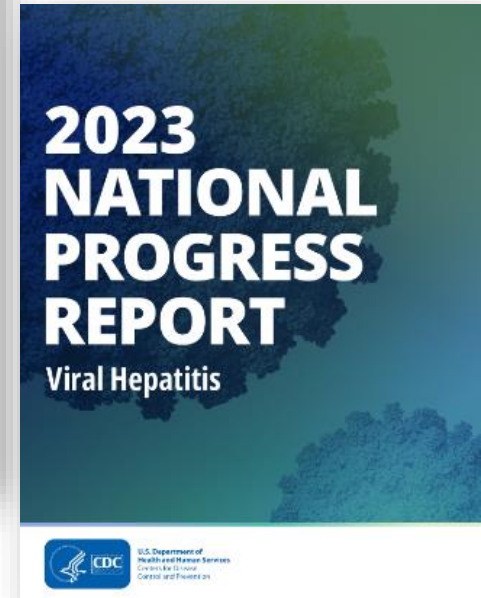


Viral Hepatitis: Elimination Progress in the United States

Neil Gupta, MD, MPH
Chief, Epidemiology & Surveillance Branch
Division of Viral Hepatitis

Viral Hepatitis Roundtable
August 1, 2023



Content

- 2021 Annual Viral Hepatitis Surveillance Report
 - Selected key findings
 - <https://www.cdc.gov/hepatitis/statistics/2021surveillance/index.htm>
- 2023 Viral Hepatitis National Progress Report (NPR), updated with 2021 data
 - 10 indicators of progress towards achieving viral hepatitis goals
 - <https://www.cdc.gov/hepatitis/policy/npr/2023/overview.htm>
- Additional viral hepatitis data
 - Analysis of National Health and Nutrition Examination Survey (NHANES) data
 - Public Health Reports Viral Hepatitis Supplement
 - Selected publications

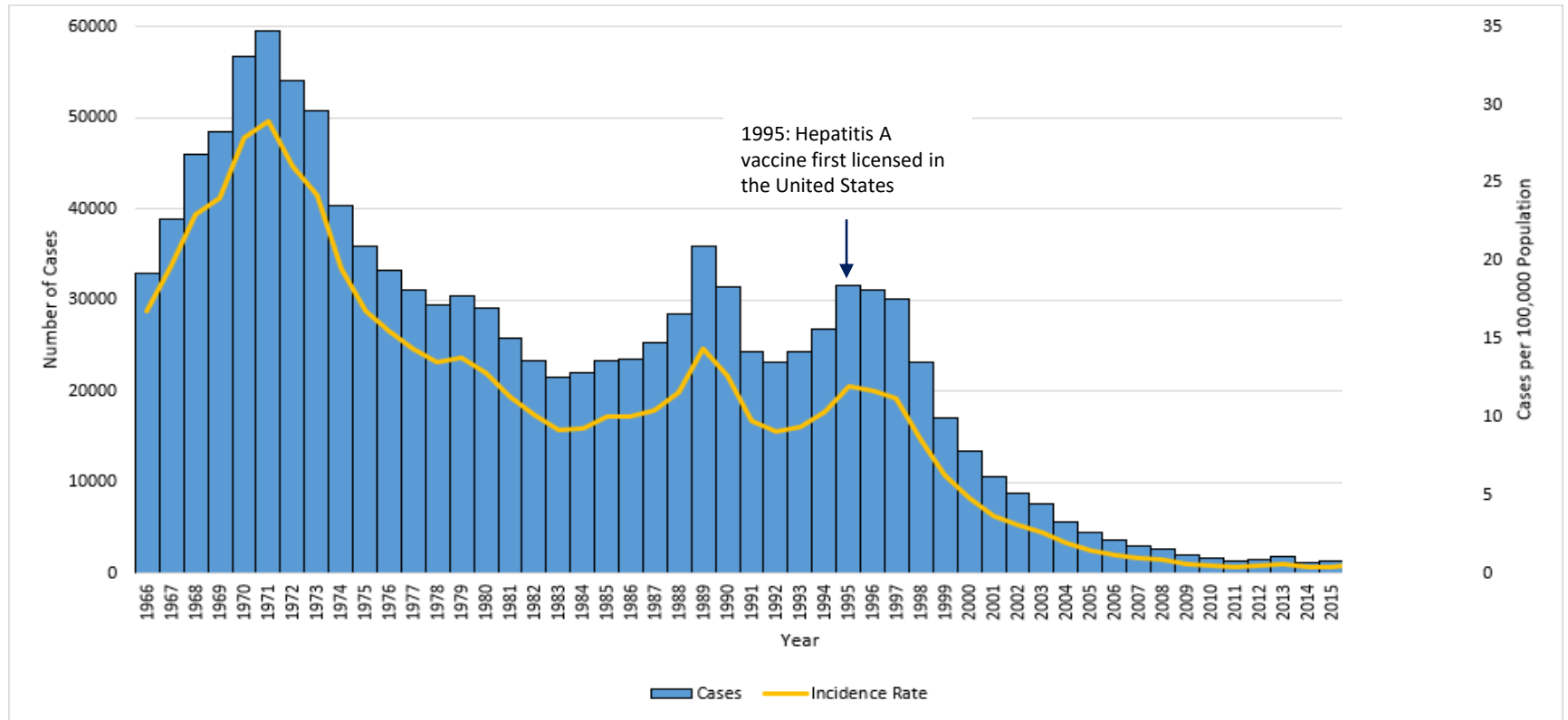
2021 was the first year of funding surveillance in 59 jurisdictions

- Increase from 14 jurisdictions, funding awarded May 2021
- Not all jurisdictions perform surveillance for all viral hepatitis conditions

2021 reporting status	Hepatitis A	Acute hepatitis B	Acute hepatitis C	Chronic hepatitis B	Chronic hepatitis C
No reported cases, or data unavailable	1	4	8	7	4
Not a reportable condition			1	4	4
Total	1	4	9	11	8

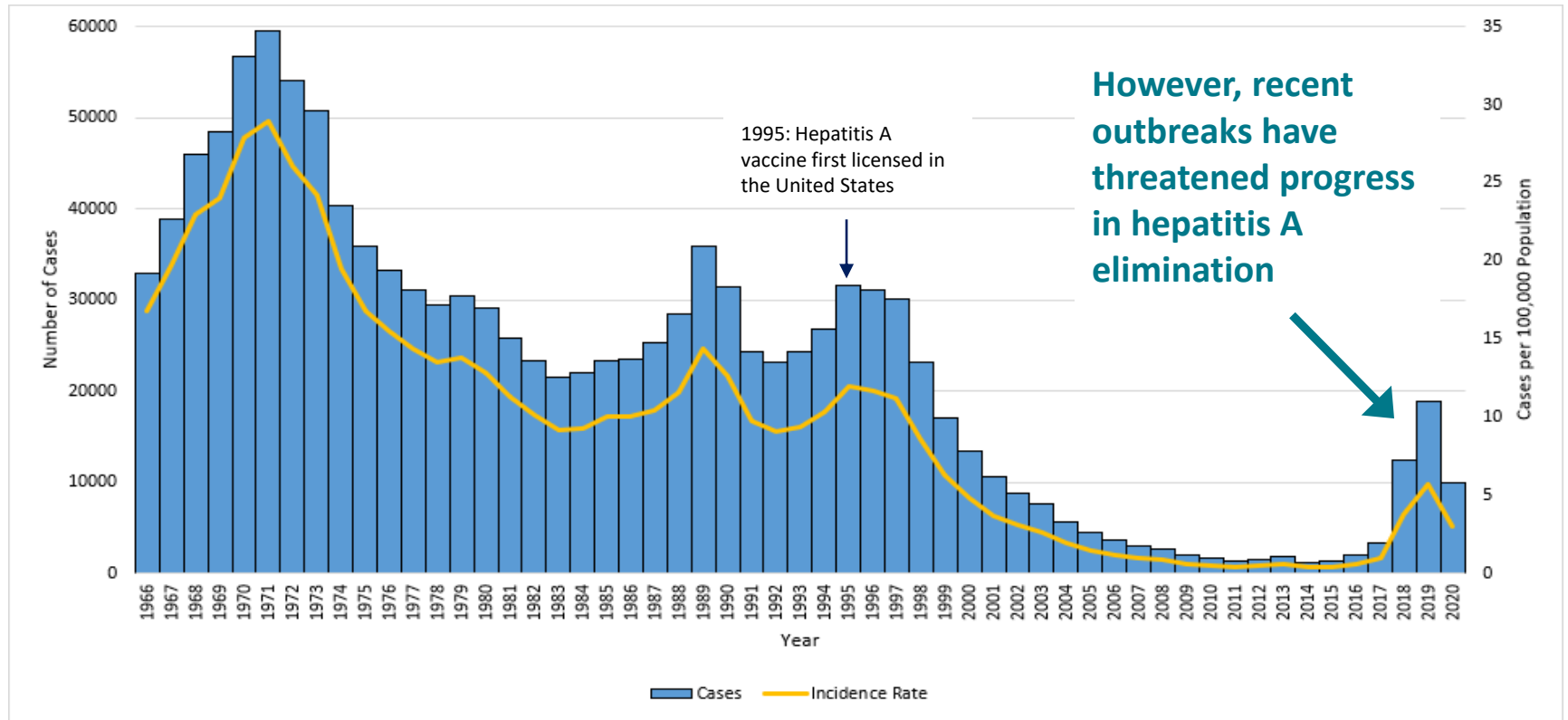
Hepatitis A

Tremendous Success with Hepatitis A...



Source: Adapted from Hofmeister et al. [Public Health Rep](#); 2023.

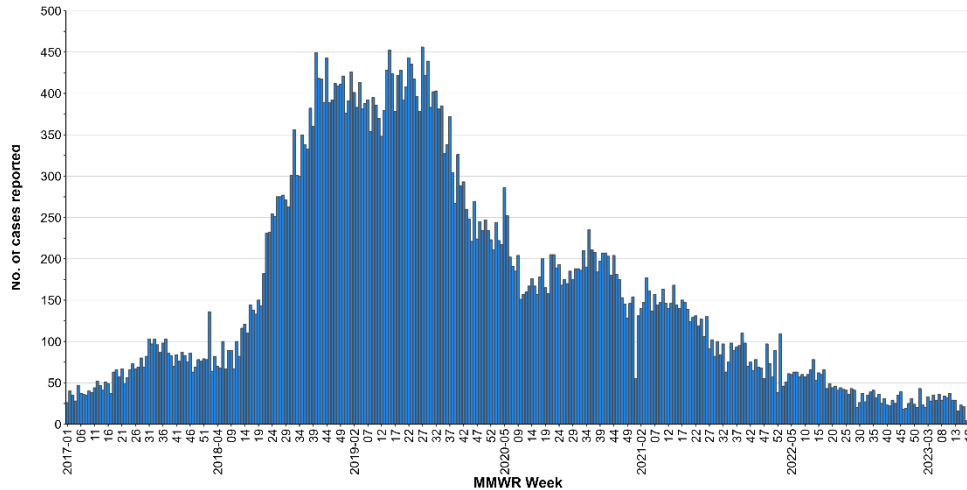
Tremendous Success with Hepatitis A...



Source: Adapted from Hofmeister et al. [Public Health Rep](#); 2023.

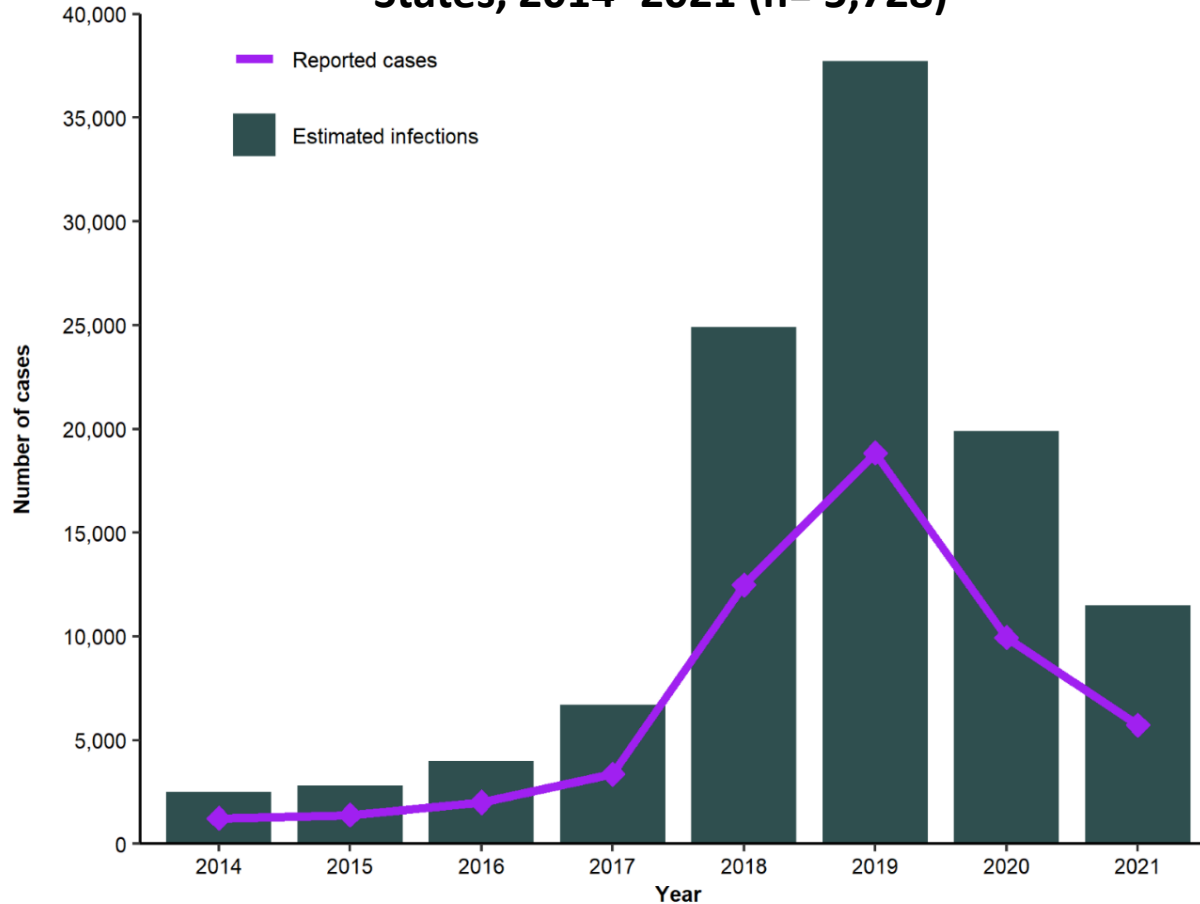
Widespread Outbreaks of Hepatitis A

37 states reported outbreaks of hepatitis A, primarily among persons who **use drugs** or are experiencing **homelessness**. Outbreaks have been **prolonged** and **difficult to control**.



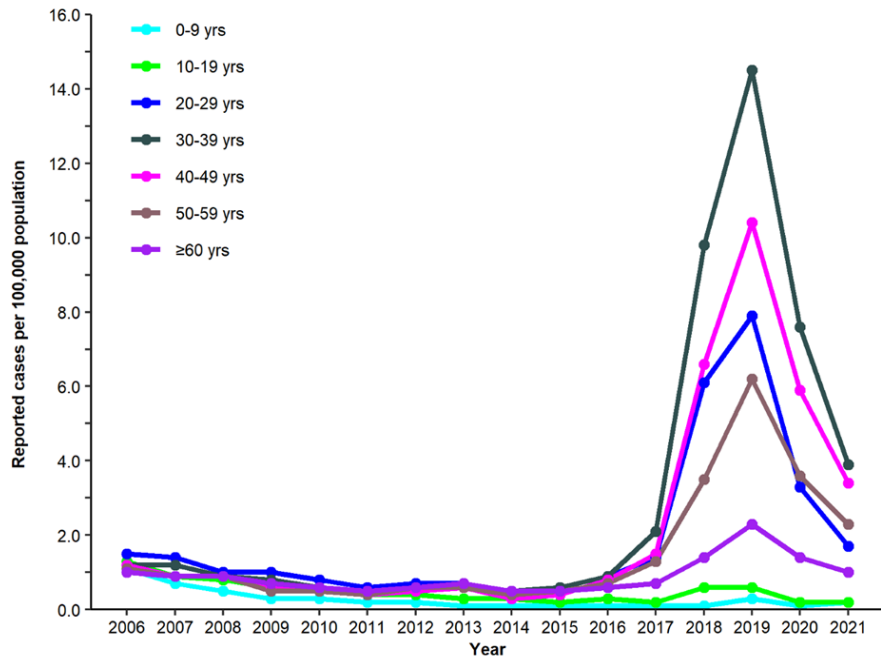
- As of July 7, 2023:
 - **44,896** cases
 - **27,428** hospitalizations
 - **423** deaths
- Although 33 states have declared outbreaks over, many people **remain susceptible** to hepatitis A virus

Number of reported cases of hepatitis A virus infection and estimated infections — United States, 2014–2021 (n= 5,728)

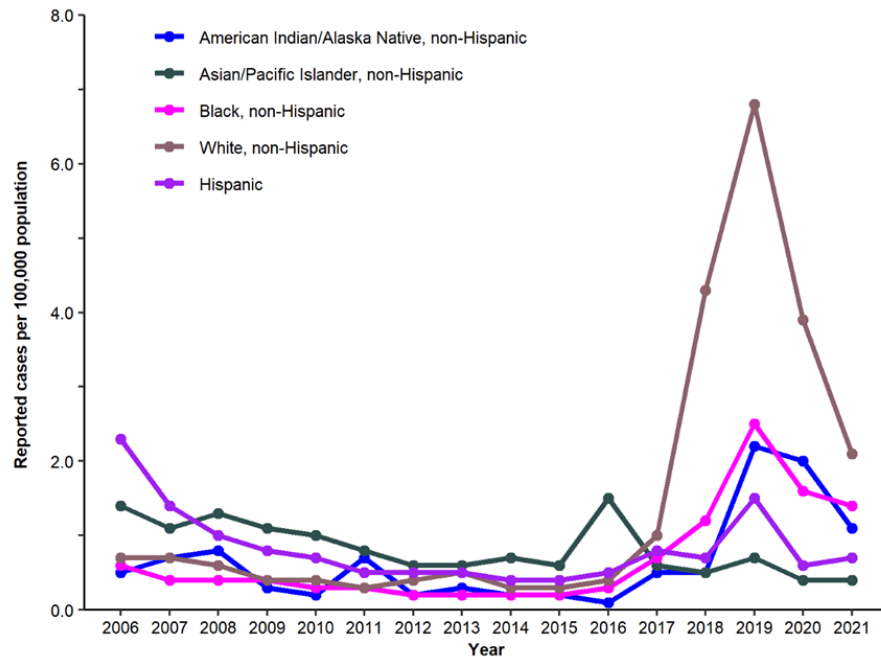


Rates of reported cases of acute hepatitis A virus infection, United States, 2006-2021

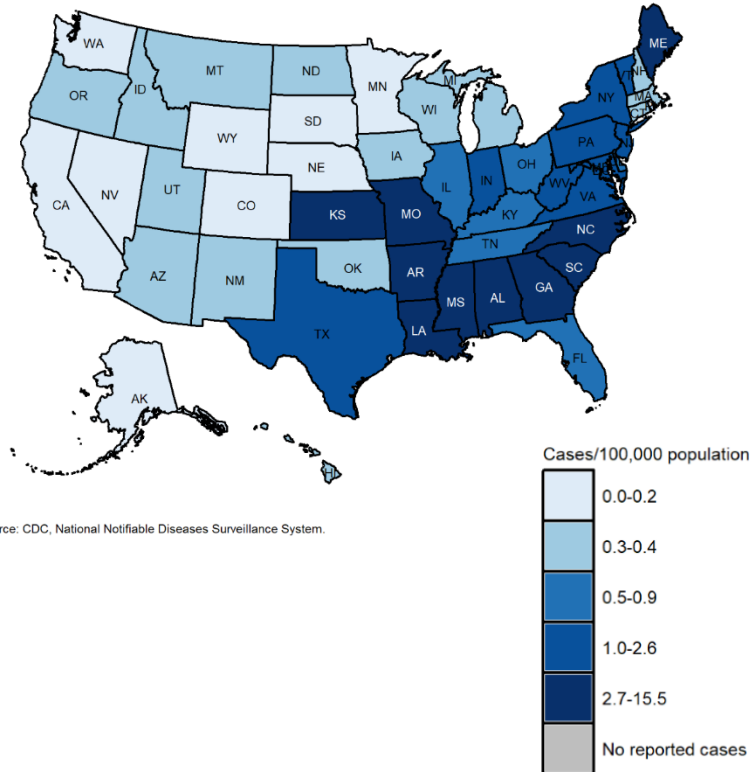
By age group



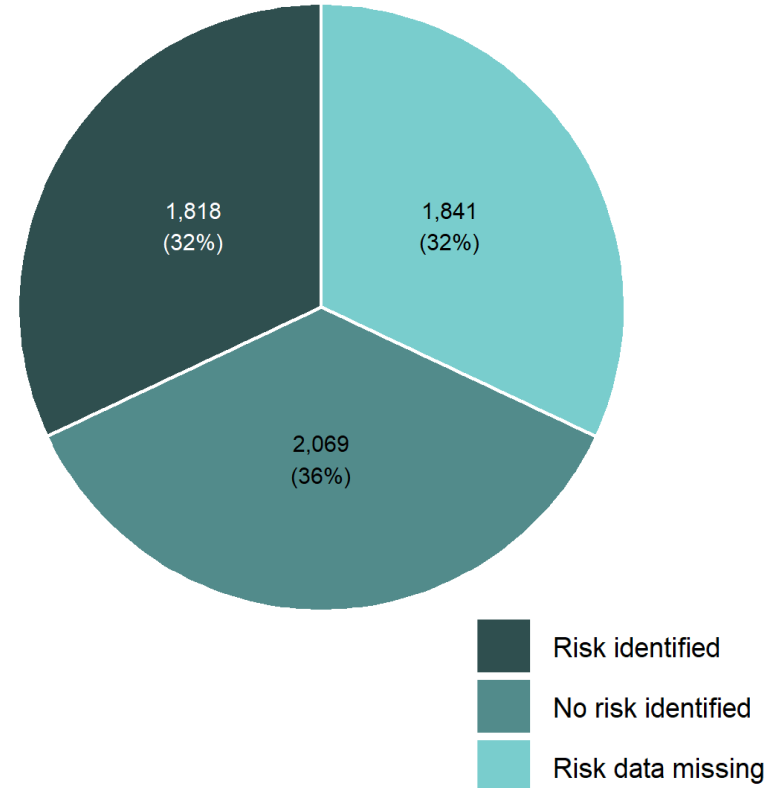
By race & ethnicity



Rates of reported cases of acute hepatitis A virus infection, by state or jurisdiction — United States, 2021



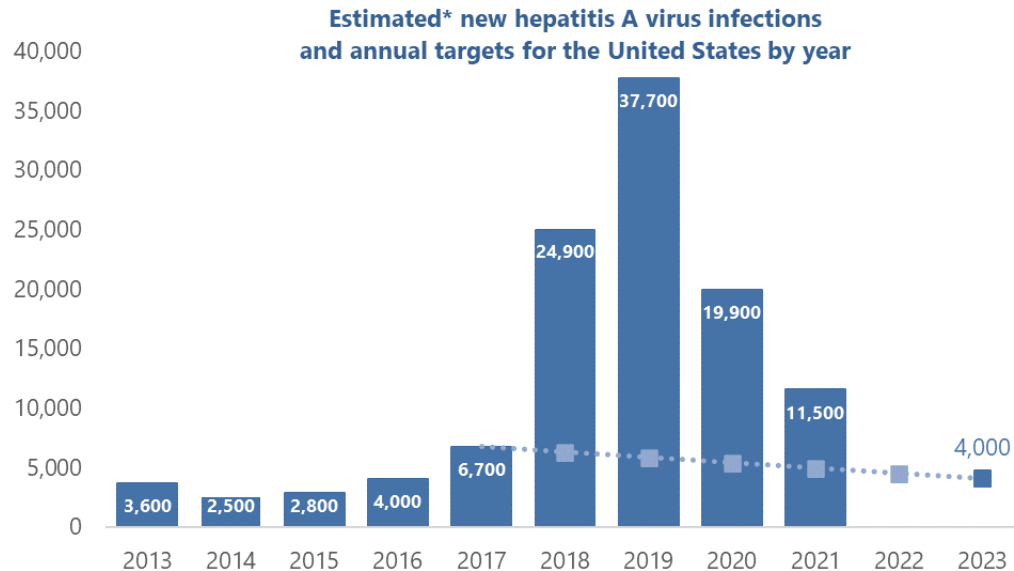
Reported risk behaviors or exposures among reported cases of hepatitis A virus infection — United States, 2021



Summary: Hepatitis A Surveillance

- **Decrease** in hepatitis A cases in 2021
 - **43% decrease** from number of cases reported in 2020
 - Remains **4 times** number of cases in 2015, before [person-to-person outbreaks](#) were first reported
- Overall rate of 1.7 per 100,000 persons, **highest rates** among persons
 - **30-39 years** and **40-49 years** of age
 - **Non-Hispanic, White persons**
 - States in **Eastern & Southern** regions
- 14 additional states [declared end to outbreaks](#) among people who use drugs and people experiencing homelessness
 - Among the 37 states that had an outbreak, currently 4 remain active

National Progress Report 2025 Goal: Reduce estimated new hepatitis A virus infections by $\geq 40\%$



National Progress Report 2025 Goal



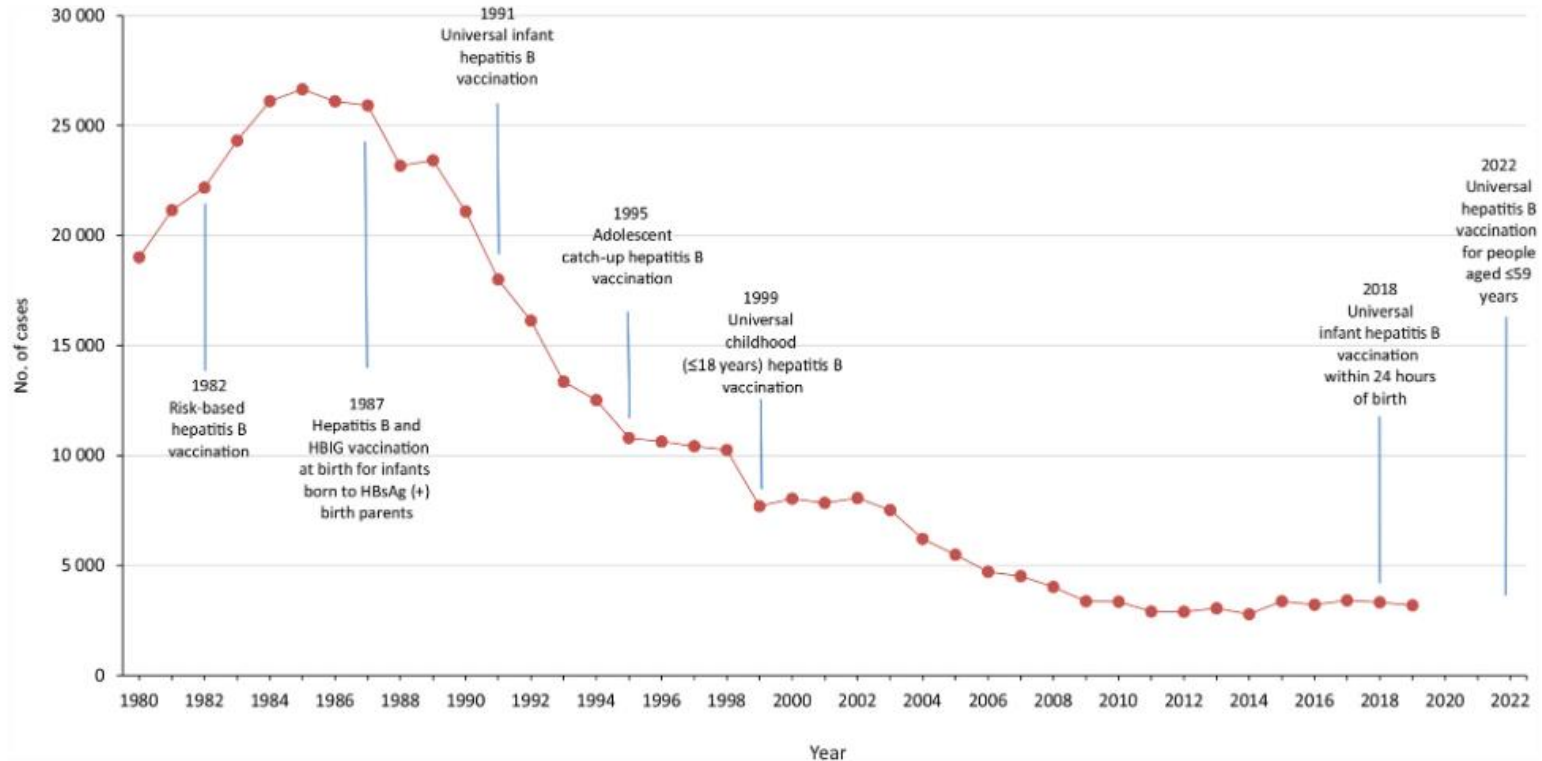
Status: Moving *toward* annual target, but annual target was not fully met

Key Findings

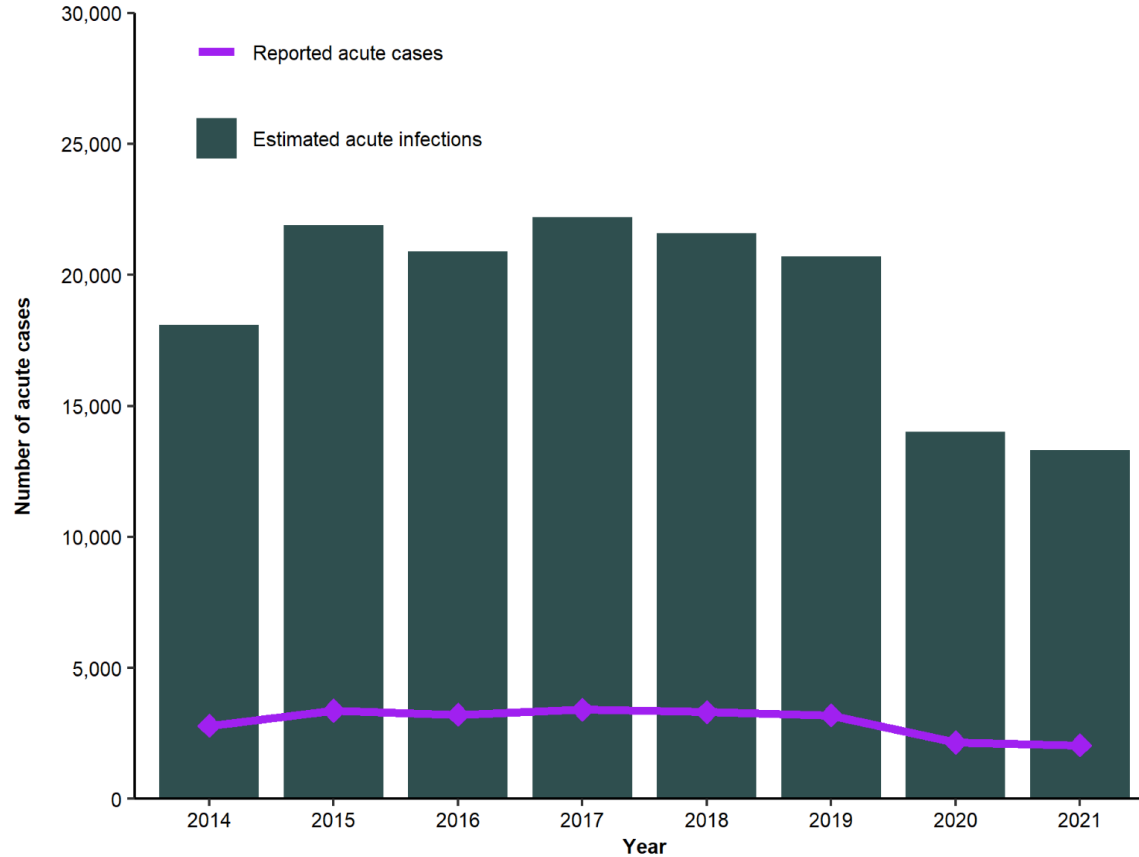
- 2021 is the second-year hepatitis A has decreased, after 5 years of consecutive increase
- Consistent with resolving hepatitis A outbreaks in several states
- A **65%** reduction from the 2021 estimate is needed to meet 2025 goal of 4,000 estimated infections

Hepatitis B

Hepatitis B: Progress and Unfinished Business

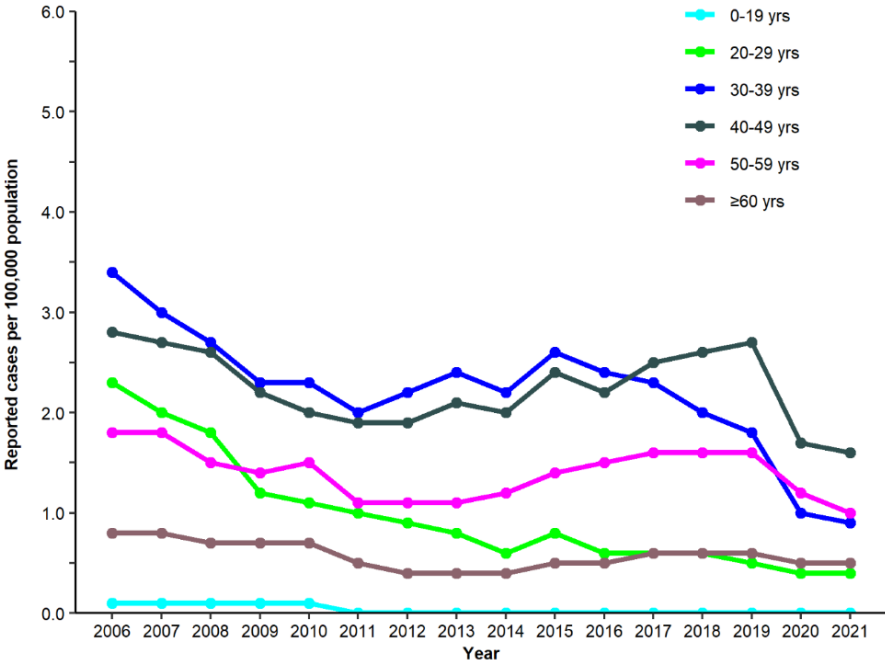


Number of reported cases of acute hepatitis B virus infection and estimated infections — United States, 2014–2021 (n=2,045)

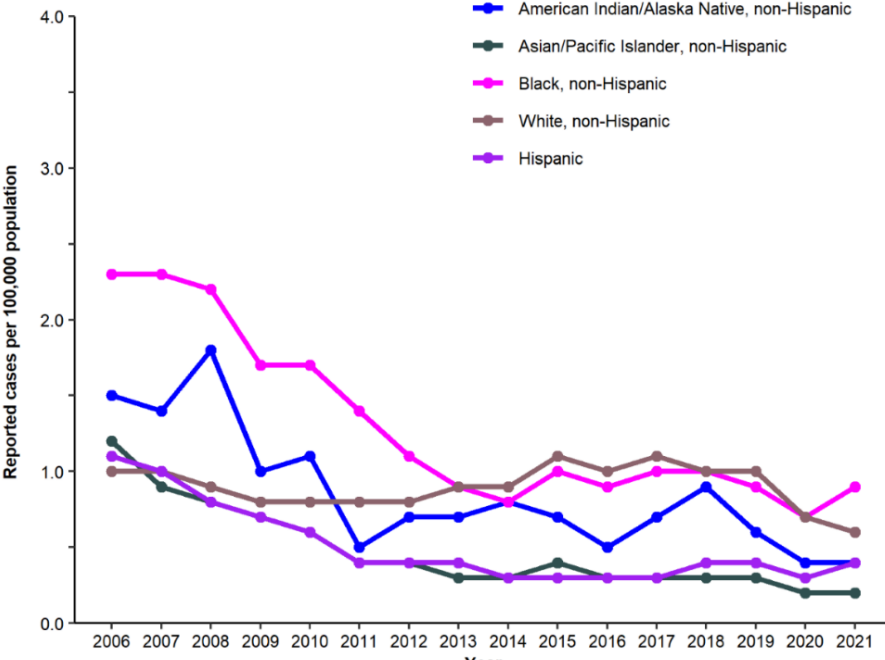


Rates of reported cases of acute hepatitis B virus infection United States, 2006-2021

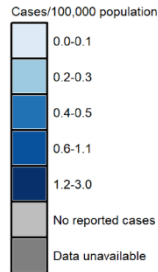
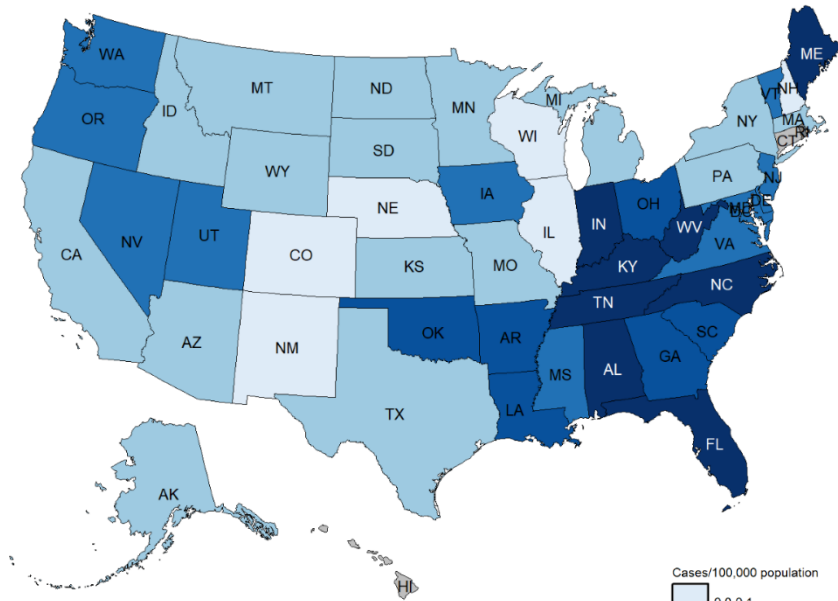
By age group



By race & ethnicity

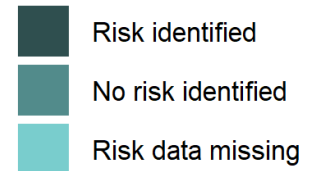
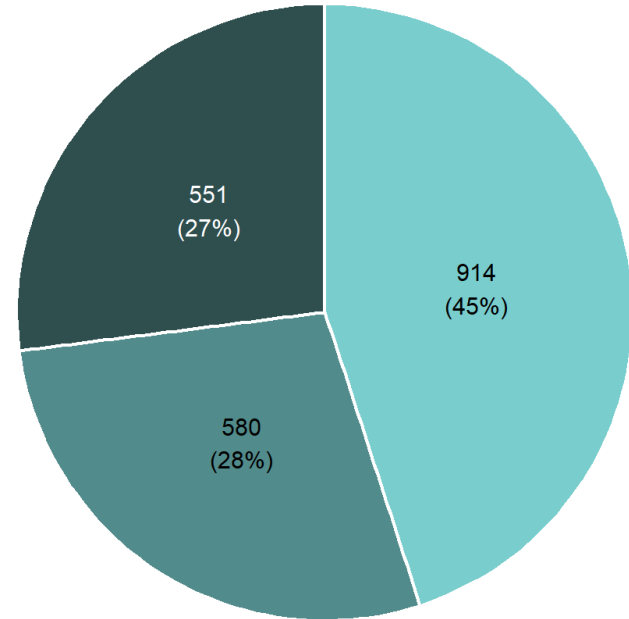


Rates of reported cases of acute hepatitis B virus infection, by state or jurisdiction — United States, 2021



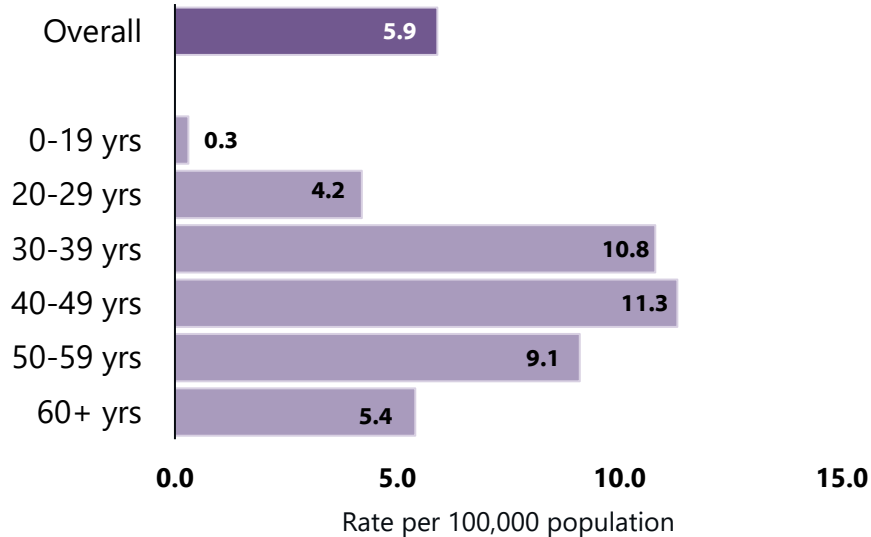
Source: CDC, National Notifiable Diseases Surveillance System.

Reported risk behaviors or exposures among reported cases of acute hepatitis B virus infection — United States, 2021

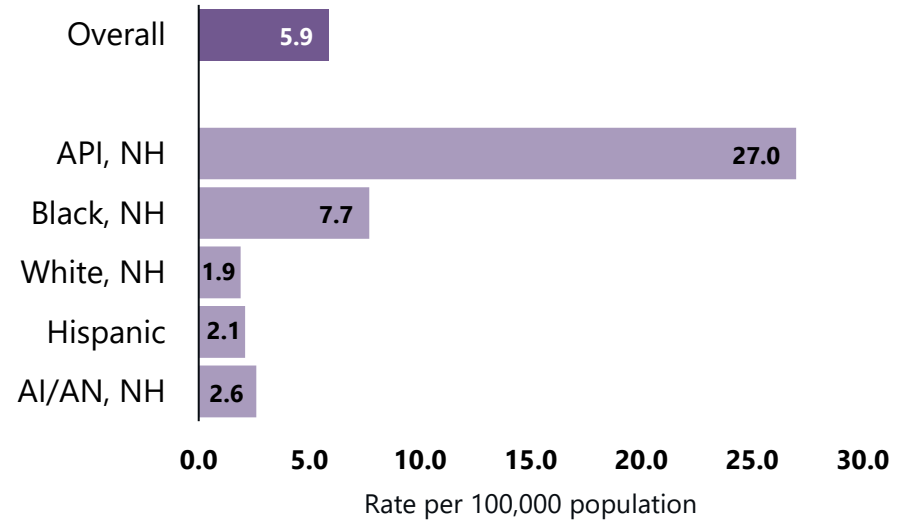


Rates of newly reported cases of chronic hepatitis B, by demographic characteristic, 2021 (n=14,229)

By age group



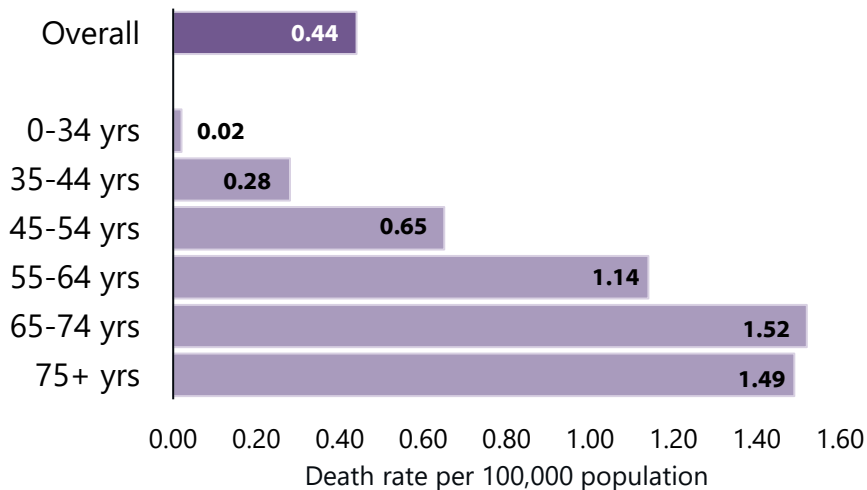
By race & ethnicity



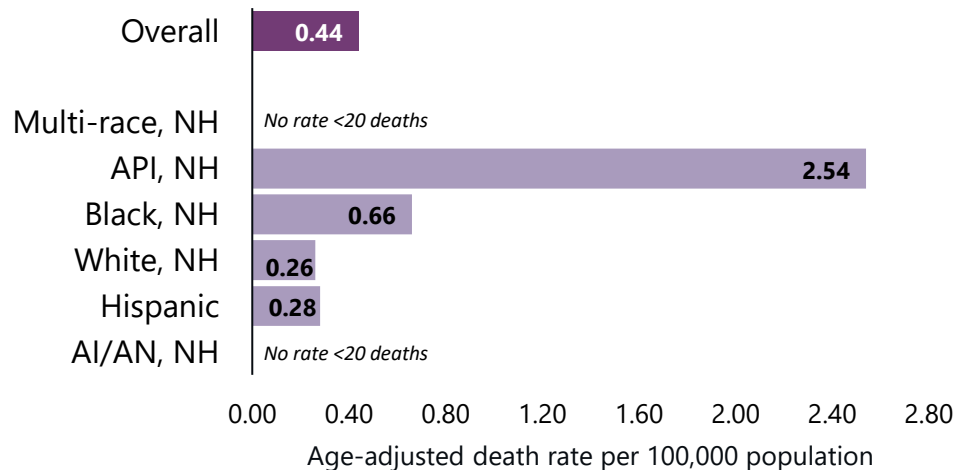
API: Asian/Pacific Islander
NH: Non-Hispanic
AI/AN: American Indian/Alaska Native

Rates of death with hepatitis B listed as a cause of death among US residents, by demographic characteristic, 2021 (n=1,748)

By age group



By race & ethnicity



API: Asian/Pacific Islander
NH: Non-Hispanic
AI/AN: American Indian/Alaska Native

Summary: Hepatitis B Surveillance

- **Decrease** in acute hepatitis B in 2021
 - **5% decreased** in number of cases reported from 2020
 - Declines in 2020 & 2021 following 10-years of stable rates ~1.0 per 100,000
 - Combination of prevention efforts and COVID-19 pandemic impact
- Overall acute hepatitis B rate of 0.7 per 100,000 persons, **highest rates** among persons
 - **40-49 years** of age
 - States located in **Eastern & Southern** regions
- **Risk data missing in 45%** of reported acute hepatitis B cases
 - **Increase** from 37% in 2019
 - When data present **injection drug use** most commonly risk reported
- **Rate** of newly reported **chronic hepatitis B** among **Asian/Pacific Islander** persons **14 times** the rate among non-Hispanic White persons
- **Rate of hepatitis B deaths** among **Asian/Pacific Islander** persons **10 times** the rate among non-Hispanic White persons

National Progress Report 2025 Goal:

Reduce estimated new hepatitis B virus infections by $\geq 20\%$

Key Findings

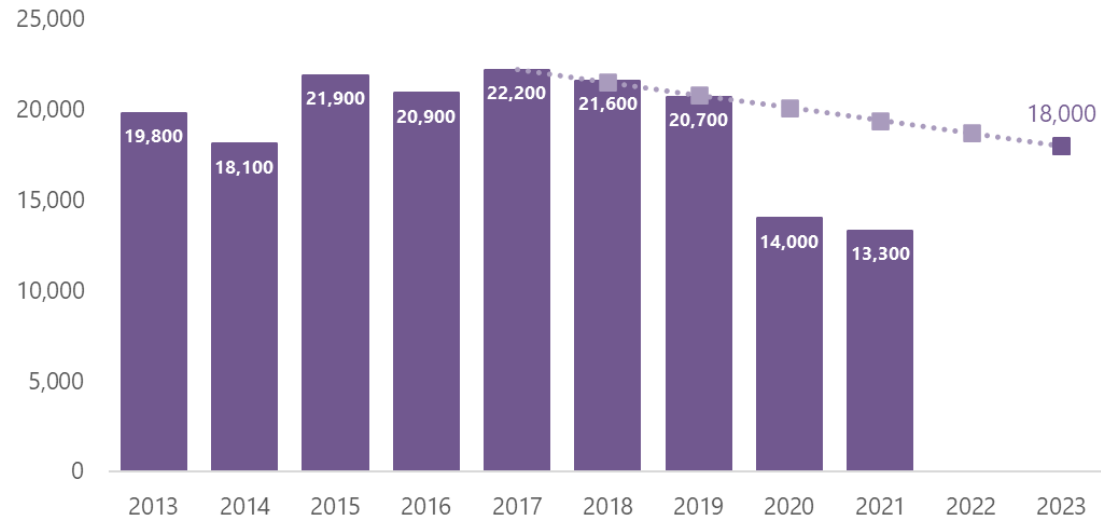
- Estimated new infections continued to decrease in 2021
 - Attributable, in part, to the impact of COVID-19 response strategies
- In 2021, the number of estimated infections is **26%** below the 2025 goal of 18,000 estimated infections

National Progress Report 2025 Goal



Status: Met or exceeded current annual target

Estimated* new hepatitis B virus infections and annual targets for the United States by year



National Progress Report 2025 Goal:

Reduce estimated new hepatitis B virus infections among persons who inject drugs by $\geq 25\%$

Key Findings

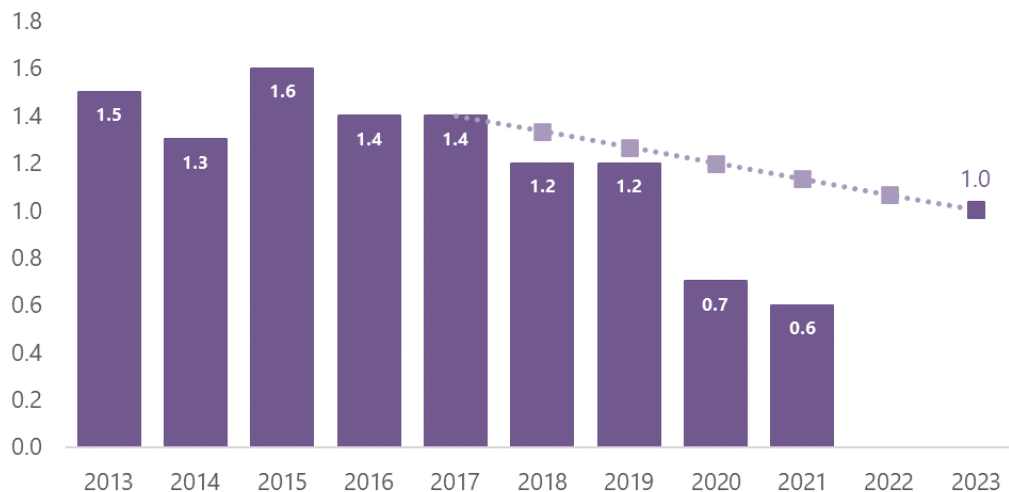
- The rate of acute hepatitis B among persons who inject drugs (persons aged 18–40 years) continued to decrease
- The observed rate in 2021 is **below** the 2025 goal of 1.0 case per 100,000 population

National Progress Report 2025 Goal



Status: Met or exceeded current annual target

Incidence rate* of reported new hepatitis B cases among persons aged 18–40 years† and annual targets for the United States by year



National Progress Report 2025 Goal:

Reduce reported rate of hepatitis B-related deaths by $\geq 20\%$

Key Findings

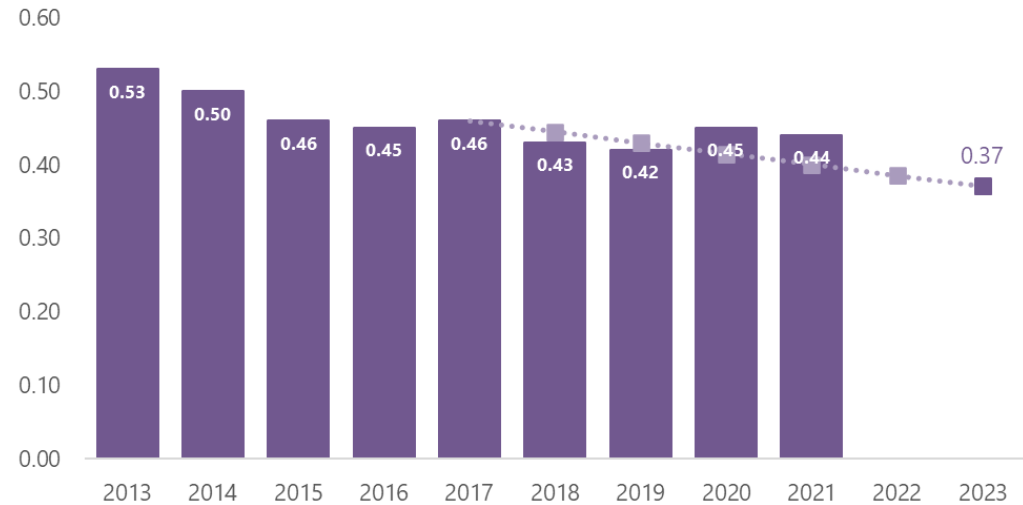
- The 2021 rate of hepatitis B-related deaths is slightly decreased from the 2020 rate
- The increase above the target may reflect, in part, the impact of COVID-19 on the overall US death rate
- A **16%** reduction from the 2021 rate is needed to meet the 2025 goal of 0.37 deaths per 100,000 population

National Progress Report 2025 Goal



Status: Moving *toward* annual target, but annual target was not fully met

Age-adjusted rate* of hepatitis B-related deaths* and annual targets for the United States by year

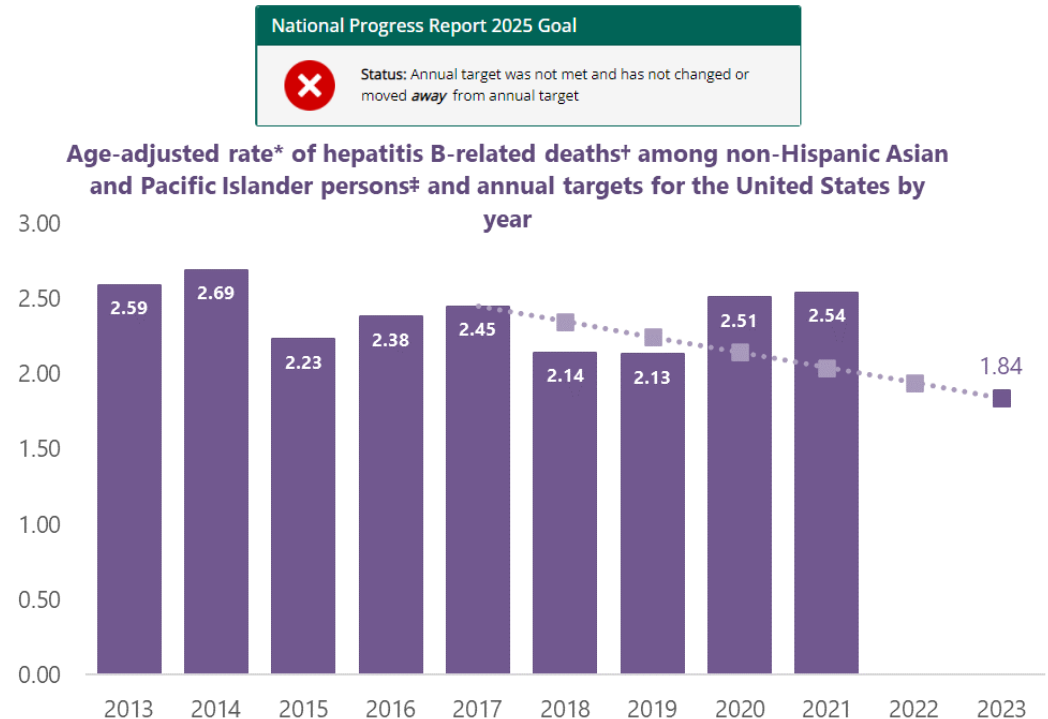


National Progress Report 2025 Goal:

Reduce reported rate of hepatitis B-related deaths among Asian and Pacific Islander (A/PI) persons by $\geq 25\%$

Key Findings

- The 2021 observed hepatitis B-related death rate among A/PI persons was substantially higher than the overall national rate (0.44)
- The increase in 2021 may, in part, be attributable to the COVID-19 pandemic
- A **28%** reduction from the 2021 rate is needed to meet the 2025 goal of 1.84 deaths per 100,000 population



Hepatitis B Prevalence in the United States

Hepatology Communications

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2017–March 2020 NHANES data

- Estimated 660,000 persons had HBV infection, and 50% were aware of their infection
- Almost half of the persons with HBV infection were NH Asian, and almost three-quarters were born outside the US

RESEARCH LETTER

Prevalence and awareness of Hepatitis B virus infection in the United States: January 2017 - March 2020

Bixler, Danae; Barker, Laurie; Lewis, Karon; Peretz, Lauren; Teshale, Eyasu

Author Information

Hepatology Communications 7(4):e0118, April 2023. | DOI: 10.1097/HC9.0000000000000118

OPEN Metrics

Abstract

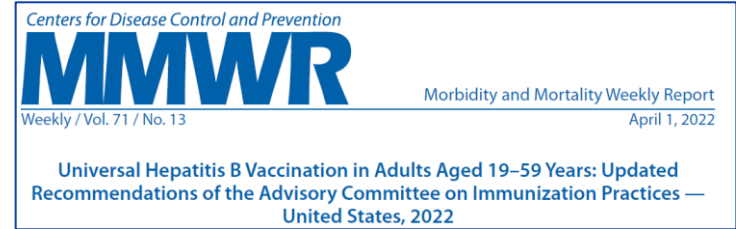
Background: Prevalence and awareness of HBV infection are important national indicators of progress toward hepatitis B elimination.

Methods: National Health and Nutrition Examination Survey participants were examined for laboratory evidence of HBV infection (positive antibody to HBcAg and HBsAg), and interviewed to determine awareness of HBV infection. Estimates of HBV infection prevalence and awareness were calculated for the US population.

Findings: Among National Health and Nutrition Examination Survey participants aged 6 years and older evaluated from January 2017 through March 2020, an estimated 0.2% had HBV infection; of these 50% were aware of their infection.

Bixler et al. Prevalence and awareness of Hepatitis B virus infection in the United States: January 2017 - March 2020. *Hepatology Communications* 7(4):e0118, April 2023. | DOI: 10.1097/HC9.0000000000000118

Hepatitis B Vaccination Recommendations Among Adults – United States, 2022



- **The Advisory Committee on Immunization Practices (ACIP) recommends the following groups should receive hepatitis B vaccines:**
 - **Adults aged 19 – 59 years**
 - Adults aged ≥ 60 years with risk factors for hepatitis B
- **The ACIP recommends the following groups may receive hepatitis B vaccines:**
 - Adults aged ≥ 60 years without known risk factors for hepatitis B

2023 Updated Hepatitis B Screening and Testing Recommendations

[New] Screening is recommended

- For all adults aged > 18 years at least once in a lifetime
- For anyone who requests it
- Using a 3-test panel (HBsAg, Anti-HBs, Total anti-HBc)

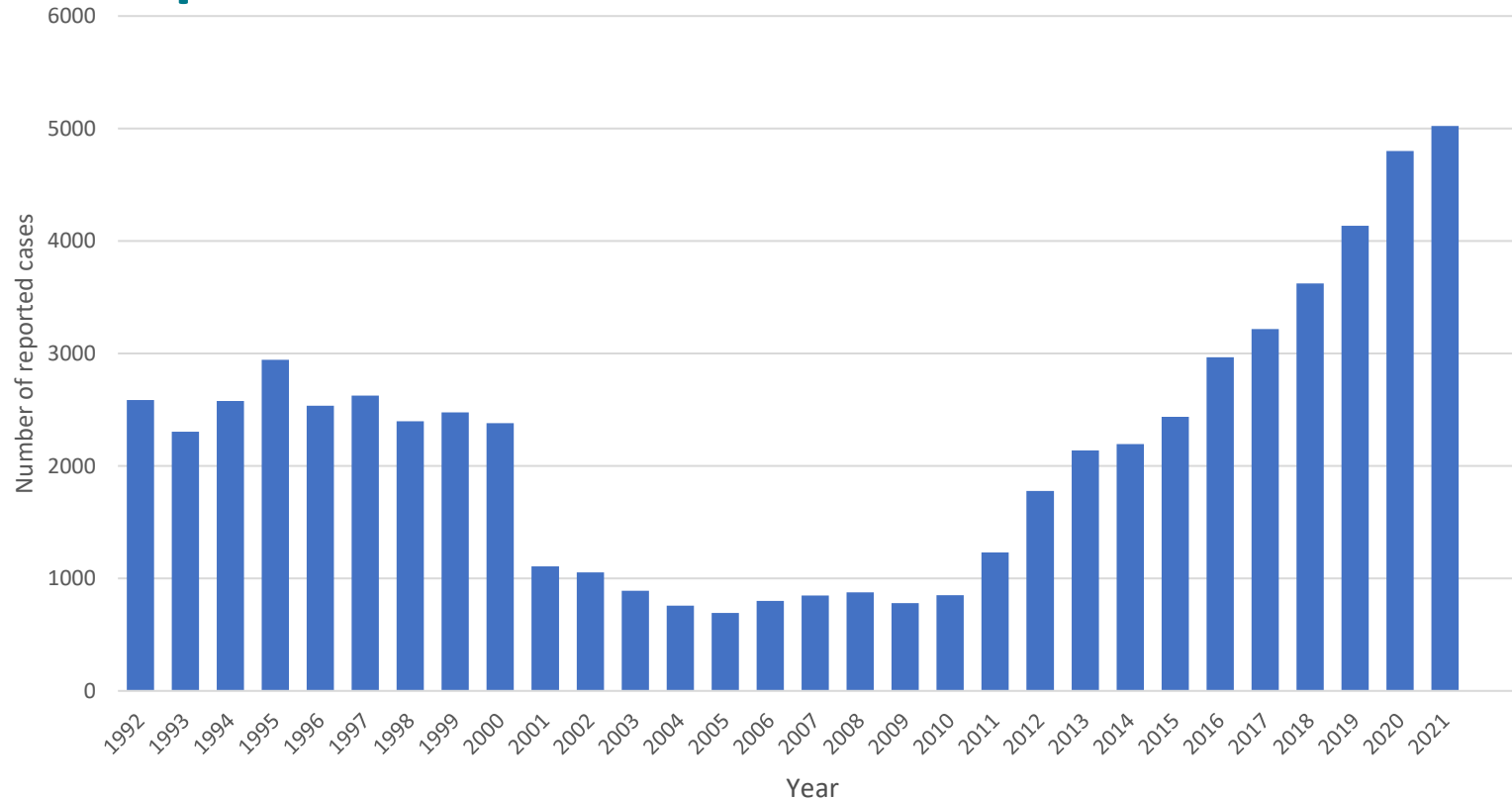
[Unchanged]

- Screening is recommended for all pregnant persons during each pregnancy, preferably in the first trimester, regardless of vaccination status or history of testing
- Testing is recommended for anyone with a history of risk (all ages)
 - Susceptible during the period of risk
- Periodic testing for susceptible persons with ongoing risk (all ages)



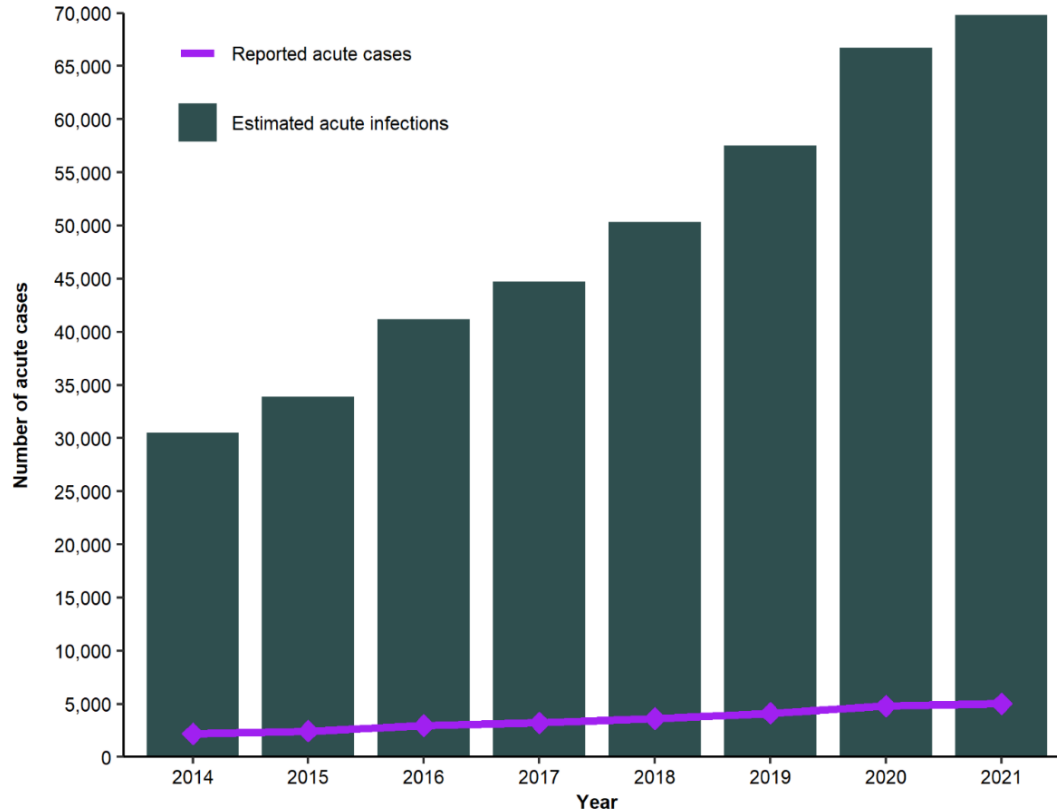
Hepatitis C

Acute Hepatitis C Cases Continue to Be on the Rise



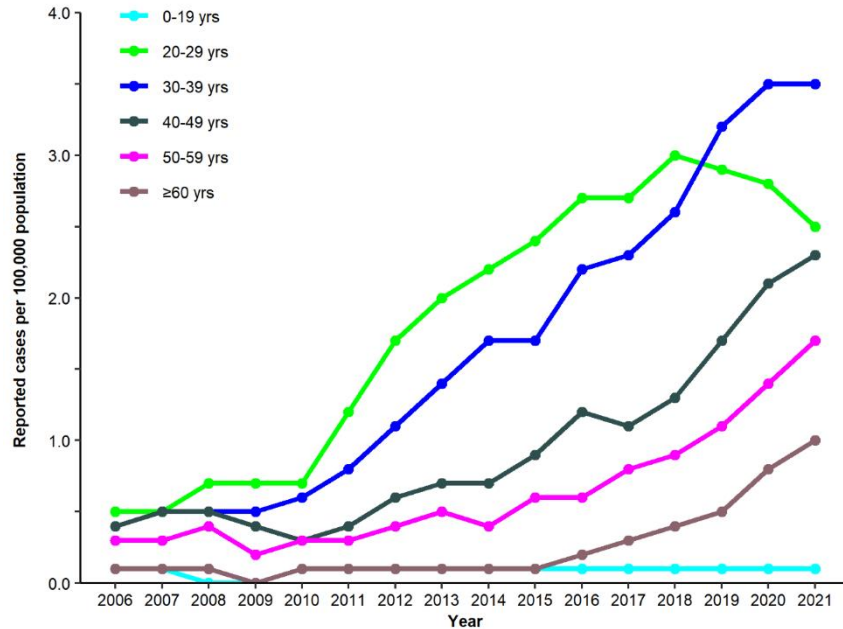
Source: CDC, National Notifiable Diseases Surveillance System. Several [case definitions](#) were implemented over this time period.

Number of reported cases of acute hepatitis C virus infection and estimated infections — United States, 2014–2021 (n= 5,023)

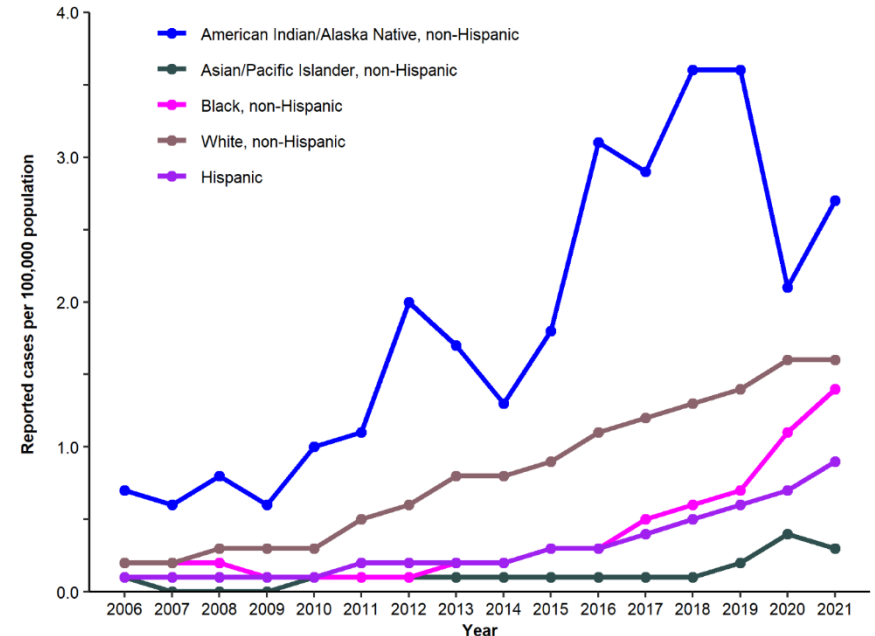


Rates of reported cases of acute hepatitis C virus infection, United States, 2006–2021

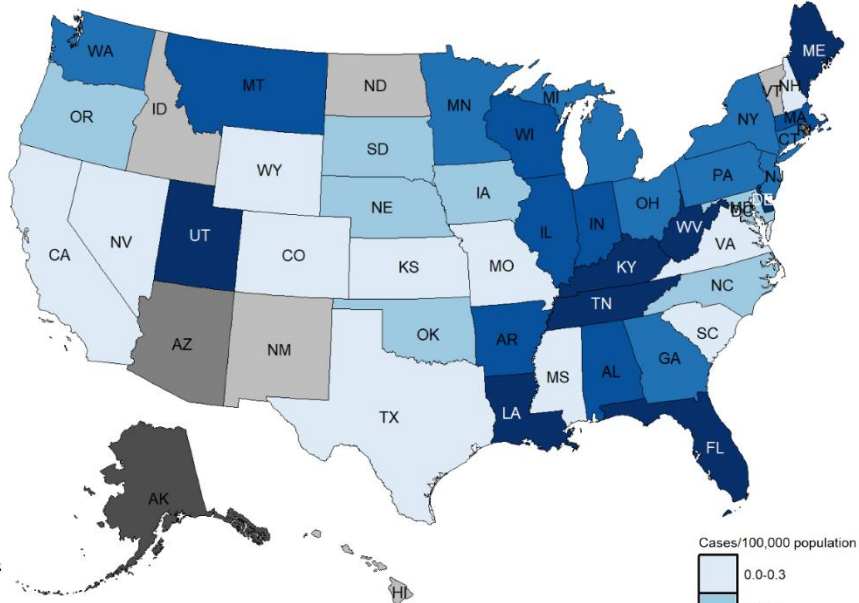
By age group



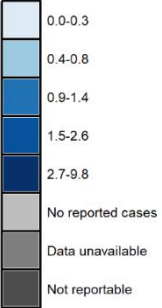
By race & ethnicity



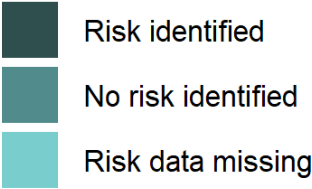
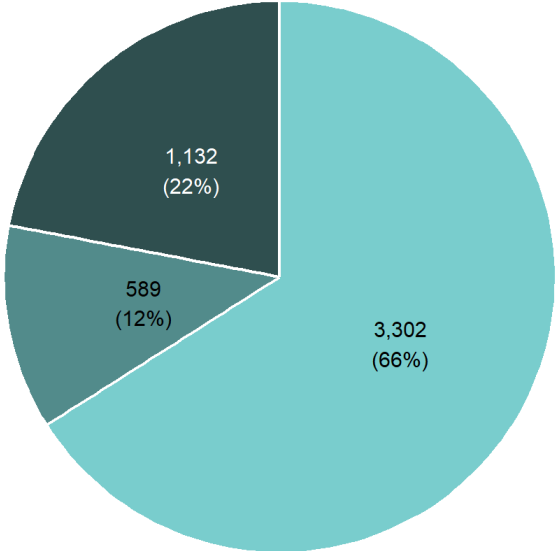
Rates of reported cases of acute hepatitis C virus infection, by state or jurisdiction — United States, 2021



Cases/100,000 population



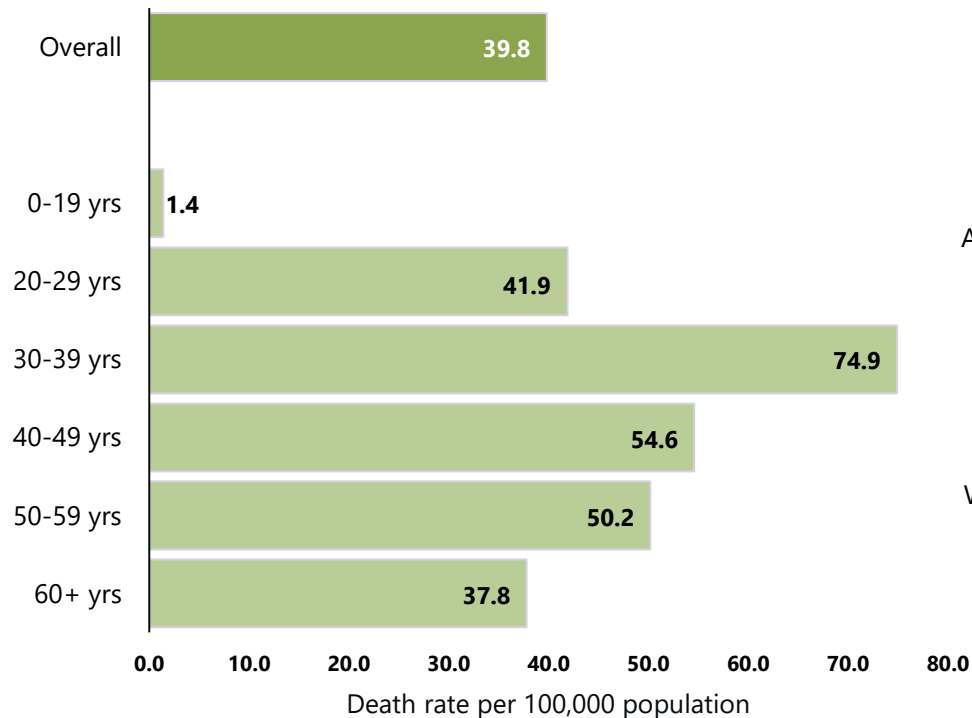
Reported risk behaviors or exposures among reported cases of acute hepatitis C virus infection — United States, 2021



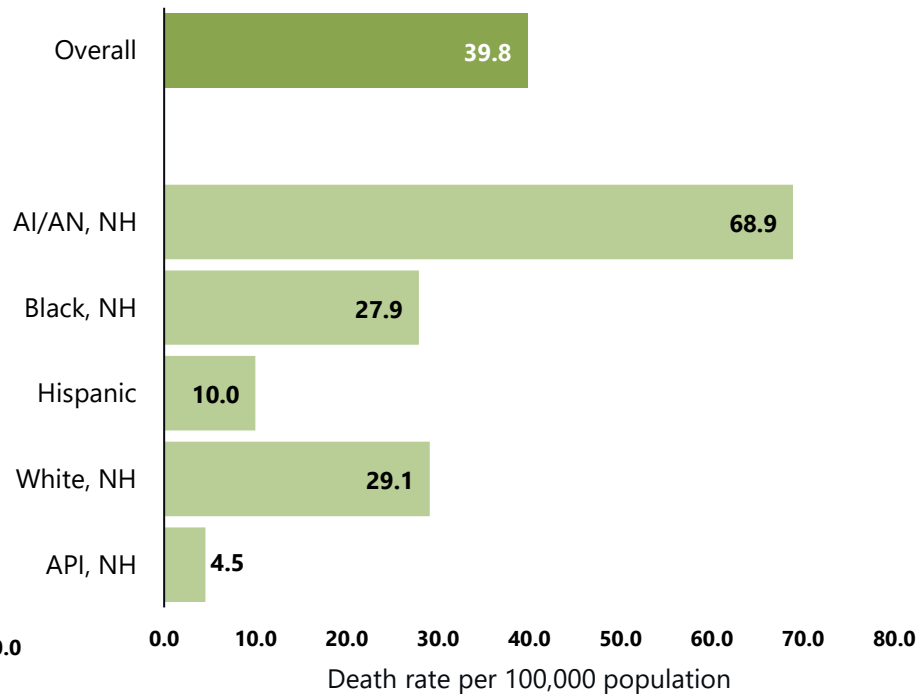
Source: CDC, National Notifiable Diseases Surveillance System.

Rates of newly reported chronic hepatitis C by demographic characteristic, 2021 (n=107,540)

By age group



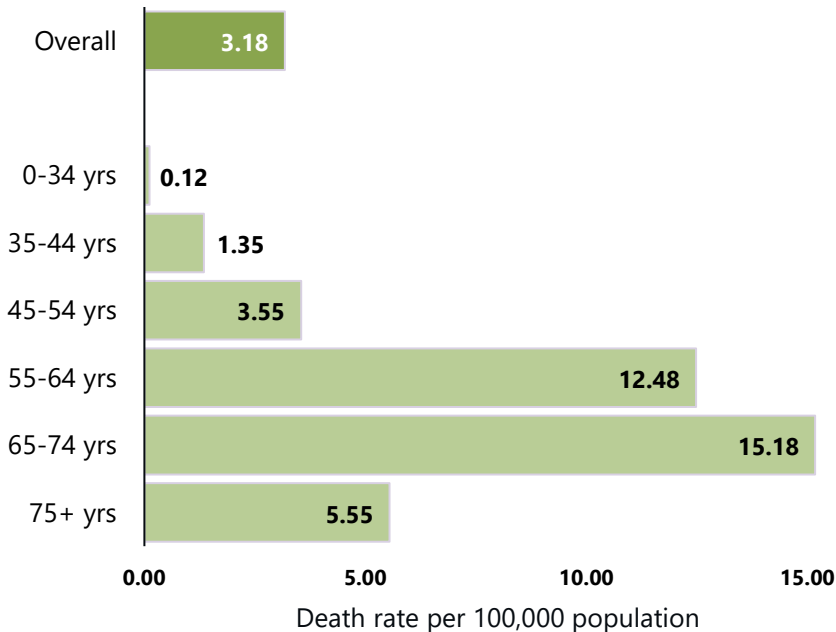
By race & ethnicity



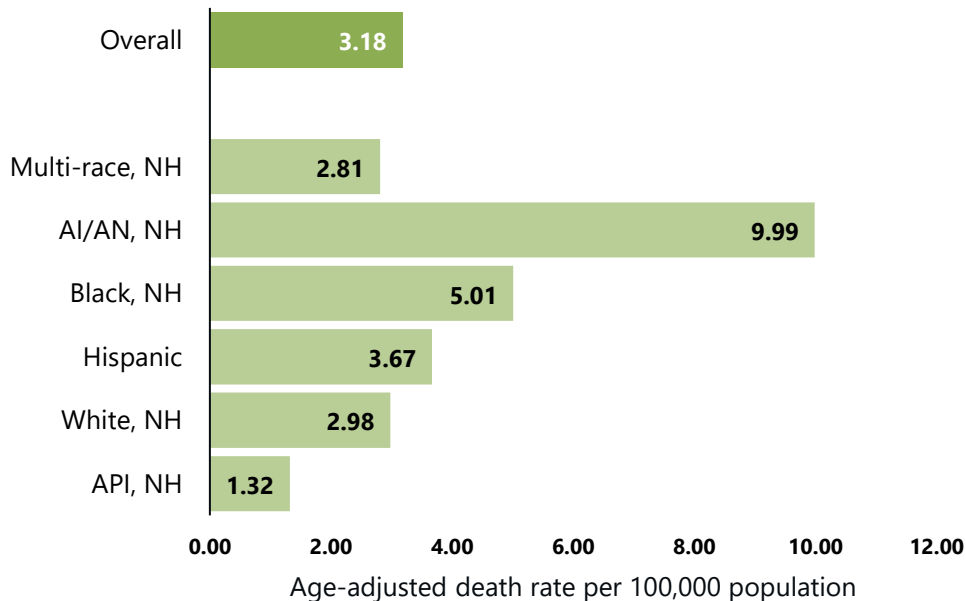
API: Asian/Pacific Islander
NH: Non-Hispanic
AI/AN: American Indian/Alaska Native

Rates of death with hepatitis C listed as a cause of death among US residents, by demographic characteristic, 2021 (n=13, 895)

By age group



By race & ethnicity



API: Asian/Pacific Islander
NH: Non-Hispanic
AI/AN: American Indian/Alaska Native

Summary: Hepatitis C Surveillance

- **Increase** in acute hepatitis C in 2021
 - **6% increase** in number of reported cases from 2020
 - **129% increase** since 2014
- Overall acute hepatitis C rate of 1.6 per 100,000 persons, **highest rates** among
 - persons **30-39** and **20-29-years** of age, but 3 years of decrease in persons **20-29 years**
 - States in **Eastern & Southern** regions
- **Risk data missing for 66%** of reported acute hepatitis C cases
 - **Increase** from 46% in 2019
 - When data present, **injection drug use** reported for 57% of cases
- Rates of newly reported **chronic hepatitis C highest** among
 - persons **30 –39 years** of age
 - **American Indian/Alaska Native** persons
- **Decrease** in **hepatitis C death rate** in 2021, though still **highest rates** among
 - **American Indians/Alaska Native** and **Non-Hispanic Black** persons

National Progress Report 2025 Goal:

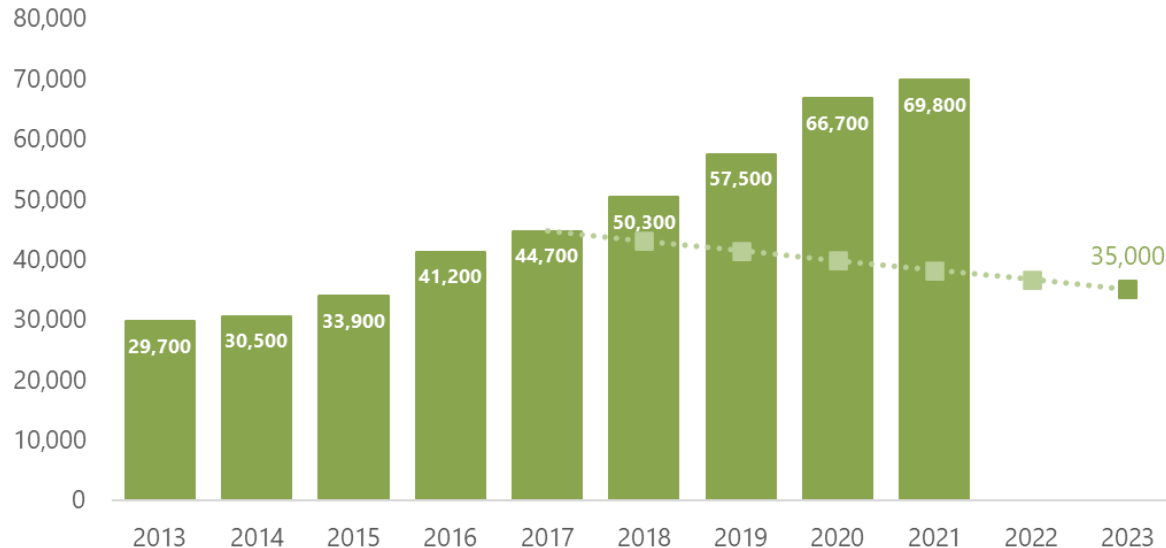
Reduce estimated new hepatitis C virus infections by $\geq 20\%$

National Progress Report 2025 Goal



Status: Annual target was not met and has not changed or moved **away** from annual target

Estimated* new hepatitis C virus infections and annual targets for the United States by year



Key Findings

- Cases of acute hepatitis C continue to rise
 - Reflects true increases in incidence and improved ascertainment due to case definition change in 2020
- A **50%** reduction from the 2021 count is needed to meet the 2025 goal of 35,000 estimated infections

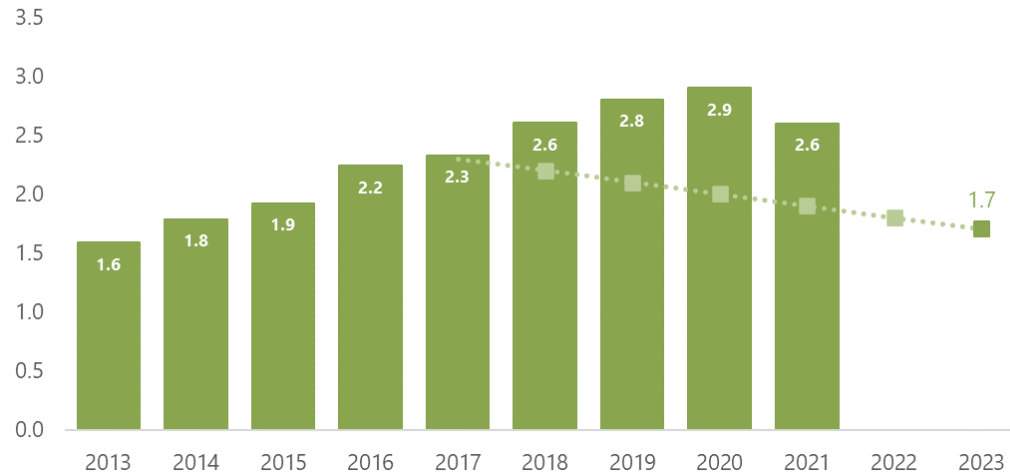
National Progress Report 2025 Goal:

Reduce estimated new hepatitis C virus infections among persons who inject drugs by $\geq 25\%$

National Progress Report 2025 Goal

→ Status: Moving *toward* annual target, but annual target was not fully met

Incidence rate* of reported new hepatitis C cases among persons aged 18–40 years† and annual targets for the United States by year



Key Findings

- Following 8 years of increase, the rate of acute hepatitis C among persons who inject drugs (persons aged 18-40 years) decreased in 2021
- A **35%** reduction from the 2021 rate is needed to meet the 2025 goal of 1.7 cases per 100,000 population

National Progress Report 2025 Goal:

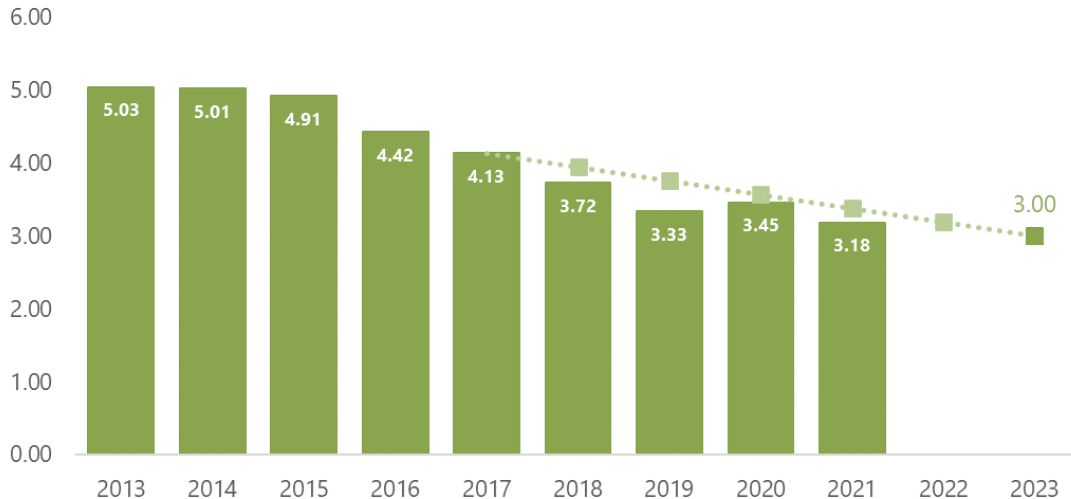
Reduce reported rate of hepatitis C-related deaths by $\geq 20\%$

National Progress Report 2025 Goal



Status: Met or exceeded current annual target

Age-adjusted rate* of hepatitis C-related deaths† and annual targets for the United States by year



Key Findings

- Hepatitis C-related death rate has steadily decreased since 2013, and the rate decreased in 2021
- A **6%** reduction from the 2021 rate is needed to meet the 2025 goal of 3.0 deaths per 100,000 population

National Progress Report 2025 Goal:

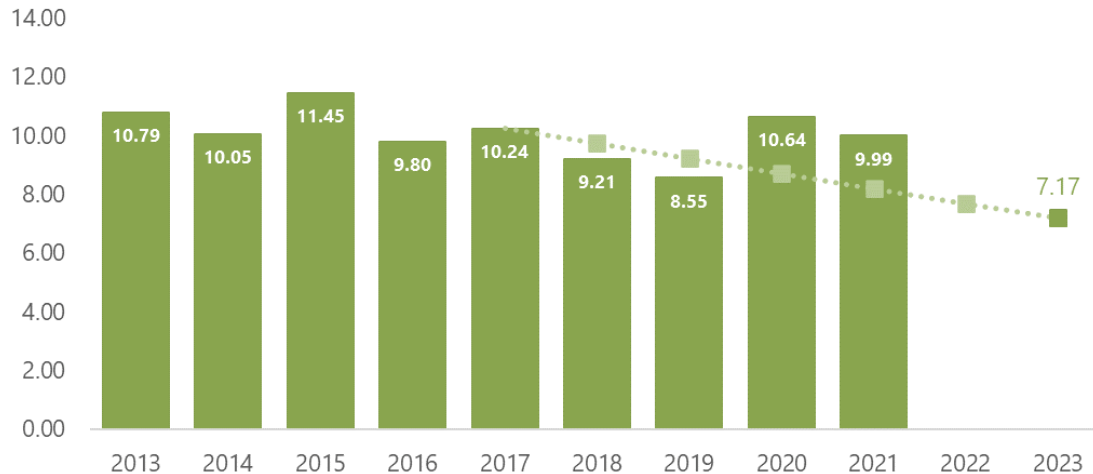
Reduce reported rate of hepatitis C-related deaths among American Indian/ Alaska Native (AI/AN) persons by $\geq 30\%$

National Progress Report 2025 Goal



Status: Moving *toward* annual target, but annual target was not fully met

Age-adjusted rate* of hepatitis C-related death[†] among non-Hispanic American Indian and Alaska Native persons[‡] and annual targets for the United States by year



Key Findings

- The 2021 observed hepatitis C-related death rate among AI/AN persons decreased from the 2020 rate of 10.64 but was substantially higher than the overall national rate (3.18)
- A **28%** reduction from the 2021 rate is needed to meet the 2025 goal of 7.17 deaths per 100,000 population

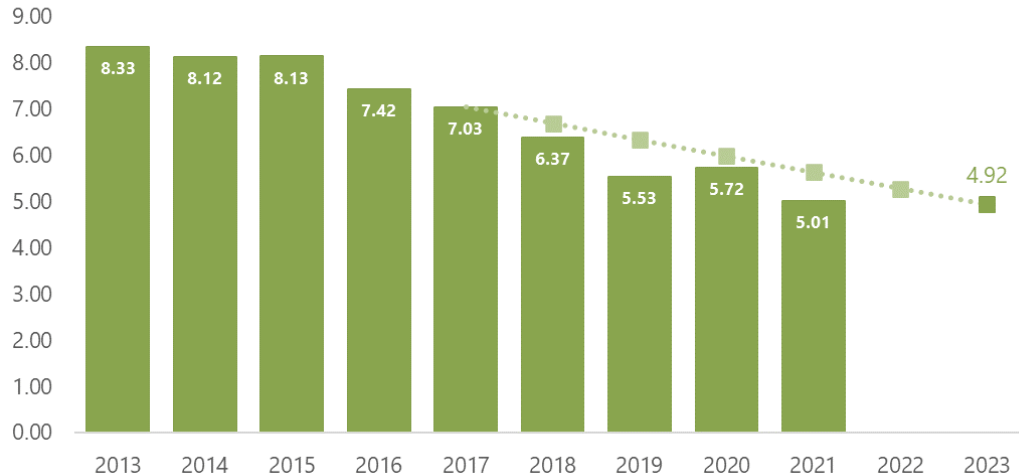
National Progress Report 2025 Goal: Reduce reported rate of hepatitis C-related deaths among non-Hispanic Black persons by $\geq 30\%$

National Progress Report 2025 Goal



Status: Met or exceeded current annual target

Age-adjusted rate* of hepatitis C-related deaths† among non-Hispanic Black persons and annual targets for the United States by year



Key Findings

- The 2021 hepatitis C-related death rate among non-Hispanic Black persons decreased from the 2020, but was substantially higher than the overall national rate (3.18)
- Although below the annual target, a **2%** reduction from the 2021 rate is needed to meet the 2025 goal of 4.92 deaths per 100,000 population

Estimated prevalence and awareness of hepatitis C virus infection among U.S. adults — National Health and Nutrition Examination Survey, January 2017–March 2020



Over **2 million** people had **current** hepatitis C virus infection during January 2017–March 2020.



Only **68%** of people with hepatitis C were **aware** of their infection.

Current HCV infection prevalence was:



5 times as high among persons experiencing **poverty** compared to persons not experiencing poverty

3 times as high among **males** compared to females

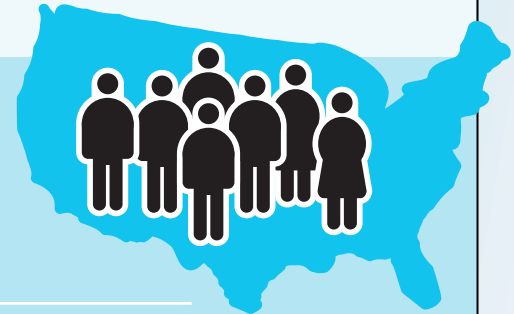


6 times as high among **uninsured persons** compared to privately insured persons

6 times as high among persons **55-64** compared to persons 18–40 years old

5 times as high among **publicly uninsured persons** compared to privately insured persons

5 times as high among **non-Hispanic White persons and non-Hispanic Black persons** compared to persons of other race or ethnicity



Safe and highly effective medications for hepatitis C have been available since 2014, yet **millions of people still have not been cured**. National action is urgently needed to **reach, test, and treat** all persons with hepatitis C with life-saving medications.

CDC's updated HCV screening recommendations

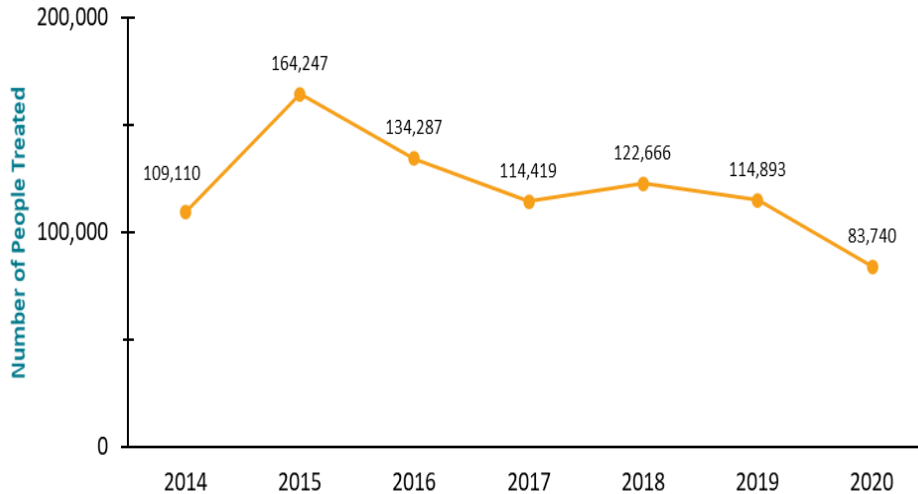
WHO SHOULD GET TESTED FOR HEPATITIS C?

EVERY ADULT 	EVERY PREGNANT WOMAN 	EVERYONE WITH RISK FACTORS 
At least once	Every pregnancy	Regularly

Source: Schillie et al, MMWR, 2020.

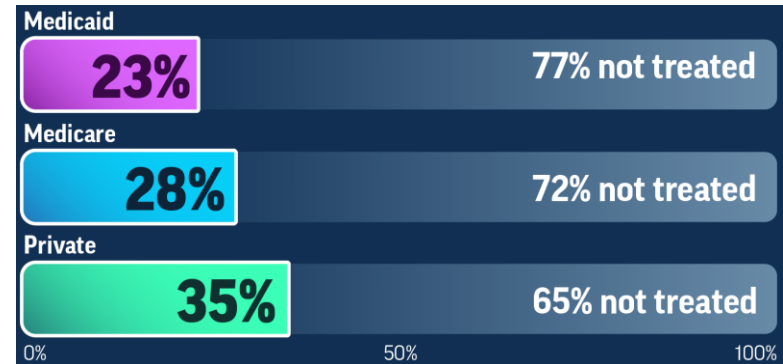
Hepatitis C Treatment Numbers Decreasing and Coverage Insufficient Even Among the Insured

Number of Persons Treated for Hepatitis C with DAAs Using National Pharmacy Claims Data, United States, 2014--2020



Source: Teshale et al, CID, 2022. DAAs = direct acting antiviral agents

Timely* Hepatitis C Treatment by Insurance Type, 2019--2020

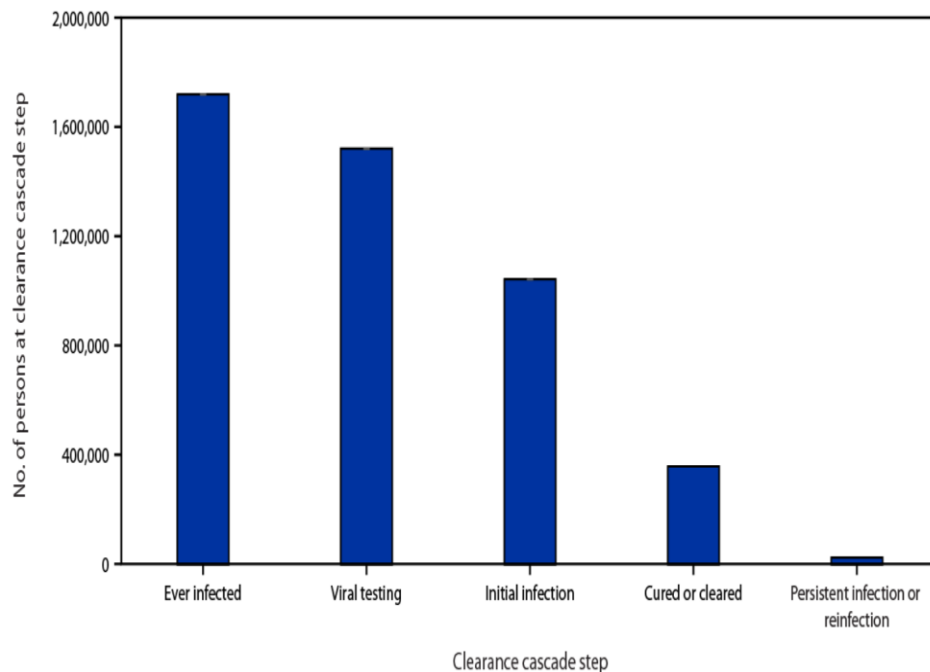


Source: Thompson et al, MMWR, 2022.

*Hepatitis C treatment started with direct acting antiviral agents ≤12 months of first positive HCV RNA during 1/30/19-10/31/20.

Hepatitis C Virus Clearance Cascade Using National Commercial Laboratory Data — United States, 2013–2022

- Among ~1 million people with diagnosed hepatitis C, only **34%** had evidence of **viral clearance**
- Viral clearance was **lowest** among persons aged **20–39 years**
- Persons with **other, unspecified, or Medicaid** payor type had **lower** viral clearance than other insurance types



Public Health Reports Supplement: Data Needed to Monitor Viral Hepatitis Elimination

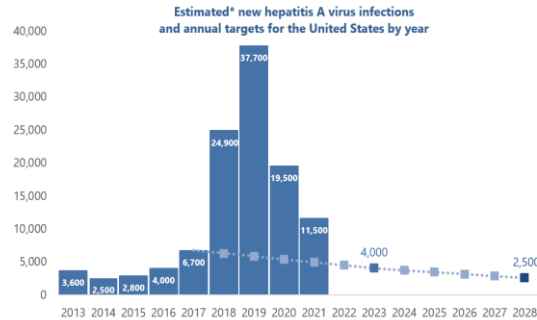
No.	Proposed Title	Article Type
1	Data needed to monitor elimination of hepatitis as a public health problem in the United States by 2030	Guest Editorial
2	Health equity and viral hepatitis	Commentary
3	Overview and history of viral hepatitis surveillance in the United States	Topical Review
4	Trends and opportunities: hepatitis A virus infection, seroprevalence, and vaccination coverage – United States, 1976–2020	Original Research
5	Progress and unfinished business: hepatitis B in the United States, 1980–2019	Topical Review
6	Care continuum models—data to inform hepatitis B elimination	Topical Review
7	Trends in hepatitis C prevalence and incidence in the United States	Topical Review
8	Hepatitis C cascades—data to inform hepatitis C elimination in the United States	Topical Review
9	Hepatitis C-HIV coinfection among persons who inject drugs – data needed for ending dual epidemics	Topical Review
10	Monitoring US trends in hepatitis C testing and surveillance reporting during risk-based and universal hepatitis C testing years	Original Research

Rolling online publication ahead of print. Full print issue expected in 2024.

Accelerated Progress Is Needed To Meet National Viral Hepatitis Elimination Goals

Hepatitis A

Reduce estimated* new hepatitis A virus infections by $\geq 65\%$



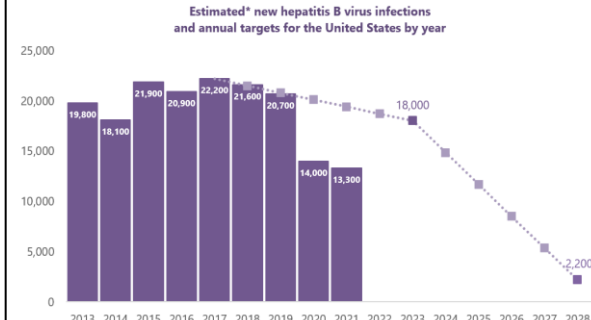
National Progress Report 2025 Goal



Status: Moving *toward* annual target, but annual target was not fully met

Hepatitis B

Reduce estimated* new hepatitis B virus infections by $\geq 90\%$



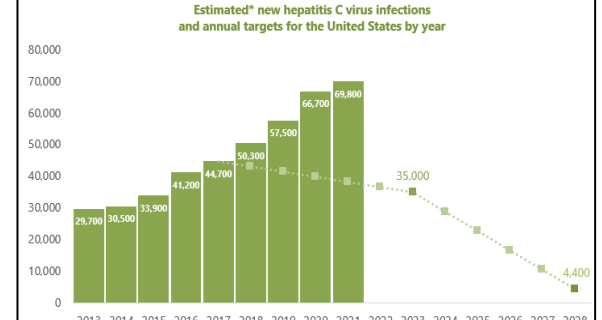
National Progress Report 2025 Goal



Status: Met or exceeded current annual target

Hepatitis C

Reduce estimated* new hepatitis C virus infections by $\geq 90\%$
(incremental 2025 goal of $\geq 40\%$ reduction)



National Progress Report 2025 Goal



Status: Annual target was not met and has not changed or moved *away* from annual target

Source: CDC, National Notifiable Diseases Surveillance System; [Viral Hepatitis Strategic Plans and Reports](#) | CDC; The number of estimated viral hepatitis cases was determined by multiplying the number of reported cases by a factor that adjusted for under-ascertainment and under-reporting (Klevens et al, 2014).

Strategies to achieve viral hepatitis goals

- Continue to respond to hepatitis A **outbreaks** among persons who use **drugs** and persons experiencing **homelessness**
- Build **capacity** for states to collect and use a core set of **surveillance** data to **characterize** the epidemiology of viral hepatitis and inform prevention
- Promote evidence-based strategies to increase uptake of **hepatitis A and hepatitis B vaccines**, including expanded ACIP recommendations for hepatitis B
- Conduct prevention research to demonstrate how best to provide **viral hepatitis vaccination, testing, and treatment** as part of comprehensive services to those at increased risk or those experiencing health inequities
- Support implementation of **community-level programs** for people who inject drugs, including **syringe services programs, medication for opioid use disorder**

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THANK YOU!!

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

