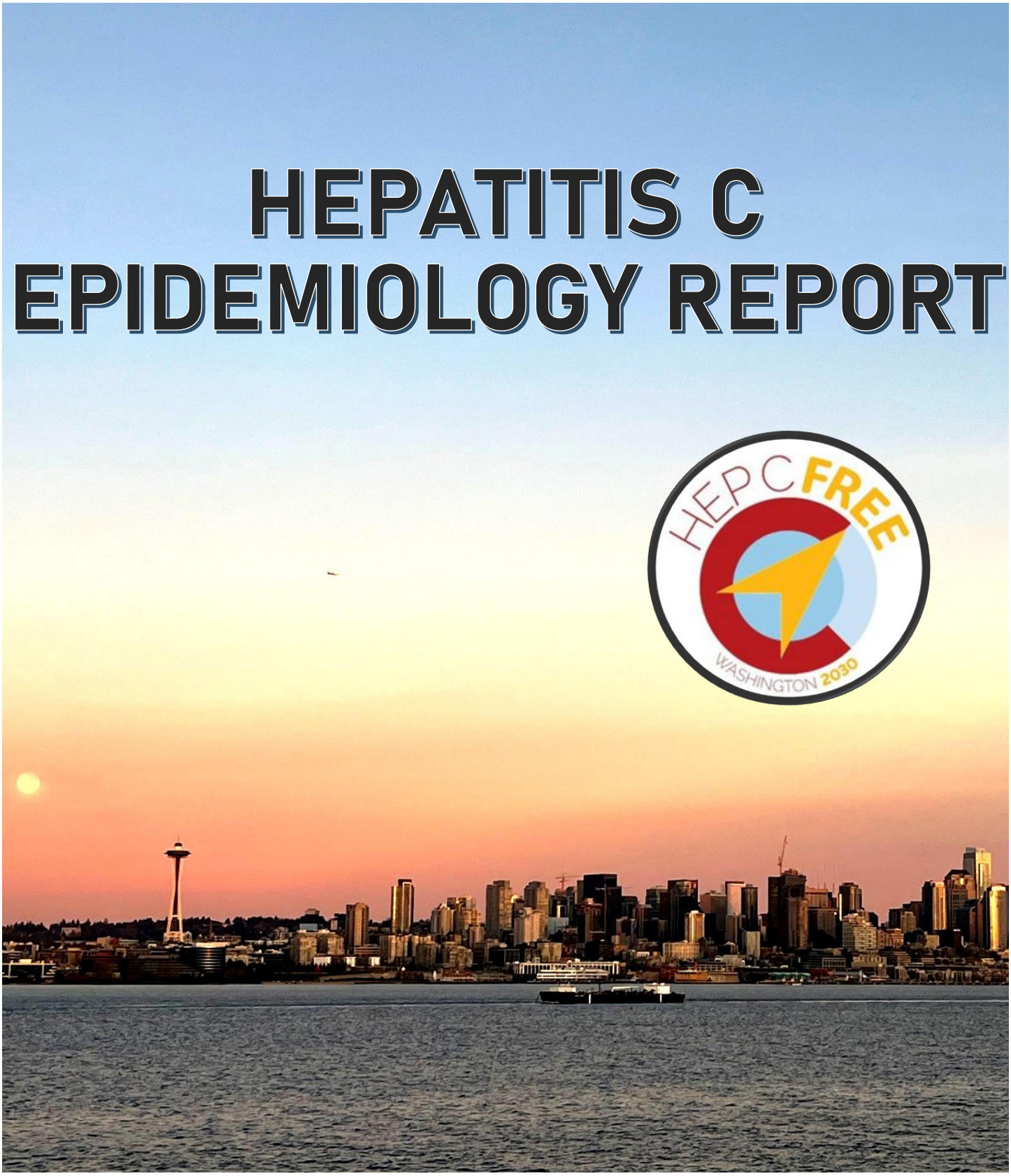
HEPATITIS C EPIDEMIOLOGY REPORT



2024 SEATTLE & KING COUNTY

Contents

Acknowledgements

This second Hepatitis C Epidemiology Report includes viral hepatitis laboratory results data collected by Public Health – Seattle & King County from January 1, 1989 to December 31, 2024. We thank the medical providers caring for people with hepatitis C and the clinics and patients participating in epidemiologic projects. We appreciate their cooperation with reporting hepatitis C laboratory test results included in this report – which are used for treatment, prevention, and planning efforts. We also wish to acknowledge the outstanding assistance of our program staff and thank the Hep C Program's two Disease Research & Intervention Specialists, Gardenia Vivas-Jimenez and Zenyth Sheppard, for their care and dedication to patients and their support in data collection and quality. Also a huge thank you to Kristen Wilson-Weiberg, RN who provides hep C treatment to patients at the Robert Clewis Center—Needle Exchange Program.
Special thanks to Meaghan Fagalde and Atar Baer, whose initial work has been foundational in building this program.

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Photo Credit

Leilani Schwarcz, Seattle Cityscape

Hepatitis C Reporting Requirements

Detailed requirements for reporting of hepatitis C are described in the Washington Administrative Code (WAC), section 246-101 (https://doh.wa.gov/public-health-provider-resources/notifiable-conditions/hepatitis-c).

In Washington state, health care providers, health care facilities, laboratories, food service establishments, child day care facilities, and schools are legally required to notify public health authorities at their local health jurisdiction of suspected or confirmed cases of selected diseases or conditions. These are referred to as **notifiable conditions**.

Laboratories are required to report any positive hep C test result, all hep C RNA tests (detectable or not), hep C genotype, and all hepatocellular enzyme levels, pregnancy status, negative result for IgM anti-HAV, and negative result for IgM anti-HBc associated with a specimen with a positive test result.

Laboratories, health care providers, and health care facilities shall report the patient's race, ethnicity, and preferred language as outlined in WAC Chapter 246-101.

For further information about hep C reporting requirements, please contact your local health department or the Hepatitis C Surveillance Program Washington State Department of Health at Hepatitis@doh.wa.gov. In King County, call 206-263-2000.

Suggested Citation

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Alternate Formats

- Online publications can be found here: www.kingcounty.gov/hivepi
- Alternate formats provided upon request.
- To be included on the mailing list or for address corrections, please call 206-263-2000

Technical Note

Past data estimates may change. Hep C surveillance data are dynamic with databases often being updated with new data, including data on characteristics of people living with hep C and causes of death. Health departments may also change their definitions for key outcomes, including new hep C diagnoses. These changes can affect current calculations of estimates from prior years. Thus, differences between Epi Reports for estimates for a given year are expected.

Definitions & Technical Notes

Birth cohorts: A group of people born within a specified timeframe. The birth year cohort period designations used in this report are from Pew Research Center[1] and are listed below. Due to the emphasis on diagnosing hep C in the baby boomer birth cohort, this report examines birth cohort trends, as well as age.

Generation Alpha: born 2013 and later (11 years and younger)
Generation Z: born between 1997-2012 (12-27 years old)
Millennials: born between 1981-1996 (28-43 years old)
Generation X: born 1965-1980 (44-59 years old)
Baby Boomers: born 1946-1964 (60-78 years old)
Greatest & Silent: born before 1946 (79 years and older)

DRIS: Disease Research and Intervention Specialist is a job classification at King County responsible for performing complex medical data abstraction, disease investigation activities, in-depth disease surveillance control and management activities, including client counseling, venipuncture, disease testing, and educational activities to intervene in the spread of communicable and chronic diseases.

PHSKC: Public Health – Seattle & King County, the public health department that serves the residents of Seattle and King County, Washington.

Public Health Surveillance: Ongoing, systematic collection, analysis, and interpretation of health-related data essential to planning, implementation, and evaluation of public health practice.

MCOD: Multiple cause-of-death include not only the underlying cause but also the immediate cause of death and all other intermediate and contributory conditions listed on the death certificate.[2]

Race/Ethnicity Category: Most race and ethnicity data are reported through electronic lab reporting (>90% since 2020). Race and ethnicity are captured in 2 separate variables, one for race and one for ethnicity. In this report, American Indian/Alaska Native, Asian, Black, Native Hawaiian/Pacific Islander, White, or Another race exclude Hispanic or Latinx ethnicity. Individuals who report Hispanic or Latinx ethnicity are grouped in the Hispanic or Latinx race/ethnicity category, regardless of their reported racial category. Latinx in this context refers to people of Latin American origin or descent (used as a gender-neutral or nonbinary alternative to Latino or Latina).

Sex: Sex as reported on lab-based reporting forms, which represents sex assigned at birth. No information on gender identity is available at this time.

UCOD: Underlying cause-of-death, which is defined as the disease or injury which initiated the train of morbid events leading directly to death or the circumstances of the accident or violence which produced the fatal injury. Causes of death are classified in accordance with the International Classification of Disease. Deaths for 1979-98 are classified using the Ninth Revision (ICD-9). Deaths for 1999 and beyond are classified using the Tenth Revision (ICD-10). [2]

WA DOH: Washington State Department of Health, the public health department that serves the residents of Washington state.

Definitions & Technical Notes cont.

Hepatitis C Specific Terms

Hepatitis C: An infection caused by the hepatis C virus that affects the liver. This report uses the shorten version "hep C", but it is also routinely shortened as "HCV." Hep C is not vaccine preventable.
Acute, chronic, and perinatal case definitions can be found on the CDC website (links below). The definition of confirmed hep C infection used in this report is presented in Figure 9.

Acute hepatitis C: https://ndc.services.cdc.gov/case-definitions/hepatitis-c-acute-2020/
Chronic hepatitis C: https://ndc.services.cdc.gov/case-definitions/hepatitis-c-chronic-2020/
Perinatal hepatitis C: https://ndc.services.cdc.gov/conditions/hepatitis-c-perinatal-infection/

Antibody Testing: A blood test that looks for antibodies in a person's blood. Antibodies are proteins that the immune system makes to fight infections. Once a person has been exposed to hep C, they will continue to test positive for hep C antibodies even if they have spontaneously cleared the virus or been cured via treatment.

RNA (ribonucleic acid) Testing: A type of blood test that can detect genetic material of viruses and bacteria, such as for HIV or hep C. Hep C RNA tests will only be positive when a person has a current infection.

Sustained Virologic Response (SVR): People are considered cured of hep C when the virus remains undetectable in their blood after a period of time since they completed treatment, this is known as *sustained virologic response*. A number after SVR indicates the minimum number of weeks since they competed treatment (e.g., SVR12 means sustained virologic response at least 12 weeks after completing treatment).

Ever Diagnosed with Hep C: Refers to people who have ever had laboratory evidence of hep C viral infection.

Living with Untreated Confirmed Hep C: Refers to person with confirmed detectable hep C virus and no reported laboratory evidence of viral clearance, including a person classified as having hep C reinfection.

Presumed Cured: Refers to people with laboratory evidence of viral clearance, i.e., an RNA positive result followed by an RNA negative test result.

Executive Summary

To achieve the goal of viral hepatitis elimination, it is essential that public health agencies accurately measure the burden of hepatitis C (hep C) and share those data with the public. In 2024, Public Health – Seattle & King County (PHSKC) debuted the first Hepatitis C Epidemiology report, describing King County's updated approach to hep C elimination. Using a public health approach that prioritizes case-finding and treatment, we presented baseline metrics for hep C prevalence, incidence, and cure in King County using data available through 2022. PHSKC generates these estimates using laboratory test result data and medical provider-initiated case reports, both of which are submitted to Public Health. Our latest report provides an update on these metrics and our progress with key programmatic activities to address hep C in King County for both 2023 and 2024.

Overall, the annual number of newly reported hep C diagnoses in King County is outpacing the number of annual cures. Since 2022, the number of newly reported diagnoses decreased from 872 in 2022, to 820 diagnoses in 2023 and to 760 in 2024. Meanwhile, presumed cures have remained roughly stable, with 567 cures in 2022, 582 cures in 2023, and 555 cures in 2024. From 2022 to 2023, the rate of newly reported hep C cases decreased by 7%, from 34.9 to 32.4 cases per 100,000 population. Using data from serial hep C laboratory test results occurring in the same person from 1989-2024 and accounting for outmigration, death, and unreported cures, PHSKC estimate that there are 4,568 individuals living with untreated, confirmed hep C infection in King County.

Among people with confirmed hep C infection reported between 1989 and 2024, based on laboratory report data alone, an estimated 45% have been cured of their hep C infection. Among King County residents diagnosed with hep C in 2022-2023, approximately 23% achieved cure within 1 year of diagnosis.

In addition to monitoring progress towards elimination, PHSKC contributes to these activities by implementing a data-to-care model with the largest healthcare organizations in the county to promote testing and treatment with as few barriers as possible. Further, PHSKC provides hep C care, case-management and navigation resources to people through two walk-in clinics in Seattle that work with those least likely to engage in traditional medical settings.

Summary of Key Metrics

KEY METRICS

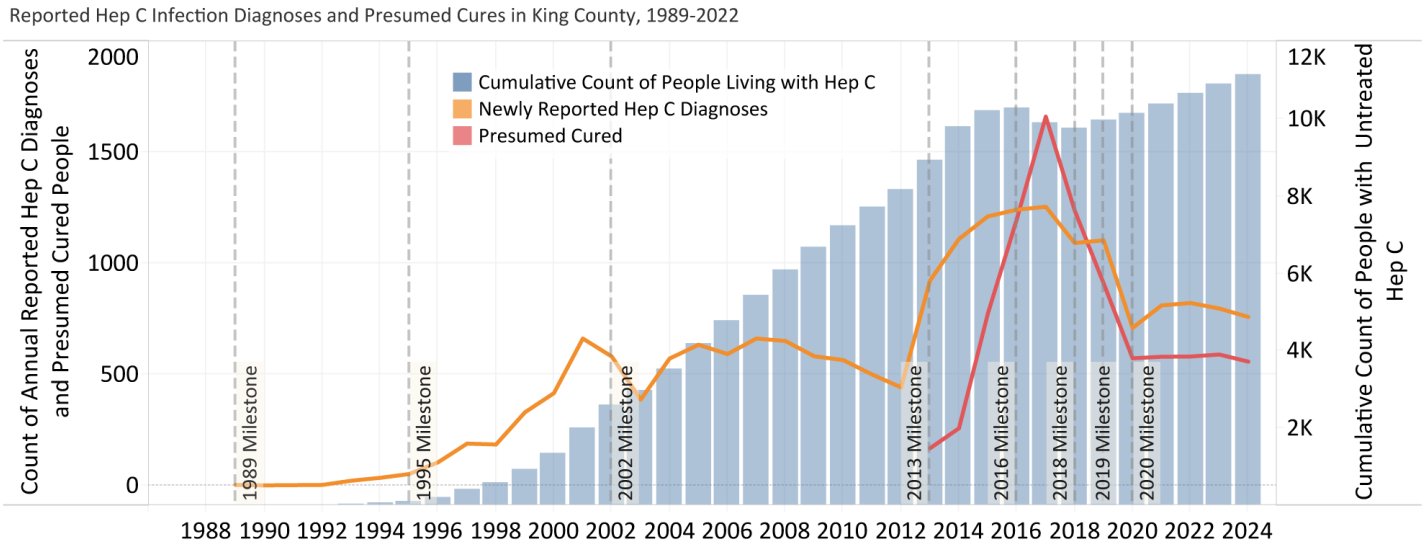
Identification			
2024	**2023**	**2022 Baseline**	**Definition/Interpretation**
760 new diagnoses in 2024	**820** new diagnoses	**872** new diagnoses	Newly reported individuals with positive RNA– an average of 2 diagnoses per day in 2024.
32.4 cases per 100,000	**34.9** cases per 100,000	**37.6** cases per 100,000	~14% decrease in rate of newly reported hep C diagnoses from 2022 to 2024.
Currently Living with Hep C			
11,142 people with untreated hep C	**10,938** people with untreated hep C	**10,775** people with untreated hep C	Cumulative count of reported hep C cases, starting in 1989.
4,568 people with untreated hep C	**4,484** people with untreated hep C	**4,456** people with untreated hep C	Estimate based on laboratory data adjusted to integrate data on outmigration, death, and unidentified treatment from an investigation of randomly selected cases.
Treatment			
9,096 (45%) presumed cured	**8,494 (44%)** presumed cured	**8,259 (43%)** presumed cured	Cumulative count and percentage of people with confirmed hep C infection that are presumed cured based on an undetectable RNA test after a positive RNA test. 2025 Cure rate goal: 58%
555 presumed cured	**582** presumed cured	**567** presumed cured	Number of people with confirmed hep C infection that are presumed cured based on an undetectable RNA test after a previous positive RNA test.
-- *	**35%** of presumed cures in 2023 were cured in <1 year	**33%** of presumed cures in 2022 were cured in <1 year	Percentage of individuals cured in less than 1 year of diagnosis

* 2024 metric is not reported due to insufficient follow-up time to attain lab results to determine presumed cures within 1 year of diagnosis.

Snapshot of Hepatitis C in King County

Figure 1 presents the cumulative count of hep C diagnoses in King County by year. A new era in the hep C epidemic began when new diagnoses rose sharply after 2012 following release of the United States Preventive Services Task Force recommendation for one-time hep C screening for baby boomers and the start of the second wave of the opioid crisis. Direct-acting antivirals (DAAs) became available in 2013, with access to these medications expanding in 2016 with the removal of prescribing restrictions in Washington State. This led to a sharp increase in the number of cures which peaked in 2017. Both new hep C diagnoses and presumed cures decreased during the height of the COVID-19 pandemic (2020-2021) and have since stabilized.

FIGURE 1. TRENDS IN NEW HEPATITIS C DIAGNOSES, CURES, AND CUMULATIVE NUMBER OF INDIVIDUALS WITH UNTREATED HEPATITIS C IN KING COUNTY, 1989-2024

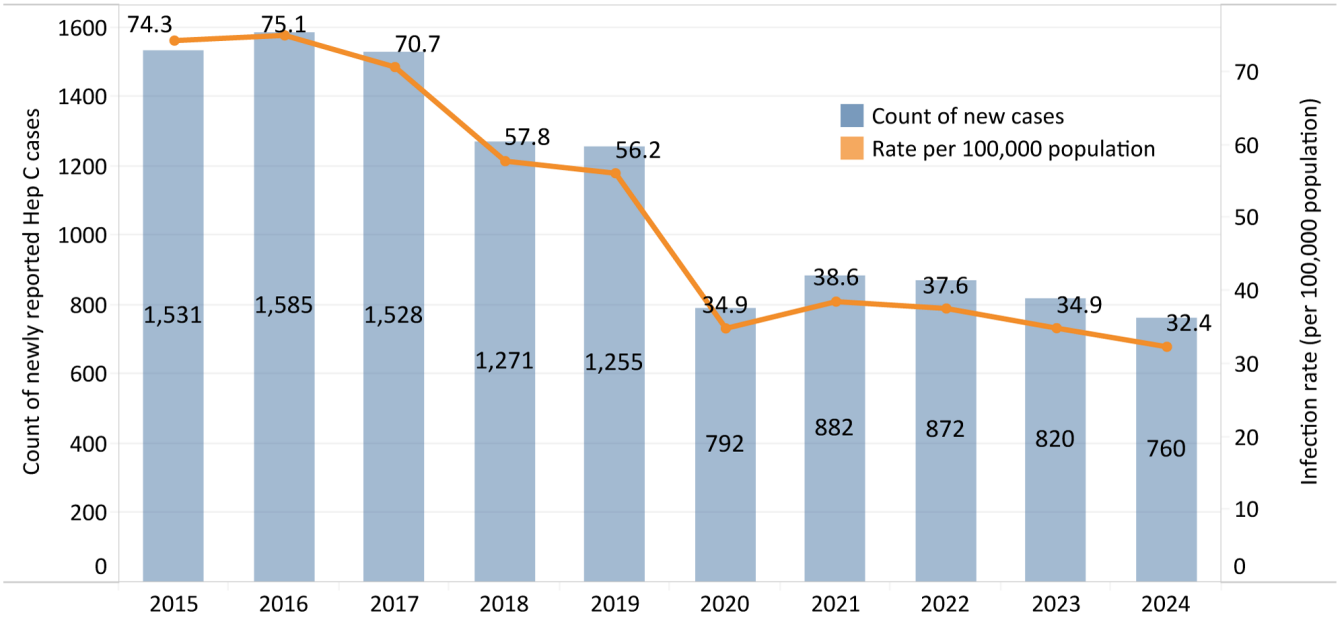


Milestones
1989 – Hepatitis C virus discovered
1995 – Injectable interferon with ribavirin
2002 – Pegylated interferon
2013 – Well-tolerated DAA (direct-acting antivirals) era begins
2016 – HCA (Health Care Authority) lifts restrictions on DAA prescribing
2018 – HEP C Free WA signed by Governor
2019 – Statewide modified subscription model contract begins, lifting all prior approvals on glecaprevir /pibrentasvir
2020 – CDC expands to universal hep C screening and for all pregnant people for each pregnancy

Cumulative Count of People with Untreated, Confirmed Hep C: Rolling count of people with untreated, confirmed hep C by year, subtracting out the corresponding cures that year. Untreated people include individuals with a detectable hep C RNA test result.
Newly Reported Hep C Diagnoses: Annual count of new hep C diagnoses (acute or chronic infections).
Presumed Cured: Annual count of presumed cured individuals based on reported laboratory test results.

Note: Counts exclude deceased patients (through the end of 2023 – the most current death certificate data available). Individuals with reinfection are represented in the cumulative count of people with untreated hep C.

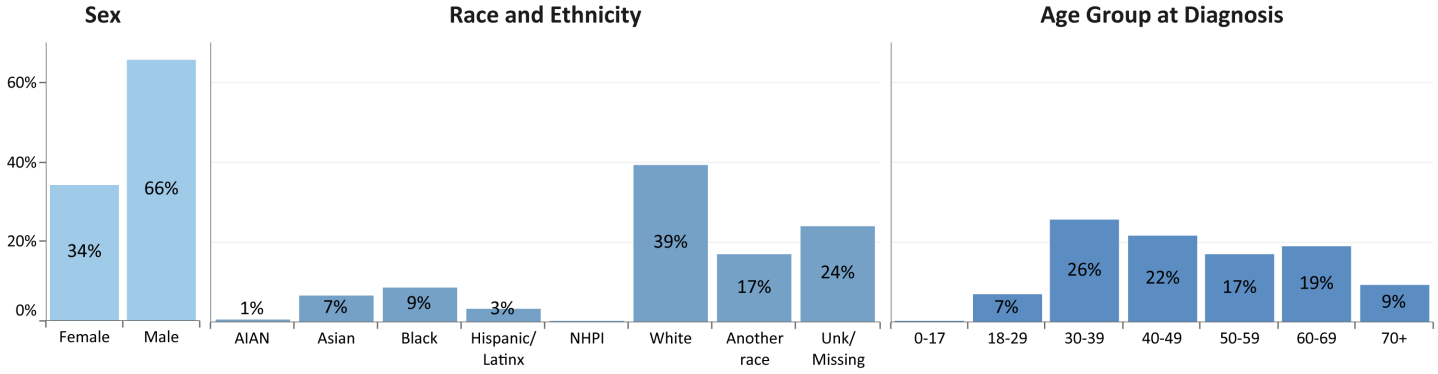
FIGURE 2. NUMBER AND RATE OF NEWLY REPORTED HEPATITIS C DIAGNOSES, KING COUNTY, WA, 2015-2024



Note: Newly reported cases include deceased individuals.

From 2015 to 2024, newly reported hep C diagnoses decreased by 50.4%. From 2022 to 2024, the rate of newly reported hep C diagnoses declined by 12.8% (Figure 2).

FIGURE 3. NEWLY REPORTED HEPATITIS C DIAGNOSES, KING COUNTY, WA, 2024

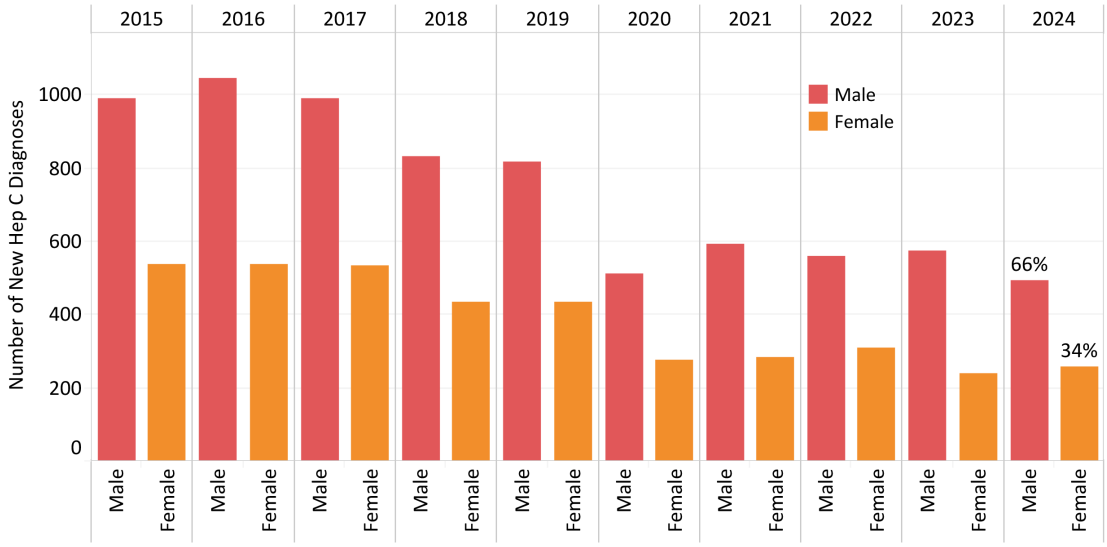


Abbreviations: AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Pacific Islander; Unk = Unknown.

Of the 760 newly reported hep C diagnoses in 2024, approximately two-thirds were male (Figure 3). Among persons for whom race data were available, 39% were white. The largest proportion of people (26%) newly diagnosed with hep C infection were between ages 30-39 years with a median age of 47 years. These demographic distributions do not significantly differ from those of 2023.

Data on the number of new diagnoses by sex for the past 10 years are presented in Figure 4. Public health reporting for hep C does not currently capture information on gender identity, therefore we are only able to present data by sex. Since 2015, males have accounted for approximately two-thirds of newly reported hep C diagnoses. In 2024, males accounted for 66% of new cases while females comprised 34%.

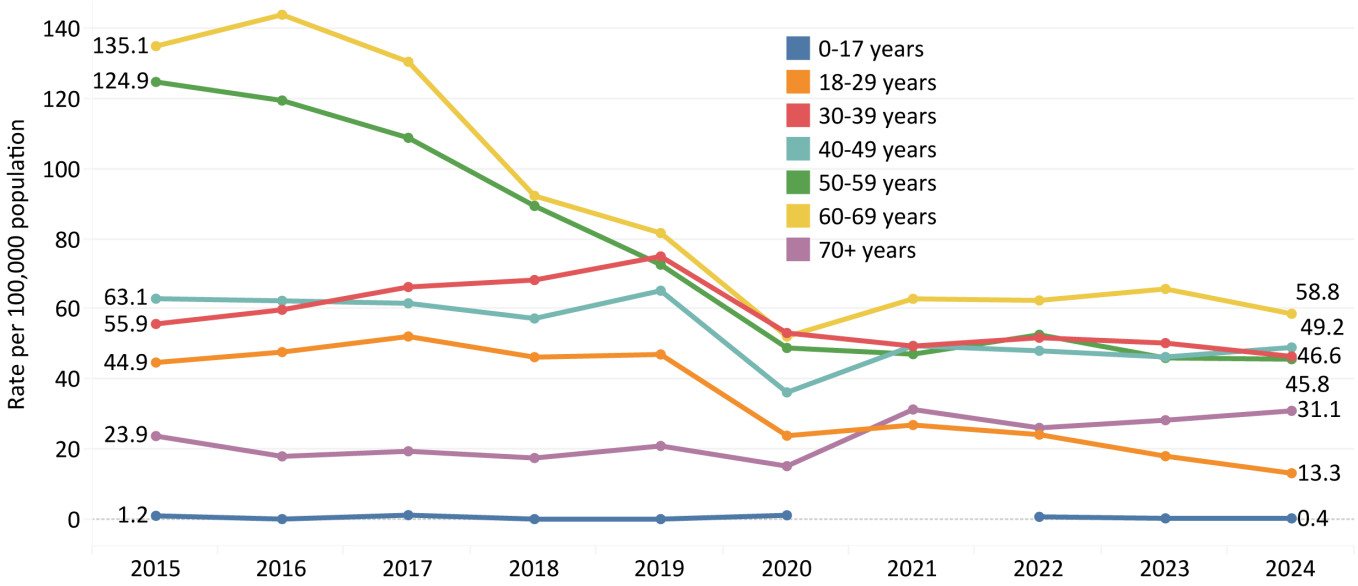
FIGURE 4. HEPATITIS C DIAGNOSES BY REPORTED SEX, KING COUNTY, WA, 2015-2024*



*Year represented is year of diagnosis in King County. Counts include deaths and reinfection events.

From 2022 to 2024, the number of hep C diagnoses among males decreased by ~7% while the number among women decreased by ~14%. For 2024, the hep C infection rate per 100,000 population is nearly double that of females, 41.9 versus 22.1 per 100,000 population.

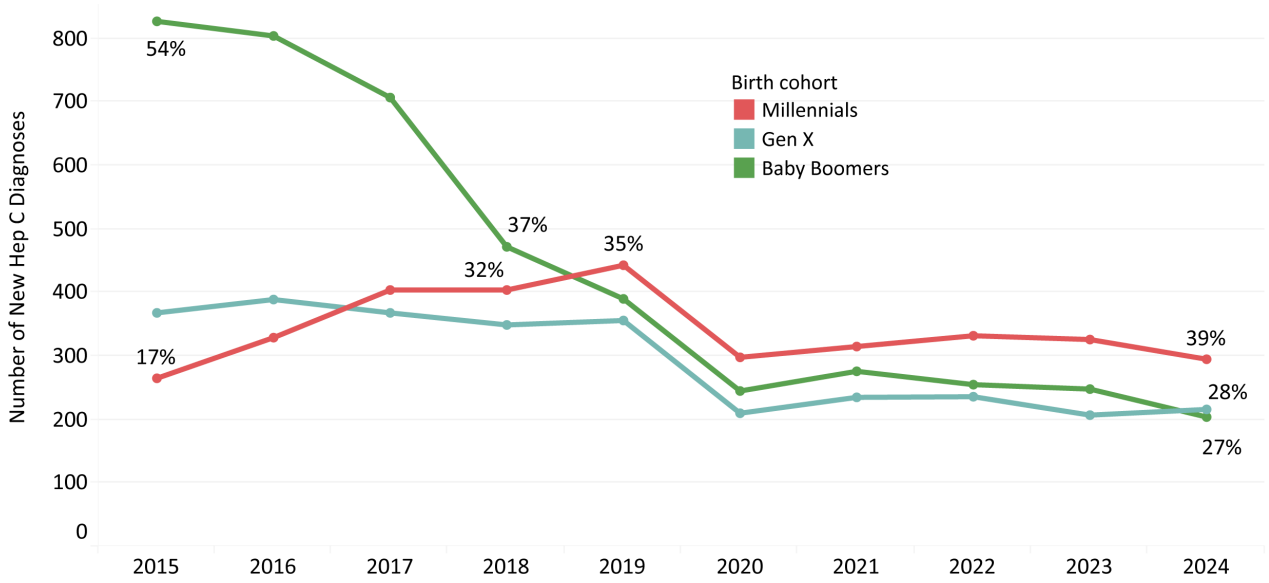
FIGURE 5. HEPATITIS C DIAGNOSES RATE BY AGE AT DIAGNOSIS IN KING COUNTY, WA, 2015-2024



*Year represented is year of diagnosis in King County. Counts include deaths and reinfection events.

Over the past 10 years, those diagnosed between ages 50 and 69 years have had the steepest declines in hep C infection rates. In 2024, the highest rate of newly reported hep C diagnoses was among 60-69 year olds (58.8 cases per 100,000 population) followed by 40-49 year olds (49.2 cases per 100,000 population) (Figure 5).

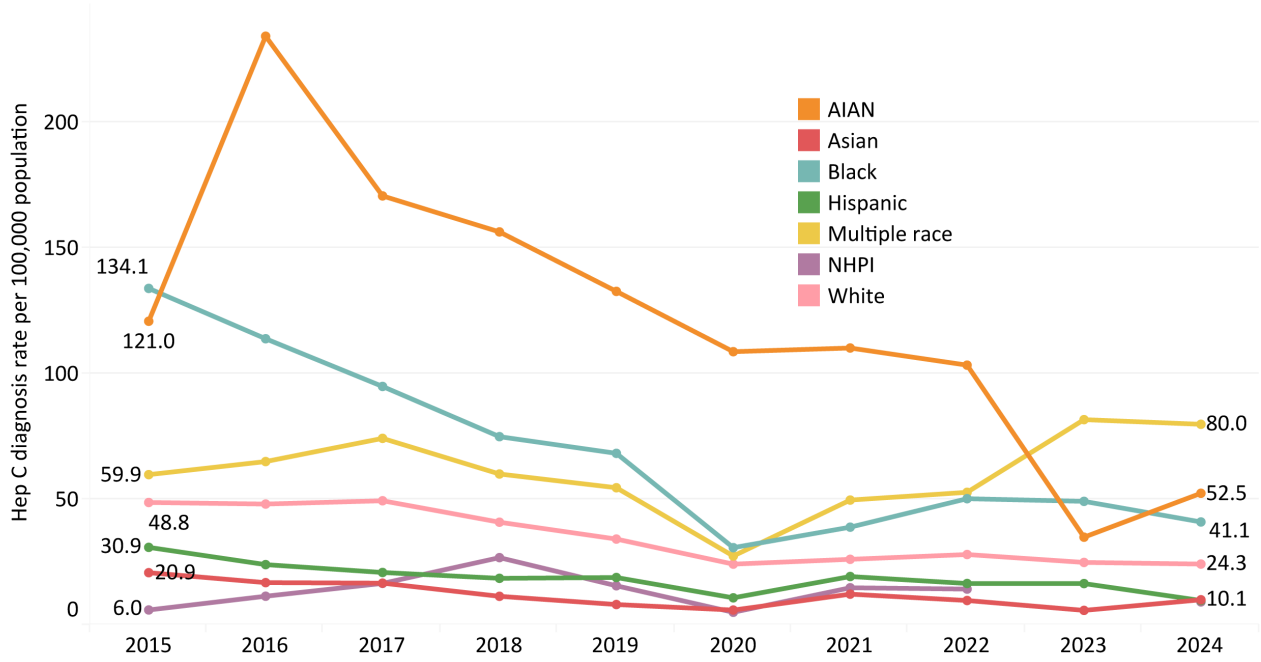
FIGURE 6. HEPATITIS C DIAGNOSES BY BIRTH COHORT, KING COUNTY, WA, 2015-2024*



*Year represented is year of diagnosis in King County. Counts include people who were diagnosed and subsequently died and people with presumed reinfection. Birth cohorts Gen Alpha, Gen Z, unknown and the greatest generation had <31 diagnoses per year.

In 2015, 54% of all newly reported hep C diagnoses were among baby boomers. By 2024, only 27% of newly reported hep C diagnoses were among baby boomers with 39% of new diagnoses occurring among millennials.

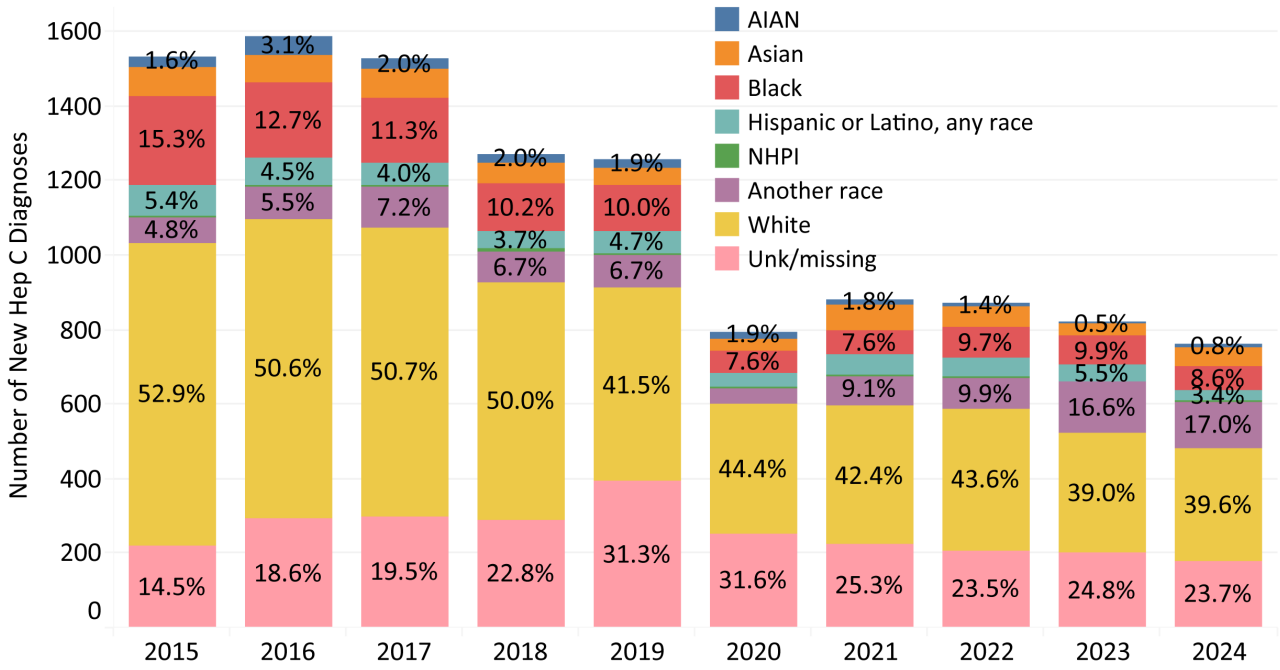
FIGURE 7. HEPATITIS C DIAGNOSES RATE BY RACE/ETHNICITY IN KING COUNTY, WA, 2015-2024



Abbreviations: AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Pacific Islander; Unk = Unknown.

From 2016 to 2020, the rate of people with newly diagnosed hep C decreased across all racial groups, however rates rebounded post-Covid and since then have stabilized. Among newly reported diagnoses of hep C in 2024, multiple race or other race experienced the highest burden of infection at a rate of 80 diagnoses per 100,000 population. Hep C infection rates in 2024 among the Black and AIAN populations are 1.3 times and 1.6 times the rate of the general King County population (Figure 7).

FIGURE 8. NUMBER OF PEOPLE NEWLY DIAGNOSED WITH HEPATITIS C BY RACE/ETHNICITY, KING COUNTY, WA, 2015-2024



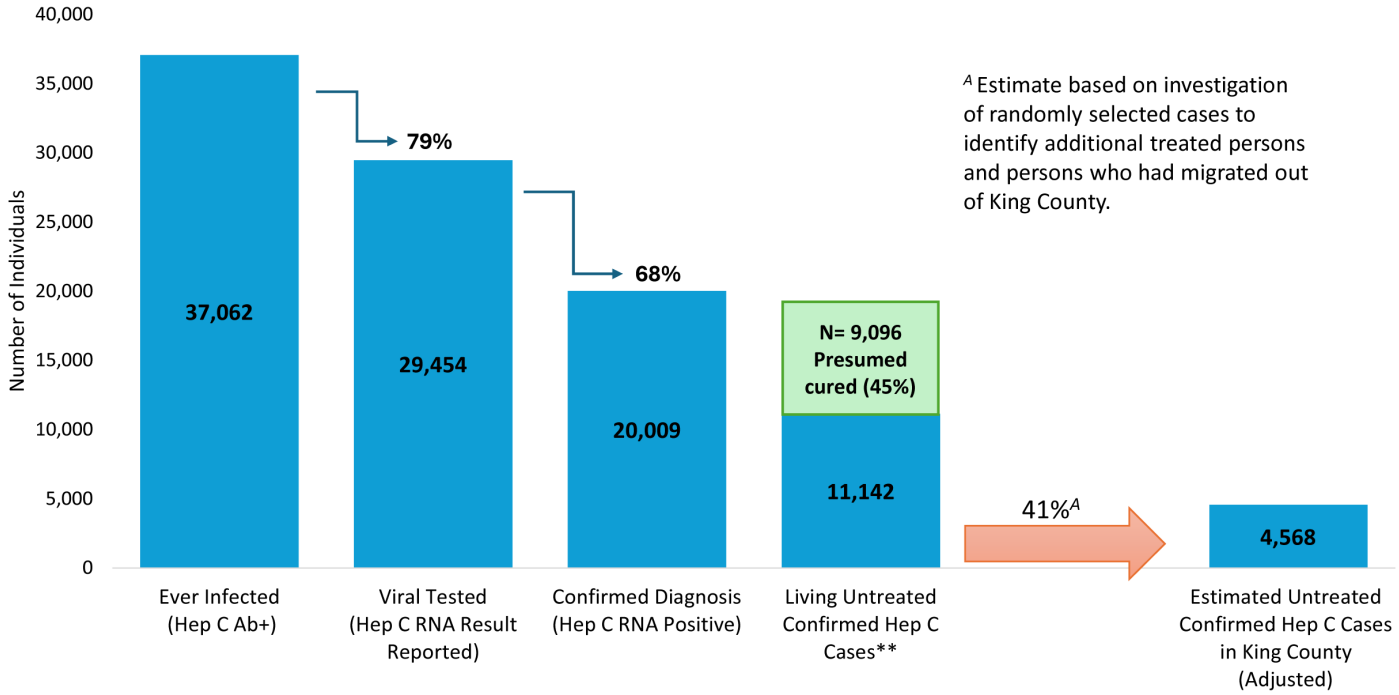
Abbreviations: AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Pacific Islander; Unk = Unknown.

Hep C disproportionately affects Black and AIAN populations. From 2015-2024, among individuals for whom race/ethnicity data were available, 11% of people ever diagnosed were Black and 2% AIAN while only 7% of King County residents are Black and 1% are AIAN (US Census for King County). In 2024, 9% of new hep C diagnoses were in Black individuals (Figure 8).

Hepatitis C Care Continuum

The hep C care continuum is modeled after the approach developed by the Centers for Disease Control and Prevention (CDC) using laboratory results, tracking the number and percentages of people who are tested and cured of hep C.[3] The continuum includes individuals thought to be alive at the end of 2023 who had a positive hep C antibody test reported to PHSKC between 1989 and 2024. The figure also includes an adjusted estimate of the number of individuals with untreated, confirmed hep C, accounting for outmigration and people whose treatment and cure were not identified via laboratory-based reporting.

FIGURE 9. HEPATITIS C CARE CONTINUUM, KING COUNTY, WA, 1989-2024*



*The date range refers to the report date for an individual's first positive hep C lab test. Counts exclude deceased individuals. People with untreated confirmed hep C are individuals whose last hep C viral test is detectable with no subsequent undetectable hep C viral test result.

**There were 229 reinfections among the 11,142 untreated confirmed hep C cases.

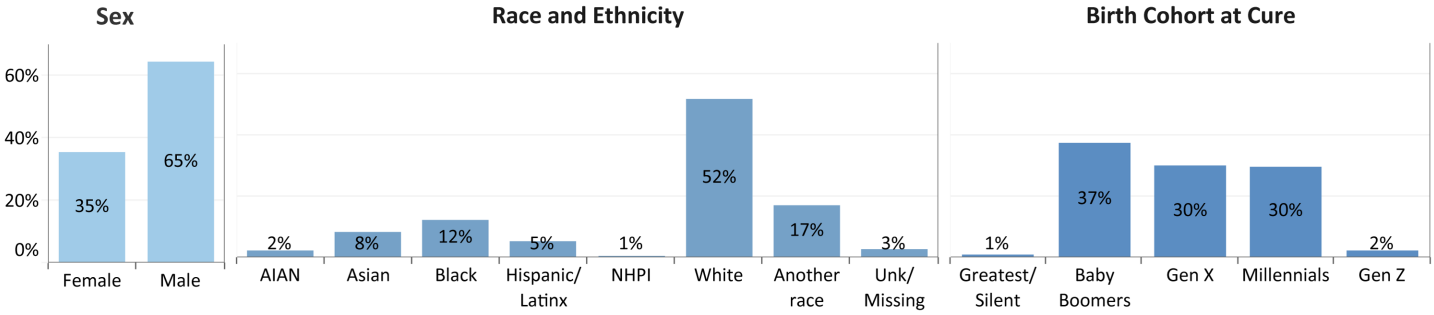
Note: The continuum includes all individuals thought to be living in-jurisdiction and excludes any deceased individuals as of 12/31/2024. From 1989-2024, 6,536 people with confirmed hep C infection died.

Between 1989 and 2024, a total of 48,133 individuals had a positive or detectable hep C test (antibody, RNA, genotype or antigen tests) reported to PHSKC. Of these individuals, 11,071 were known to have died of any cause as of the end of 2023, leaving **37,062** individuals thought to be alive and living in King County ('Ever Infected' of Figure 9). Among these individuals with positive antibody tests, **29,454** (79%) had a hep C RNA test performed with results reported to PHSKC, and 7,608 (21%) never had confirmatory hep C RNA testing or had an unreported hep C RNA negative test. Negative RNA testing was not routinely reported until 2015 and mandated reporting began in January 2023. Among the 29,454 individuals known to have confirmatory hep C RNA testing performed, **20,009** (68%) were hep C RNA positive and 9,445 (32%) were hep C RNA negative. Individuals with negative hep C RNA test results are presumed to have cleared hep C – either as a result of spontaneous clearance of infection or because of prior treatment (including treatment outside of King County) – or had false positive antibody tests. These findings are consistent with research that estimates 20 to 40% of people spontaneously clear hep C without treatment.[4] A total of 9,096 (45%) of the 20,009 people with confirmed hep C had a subsequent negative hep C RNA test and were presumed to have had

curative treatment. There were 229 (2.5%) people with a negative hep C RNA test who had a subsequent positive RNA test and were presumed to have been reinfected. Thus, based on laboratory data reported to PHSKC, there are an estimated **11,142** people with untreated, confirmed hep C in King County, WA. However, this estimate does not account for potential outmigration and uncaptured hep C cures. As described in the 2023 Hepatitis C Epidemiology Report, we investigated a random sample of people with hep C across 7 healthcare organizations to generate estimates of outmigration and uncaptured hep C cures. Extrapolating these findings to the larger population of people with hep C in King County, we created a revised estimate of 4,568 people with untreated, confirmed hep C in King County, reducing the original estimate by 59%. PHSKC believes this estimate is much closer to the number of individuals who need to access curative treatment living in King County.

In 2024, 555 people with previously confirmed hep C infection were presumed cured based on reported negative hep C RNA test results. Of the 555 people cured in 2024, nearly two-thirds were male, 52% were white, and 37% were of the baby boomer generation (Figure 10). These demographic distributions are qualitatively similar to the distributions in 2023.

FIGURE 10. PRESUMED HEPATITIS C CURES, KING COUNTY, WA, 2024



Abbreviations: AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Pacific Islander; Unk = Unknown.

Characteristics of Individuals Diagnosed with Hepatitis C

Since 1989, 48,133 people have had positive antibody tests reported to PHSKC and 26,545 people residing in King County were reported to PHSKC with confirmed hep C (ever diagnosed). Table 1 presents data on the characteristics of this population, including information characterizing persons with cured infections, people living with untreated, confirmed hep C, and people who have died since being reported (deaths identified through 2023 only).

TABLE 1. DEMOGRAPHIC CHARACTERISTICS OF KING COUNTY RESIDENTS WITH CONFIRMED HEPATITIS C, 1989-2024

	Ever Diagnosed with Hep C [A]		Among People Ever Diagnosed with Hep C					
			Presumed Cured of Hep C [B]		Living with Hep C [C]		Deaths [D]	
	N	%	n	%	n	%	n	%
Total	26,545	100%	8,867	100%	11,142	100%	6,536	100%
Sex								
Female	8,999	34%	3,406	38%	3,790	34%	1,803	28%
Male	17,482	66%	5,449	62%	7305	66%	4,728	72%
Missing/Unknown	44	<1%	12	<1%	31	<1%	5	<1%
Age at hep C diagnosis (years)								
0-17	116	<1%	41	<1%	68	1%	7	<1%
18-29	2,578	10%	855	10%	1,478	13%	245	4%
30-39	4,691	18%	1,471	17%	2,574	23%	646	10%
40-49	6,840	26%	2,211	25%	2,827	25%	1,802	28%
50-59	7,443	28%	2,556	29%	2,562	23%	2,325	36%
60-69	3,950	15%	1,506	17%	1,284	12%	1,160	18%
70+	914	3%	227	3%	336	3%	351	5%
Missing	13	<1%	0	0%	13	<1%	0	0%
Birth Cohort								
Gen Alpha	0	<1%	2	<1%	13	<1%	0	0%
Gen Z	238	1%	53	1%	178	2%	7	<1%
Millennials	4,171	16%	1302	15%	2,603	23%	266	4%
Gen X	5,854	22%	2,036	23%	2,972	27%	846	13%
Baby Boomers	14,728	56%	5,172	58%	4,956	45%	4,600	70%
Greatest/Silent	1,529	6%	302	3%	410	4%	817	13%
Missing	13	<1%	0	0%	13	<1%	0	0%
Race/Ethnicity								
AI/AN	495	1%	134	2%	184	2%	177	3%
Asian	1,284	5%	682	8%	374	3%	228	4%
Black	3,807	14%	1,365	15%	1,284	12%	1,158	18%
Hispanic or Latinx (all races)	1,232	5%	447	5%	522	5%	263	4%
NHPI	51	<1%	19	<1%	18	<1%	14	<1%
White	12,608	48%	4,567	53%	4,678	42%	3,273	50%
Another race	1,320	5%	681	8%	548	5%	91	1%
Missing/Unknown	5,748	22%	882	10%	3,534	32%	1,332	20%
Race/Ethnicity (excluding people with missing information)								
AI/AN	495	2%	134	2%	184	2%	177	3%
Asian	1284	6%	682	9%	374	5%	228	4%
Black	3,807	18%	1,365	17%	1,284	17%	1,158	22%
Hispanic or Latinx (all races)	1,232	6%	447	6%	522	7%	263	5%
NHPI	51	<1%	19	<1%	18	<1%	14	<1%
White	12,608	61%	4,567	58%	4,678	61%	3,273	63%
Another race	1320	6%	681	9%	548	7%	91	2%

Technical Notes for Table 1

[A] 'Ever diagnosed' refers to individuals who have ever had laboratory evidence of hep C viral infection in PHSKC reporting system and includes people who died (all causes) after initial diagnosis.
[B] 'Presumed cured' refers to living patients with laboratory evidence of viral clearance with an RNA positive, followed by a subsequent RNA negative test result.
[C] 'Living with hep C' refers to patients with confirmed detectable hep C virus and no reported laboratory evidence of viral clearance, and include cases classified as reinfections.
[D] Deaths identified from 1989 through the end of 2023. The 'Deaths among people with hep C' is inclusive of deaths from any cause.

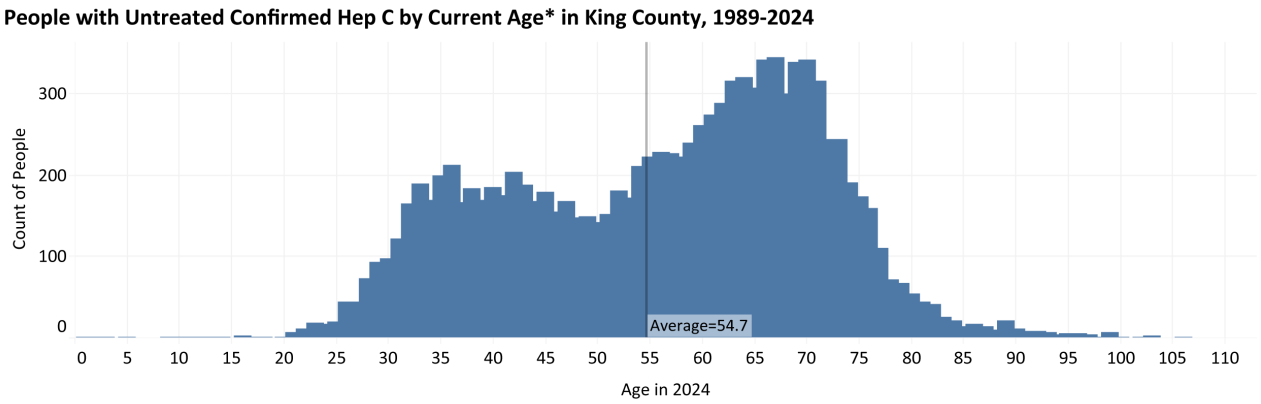
Abbreviations: AIAN, American Indian/ Alaska Native; NHPI, Native Hawaiian or other Pacific Islander

Note: Race/ethnicity is single category only, which limits multiracial individuals to one category. Race and ethnicity are captured in 2 separate variables. AIAN, Asian, Black, NHPI, White, or Another race exclude Hispanic or Latinx. Individuals with Hispanic or Latinx ethnicity are grouped in the Hispanic or Latinx race/ethnicity category, regardless of their reported race category.

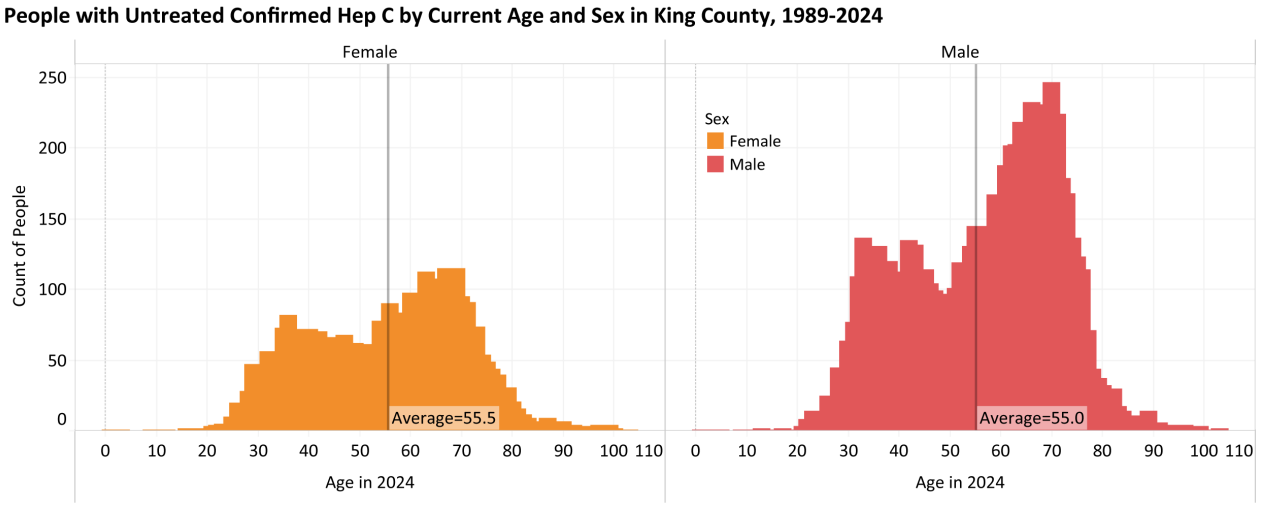
People Living with Untreated, Confirmed Hepatitis C

This section summarizes demographic characteristics of people living with untreated, confirmed hep C. As previously described, PHSKC believes that there are approximately 4,568 people living with untreated, confirmed hep C in King County; however, we are not able to generate patient-level demographic data for this population-level estimate. Therefore, we present data on the 11,142 living individuals with confirmed hep C not known to have been treated that were identified through laboratory data.

FIGURE 11. UNTREATED, CONFIRMED HEPATITIS C BY CURRENT AGE AND REPORTED SEX, KING COUNTY, WA, 1989-2024

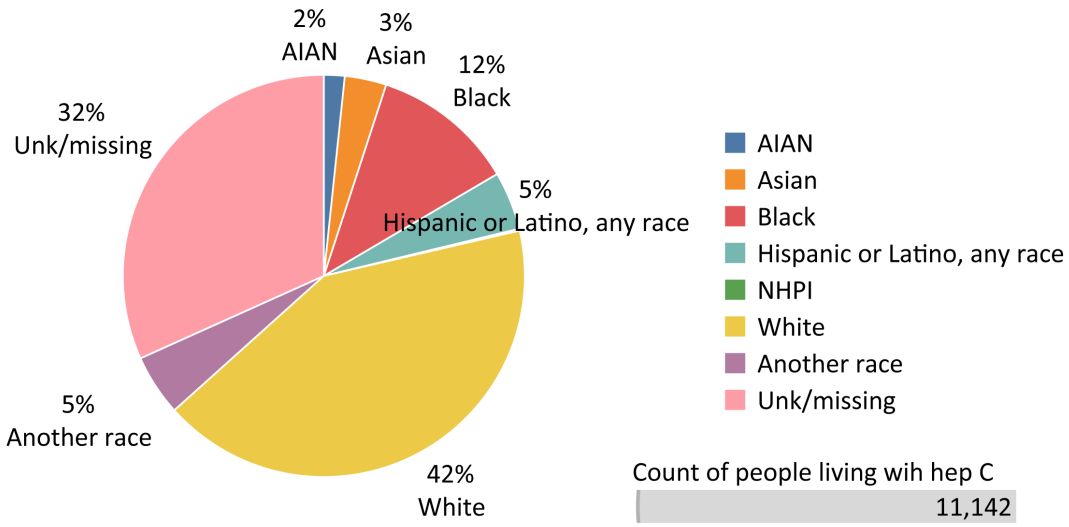


*Age is calculated as the difference from 12/31/2024 and the patient's reported date of birth. Deaths are excluded through 2023.



Among all living individuals with untreated, confirmed hep C in King County from 1989-2024, the average current age as of 12/31/2024 is 54 years (median 55). Age distribution by sex shows a bimodal curve with two age peaks across sexes, at 36 years and 67 years among females and at 33 years and 70 years among males, with a more pronounced bimodal distribution among males. Among all people with untreated, confirmed hep C, baby boomers comprise the largest group (45%), followed by Generation X (27%), and millennials (23%).

FIGURE 12. UNTREATED, CONFIRMED HEPATITIS C BY REPORTED RACE AND ETHNICITY, KING COUNTY, WA, 1989-2024

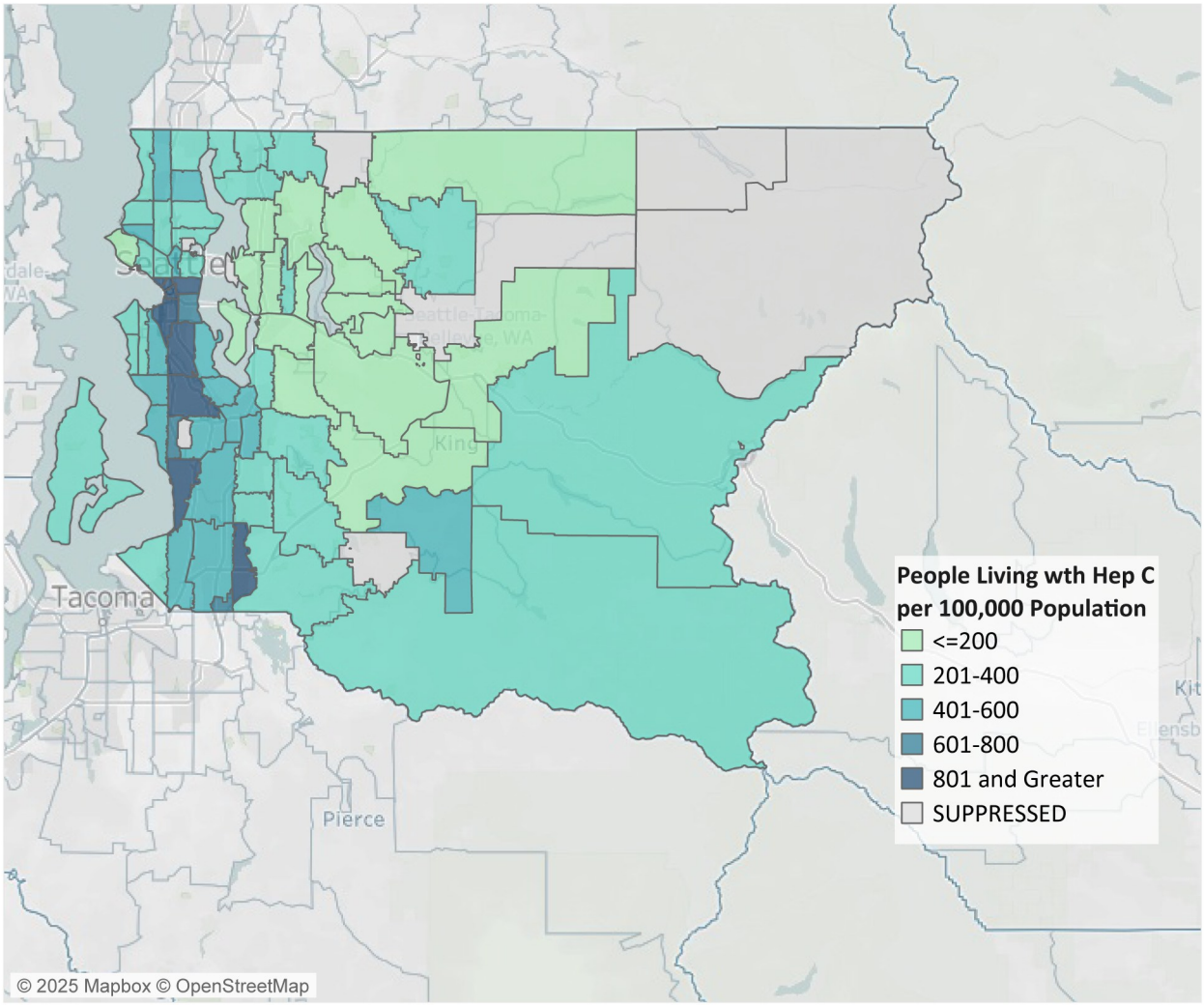


Abbreviations: AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Pacific Islander; Unk = Unknown.

While more than 22% of race and ethnicity data are missing for all hep C diagnoses (Table 1), 32% of race and ethnicity data are missing for cases that have not been treated. Missing data may result in bias in our estimates since groups that are less frequently treated likely have more missing race/ethnicity data.[5] However, based on available data, Black and AIAN individuals appear to be disproportionately impacted. Among individuals living with untreated, confirmed hep C, 12% are Black and 2% are AIAN, both of which exceed the King County residential populations of these groups of 7% and 1%, respectively. White individuals comprise the greatest number and proportion of people living with untreated, confirmed hep C (n=4,554), which is consistent with the overall demographics of King County.[6] Assessment of racial distribution among cases with complete race and ethnicity information (excluding individuals missing race/ethnicity data), indicates more pronounced racial disparities (Table 1).

The majority of hep C lab test results are reported through ELR, and while race and ethnicity information are part of mandated reporting, an 'unknown' selection is a valid race option in the reporting system. In this year's report, we have filled in missing racial information among people with hep C who also had reported Covid test results and had race or ethnicity information associated with those labs.

FIGURE 13. UNTREATED, CONFIRMED HEPATITIS C RATE PER 100,000 POPULATION BY ZIP CODE IN KING COUNTY, 1989-2024



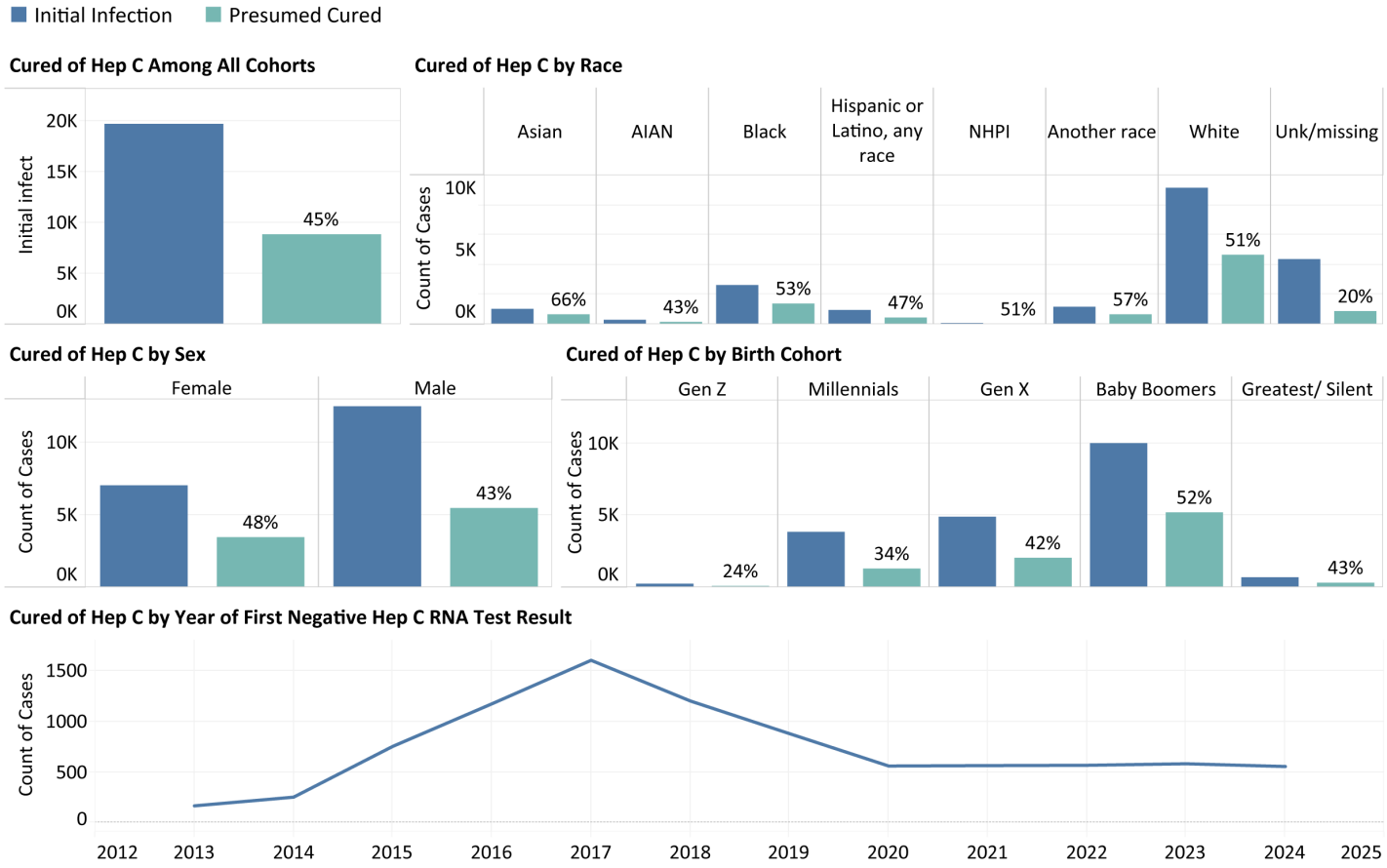
Note: The following zip codes have small populations: 98050, 98039, 98288, 98195, and 98224. A rate based on a very small number of hep C infections reported in the listed zip codes (<20) may make the rate statistically unstable and thus suppressed.

South King County and central Seattle have the highest rates of people living with hep C per 100,000 population across the county. Approximately one-third of people living with untreated, confirmed hep C live in six zip codes (98104, 98101, 98198, 98168, 98122, 98002), and 50% live in the 12 zip codes of Seattle and South King County that follow the Interstate-5 corridor. Population demographics in these areas have higher proportions of people living below the poverty line than in King County overall.[7]

Hepatitis C Treatment and Cure

This section describes characteristics of 8,867 people who were diagnosed with hep C and are defined as cured based on lab test results reported to PHSKC. Cure is defined based on a reported negative or undetectable hep C RNA test result after a reported positive hep C RNA test result.

FIGURE 14. CHARACTERISTICS OF INDIVIDUALS CURED OF HEPATITIS C, KING COUNTY, WA, 1989-2024



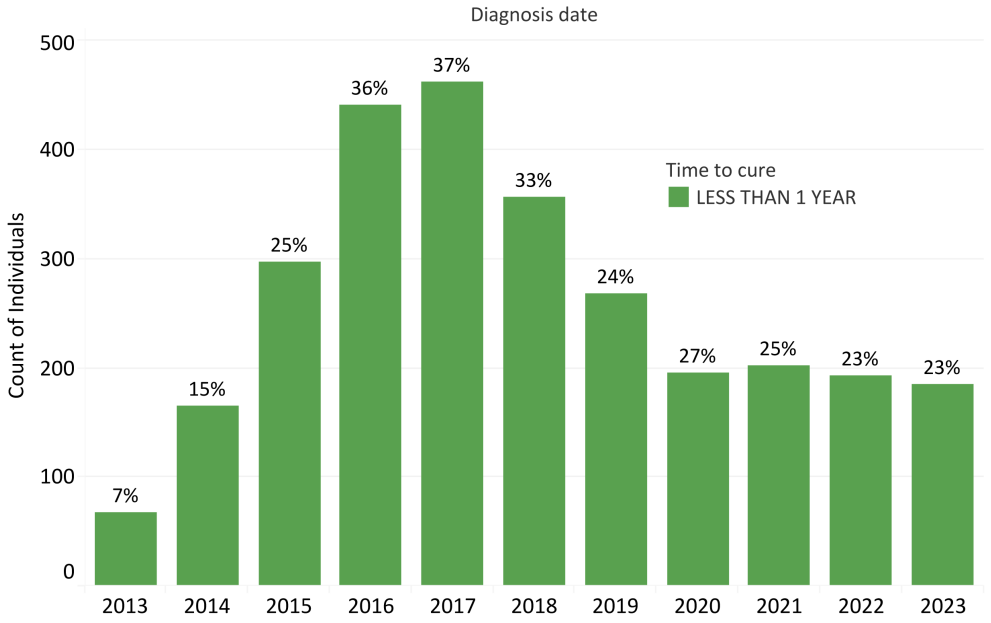
Note: Low counts of 'unknown/missing' demographic data are excluded. All charts exclude deceased individuals though 2023, coinciding with the most current death certificate data available.
Abbreviations: AIAN = American Indian or Alaska Native; NHPI = Native Hawaiian or Pacific Islander; Unk = Unknown.

Overall, based on laboratory data, 45% of all individuals with confirmed hep C are presumed to have been cured. Cure rates were highest among baby boomers, the birth cohort for which screening has been recommended and promoted for the longest, though only 52% of individuals with reported hep C in this generation have evidence of being cured. Females had higher cure rates than males (48% versus 43%).

As noted above, it is difficult to make inferences about racial and ethnic disparities due to the significant amount of missing data. However, among individuals with known reported race, the percentage of individuals cured was similar in White and Black individuals (51% and 53%) but was lower in American Indian/Alaska Native individuals (43%). Cure rates were substantially lower among individuals with missing race and ethnicity data (20%).

Case-finding and treatment are a central component of the PHSKC hep C elimination strategy. Ideally, people diagnosed with hep C should be treated as soon as possible after diagnosis. Figures 15 and 16 provide two perspectives on the time from diagnosis to cure. Figure 15 presents data on the percentage of new diagnoses in each year that were cured in the year following diagnosis, a measure of the healthcare system's effectiveness to rapidly link individuals to treatment following diagnosis.

FIGURE 15. NUMBER AND PERCENTAGE OF PERSONS CURED WITHIN ONE YEAR OF DIAGNOSIS BY YEAR OF HCV DIAGNOSIS, KING COUNTY, WA, 2013-2024

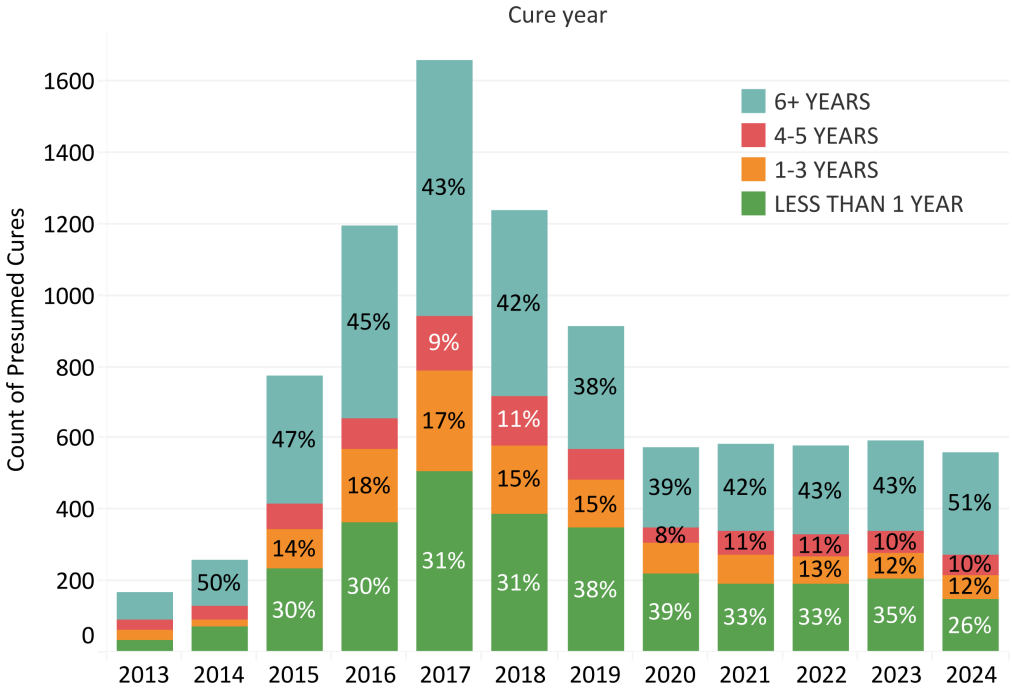


Note: Deaths are excluded through 2023.

Looking at diagnoses by year, beginning in 2013 when DAAs were introduced, only 7% of individuals with hep C achieved viral clearance within a year. This increased to 37% by 2017 (Figure 15), but thereafter declined with less than a quarter of new diagnoses cured in less than 1 year from 2021-2023.

Figure 16 presents data on the distribution of time from diagnosis to cure among people achieving cure by year. With the exceptions of 2019 and 2020, >50% of persons cured in every year had been diagnosed with hep C ≥4 years before having a documented cure. In 2024, over half of the presumed cures occurred in people diagnosed 6 or more years ago.

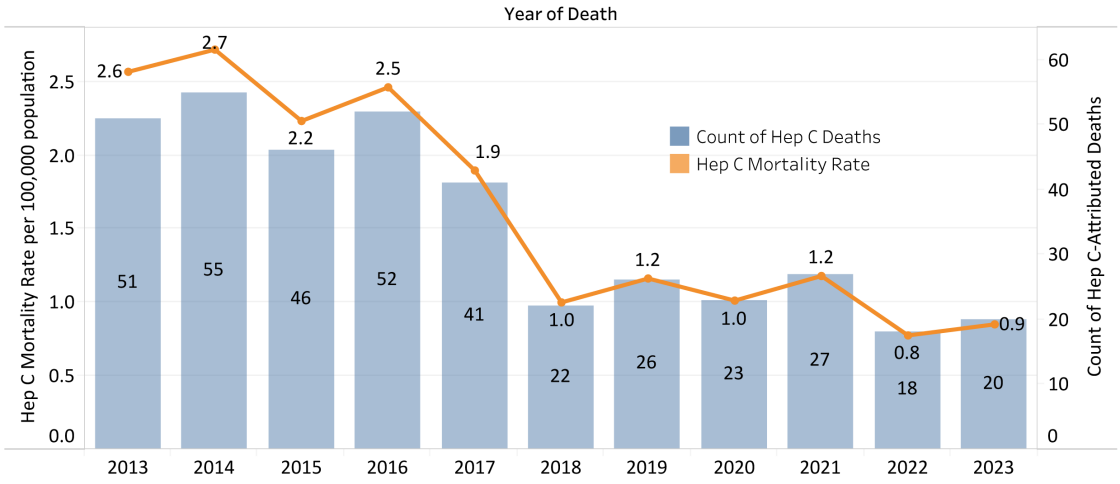
FIGURE 16. TIME TO CLEARANCE BY CURE YEAR, KING COUNTY, WA, 2013-2024



Note: Deaths are excluded through 2023.

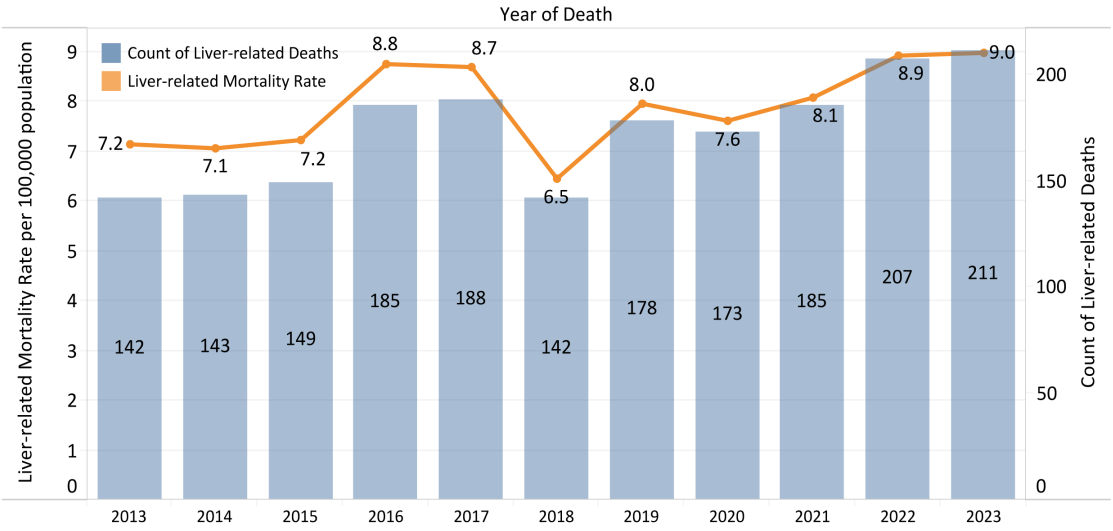
Mortality Among People Ever Infected with Hepatitis C

FIGURE 17. COUNT OF HEPATITIS C-ATTRIBUTED DEATHS AND AGE-ADJUSTED HEPATITIS C MORTALITY RATES, KING COUNTY, WA, 2013-2023



Note: HCV-attributed deaths include HCV in UCOD or contributing COD codes. Age-standardized death rates calculated using the age distribution **#2 based on the 2000 projected US population.**

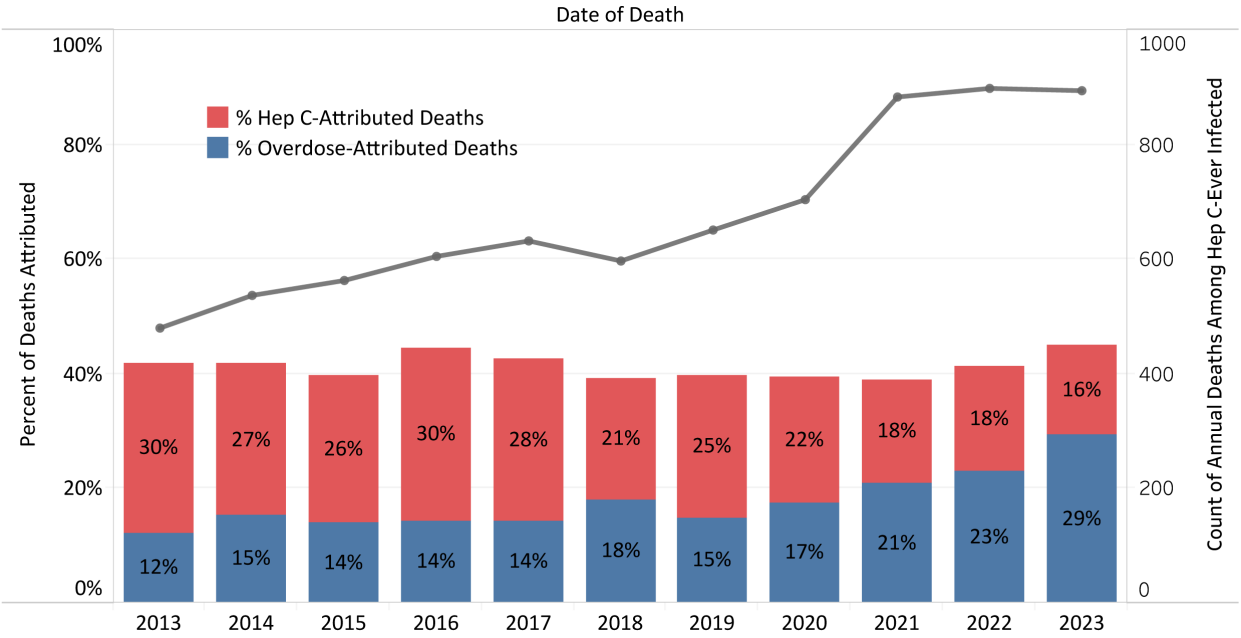
We evaluated mortality among people ever diagnosed with hep C, focusing on the DAA-era beginning in 2013. This analysis included deaths for which hep C was listed as either an underlying cause of death (UCOD) or a contributing cause of death on death certificates, an approach used in prior analyses[8]. The age-adjusted mortality rate attributed to hep C infection among persons with hep C declined by 62% from 2013 - 2018. Rates remained roughly stable from 2018-2023.



Note: Liver-related deaths include ICD-10 codes associated with the following: Liver cancer, Secondary liver cancer, Esophageal varices, Alcoholic liver disease, Hepatic failure, Liver cirrhosis, Other diseases of the liver. Age-standardized mortality rates calculated using the age distribution #2 based on the 2000 projected US population.

Given that hep C infection is underdocumented on death certificates[9], we assessed the rate of death attributed to liver disease utilizing an expanded definition of liver-related deaths among people ever infected with hep C in King County from 2013 to 2023. Since 2013, liver-related mortality rates have increased by 25% in this population (Figure 18).

FIGURE 19. PROPORTION AND COUNT OF DEATHS ATTRIBUTED TO HEPATITIS C AND OVERDOSE, KING COUNTY, 2013-2023



Given the local and national overdose crisis and the overlapping populations most impacted by drug use and hep C infection, we assessed the burden of overdose and hep C deaths among King County residents who ever experienced hep C infection (antibody positive). In 2013, among those ever infected with hep C, 30% of deaths were attributed to hep C infection while 12% of deaths were due to overdose. The percentage of deaths attributed to hep C declined substantially over the period of observation while the percentage of deaths attributed to overdose rose, particularly since 2020. In 2023, 29% of deaths among persons ever infected with hep C were attributed to overdose while 16% were attributed to hep C infection (Figure 19). Among hep C attributed deaths during this period, 72% occurred in men with median age of 63 years (female median age of 63 years). Seventy-three percent of deaths due to overdose occurred in men with a median age was 54 years (female median age of 49 years). There is not clear evidence of declining hep C related mortality, and the increasing hep C mortality likely reflects the aging of a population with longstanding hep C. PHSKC is working with community partners to better address the needs of people who use drugs, including those who have experienced hep C infection, and prevent overdose.

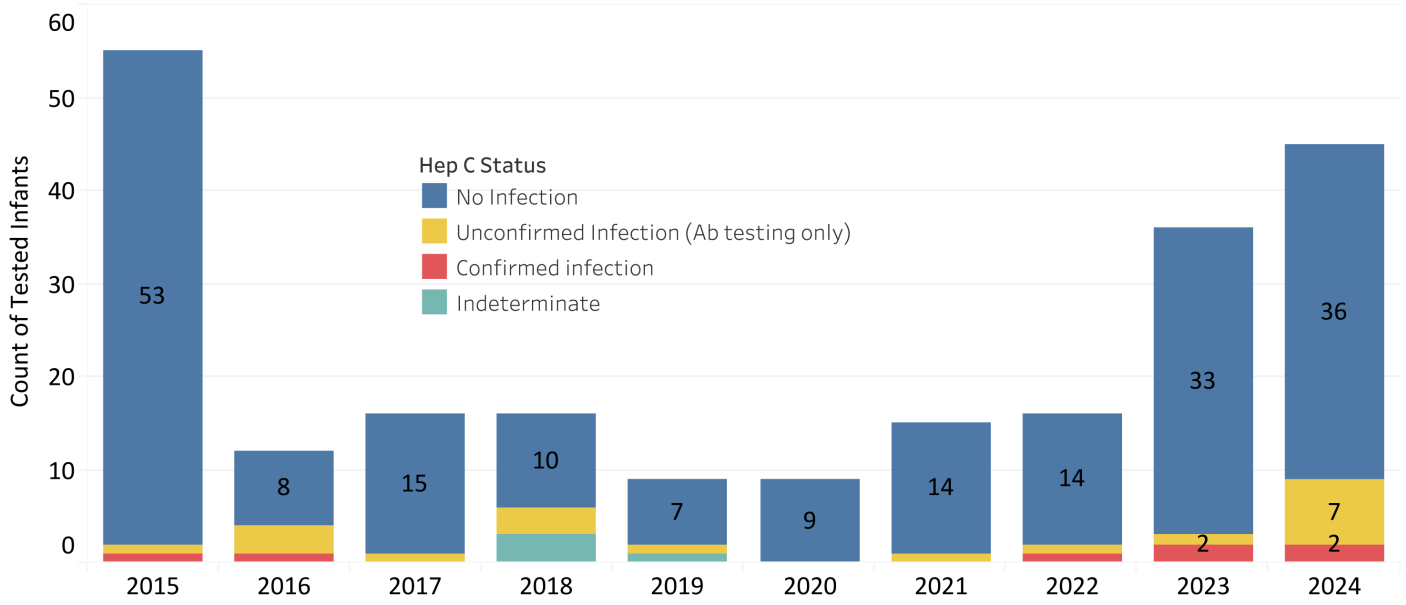
Perinatal Hepatitis C

In the US, the seroprevalence of hep C during pregnancy is estimated to be 1.2% and increased by 20% from 2016-2020.[10] An estimated 6%–7% of all perinatally exposed infants and children will develop hep C infection.[11] Curative DAA therapy can be administered beginning at age 3 years; however, many perinatally exposed infants and children are not tested for hep C infection and are consequently not referred for hep C care and treatment.[12]

Over the last decade (2015-2024), seven confirmed hep C infections were reported to PHSKC among children three years of age and under. Of 45 King County children screened for hep C in 2024, 37 (82%) received RNA testing, while seven children less than 18 months old were screened with Ab testing but did not receive confirmatory testing as per CDC recommendation[11].

To improve identification of potential perinatal hep C cases, PHSKC is performing routine data linkages between King County birth certificate data and hep C surveillance data, matching both on the child's name and maternal birth parent name. Evaluation of infant date of birth relative to parent hep C diagnosis or cure date, among other factors, will determine priority of follow-up. PHSKC is focusing on strengthening healthcare providers outreach and programs to link children to hep C care by leveraging navigation programs and educating primary and prenatal care providers in hep C treatment.

FIGURE 20. TRENDS IN HEPATITIS C STATUS OF PERINATALLY EXPOSED INFANTS, KING COUNTY, WA, 2015-2024

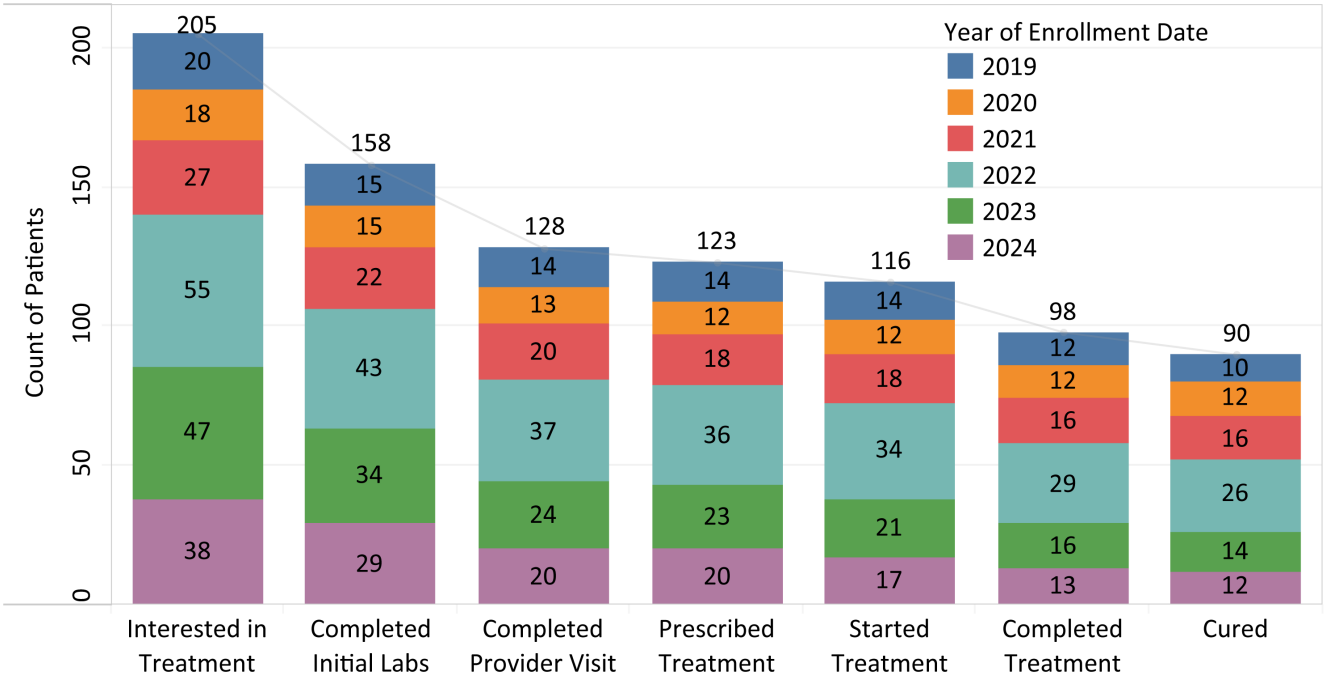


*Confirmed perinatal cases are infants between 2 and 36 months of age and have a positive HCV RNA test OR a positive HCV Genotype test OR positive HCV antigen test.

PHSKC Hepatitis C Treatment At the Robert Clewis Center & Sexual Health Clinic

Since 2019, the King County Syringe Services Program (SSP) at the Robert Clewis Center has offered nurse-led hep C treatment to SSP clients in collaboration with clinicians at Bupe Pathways, which offers low-threshold access to medication for opioid use disorder in the same building. The hep C treatment program is designed to provide clients with low-barrier access to treatment, including flexible coordination of medication pick-up and storage. Many clients are transient and use different services at different times making the walk-in service model ideal. Clients can also receive financial incentives for completing treatment. Since 2019, the program has initiated hep C treatment for 113 people, including 16 people in 2024 (Figure 21), and 96 clients have completed treatment. Since its inception, the program has cured 90 individuals of hep C infection (confirmed via SVR lab testing).

FIGURE 21. CARE CASCADE AMONG PEOPLE EVALUATED FOR HEPATITIS C AT THE KING COUNTY SYRINGE SERVICES PROGRAM, 2019-2024



In late November 2023, PHSKC expanded low-barrier walk-in hep C treatment to the Sexual Health Clinic (SHC) located on the Harborview campus. Through the end of 2024, 45 individuals have been enrolled and evaluated for treatment. Some individuals required referral to a specialist or otherwise decided not to initiate treatment. Treatment was prescribed to 18 patients with 18 completing treatment. Of these patients, 14 have confirmed cure via SVR labs.

Collaborating with Health Care Organizations to Increase Hepatitis C treatment

A central component of PHSKC's strategy to increase hep C treatment is to promote hep C testing and treatment by medical providers. In early 2024, PHSKC contacted health care organizations (HCO) participating in the Ending the Epidemic Healthcare Organizations Collaborative to offer them lists of patients who, based on Public Health surveillance data, had previously received hep C laboratory testing through their organization but did not have evidence of being cured of hep C.

As of February 2025, PHSKC sent patient lists to six HCOs in King County. These lists account for just under 50% of people living with untreated, confirmed hep C in the county. How HCOs utilize these lists for patient care has varied ranging from utilizing the list as a quality improvement project to comparing PHSKC's list with their own internal list of untreated, confirmed hep C patients to guide individual patient follow up.

HCOs were given the option, but not required, to return dispositions on the care status for patients back to PHSKC to capture up-to-date hep C infection status, which can be incorporated into the lab-based hep C care continuum. As part of this effort, PHSKC staff have also attempted to contact people the HCOs identified as lost to follow-up with the goal of establishing their care status and linking untreated persons to treatment. As of July 2025, PHSKC staff have investigated 105 people marked as lost to follow up and successfully reviewed medical records and/or spoken to 67 (63.8%) of them. Among these 67 people, 7 had evidence of cure, 35 had moved out of jurisdiction and had no evidence of cure, and 5 were deceased.

Summary

PHSKC's hep C surveillance report provides data for monitoring progress towards the goal of hep C elimination. With approximately 4,600 people living with diagnosed and untreated hep C in King County, much of PHSKC's effort is focused on facilitating access to treatment for individuals with known infection. Strategies to accomplish this goal include collaboration with healthcare organization partners to promote hep C testing and treatment, including the sharing of Public Health surveillance data with HCOs to help them identify which of their patients have untreated hep C, direct provision of treatment to a small number of patients in our syringe exchange and SHC, and outreach to untreated patients. These efforts are integrated with other work to improve the quality of our surveillance data related to the hep C infection treatment status of persons with reported infections.

This report shows that while over 500 King County residents per year are cured of hep C, the number of people cured each year is now stable and the annual number of new diagnoses exceeds the number of people cured, suggesting that the size of the untreated population is growing.

In the coming year, PHSKC will continue efforts to improve the quality of our surveillance data to better estimate the true number of people living with untreated hep C in King County. This effort will include investigation of a random sample of cases presumed to be untreated (previously done in 2023) to identify how many of these persons have left King County, died, or been treated outside of King County.

PHSKC will also seek out new opportunities to increase the number of people treated for hep C through collaborations that include medical providers from large and small health care organizations, social service providers that work with people who use drugs and people who are experiencing homelessness, correctional health providers, and the Washington State Department of Health. PHSKC seeks to invite and empower medical providers who have not previously treated hep C to become treating providers by linking them with expert providers, sharing protocols and policies, and providing resources such as educational materials. Since the hep C program has limited resources of its own, our team engages providers through existing networks such as Medications for Opioid Use Disorder (MOUD) prescriber and other drug user health programs, to engage providers most likely to see people living with untreated hep C.

Data Limitations and Considerations

Data sources used for this report

Hepatitis C surveillance data:

Longitudinal lab-reported hepatitis C test results data, dating from 1989 through the end of 2024 were analyzed for this report in May 2025. Lab results are reported to PHSKC by:

- ELR (Electronic lab reports)
- Faxed patient care report forms
- Faxed lab results (for labs that have not implemented ELR)
- Other electronic format, transferred securely from lab

Compiled lab test results are deduplicated and then analyzed to classify a patient's hepatitis C infection status (confirmed infection, unconfirmed infection, presumed cured, not infected/screened negative only, or indeterminate). The data is then transformed into a patient-level dataset, pulling out minimum necessary information for analysis (including diagnosis date, cure date, dates of first and last positive RNA results, dates of first and last positive Ab test results and date of the last hepatitis C lab test result reported into our system, and patient demographics).

Hepatitis C analytical dataset:

The patient-level dataset is then linked to the most current Washington State death certificate data. For King County, death data has an approximate 1-year lag, so *identified deaths in hepatitis C surveillance data are only through 2023*. From 2021-2023, on average there were 579 annual deaths among individuals with confirmed hepatitis C infection or presumed cured of hepatitis C infection. Lab-reported hepatitis C test results are reported daily, and lab results reported through the end of 2024 are included in analysis.

A general note about comparing data presented in this report with past reports. Hep C surveillance data are dynamic with databases often being updated with new data, including data on characteristics of people living with hep C, laboratory results, and causes of death. These changes can affect current calculations of estimates from prior years. Thus, differences between report for estimates for a given year are expected.

Population data:

Population data estimates for King County are sourced from the Washington Office of Financial Management (OFM) population unit, Small Area Demographic Estimates SADE), 2013-2023. Small areas are defined as geographic areas below the level of the state that may or may not be coincident with the boundaries of U.S. Census Bureau geographic entities. The SADE model produces population estimates with "characteristics", a demographic term referring to datasets that are subdivided by age, sex, race, and ethnicity.

Mortality data:

Mortality data for King County are sourced from Washington State Department of Health, Center for Health Statistics, Death Certificate Data, 1989-2023. Death certificate data include all King County residents, including residents who die outside of Washington State. Analysis of hep C-attributed deaths was performed using ICD-10 (International Classification of Diseases, Tenth Revision) cause of death codes B17.1 and B18.2 listed as the underlying cause of death (UCOD) or as a contributing cause of death (COD) (HEP C Ab-positive test result reported to PHSKC). For this analysis multiple causes of death were utilized to characterize all hep C-associated deaths due to hep C infection often listed as a non-underlying cause of death.[13]

Hep C Care Continuum Stage Definitions:

- **Ever Infected (Hep C Ab+):** Individuals who had a positive hep C laboratory test reported, includes hep C antibody, hep C RNA, and hep C genotypes.
- **Viral Tested for Hep C RNA:** Individuals who had ANY hep C viral test performed (regardless of result) and reported, includes hep C RNA and hep C genotyping.
- **Confirmed Diagnosis:** All individuals who had an initial detectable hep C viral test reported.
- **Living with Untreated, Confirmed Hep C:** Individuals who have not had a subsequent negative viral test reported.
- **Adjusted Estimate of Living with Untreated, Confirmed Hep C:** Adjusted estimate based on random sample of cases to estimate outmigration and cures not ascertained by laboratory surveillance.

The data presented in this report limitation should be interpreted in the context of several important limitations.

Infection classification is only as good as our data. Patient-level hep C infection status is based solely on lab test results reported to DOH/PHSKC. Individuals who received treatment, but did not have post-treatment lab testing to assess sustained virologic response (SVR), are misclassified in public health surveillance as living with untreated, confirmed hep C. Likewise, people who may have spontaneously cleared the virus but not had follow up hep C RNA testing would be misclassified as living with untreated, confirmed hep C.

It is difficult to estimate the true count of King County residents infected with hepatitis C. While hep C infection is a notifiable condition in Washington state, not everyone at risk for infection is screened for the disease and people move in and out of the jurisdiction. To improve surveillance data, Public Health linked hepatitis C reports and Washington state death certificate data to identify people with hep C who have died. However, this effort would not have identified individuals who died outside of Washington state, and such people would still be classified as living in King County.

Data gaps impact conclusions. Many laboratories reporting hep C lab test results provide information on patience sex, but do not capture data on gender identity. In addition, data on race and/or ethnicity are often missing. This lack of information makes it difficult, and in the case of gender identity impossible, to estimate disparities or identify groups who are disproportionately impacted by hep C. Additionally, hep C treatment is not required reporting; therefore, it is not possible to estimate the number of individuals receiving treatment. With current data reporting requirements, it is not possible to definitively distinguish between people who spontaneously cleared hep c versus those that were cured through treatment.

Acute infection is difficult to identify with surveillance data. Since most people who become infected with hep C do not present symptoms, it is difficult to identify acute cases.

Cause of death codes are subject to misclassification bias. This may lead to underestimates of hep C-related deaths.

References

1. Kane C. Research Guides: Demographics: Age Groups. Accessed December 13, 2023. https://libguides.usc.edu/busdem/age

2. Multiple Cause of Death 1999-2020. Accessed May 9, 2025. https://wonder.cdc.gov/wonder/help/mcd.html

3. Montgomery MP, Sizemore L, Wingate H, et al. Development of a Standardized, Laboratory Result–Based Hepatitis C Virus Clearance Cascade for Public Health Jurisdictions. *Public Health Rep*. Published online May 4, 2023:00333549231170044. doi:10.1177/00333549231170044

4. Aisyah DN, Shallcross L, Hully AJ, O'Brien A, Hayward A. Assessing hepatitis C spontaneous clearance and understanding associated factors—A systematic review and meta-analysis. *J Viral Hepat*. 2018;25(6):680-698. doi:10.1111/jvh.12866

5. Douglas MD, Respress E, Gaglioti AH, et al. Variation in Reporting of the Race and Ethnicity of COVID-19 Cases and Deaths Across US States: April 12, 2020, and November 9, 2020. *Am J Public Health*. 2021;111(6):1141-1148. doi:10.2105/AJPH.2021.306167

6. U.S. Census Bureau QuickFacts: King County, Washington. Accessed January 24, 2024. https://www.census.gov/quickfacts/fact/table/kingcountywashington/PST045223

7. Census Reporter: Making Census Data Easy to Use. Accessed December 6, 2023. https://censusreporter.org/

8. Sheu MJ, Liang FW, Lin CY, Lu TH. Changes in liver-related mortality by etiology and sequelae: underlying versus multiple causes of death. *Popul Health Metr*. 2021;19(1):22. doi:10.1186/s12963-021-00249-0

9. Mahajan R, Xing J, Liu SJ, et al. Mortality among persons in care with hepatitis C virus infection: the Chronic Hepatitis Cohort Study (CHeCS), 2006-2010. *Clin Infect Dis Off Publ Infect Dis Soc Am*. 2014;58(8):1055-1061. doi:10.1093/cid/ciu077

10. Ferreira J, Sheflin-Findling S. Update on Pediatric Hepatitis C Infection. *Curr Gastroenterol Rep*. 2025;27(1):18. doi:10.1007/s11894-024-00955-3

11. Panagiotakopoulos L. CDC Recommendations for Hepatitis C Testing Among Perinatally Exposed Infants and Children — United States, 2023. *MMWR Recomm Rep*. 2023;72. doi:10.15585/mmwr.rr7204a1

12. Curtis MR, Munroe S, Biondi BE, Ciaranello AL, Linas BP, Epstein RL. Disparities in Linkage to Care Among Children With Hepatitis C Virus in the United States. *Pediatrics*. 2025;155(5):e2024068565. doi:10.1542/peds.2024-068565

13. Ly KN, Niles JK, Jiles RB, et al. Hepatitis C Virus Testing, Infection, and Cases Reported Through Public Health Surveillance During Expanded Screening Recommendations, United States, 2013-2021. *Public Health Rep*. Published online February 12, 2024:00333549231224199. doi:10.1177/00333549231224199