitis Program and is based on reports of hepatitis C virus (HCV) infection submitted by laboratories and local health departments (LHDs). HCV infection is a reportable communicable disease by Wisconsin administrative rule (DHS 145). When cases are reported, LHDs contact persons with HCV infection to provide health education, risk reduction counseling, hepatitis A and B vaccine and medical referral as needed.
2. Many cases of HCV 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.
3. Most reported cases of HCV infection represent chronic disease in persons who were infected years ago. Persons with acute infection are often unaware of their infection because it presents with few if any symptoms.
4. This report is based on HCV surveillance data from the Wisconsin Electronic Disease Surveillance System (WEDSS) as of 4/17/2015. HCV case numbers used in other reports or individual county reports may vary depending on the date data is accessed, as WEDSS is not a static database and cases can be updated daily.
5. Rates are expressed as the number per 100,000 population in Wisconsin in 2013. Rates are described as significantly different if calculated 95% confidence intervals around the rates do not overlap.
6. Reports of HCV in persons deceased as of 2013 were identified by a match of WEDSS to the Wisconsin Vital Records registry of deaths of Wisconsin residents through 2013. The number of people with HCV who have moved out of Wisconsin or have a resolved or cured infection is unknown and has **not** been subtracted from all reported cases.

For more information:

Questions regarding Wisconsin hepatitis C virus data may be directed to: Lauren Stockman, Hepatitis C Epidemiologist, lauren.stockman@wi.gov, 608-267-0359.

Questions regarding the Wisconsin Viral Hepatitis Prevention Program may be directed to: Sheila Guilfoyle, Viral Hepatitis Program Coordinator, sheila.guilfoyle@wi.gov, 608-266-5819.

Additional resources:

Wisconsin Department of Health Services:

<http://www.dhs.wisconsin.gov/communicable/ViralHepatitis/HepCInfection.htm>

Centers for Disease Control and Prevention: <http://www.cdc.gov/hepatitis/HCV/index.htm>

National Notifiable Diseases Surveillance System: <http://wwwn.cdc.gov/NNDSS/script/casedefDefault.aspx>