

STATE OF IOWA DEPARTMENT OF
Health AND **Human**
SERVICES

STATE OF IOWA HEPATITIS C (HCV)
END-OF-YEAR 2021 SURVEILLANCE
REPORT

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Gov. Kim Reynolds
Lt. Gov. Adam Gregg
Kelly K. Garcia, Director, IDPH

Report Contact Information:

Shane Sharer, M.S.
Viral Hepatitis Epidemiologist
Phone: (515) 657-1129
Email: shane.sharer@idph.iowa.gov

Joyce Mbugua, MCRP
Data and Epidemiology Program Manager
Phone: (515) 305-0225
Email: joyce.mbugua@idph.iowa.gov

Randy Mayer, M.S., M.P.H.
Chief, Bureau of HIV, STD, and Hepatitis
Phone: (515) 242-5150
Email: randy.mayer@idph.iowa.gov

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Executive Summary

HERE ARE A FEW POINTS DRAWN FROM THE 2021 HEPATITIS C (HCV) DATA:

Iowans diagnosed with chronic hepatitis C: In 2021, 741 Iowans were diagnosed with chronic hepatitis C, a 10% decrease in the number of people newly diagnosed with confirmed, chronic hepatitis C compared to 2021. The decrease was among people in the 'baby boomer' population, as well as among those less than 40 years of age. The number of diagnoses in 2021 was well below the previous 5-year average of 1,297 diagnoses annually from 2016 to 2020.

Sex: Approximately two-thirds (65%) of Iowans diagnosed with HCV in 2021 were males.

Birth cohort: Forty-two (42) percent of people diagnosed with HCV in 2021 are 'baby boomers,' or those born between 1945 and 1965, while 32% of diagnoses were among people born after 1980.

Race and ethnicity: Unlike for HIV and other sexually transmitted infections, there are no significant racial and ethnic disparities among Iowans diagnosed with HCV infection. Of all people diagnosed with HCV in 2021, 88% were non-Hispanic white, 5% of people were Hispanic/Latino, 5% were non-Hispanic Black/African American, 2% were American Indian or Alaska Native, and 1% were Asian. This closely mirrors the distribution of race and ethnicity in Iowa's population as a whole. Given the disparities seen in Iowa among other chronic diseases and infections, this lack of disparity among racial and ethnic minorities could indicate that minority populations may not have the same access to testing as white Iowans. Additionally, the lack of disparities may also reflect the increased association of HCV with use of methamphetamines in Iowa.

People under 40 years of age diagnosed with hepatitis C: There were 234 people under 40 years of age diagnosed with chronic HCV in 2021, accounting for 32% of all diagnoses. An analysis of people diagnosed with HCV under the age of 40 reveal males represent 58% of diagnosed Iowans. This was similar to the proportion reported in 2020. Total diagnoses among people under 40 decreased by 6% from the previous year. Diagnoses among people under the age of 40 are significant because they likely represent people more recently infected, and therefore more likely to be using drugs and in situations in which they could transmit HCV to partners via sharing of drug equipment. Of the 234 persons under the age of 40 who were eligible for follow up, 76% reported injection drug use as a mode of exposure.

Iowans diagnosed with HCV since 2000: There were 27,844 Iowans reported to IDPH with current or past HCV from 2000 through 2021. Of these, 21,248 had evidence of chronic HCV. The remaining 6,596 persons were reported to IDPH with a positive hepatitis C antibody result (indicating past or current infection) but no confirmation of chronic disease. Of those, it is estimated that 15% to 25% cleared the virus spontaneously, and the remaining 75% to 85% likely have or had chronic hepatitis C. Among Iowans ever diagnosed with chronic HCV, over a third (33%) were baby boomers at time of diagnosis, and 22% were under 40 years of age at diagnosis. Nearly two-thirds (64%) were male, and 89% were white, non-Hispanic people. It should be noted that race and ethnicity information was not reported for 24% of people diagnosed with HCV and reported to IDPH after 2000. However, the quality and completeness of reporting data have improved since 2015.

Iowans Diagnosed with HIV and HCV: An analysis of co-infection of HIV and HCV revealed that 276 Iowans had been reported to IDPH as having both HIV and chronic HCV. Among them, 213 (77%) were alive at the end of 2021, indicating that approximately 9% of people living with HIV have also been diagnosed with chronic HCV.

ORGANIZATION OF THE SURVEILLANCE REPORT

This end-of-year report presents surveillance data on hepatitis C in Iowa. It describes hepatitis C for the state and of its population subgroups. There are four sections to the report: Section 1 describes **data sources**; Section 2 is a **narrative summary** with key highlights; Section 3 employs **charts, graphs, and tables** to illustrate trends; and Section 4 outlines the **reporting requirements** for hepatitis C in Iowa.

DEFINITIONS

Confirmed chronic HCV means the person has HCV RNA circulating in his or her blood, as confirmed by laboratory testing.

HCV antibody positive means that there is a presence of antibodies to HCV in a person's blood. This indicates that a person was exposed to viral hepatitis C and developed an infection, but approximately 15% to 25% of people will spontaneously clear the virus without treatment. Therefore, 75% to 85% of people with positive antibody tests likely have chronic HCV. An HCV RNA test (i.e., PCR) is needed to confirm chronic infection.

SECTION I: SOURCES OF DATA

CORE HCV SURVEILLANCE DATA

Iowa Disease Surveillance System (IDSS)

HCV data are collected in the Iowa Disease Surveillance System, which is a web-based system designed to facilitate reporting, investigation, and surveillance of communicable diseases in Iowa. HCV is a reportable disease as defined by Iowa Code chapter 139A. Reports of HCV infection are submitted by local public health, private providers, laboratories, and others. IDSS is not a static database, as information on cases can be updated daily. Some records have incomplete data, which may include information about treatment, cure, or spontaneous clearing of the virus.

Hepatitis C test results in IDSS are defined by the following criteria:

Screening tests: (usually reported as positive or negative)

HCV Antibody by enzyme immunoassay (EIA) (See Interpretation of Signal to Cutoff ratio in lab report)
Serology – HCV antibody (EIA) (positive, negative, equivocal, or not reactive)
Serology – Anti-HCV antibody test (positive, negative, equivocal, or not reactive)
Serology – HCV IgG antibody (EIA) (positive, negative, equivocal, not reactive)
Serology – HCV IgM antibody (EIA) (positive, negative, equivocal, not reactive)

Confirmatory tests:

Polymerase Chain Reaction (PCR) (detected, equivocal, indeterminate, not detected, not quantified, or not tested)
Genotype (detected, not detected, or indeterminate)
Serology – RNA Qualitative (QL) (positive, negative, equivocal, or not reactive)
Serology – HCV RNA (positive, negative, or not done)
Serology – HCV DNA QL Log (positive, negative, equivocal, or indeterminate)

DIAGNOSIS DATE AND COMPLETENESS OF SURVEILLANCE DATA

Only people diagnosed with hepatitis C in Iowa for whom last name, date of birth, sex, and date of diagnosis are known are included in this report. Evaluations of the surveillance system indicate that potentially significant numbers of Iowans with HCV may have never been reported to IDPH. In addition, these data do not include information on people who have contracted the virus, but who have not been diagnosed. Nationally, CDC estimates that approximately half of people with HCV are undiagnosed.

HIV and HCV Co-infection

Iowans living with both HIV and HCV were determined by a match between IDSS and the Iowa enhanced HIV/AIDS Reporting System (eHARS). All people living with HIV who were first diagnosed while living in Iowa, or who have lived in Iowa at some point in time while living with HIV, or who have accessed care at an Iowa facility and have been reported to the IDPH, are included in eHARS. All reports of HCV as of December 31, 2021 were matched to HIV reports in eHARS. Matches were based

on date of birth, last and first name. People reported in both databases were considered to be living with both HIV and HCV.

Population Data

The surveillance program has used the 2020 population estimates from the U.S. Census Bureau (<http://www.census.gov>) to calculate rates.

Section 2: Narrative Summary

IOWANS DIAGNOSED WITH HEPATITIS C IN 2021

There were 741 Iowans diagnosed with chronic hepatitis C (HCV) in 2021. This is a decrease of 80 people (10%) from 821 in 2020, and well below the average of 1,297 for the previous five years (2016 through 2020). As seen in Figure 3.1, the annual number of people diagnosed with chronic HCV increased steadily from 2000 through 2015, and peaked at 1,534 diagnoses in 2016.

Case Status

Of the 741 Iowans reported with past or current (chronic) HCV in 2021, 97% had evidence of a confirmatory (PCR) test indicating chronic HCV, while 26 (3%) had only antibody positive results reported to IDPH. An antibody test for HCV is essentially a screening test. It is estimated that 75% to 85% of Iowans with positive antibody results developed chronic HCV, while 15% to 25% cleared the virus on their own. In addition, there were 2,514 Iowans reported to the IDPH with a positive antibody result and a negative PCR result. These patients may have spontaneously cleared the virus, or had a false antibody positive result. For patients who had a positive antibody result, but who were not exposed to HCV, the result was likely false positive. Patients with a rapid antibody result who were exposed to HCV, primarily through injection drug use, likely spontaneously cleared the virus during or after the acute infection phase.

Birth Cohort

Forty-two percent of Iowans (42%) diagnosed with HCV in 2021 were considered to be 'baby boomers,' or those born between 1945 and 1965, while 32% were people born after 1981 (under 40 years of age at diagnosis). About 26% of people diagnosed in 2021 were born between 1967 and 1980 (between the ages of 40 and 54 years of age at diagnosis). A significantly smaller percentage (1%) of people reported with HCV in 2021 were born before 1945.

Diagnoses among people under the age of 40 are significant because they likely represent people more recently infected, and therefore more likely to be using drugs and in situations in which they could transmit HCV to partners via sharing of drug equipment. "Baby boomers," persons born between 1945 and 1965 according to the CDC, account for approximately three fourths of all chronic HCV infections among adults in the United States. Although effective treatments are available to clear HCV infection from the body, most persons with HCV do not know they are infected, do not receive needed care (e.g., education, counseling, and medical monitoring), and are not evaluated for treatment. HCV testing is the first step toward improving health outcomes for persons infected with HCV.

Sex

In 2021, 65% of Iowans diagnosed with chronic HCV were males. An analysis of people diagnosed with HCV under the age of 40 reveals a similar distribution, with males representing 58% of diagnosed Iowans. Hepatitis C diagnoses among women under the age of 40 is important to note, as HCV can be transmitted perinatally by women to their infants.

Race and Ethnicity

Unlike for HIV and other sexually transmitted infections, there are not significant racial and ethnic disparities among Iowans diagnosed with HCV. In 2021, 88% of people diagnosed with hepatitis C were

non-Hispanic white, 5% were non-Hispanic Black/African American, 5% of people were Hispanic or Latino, 2% were American Indian or Alaska Native, and 1% were Asian. This closely matches the racial and ethnic distribution of lowans overall. However, given the racial disparities among people diagnosed with HCV reported nationally, it is possible that African Americans and other minorities are not being tested at the same rate as white lowans. On the other hand, HCV in Iowa is associated with use of methamphetamine. People in Iowa who were admitted for treatment of methamphetamine use at Iowa's publicly funded treatment sites are more likely to be white than people who are treated for cocaine or heroin.

lowans Under 40 Diagnosed with Hepatitis C in 2021

There were 234 lowans under the age of 40 who were diagnosed with chronic HCV in 2021, representing 32% of all lowans diagnosed. In 2020, people under the age of 40 with chronic HCV accounted for 30% of all diagnoses. Although the number of people under 40 decreased from 2020 to 2021, they accounted for a higher proportion of people with HCV diagnoses in 2021 indicating that diagnoses among baby boomers decreased more than diagnoses among people under 40. Among those under 40 years of age diagnosed in 2021, 4% were under 20 years of age, 9% were between the ages of 20 and 24, and 28% were between 25 and 29 years of age, 30% were between 30 and 34 years of age, and 29% were between 35 and 39 years of age. An analysis of surveillance data indicated that, of the 234 persons under 40 who were eligible for follow up, 76% of people disclosed injection drug use to their health care providers. Race and ethnicity of lowans under 40 diagnosed with HCV was similar to the overall population. Eighty-eight percent of lowans under 40 diagnosed with HCV in 2021 identified as white, 6% identified as Latino, 3% identified as Black/African American, and 2% identified as Asian.

lowans Ever Diagnosed with HCV

There have been 27,844 lowans reported to the IDPH with current or past HCV. Of these, 21,248 had evidence of chronic HCV. This means that a positive HCV RNA result was reported for these lowans. Of the 6,596 lowans reported to IDPH with only a positive hepatitis C antibody (screening) test result, it is estimated that 15 to 25% cleared the virus. The remaining 75 to 85% likely developed chronic hepatitis C. Among lowans diagnosed with chronic HCV after 2000, over a third (33%) were baby boomers at diagnosis while 22% were under 40 years of age at diagnosis. Nearly two-thirds (64%) were male, and 89% were white and non-Hispanic. It should be noted that race and ethnicity information were not reported for 24% of people diagnosed with HCV and reported to the Iowa Department of Public Health (IDPH) since 2000. Active surveillance of hepatitis C did not begin at IDPH until 2015, and this limited the completeness of data reporting.

Deaths of People with Hepatitis C

On average, there were 3,873 deaths among lowans living with hepatitis C from 2000 to 2021. The causes of death were not necessarily related to their hepatitis C diagnoses. The number of deaths among lowans diagnosed with hepatitis C decreased by 7% from 2017 to 2018 and increased by 15% from 2019 to 2020. Mortality related to HCV and among people living with HCV is likely to be underestimated, as death certificates often underreport HCV infection, and approximately half of people with HCV are undiagnosed.

HIV and HCV Co-infection

An analysis of Iowans co-infected with HIV and HCV showed that 276 Iowans have been reported to IDPH as diagnosed with both HIV and chronic HCV since 2000. Among them, 213 (77%) were alive at the end of 2021, indicating that 7% of Iowans living with HIV have also been diagnosed with chronic HCV. Ryan White Part C clinics have been making concerted efforts to treat hepatitis C in Iowans living with HIV. The AIDS Drug Assistance Program (ADAP) covers hepatitis C treatment for people who are diagnosed with HIV and meet the program's income guidelines. Of people who were co-infected with HIV and HCV, 77% were males, and 62% were white, non-Hispanic people. It is important to note that while only 6% of Iowans diagnosed with HCV identify as Black or African American, 23% of Iowans with both HIV and HCV are Black or African American. This may provide further evidence that testing for HCV among Black/African American Iowans needs to be increased.

Estimation of Prevalence of HCV in Iowa

As of December 31, 2021, there have been 27,884 Iowans reported to IDPH with past or current (chronic) hepatitis C infection. Among these Iowans, 21,248 had evidence of chronic infection, while 6,596 had only positive antibody (screening) results reported. The Centers for Disease Control and Prevention (CDC) estimate that 15% to 25% of people with HCV clear the infection spontaneously, so it is likely that 75% to 85% of the 6,596 persons with only antibody results may actually have chronic HCV infection. In addition, CDC estimates that about 40% of people with HCV have not yet been diagnosed.¹ That gives a prevalence estimate of 43,658 Iowans with chronic hepatitis C infection. However, this estimate includes those who may have been treated and cured of chronic hepatitis infection.

Hepatitis C Surveillance Activities

Active public health surveillance of hepatitis C virus began in 2015 in the Bureau of HIV, STD, and Hepatitis at IDPH. At that time, IDPH conducted surveillance follow up with healthcare providers of Iowans diagnosed with HCV who were 30 years of age or younger to collect information on injection drug usage. The cutoff age of 30 was chosen because other states were reporting increases in diagnoses in people 30 and under. However, analyses of Iowa's hepatitis C surveillance data indicate that Iowans aged 30 to 39 years were also experiencing increases in diagnoses, potentially associated with the expanding number of people who inject drugs related to the opioid epidemic. Therefore, the cutoff age for HCV surveillance follow up was increased to 39, effective January 1, 2017.

Starting January 1, 2018, IDPH began surveillance follow up with healthcare providers for all Iowans reported to IDPH with hepatitis C positive test results who did not have evidence of a confirmatory test. The purpose of this follow up is to educate health care providers on testing recommendations and encourage them to provide the confirmatory testing to patients. If health care providers cannot reach a patient, the Viral Hepatitis Epidemiologist at IDPH will attempt to contact the patient directly to discuss options for confirmatory testing.

¹ Yehia, BR, AJ Schranz, CA Umscheid, and V Lo Re, III. 2014. The treatment cascade for chronic hepatitis C virus infection in the United States: A systematic review and meta-analysis. *PLoS One*. 2014; 9(7): e101554. Published online 2014 Jul 2. doi: [10.1371/journal.pone.0101554](https://doi.org/10.1371/journal.pone.0101554)

Section 3: Tables and Figures

TABLE 3.1 IOWANS DIAGNOSED AND REPORTED WITH CHRONIC HEPATITIS C IN 2021

Characteristics	Iowans Diagnosed with Chronic HCV	
	Number	(%)
Sex at Birth		
Male	480	(65)
Female	261	(35)
Age at Diagnosis		
Under 20 years of age	9	(1)
20 – 29 years of age	86	(12)
30 – 39 years of age	139	(19)
40 – 49 years of age	112	(15)
50 – 59 years of age	176	(24)
60 – 69 years of age	187	(25)
70 years of age and older	32	(4)
Birth Cohort Year		
Under 40 years of age (0 – 39 years of age)	234	(32)
Baby Boomers (55 – 75 years of age)	310	(42)
Born before 1945 (76 years of age and older)	4	(1)
All other ages (40 – 54 years of age)	193	(26)
Ethnicity/Race		
Hispanic/Latino, All Races	34	(5)
Not Hispanic, White	650	(88)
Not Hispanic, Black/African American	36	(5)
Not Hispanic, Asian	8	(1)
Not Hispanic, Native Hawaiian/Pacific Islander	0	(0)
Not Hispanic, American Indian/Alaska Native	13	(2)
Not Hispanic, Multi-race	0	(0)
Totals – Confirmed HCV	741	(100)
Case Status		
Confirmed HCV (positive confirmatory result)	741	-
Past or current HCV (positive screening test)	26*	-
Totals – Confirmed and unconfirmed	767	

*Data for 26 people are not included as they have not been confirmed as living with HCV

TABLE 3.2 IOWANS UNDER AGE 40 DIAGNOSED AND REPORTED WITH CHRONIC HEPATITIS C IN 2021

Characteristics	People reported with HCV Diagnosis	
	Number	(%)
Sex at Birth		
Male	136	(58)
Female	98	(42)
Age at Diagnosis		
Under 20	9	(4)
20 – 24	20	(9)
25 – 29	66	(28)
30 – 34	71	(30)
35 – 39	68	(29)
Reported Injection Drug Use		
Yes	177	(76)
No	31	(13)
Unknown	20	(9)
Not Assessed (patient under age 13)	6	(3)
Ethnicity/Race		
Hispanic/Latino, All Races	13	(6)
Not Hispanic, White	207	(88)
Not Hispanic, Black/African American	8	(3)
Not Hispanic, Asian	4	(2)
Not Hispanic, Native Hawaiian/Pacific Islander	0	(0)
Not Hispanic, American Indian/Alaska Native	2	(1)
Not Hispanic, Multi-race	0	(0)
Totals – Confirmed HCV	250	(100)
Case Status		
Confirmed HCV (positive confirmatory result)	234	-
Past or current HCV (positive screening test)	8*	-
TOTALS	242	(100)

* Data for eight people are not included as they have not been confirmed as living with HCV

TABLE 3.3 IOWANS DIAGNOSED AND REPORTED WITH CHRONIC HCV FROM 2000 THROUGH 2021

Characteristics	People reported with HCV Diagnosis	
	Number	(%)
Sex at Birth		
Male	13,597	(64)
Female	7,477	(35)
Unknown	154	(1)
Other	4	(<1)
Age at Diagnosis		
Under 40 years of age	4,742	(22)
Under 20 years of age	209	(1)
20 – 29 years of age	1,794	(8)
30 – 39 years of age	2,739	(13)
40 – 49 years of age	4,472	(21)
50 – 59 years of age	7,656	(37)
60 – 69 years of age	3,717	(17)
70 years of age and above	661	(3)
Birth Year		
Under 40 (0 – 39 years of age)	4,742	(22)
Baby Boomers (56 – 76 years of age)	7,116	(33)
Born before 1945 (77 years of age and older)	269	(1)
All other ages (40 – 55 years of age)	9,121	(43)
Ethnicity/ Race*		
Hispanic/Latino, All Races	457	(3)
Not Hispanic, White	14,482	(89)
Not Hispanic, Black/African American	956	(6)
Not Hispanic, Asian	173	(1)
Not Hispanic, Native Hawaiian/Pacific Islander	9	(<1)
Not Hispanic, American Indian/Alaska Native	136	(1)
Not Hispanic, Multi-race	32	(<1)
Diagnosed with HIV and Chronic HCV		
Diagnosed with HIV and HCV, Alive	227	(75)
Diagnosed with HIV and HCV, Deceased	75	(25)
Case Status		
Confirmed HCV (positive confirmatory result)	21,248	-
Past or current HCV (positive screening test)	6,596	-
TOTAL	27,844	(100)

*Race and ethnicity data were missing for 24% (n=5,003) of case reports from 2000 through 2021. The percentages for racial and ethnic groups were calculated using a denominator of 16,245.

TABLE 3.4 IOWANS DIAGNOSED & REPORTED WITH HIV AND CHRONIC HCV, 2000 – 2021

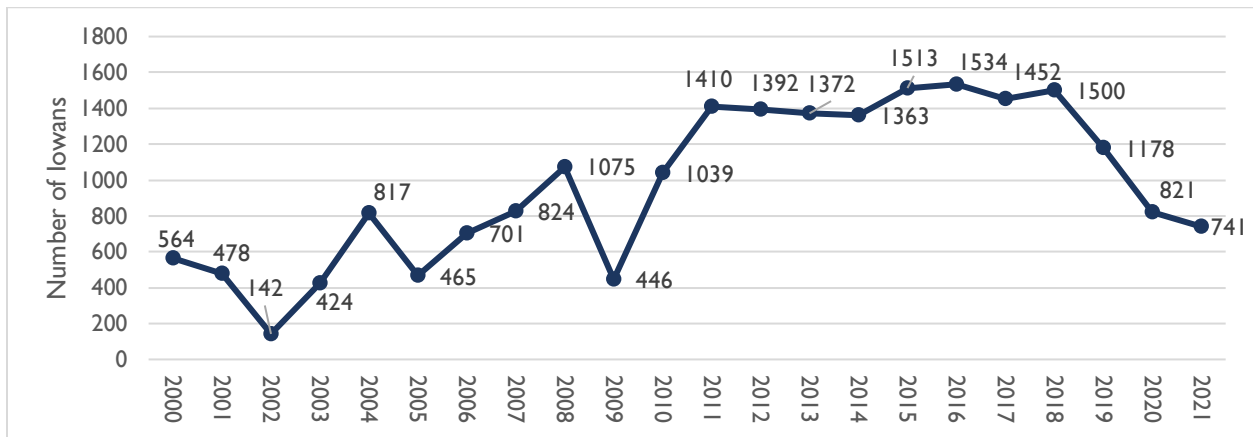
Characteristics	People Co-Infected	
	Number	(%)
Sex at Birth		
Male	165	(77)
Female	48	(23)
Birth Cohort Year		
Born after 1981	34	(16)
Born between 1966 and 1980	75	(35)
Born between 1945 and 1965 (Baby Boomers)	103	(48)
Born before 1945	1	(<1)
Ethnicity/ Race		
Hispanic/Latino, All Races	18	(8)
Not Hispanic, White	131	(62)
Not Hispanic, Black/African American	48	(23)
Not Hispanic, Asian	2	(1)
Not Hispanic, Native Hawaiian/Pacific Islander	0	-
Not Hispanic, American Indian/Alaska Native	0	-
Not Hispanic, Multi-race	14	(7)
Vital Status (as of Dec. 31, 2021)		
Alive	213	-
Deceased	79	-
TOTALS	276	(100)

Trends in Iowans Diagnosed with Hepatitis C

NUMBER OF IOWANS DIAGNOSED WITH CHRONIC HCV

Diagnoses of chronic hepatitis C infection peaked in 2016 at 1,534 cases. The number of Iowans diagnosed with chronic, confirmed hepatitis C in 2021 (741) is well below the 5-year average of 1,297 (2016 through 2020), and a 10% decrease since 2020. The decrease in 2021 was among all age cohorts.

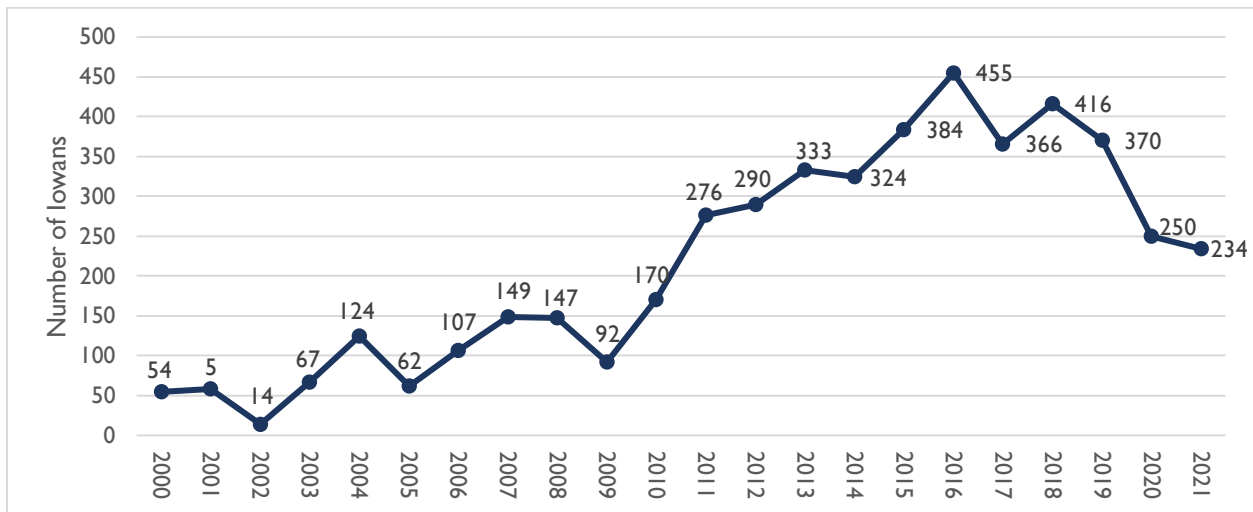
FIGURE 3.1 NUMBER OF IOWANS DIAGNOSED WITH CHRONIC HCV: 2000 - 2021



NUMBER OF IOWANS UNDER 40 DIAGNOSED WITH CHRONIC HCV

There were 234 Iowans under 40 years of age diagnosed with chronic HCV in 2021, representing 32% of all Iowans diagnosed. The number of diagnoses represents a 6% decrease compared to 2020, and it remains below the peak of 455 reached in 2016.

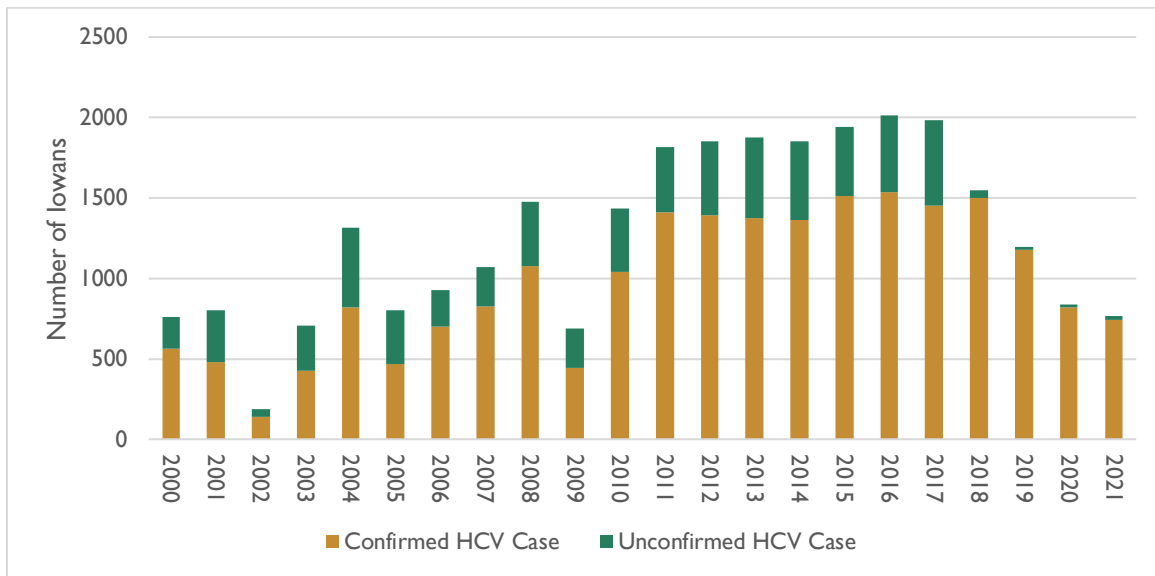
FIGURE 3.2 NUMBER OF IOWANS UNDER 40 YEARS OF AGE DIAGNOSED WITH CHRONIC HCV: 2000 – 2021



PROPORTION OF IOWANS REPORTED WITH CONFIRMED OR UNCONFIRMED (ANTIBODY) HCV

To determine whether a person has chronic HCV, a confirmatory (i.e., RNA PCR) test must be administered. In 2021, 97% of the 767 Iowans reported to the IDPH with HCV had evidence of a positive confirmatory test, while 3% of Iowans had only screening (antibody) results reported. Beginning in January 2018, the IDPH began following up with medical providers who report patients with a hepatitis C antibody positive result without evidence of a confirmatory result. The purpose of this follow up is to inform providers of the testing algorithm for hepatitis C to ensure all Iowans with a hepatitis C positive screening result receive confirmatory testing.

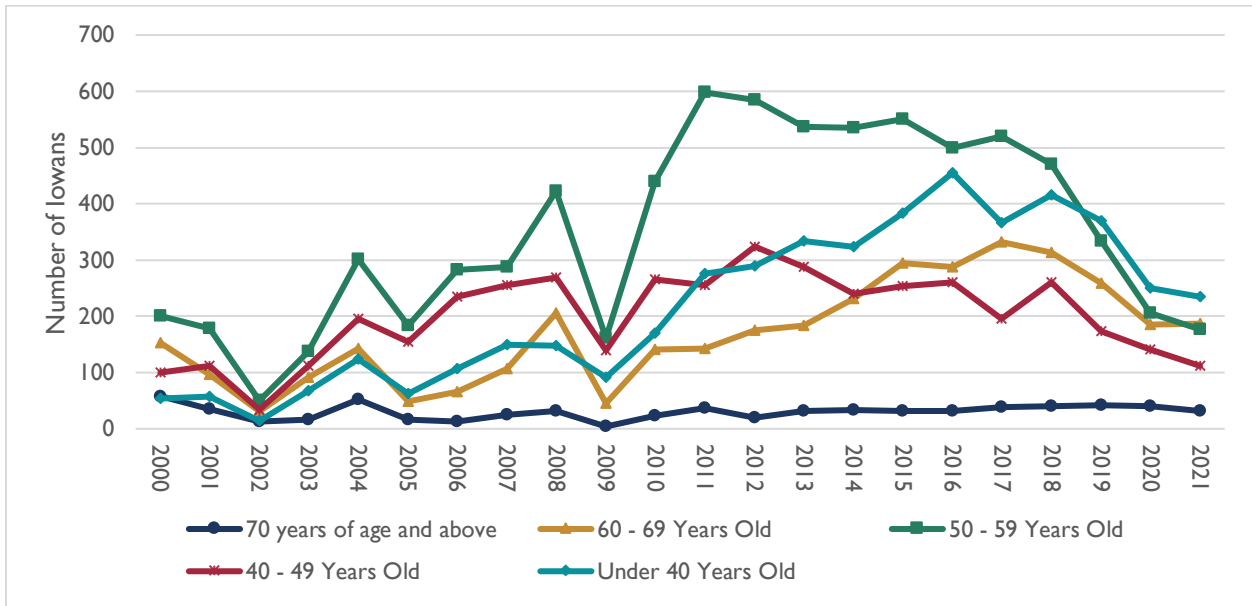
FIGURE 3.3 NUMBER OF IOWANS REPORTED WITH ANTIBODY-ONLY OR CONFIRMATORY HCV TEST RESULTS



NUMBER OF IOWANS REPORTED WITH CHRONIC HCV BY AGE GROUP

The largest single group of people who are diagnosed with hepatitis C had been those aged 50 to 59 years. However, this age group has seen a fairly continuous decrease in diagnoses since the peak in 2016. As of 2021, Iowans under the age of 40 have become the group with the most diagnoses. There were 234 Iowans under 40 diagnosed with chronic HCV in 2021, which was a 6% decrease compared to 2020, but still was the most of any age group represented below. There were 112 Iowans ages 40 to 49 diagnosed with chronic HCV in 2021, representing a 20% decrease from 2020. Iowans between 50 and 59 years of age experienced 176 diagnoses in 2021, representing a 14% decrease from 2020. Iowans 60 to 69 older experienced a 0.5% increase in diagnoses in 2021, with 187 diagnoses. Iowans 70 years of age and above experienced a slight increase in diagnoses from 2020 to 2021, with 8 diagnoses.

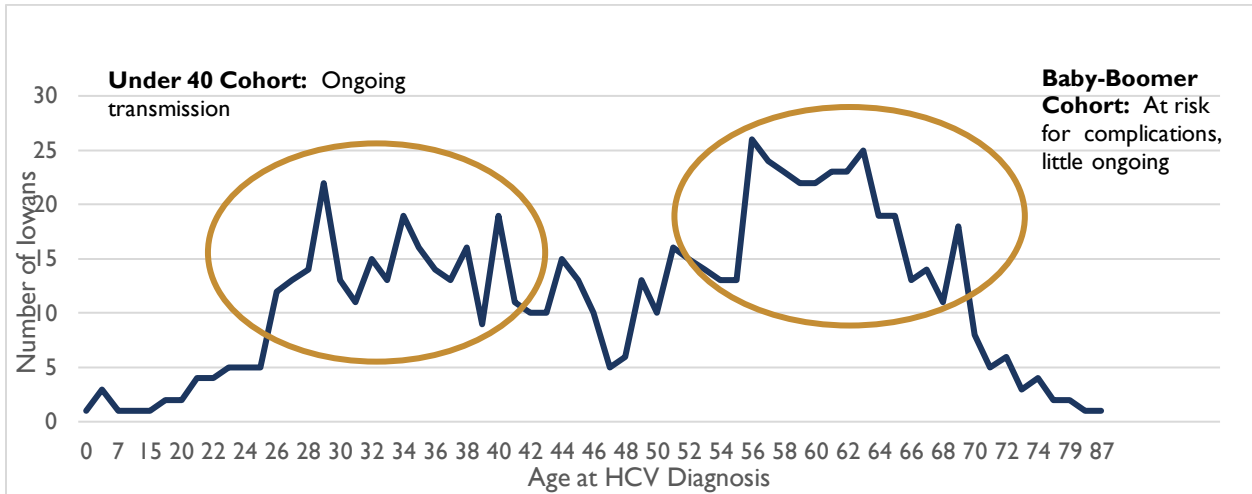
FIGURE 3.4 DIAGNOSIS OF HCV BY AGE GROUP IN IOWANS: 2000 THROUGH 2021



AGE AT DIAGNOSIS OF HCV IN 2021

A distribution of Iowans diagnosed with HCV in 2021 by age reveals the two groups of Iowans on which we have focused in this report. Iowans under 40 years of age at diagnosis with HCV represent those who likely contracted the virus from current or recent injection drug use and who are likely at risk for transmitting to others, although they are less likely to have yet experienced health complications related to HCV. Iowans older than 50 years of age diagnosed with HCV are more likely to have acquired the virus decades ago and are at higher risk for immediate health complications. Many of these “baby boomers” may have ceased injecting drugs years previously.

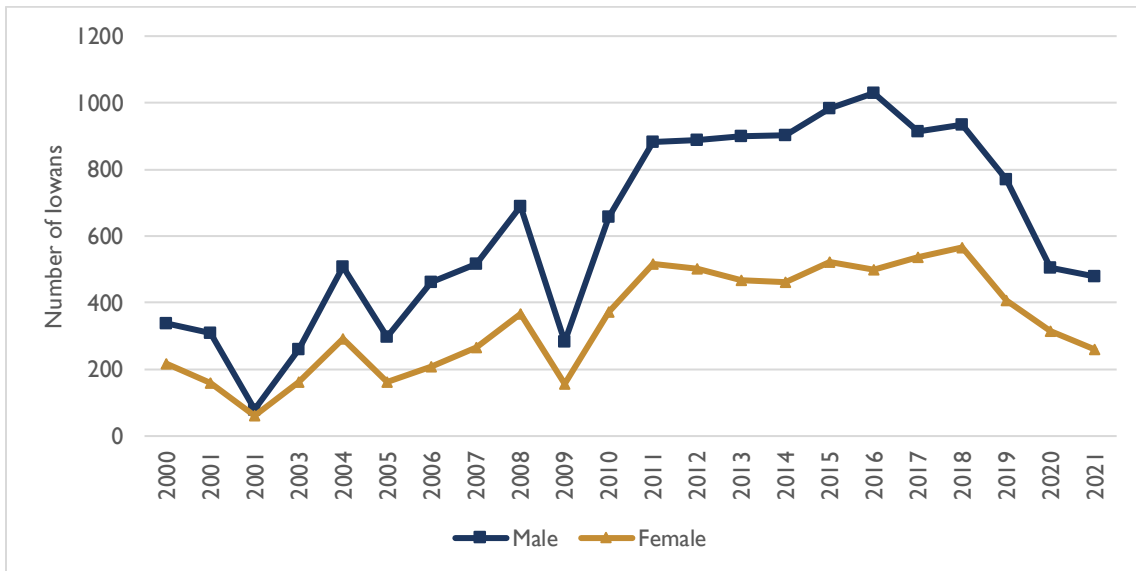
FIGURED 3.5 IOWANS DIAGNOSED WITH HCV IN 2021, BY AGE



NUMBER OF IOWANS DIAGNOSED WITH CHRONIC HCV IN 2021, BY SEX

Hepatitis C virus disproportionately impacts males in Iowa. From 2000 through 2021, there were about 1.9 males diagnosed for every female diagnosed. This gap has narrowed since 2016. It's important to note that this ratio varies by age, as well. For people aged 40 years and or younger, there were only 1.4 males diagnosed to every female diagnosed.

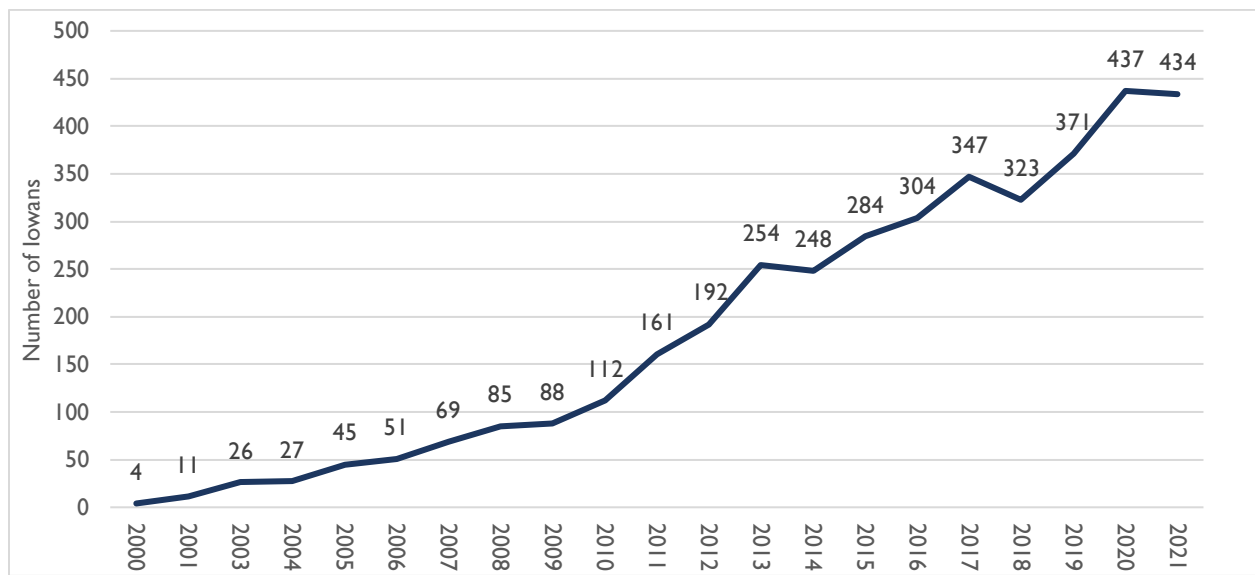
FIGURE 3.6 IOWANS DIAGNOSED WITH HCV BY SEX: 2000 THROUGH 2021



DEATHS OF IOWANS WITH HEPATITIS C

The number of Iowans with hepatitis C who died has increased fairly steadily since 2000. There was a slight decrease in 2018, when there were 323 Iowans with hepatitis C who died. Deaths are discovered by matching the HCV surveillance data with Vital Records at IDPH and with the National Death Index at CDC. An analysis of death certificate data indicated that between 2000 and 2021, there were 3,873 Iowans who died from hepatitis C-related causes, i.e., hepatitis C was listed on the death certificate. Mortality from hepatitis C is likely underestimated, as death certificates often underreport HCV infection, and approximately half of all people with hepatitis C are undiagnosed.

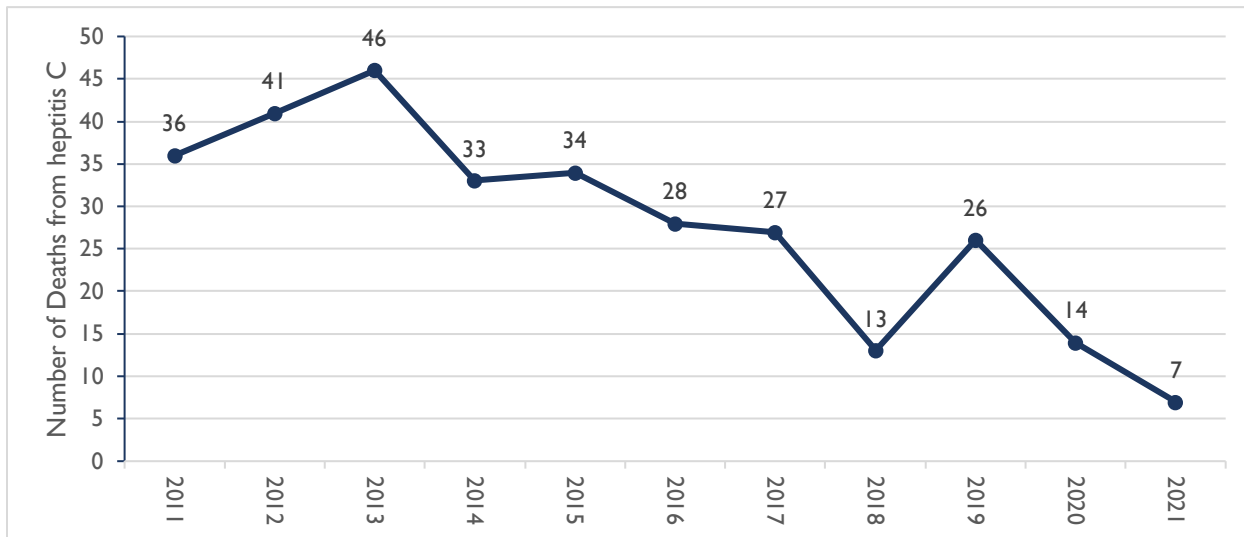
FIGURE 3.7 DEATHS OF IOWANS WITH HCV: 2000 THROUGH 2021



REDUCE DEATHS FROM HEPATITIS C AND IMPROVE THE HEALTH OF PEOPLE LIVING WITH HEPATITIS C

The Bureau of HIV, STD, and Hepatitis identified a goal of reducing deaths and improving the health of people living with hepatitis in the 2016-2021 5-year statewide hepatitis plan. The primary objective was to reduce the number of deaths with chronic viral hepatitis listed as the primary cause of death in Iowa. From 2011 through 2013, there was a steady increase in the number of deaths with chronic hepatitis C listed as primary cause of death. In 2013, the FDA approved new medications to treat chronic hepatitis C. With the success of these medications and with new medications being introduced, hepatitis C deaths have continued to decrease over the years.

FIGURE 3.8 REDUCE DEATHS AND IMPROVE THE HEALTH OF PEOPLE LIVING WITH HEPATITIS C



IOWANS DIAGNOSED WITH HIV AND CHRONIC HCV

In the United States, it is estimated that 25% of people with HIV also have hepatitis C². Co-infection with HIV and HCV is particularly common among people who inject drugs. Iowa is a low-prevalence state for HIV disease. At the end of 2021, there were 3,077 people diagnosed and living with HIV in Iowa. People who inject drugs represented 15% of people diagnosed with HIV in 2019, 19% in 2020, and 19% in 2021.

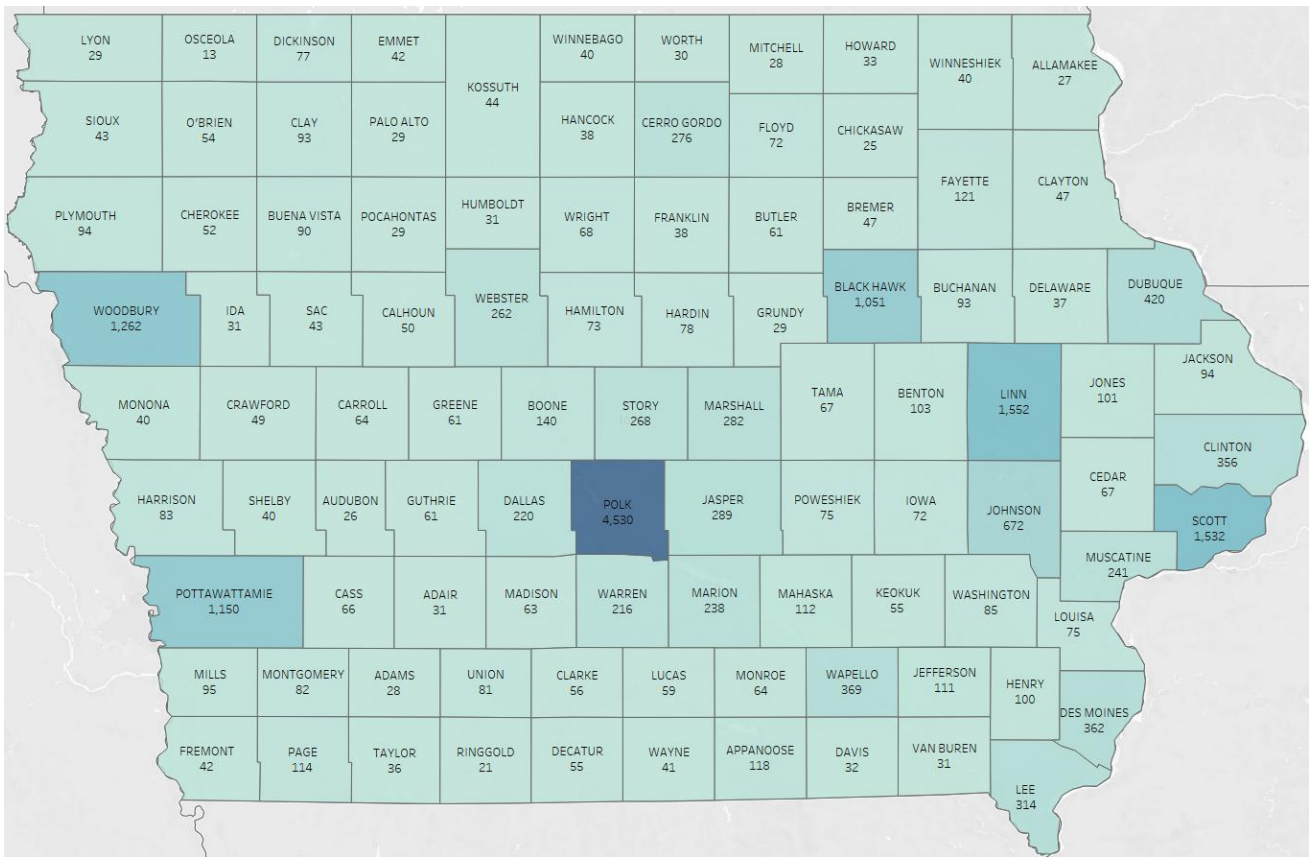
To ascertain co-infections of HIV and HCV among Iowans, the HIV surveillance system was matched with the HCV surveillance system for Iowans diagnosed through 2021. A total of 279 persons were ever reported to IDPH as having both HIV and chronic HCV. Of those people, 213 were alive at the end of 2021 and living in Iowa, indicating that 7% of Iowans with HIV have also been diagnosed with chronic HCV. This is likely an underestimate, as previous analyses have indicated that up to half of people co-infected had not been reported to IDPH as being diagnosed with HCV. Among people co-infected with HIV and HCV, 77% were males, and 62% were White and non-Hispanic. It is important to note that while only 6% of Iowans diagnosed with HCV identify as Black or African American, 23% of people who were co-infected with HIV and HCV were Black or African American. This relatively high proportion may indicate that HCV infections among Black/African American Iowans without HIV are being missed. This may be the case if Black and African American Iowans are not being tested for HCV at the same rate as White Iowans.

² Centers for Disease Control and Prevention. (2015) *HIV/AIDS and Viral Hepatitis*. Retrieved from www.cdc.gov.

DISTRIBUTION OF IOWANS DIAGNOSED WITH CHRONIC HCV

The map below shows the county of residence for lowans reported with chronic HCV from January 1, 2000, through December 31, 2021. It indicates the counties where people were living at the time of diagnosis. There were 721 lowans reported without residence information, so this map reflects 20,527 out of the 21,248 lowans who have been reported with hepatitis C. The ten most populous counties are home to 59% of lowans who have been reported with HCV. This compares to 52% of lowans who live in those ten counties (Black Hawk, Dallas, Dubuque, Johnson, Linn, Polk, Pottawattamie, Scott, Story, and Woodbury).

FIGURE 3.9 NUMBER OF IOWANS DIAGNOSED WITH HCV FROM 2000 THROUGH 2021, BY COUNTY OF RESIDENCE AT DIAGNOSIS

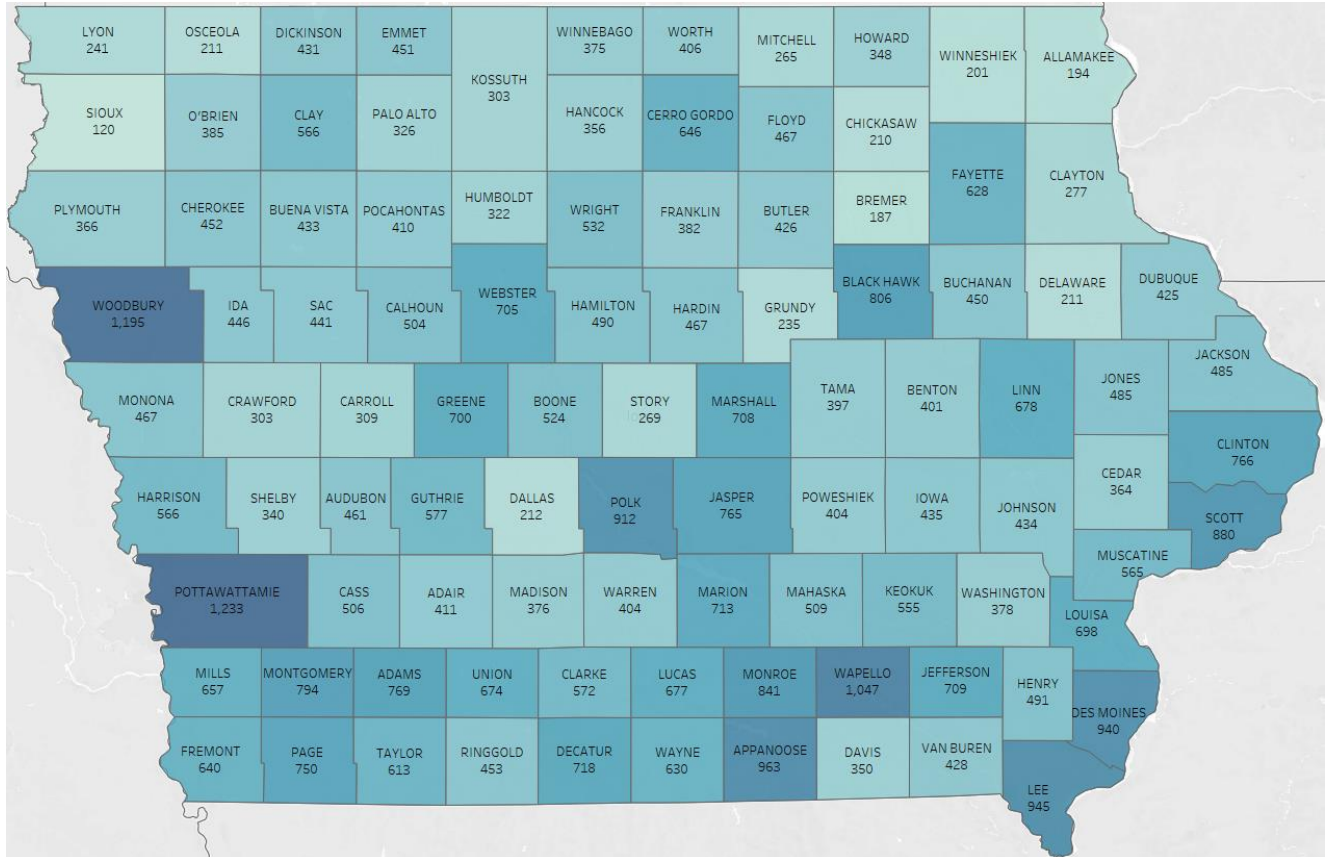


PREVALENCE OF HCV IN IOWA

Figure 3.9 shows the prevalence of HCV per 100,000 population by county for people diagnosed from January 1, 2000, through December 31, 2021. Rates were calculated based on counties where persons were living at the time of diagnosis. Woodbury County (Sioux City) in northwest Iowa and Pottawattamie County (Council Bluffs) in southwest Iowa have the highest rates at 1,233 and 1,195 cases

of HCV per 100,000 population, respectively. These are followed by Wapello County (Ottumwa) and Lee County (Keokuk) in far southeast Iowa. The state's overall prevalence is 643 cases per 100,000 population.

FIGURE 3.10 PREVALENCE OF HCV PER 100,000 POPULATION BY COUNTY OF RESIDENCE AT DIAGNOSIS

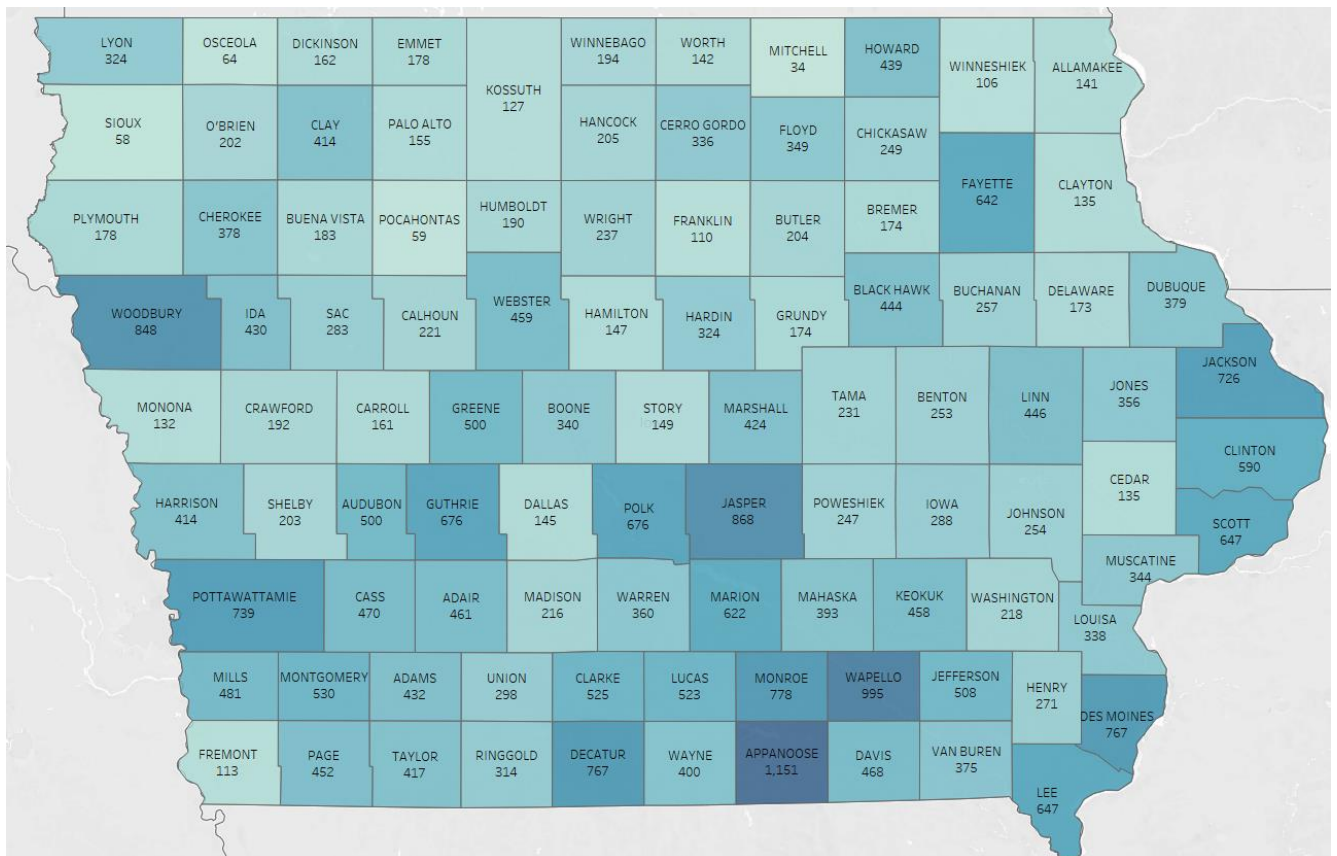


State of Iowa Chronic HCV Rate: 643 per 100,000 population
County populations are based on the 2020 U.S. Census estimates

PREVALENCE OF HCV IN IOWANS UNDER 40 YEARS OF AGE

Figure 3.10 shows the prevalence of chronic HCV diagnoses per 100,000 population for Iowans between 15 and 39 years of age who were diagnosed from January 1, 2000, through December 31, 2021. It indicates counties where persons were living at the time of diagnosis. While Appanoose County (Centerville) in southcentral Iowa has the highest prevalence of people with HCV (1,151 per 100,000 pop), a slightly different pattern of counties emerges when only people under the age of 40 at time of diagnosis are considered. Wapello (Ottumwa) in the southeast Iowa has the second highest prevalence at 995 per 100,000 population, followed by Jasper (Newton) and Woodbury County (Sioux City), at 868 and 848 cases per 100,000 population, respectively.

FIGURE 3.11 PREVALENCE OF CHRONIC HCV IN IOWANS UNDER 40 YEARS OF AGE PER 100,000 POPULATION BY COUNTY OF RESIDENCE AT DIAGNOSIS



Many of these counties with higher prevalence of HCV among people under the age of 40 are at higher risk of rapid dissemination of HIV and HCV. This could lead to an outbreak of HIV and HCV similar to what was observed in Scott County, Indiana, beginning in 2014. IDPH has conducted an assessment of counties that are most vulnerable to outbreaks of HIV and HCV. The study also looks at counties most vulnerable to opioid overdoses among their residents. The report, [Iowa County-level Vulnerability](#)

[Assessments for Risk of Opioid Overdoses and Rapid Dissemination of HIV and Hepatitis C](#), ranks Iowa's 99 counties on their risks of outbreaks of HIV or HCV and on their risks to opioid overdoses among their residents. The study developed an index of risk using 17 indicators found to be associated with HCV diagnoses. Wapello, Appanoose, Des Moines, Lee, and Pottawattamie were the five counties found to be most at risk of HIV and HCV outbreaks.

Section 4: Reporting patients with HCV in Iowa

All forms of viral hepatitis are reportable to the Iowa Department of Public Health (IDPH), pursuant to Iowa Code section 139A.3. Below are detailed the reportable events related to hepatitis C.

What laboratory results should be reported?

Screening tests: Anti-HCV: Positive or reactive only

HCV Antibody by EIA antibody

Serology – HCV antibody (EIA)

Serology – Anti-HCV antibody test

Serology – HCV IgG antibody (EIA)

Serology – HCV IgM antibody (EIA)

Confirmatory Testing: HCV RNA, NAT, PCR, and Genotyping: All results

Polymerase Chain Reaction (PCR) (detected, equivocal, indeterminate, not detected, not quantified, or not tested)

Genotype (detected, not detected, or indeterminate)

Serology – RNA Qualitative (QL) (positive, negative, equivocal, or not reactive)

Serology – HCV RNA (positive, negative, or not done)

Serology – HCV DNA QL Log (positive, negative, equivocal, or indeterminate)

Medical providers who diagnose people with HCV (acute or chronic) and laboratories who find positive results for viral are required to report. Many laboratories now have automated processes (e.g., Electronic Laboratory Reporting) to report their results. The technology for automated reporting from medical providers is not fully developed at this time.

The most common method of reporting by medical providers is by completing the form titled, “Iowa Disease Reporting Card” located at this link. The form may be faxed in to the number located at the top of the form. For questions, please contact Shane Scharer at (515) 657-1129.

See <https://idph.iowa.gov/hivstdhep/hep> for this report.