PROGRESS TOWARD »»
Viral Hepatitis
ELIMINATION
in the United States, 2017

VACCINATE
PREVENT
TEST
CURE

National Progress Report
with Data through 2015

CDC

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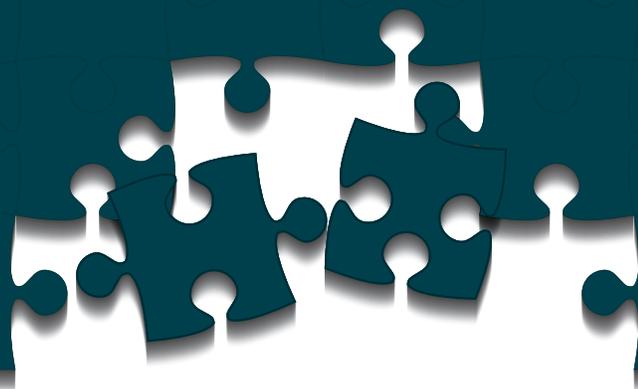
The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Acknowledgments

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Executive Summary

The Centers for Disease Control and Prevention (CDC) strives to prevent viral hepatitis infections and to eliminate disease and mortality caused by viral hepatitis. CDC prioritizes public health actions needed to achieve four strategic objectives:

1. Ensure vulnerable populations are vaccinated against viral hepatitis;

2. Ensure early detection and response to stop transmission of hepatitis B and hepatitis C;

3. Ensure persons living with hepatitis B and hepatitis C are diagnosed, linked to recommended care, and treated; and

4. Act globally to prevent, detect, and control viral hepatitis transmission, illness, and associated mortality in the United States.

This inaugural report on viral hepatitis elimination in the United States provides information on progress in the implementation of recommended interventions and the impact these interventions are having on prevention of viral hepatitis transmission, disease, and associated mortality.

Data contained in this report are used to monitor health outcomes (e.g., new infections and mortality) and to track the status of preventive interventions (e.g., vaccination) that can improve these health outcomes. Data are presented by age, sex, race/ethnicity, and other variables to evaluate disparities between segments of the U.S. population; such evaluation can be used to guide implementation of effective interventions. In this report, progress toward achieving selected 2020 goals is evaluated against annual targets for program performance and improvements in health outcomes. The 2020 goals compiled

Hepatitis A vaccination coverage has increased, contributing to declines in HAV infections among young children and adolescents. The variability in hepatitis A incidence rates among adults over time highlights the importance of public health surveillance to identify and respond to outbreaks of hepatitis A.

Over a quarter of all newborns do not receive hepatitis B vaccination within 3 days of birth, leaving children unnecessarily vulnerable to HBV infection and disease.

The opioid epidemic (and injection of other substances) **is largely responsible for increases in the incidence rates of hepatitis B and hepatitis C**. The trends reflect inadequate access to effective prevention strategies, including syringe services programs, hepatitis B vaccination, and testing and treatment for persons infected with HBV or HCV.

**After decades of annual increases in HCV-related mortality, death rates declined slightly in 2015**. Despite this change, the number of deaths related to HCV continues to exceed deaths from all other reportable infectious diseases in the United States.

specifically for this report were adapted from other initiatives such as *Healthy People 2020* when available; however, no single, existing initiative comprehensively or consistently evaluates all indicators considered critical for monitoring the burden of viral hepatitis in the nation. The 2014 baseline year used in this report maintains uniformity across indicators and is consistent with CDC's Viral Hepat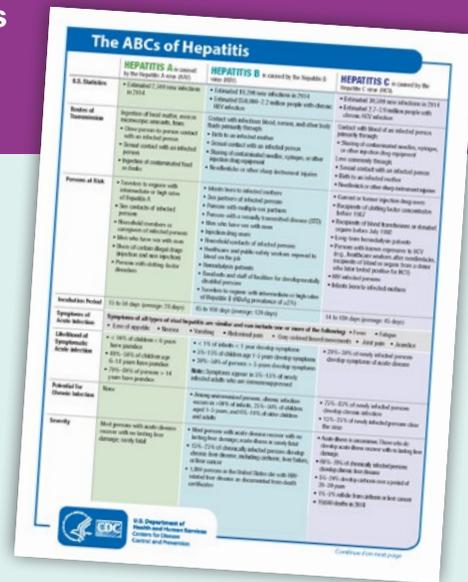itis Strategic Plan, 2016-2020. The annual targets assume a linear rate of change from the observed 2014 baseline to the 2020 goal. CDC intends to update this report annually to reflect changes in performance measures, indicators of health outcomes, and available data sources.

This National Progress Report includes current epidemiologic information and key findings for the prevention of hepatitis A virus (HAV), hepatitis B virus (HBV), and hepatitis C virus (HCV) infections, as these infections are responsible for most illnesses and deaths caused by viral hepatitis in the United States. The following text summarizes this information for each type of viral hepatitis infection.
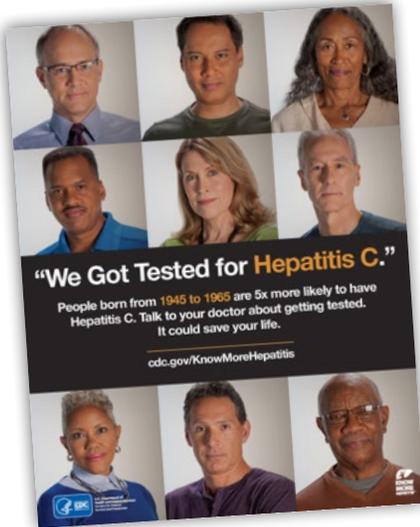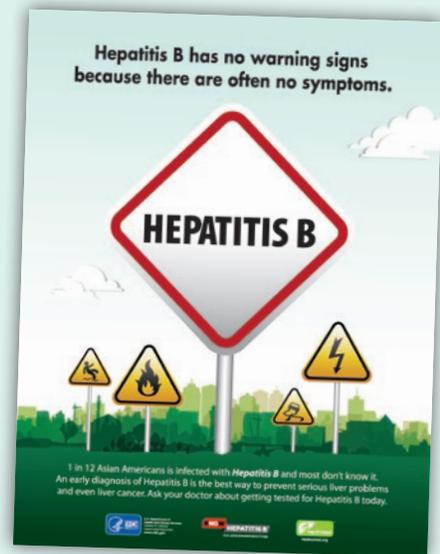
Results available as of May 1, 2017 show areas where the nation is making good progress and areas where the nation can improve.

Hepatitis A: The rate of reported new HAV infections rose from 0.39 per 100,000 U.S. population in 2014 to 0.43 per 100,000 in 2015. The percentage of children aged 19–35 months receiving ≥2 doses of hepatitis A vaccine was 58% in 2014 and 60% in 2015, lower than both the 2015 target (62%) and the 2020 goal (85%). Hepatitis A vaccination coverage among children aged 19-35 months may have contributed to a drop in hepatitis A incidence rates to levels below the 2020 goal of 0.3 per 100,000 U.S. population among persons 0-19 years. In contrast, the incidence of hepatitis A for all other age groups rose slightly in 2015, moving away from the 2020 goal of 0.3 cases per 100,000 U.S. population. The annual variability in HAV incidence rates reflects, in part, outbreaks among unvaccinated adults attributed to consumption of HAV-contaminated imported food, or person-to-person contact in certain settings. Hepatitis A vaccination is recommended for children beginning at one year of age and for persons who inject drugs, men who have sex with men, travelers to hepatitis A endemic countries, persons with chronic liver disease, and other adults at risk for HAV infection.

Hepatitis B: The 2020 goal (0.48 per 100,000 U.S. population) for a reduction in HBV-related deaths was exceeded in 2015 (0.45 per 100,000). The ongoing challenges of HBV as a public health threat include low hepatitis B vaccination coverage among high-risk populations and an increase in the rate of new HBV infections. In 2005, CDC recommended all infants receive a birth dose of hepatitis B vaccine. Since that time, the percentage of newborns receiving hepatitis B vaccine within 3 days of birth increased to a high of 74% in 2013; coverage was 72% in 2014 and 2015, below the 2020 goal of 85%. Equally concerning is the increase in rates of new HBV infections among adults, particularly those 30-59 years of age. The persistent low coverage of hepatitis B vaccination among high-risk adults, increases in injection drug use related to the nation's opioid crisis, and increases in other risk behaviors contributed to this increase.

Hepatitis C: After decades of annual increases, the rate of HCV-related deaths decreased from 5.01 per 100,000 U.S. population in 2014 to 4.91 per 100,000 in 2015, but did not reach the

2015 target (4.87 per 100,000). The rate of reported new acute HCV infections increased from 0.74 per 100,000 U.S. population in 2014 to 0.81 per 100,000 in 2015, well above the 2020 goal (0.25 per 100,000). Young adults aged 20-39 years had the highest reported incidence rate of acute HCV infection in 2015, and rates for this age group are increasing faster than for other adults. In 2015, HCV infection incidence rates were highest among American Indians/Alaskan Natives (1.76 per 100,000 U.S. population) and white persons (0.92 per 100,000). Increases in incidence rates were observed because of increased HCV testing and from actual increases in new infections associated with a rise in injection drug use related to the opioid use epidemic.

Progress At-A-Glance

Please refer to the Indicator Summaries and Technical Notes sections for additional information on each of the indicators listed below.

	2020 Goal	2015 Target[1]	2014 Baseline	2015 Result	Status
Hepatitis A					
Increase the percentage of children aged 19–35 months who receive ≥2 doses of hepatitis A vaccine	85.0%	62.1%	57.5%	59.6%	→
Reduce the rate[2] of reported HAV infections	0.30	0.38	0.39	0.43	✖
Hepatitis B					
Increase the percentage of infants who receive hepatitis B vaccine within 3 days of birth	85.0%	74.5%	72.4%	72.4%	✖
Reduce the rate[2] of reported acute HBV infections among persons aged ≥19 years	0.50	1.05	1.16	1.38	✖
Reduce the rate[2] of HBV-related deaths	0.48	0.50	0.50	0.45	✔
Hepatitis C					
Reduce the rate[1] of reported acute HCV infections	0.25	0.66	0.74	0.81	✖
Reduce the rate[2] of HCV-related deaths	4.17	4.87	5.01	4.91	→

[1]Target for 2015 assumes a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal

[2]Per 100,000 U.S. population

✔ Met or exceeded current annual target

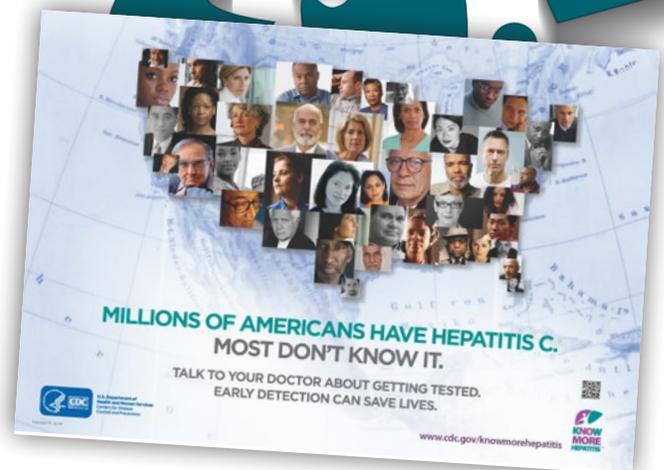→ Not met—moved toward annual target in most recent data year

✖ Not met—no change or moved away from annual target in most recent data year

Annual targets and results represent the most current available data. See Indicator Summaries and Technical Notes for additional information.

Introduction

Viral hepatitis, particularly hepatitis B virus (HBV) and hepatitis C virus (HCV), is a major cause of disease and mortality in the United States and worldwide. Globally, 257 million and 71 million persons are estimated to be living with chronic HBV and HCV infection, respectively.[1] In 2013, viral hepatitis took approximately 1.4 million lives, a global death toll surpassing those of road injuries, diabetes, and malaria.[2] In the United States, as many as 4.4 million persons are living with HBV or HCV infection, which together are major causes of chronic liver disease and liver cancer.[3-4] In contrast to the declining rate of deaths from other cancers, deaths from liver cancer are rising in the United States, with much of the increase attributed to viral hepatitis.[5] Of particular concern is the annual number of HCV-related deaths, which now exceeds the number of deaths from the 60 other nationally notifiable diseases combined.[6]

New cases of viral hepatitis are on the rise in the United States. The rate of new HCV infections reported to the Centers for Disease Control and Prevention (CDC) increased by 167% nationally from 2010 to 2015, with most new infections occurring among adolescents and young adults. In 2015, the rate of new HBV infections rose because of increased transmission among persons who inject drugs (PWID) and those with other HBV-related risks.[7] This upward trend in incidence rates is not inevitable. New cases of viral hepatitis can be prevented with effective interventions. For instance, effective vaccines can protect persons from becoming infected with HAV and HBV. Other preventive measures include screening of tissue/organ donations, stringent infection control in healthcare settings, safer sexual practices, and access to clean injection equipment for PWID.

MILLIONS OF AMERICANS HAVE HEPATITIS C. MOST DON'T KNOW IT.

TALK TO YOUR DOCTOR ABOUT GETTING TESTED. EARLY DETECTION CAN SAVE LIVES.

www.cdc.gov/knowmorehepatitis

Testing, care, and treatment greatly reduce mortality risks while improving quality of life for persons living with HBV and HCV infection. In the United States, fewer than half of persons living with hepatitis C know they are infected.[8] Only through testing and knowledge of infection status can persons with hepatitis B or C receive the care and treatment that can vastly improve their health outcomes. Therapy for HBV reduces mortality risks from liver cancer, and licensed HCV therapies are capable of curing more than 90% of HCV-infected persons who complete treatment.[9] Persons who achieve virologic cure of their HCV infection have dramatically lower risks of liver cancer and other life-threatening conditions and experience higher quality of life (e.g., less fatigue and fewer mental health issues) than those who remain infected.

Certain U.S. populations are disproportionately affected by and die from hepatitis B (e.g., Asians/Pacific Islanders, persons aged 55–64 years, and persons infected at birth) and hepatitis C (e.g., persons born during 1945–1965, African

Americans, and American Indians/Alaskan Natives). These populations need increased, targeted interventions that can prevent new cases of infection (e.g., education and vaccination). For persons in these populations who are living with chronic viral hepatitis, better access to hepatitis care and treatment is needed, as linking infected persons to these services improves quality of life.

National efforts to prevent new hepatitis A, hepatitis B, and hepatitis C infections and associated morbidity and mortality are taking place at multiple levels. Guided by four strategic imperatives (i.e., ensure vulnerable populations are vaccinated, stop transmission, identify and link infected persons to recommended care and treatment services, and detect and control viral hepatitis globally) outlined within CDC's Viral Hepatitis Strategic Plan, 2016-2020, CDC has selected specific prevention activities based on a high-impact prevention approach. The most cost-effective, scalable interventions are aligned with the populations and geographic areas with the highest burden of viral hepatitis, maximizing the impact of federal prevention dollars and advancing collective progress toward achieving health gains for the nation. Developed by the U.S. Department of Health and Human Services (HHS), HHS's National Viral Hepatitis Action Plan, 2017-2020 outlines the prevention priorities and collaborations needed among public health, clinical, and non-profit organizations to expand access to interventions, clinical care, and treatments that can prevent new infections and avert preventable deaths from viral hepatitis.

The title of this National Progress Report, *Progress Toward Viral Hepatitis Elimination in the United States*, reflects the growing consensus that viral hepatitis, specifically hepatitis B and hepatitis C, can be eliminated as a public health threat. With support from the 2016 World Health Assembly, the World Health Organization released a Global Health Sector Strategy on Viral Hepatitis 2016-2021, which aims to eliminate viral hepatitis as a public health threat. The goals for this strategy are to implement the necessary interventions to reduce the number of new HBV and HCV infections by 90% and reduce viral hepatitis-related mortality by 65% by 2030. Guided by this global strategy, in March 2017, the U.S. National Academies of Sciences, Engineering, and Medicine released A National Strategy for the Elimination of Hepatitis B and C, challenging the nation to implement actions necessary to eliminate hepatitis B and hepatitis C as public health threats in the United States by 2030.
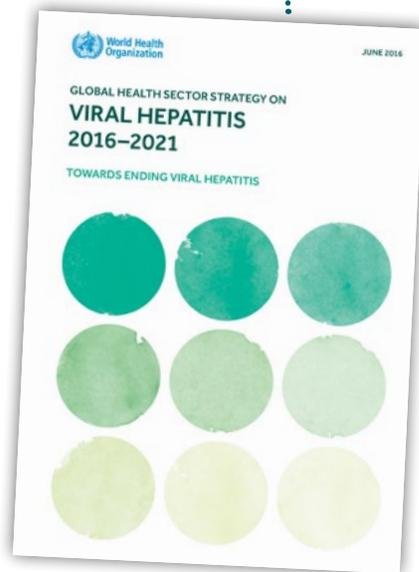
Measuring Progress

The seven indicators in this report provide an objective way to assess progress toward achieving key viral hepatitis goals. They provide feedback that guides CDC's planning efforts and program improvement activities. The data for these indicators come from CDC's National Immunization Survey-Child (NIS-Child), National Notifiable Diseases Surveillance System (NNDSS), and National Vital Statistics System (NVSS). Accurate and timely reporting of indicator data from these systems remains a priority for CDC.
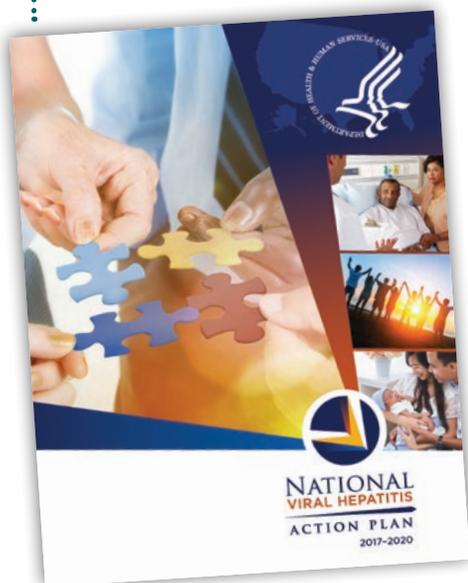
The 2020 goals compiled specifically for this report were adapted from other initiatives such as Healthy People 2020 Objectives, HHS's National Viral Hepatitis Action Plan, 2017-2020, and CDC's Viral Hepatitis Strategic Plan, 2016-2020; however, no single, existing initiative comprehensively or consistently evaluates all indicators considered critical for monitoring the burden of viral hepatitis in the nation. The relationship of each indicator in this report to other initiatives is described in the Technical Notes.

This report evaluates progress by comparing results with annual targets. Annual targets are based on the assumption that change will occur equally over time. For each indicator, a 2014 baseline year was identified as the starting point for setting annual targets.

No statistical tests are used to assess changes over time, differences between groups, or differences between the result and the annual target or 2020 goal. Statistically significant change is not an expectation for progress from one year to the next and may not always be necessary to achieve the 2020 goal. Additional data for some indicators are available in other publications and may include information about statistical significance.

Technical Notes provide additional information about the baseline, annual targets, and 2020 goal selected for each indicator, as well as the data sources and estimation methods used for measuring those indicators.

Symbols provide a visual confirmation of progress for each indicator (i.e., observed 2015 data relative to annual targets); the following symbols are used in this report:

✓	Met or exceeded current annual target
→	Not met—moved toward annual target in most recent data year
✗	Not met—no change or moved away from annual target in most recent data year

CDC Viral Hepatitis Surveillance Systems: Data Sources for Indicators

National Immunization Survey-Child (NIS-Child): The NIS-Child is a dual sample frame telephone survey of parents of children aged 19-35 months with a follow-up mail survey of vaccination providers, and it is used to monitor vaccination coverage among young children. The NIS-Child is sponsored and conducted by CDC's National Center for Immunization and Respiratory Diseases (NCIRD).

National Notifiable Diseases Surveillance System (NNDSS): The NNDSS is a nationwide, collaborative surveillance system that enables all levels of public health to share notifiable-disease-related health information. As part of NNDSS, health departments notify CDC about the occurrence of certain conditions. The Division of Health Informatics and Surveillance (DHIS) at CDC supports NNDSS by receiving, securing, processing, provisioning, and releasing nationally notifiable infectious disease data to disease-specific CDC programs, including the Division of Viral Hepatitis.

National Vital Statistics System (NVSS): Vital statistics data, including all births and deaths, are registered in each of the 50 states, the District of Columbia, New York City, and five territories (Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands). CDC's National Center for Health Statistics (NCHS) in turn collects these data from each of the jurisdictions and compiles them into the National Vital Statistics System.

Federal Monitoring and Reporting Activities

The indicators and goals in this report were adapted from other federal performance monitoring and reporting activities when available:

Healthy People 2020 — Healthy People 2020 Objectives are science-based national objectives for improving the health of all Americans and measuring the impact of prevention activities. Objectives related to viral hepatitis are described under the Immunization and Infectious Diseases Topic Area.

Department of Health and Human Services (HHS) — HHS's National Viral Hepatitis Action Plan, 2017-2020 outlines priorities and collaborations needed to expand access to interventions, clinical care, and treatment.

Centers for Disease Control and Prevention (CDC) — CDC's Viral Hepatitis Strategic Plan, 2016-2020 outlines strategic imperatives and specific goals to accomplish the agency's high-impact prevention approach.

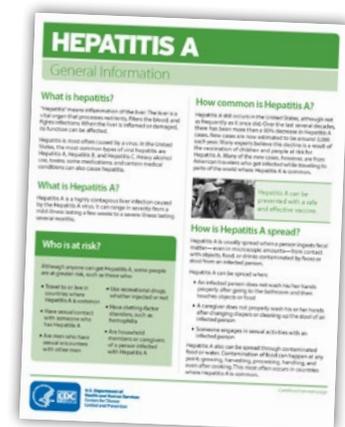The relationship of each indicator in this report to other initiatives is described in the Technical Notes.

Summary of Results

Results available as of May 1, 2017, reveal national progress made toward reaching prevention goals. Data also highlight the viral hepatitis interventions that should be sustained and those that are in need of improvement. Of seven indicators with accompanying goals for improved health outcomes related to viral hepatitis transmission and disease, only one indicator met the 2020 goal in 2015 (reduce the rate of HBV-related deaths to 0.48 per 100,000 U.S. population). For two indicators, annual targets were not met, but data appear to be trending toward reaching prevention goals. For four indicators, annual targets were not met, and either no change occurred or data appear to trend further from the goal. Progress indicators are organized according to each of the three viral hepatitis types: hepatitis A, hepatitis B, and hepatitis C. Within each type, indicators are listed in the following order: prevention of transmission (i.e., primary prevention, such as vaccination coverage), incidence, prevention of morbidity (i.e., secondary prevention), and finally, mortality.

Hepatitis A

The rate of reported new HAV infections rose from 0.39 per 100,000 U.S. population in 2014 to 0.43 per 100,000 in 2015. The percentage of children aged 19–35 months receiving ≥2 doses of hepatitis A vaccine was 58% in 2014 and 60% in 2015, lower than both the 2015 target (62%) and the 2020 goal (85%). Hepatitis A vaccination coverage among children aged 19-35 months may have contributed to a drop in hepatitis A incidence rates to levels below the 2020 goal of 0.3 per 100,000 U.S population among persons 0-19 years. In contrast, the incidence of hepatitis A for all other age groups rose slightly in 2015, moving away from the 2020 goal of 0.3 cases per 100,000 U.S. population. The annual variability in HAV incidence rates reflects, in part, outbreaks among unvaccinated adults attributed to consumption of HAV-contaminated

imported food or person-to-person contact in certain settings. Hepatitis A vaccination is recommended for children beginning at one year of age and for persons who inject drugs, men who have sex with men, travelers to hepatitis A endemic countries, persons with chronic liver disease, and other adults at risk for HAV infection.

Hepatitis B

The 2020 goal (0.48 per 100,000 U.S. population) for a reduction in HBV-related deaths was exceeded in 2015 (0.45 per 100,000). The ongoing challenges of HBV as a public health threat include low hepatitis B vaccination coverage among high-risk populations and an increase in the rate of new HBV infections. In 2005, CDC recommended all infants receive a birth dose of hepatitis B vaccine. Since that time, the percentage of newborns receiving hepatitis B vaccine within 3 days of birth increased to a high of 74% in 2013; coverage was 72% in 2014

and 2015, below the 2020 goal of 85%. Equally concerning is the increase in rates of new HBV infections among adults, particularly those 30-59 years of age. The persistent low coverage of hepatitis B vaccination among high-risk adults, increases in injection drug use related to the nation's opioid crisis, and increases in other risk behaviors contributed to this increase.

Hepatitis C

After decades of annual increases, the rate of HCV-related deaths decreased from 5.01 per 100,000 U.S. population in 2014 to 4.91 per 100,000 in 2015, but did not reach the 2015 target (4.87 per 100,000). The rate of reported new acute HCV infections increased from 0.74 per 100,000 U.S. population in 2014 to 0.81 per 100,000 in 2015, well above the 2020 goal (0.25 per 100,000). Young adults aged 20-39 years had the highest reported incidence rate of acute HCV infection in 2015, and rates for this age group are increasing faster than for other adults. In 2015, HCV infection incidence rates were highest among American Indians/Alaskan Natives (1.76 per 100,000 U.S. population) and white persons (0.92 per 100,000). Increases in incidence rates were observed because of increased HCV testing and from actual increases in new infections associated with a rise in injection drug use related to the opioid use epidemic.

Looking Forward

To allow routine monitoring of progress and timely identification of areas in need of improvement, CDC's Viral Hepatitis Program intends to update this report annually. Future National Progress Reports will be modified as needed to reflect any changes in indicators, available data sources, and types of outcome measures.

Future NPRs will focus on the following _updated_ indicators:

Increase the percentage of children aged 19–35 months who receive ≥2 doses of hepatitis A vaccine

Reduce the rate of reported HAV infections

Increase the percentage of infants who receive hepatitis B vaccine within 3 days of birth
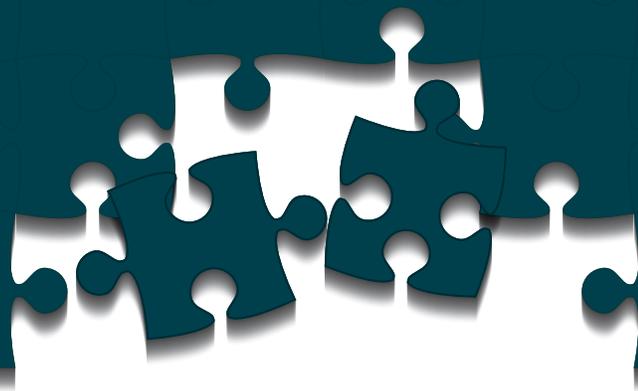
Reduce the rate of reported acute HBV infections among persons aged ≥19 years

Reduce the rate of HBV-related deaths

Reduce the rate of reported acute HCV infections
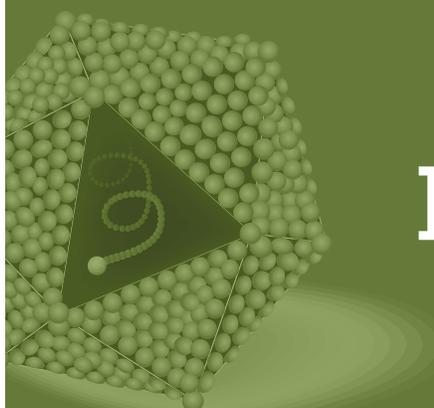
Reduce the rate of HCV-related deaths

Indicator Summaries

Hepatitis **A**

Hepatitis **B**
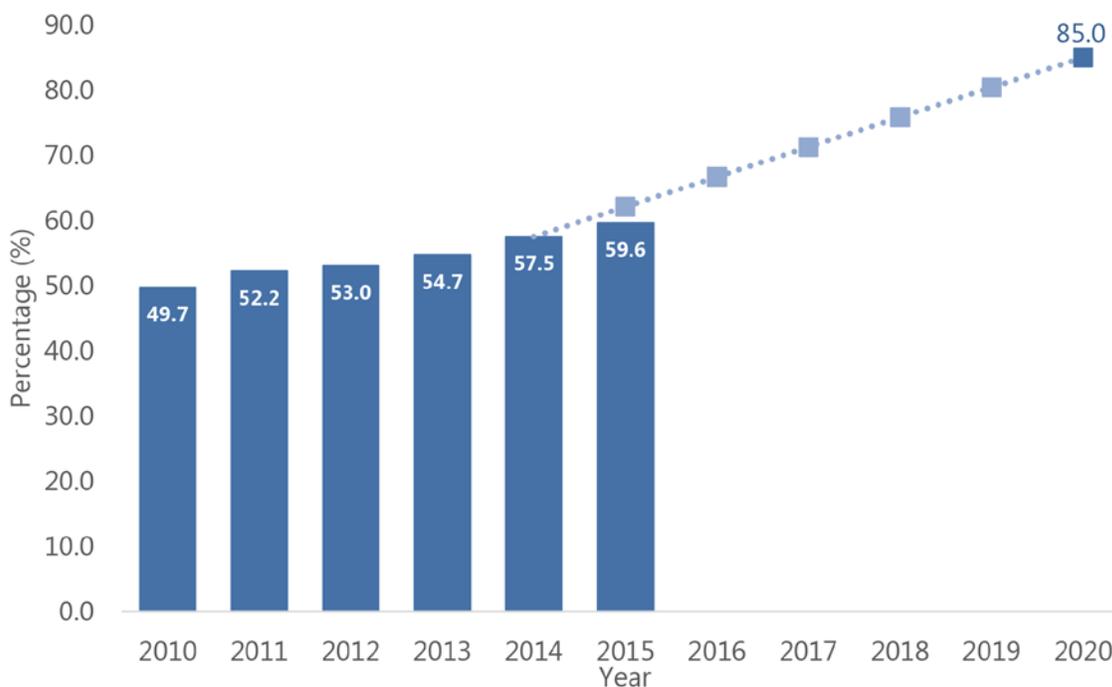
Hepatitis **C**

Hepatitis A

Increase the percentage of children aged 19–35 months who receive ≥2 doses of hepatitis A vaccine

Percentage of children aged 19–35 months* who received ≥2 doses of hepatitis A vaccine

STATUS

Source: CDC, National Immunization Survey-Child[10-11]

*For 2010, children born 1/2007-5/2009; for 2011, children born 1/2008-5/2010; for 2012, children born 1/2009-5/2011; for 2013, children born 1/2010-5/2012; for 2014, children born 1/2011-5/2013; and for 2015, children born 1/2012-5/2014.

The percentage of children aged 19–35 months receiving ≥2 doses of hepatitis A vaccine has increased since 2010, reaching 59.6% in 2015; despite this increase, the 2015 target of 62.1% was not met. Although single-dose vaccination rates are relatively high among children, multiple doses are needed for full coverage, and most adults were not vaccinated against hepatitis A virus as children, leaving many susceptible to infection.
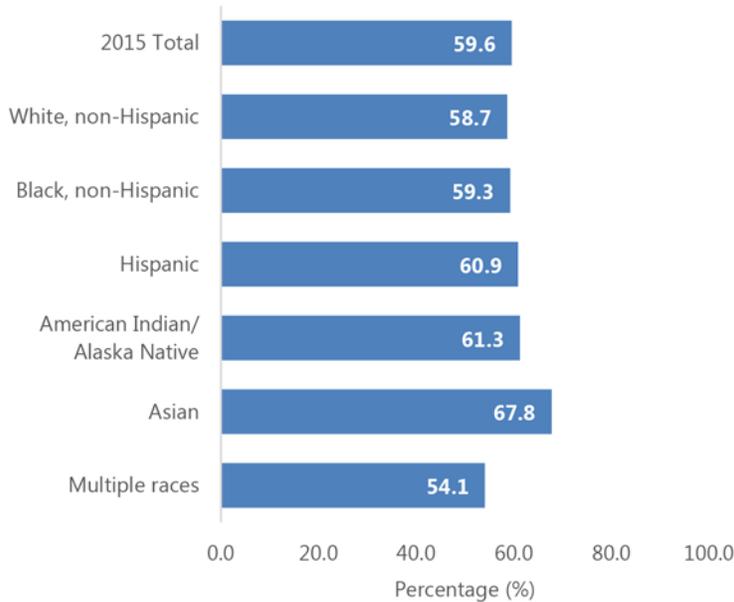
Increase needed to meet 2020 goal: A 42.6% increase over the vaccination percentage reported in 2015 is needed to meet the 2020 goal of 85%.

This increase can best be achieved by

- Identifying and removing barriers to hepatitis A vaccination among children by implementing evidence-based strategies recommended by the Community Preventive Services Task Force to increase vaccination.
- Ensuring that providers continue to follow existing immunization schedules and Advisory Committee on Immunization Practices (ACIP) Vaccine Recommendations and Guidelines.
- Implementing state school immunization requirements.

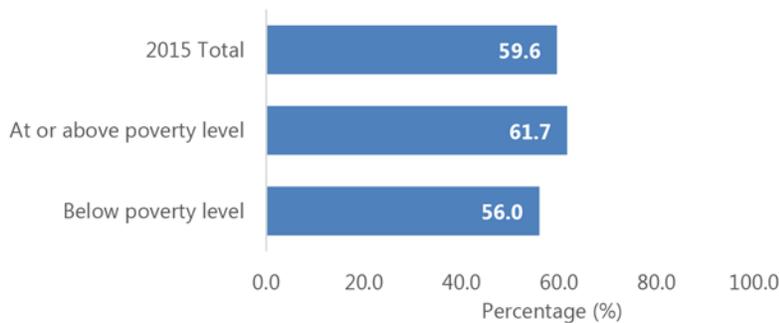## Percentage of children aged 19-35 months in 2015* who received ≥2 doses of hepatitis A vaccine, by race/ethnicity†

	Percentage (%)
2015 Total	59.6
White, non-Hispanic	58.7
Black, non-Hispanic	59.3
Hispanic	60.9
American Indian/Alaska Native	61.3
Asian	67.8
Multiple races	54.1

In 2015, non-Hispanic Asian children aged 19-35 months had the highest percentage receiving ≥2 doses of hepatitis A vaccine (67.8%). Multiple race children had the lowest percentage (54.1%).

Percentage of children aged 19-35 months in 2015* who received ≥2 doses of hepatitis A vaccine, by poverty level‡

	Percentage (%)
2015 Total	59.6
At or above poverty level	61.7
Below poverty level	56.0

In 2015, a lower percentage of children aged 19-35 months in households with a total family income less than the poverty threshold received ≥2 doses of hepatitis A vaccine compared with those in households at or above the poverty level (56.0% vs. 61.7%, respectively).
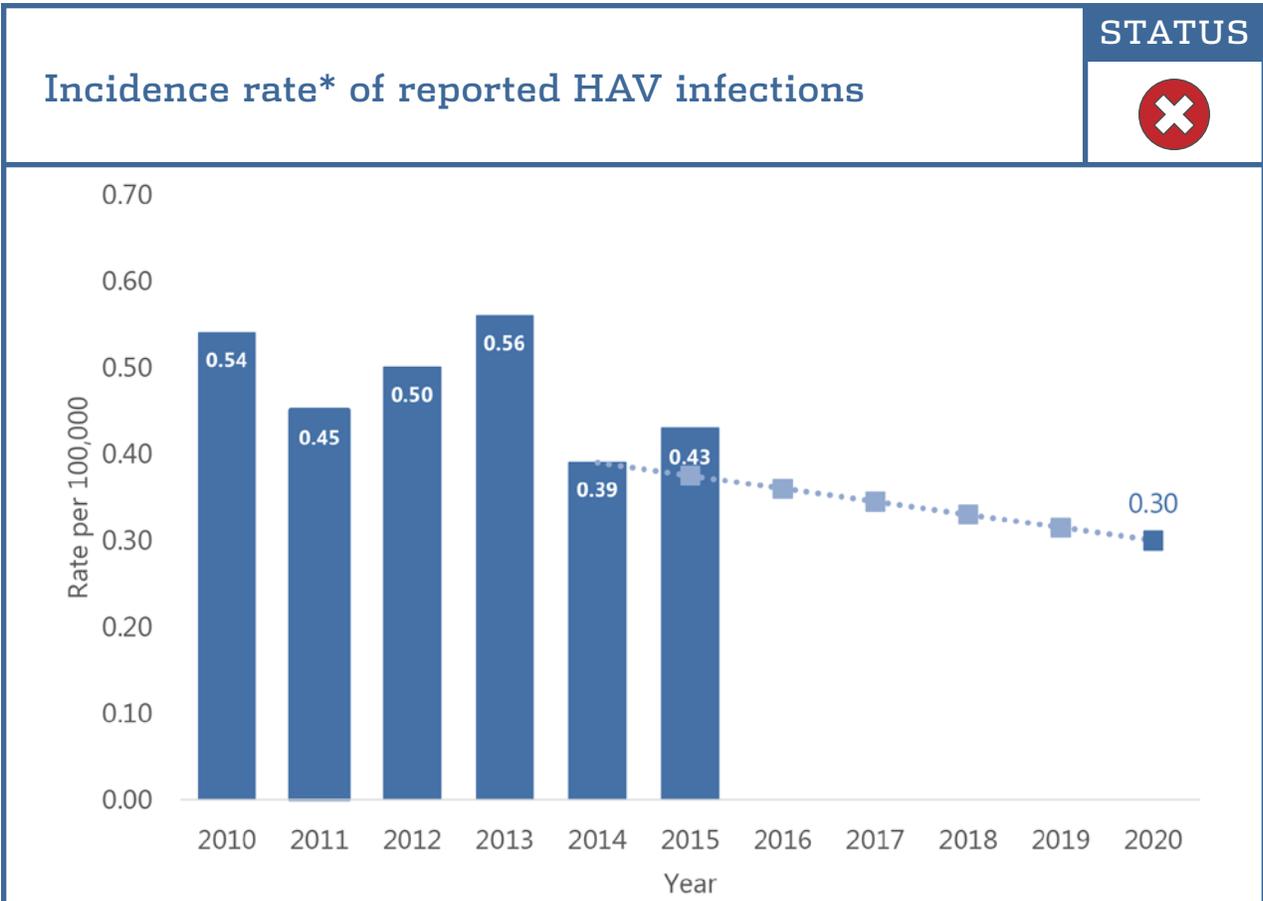
Source: CDC, National Immunization Survey-Child[10]

*Children born 1/2012-5/2014.

†Race/ethnicity was reported by parent/guardian respondent. Children of Hispanic ethnicity may be of any race. Children identified as multiple race had more than one race category selected. Children identified as white, black, Asian, Native Hawaiian/other Pacific Islander, American Indian/Alaska Native, or multiple races were non-Hispanic.

‡Children were classified as below poverty if their total family income was less than the poverty threshold specified for the applicable family size and number of children aged <18 years. Children with total family income at or above the poverty threshold specified for the applicable family size and number of children aged <18 years were classified as at or above poverty. Four hundred ninety two children with adequate provider data and missing data on income were excluded from the analysis. Poverty thresholds reflect yearly changes in the Consumer Price Index.

Incidence rate* of reported HAV infections

STATUS ✖

Source: CDC, National Notifiable Diseases Surveillance System (data run, April 28, 2017)

*Rate per 100,000 U.S. population

Although the incidence rate of reported HAV infections has declined over time, it increased from 2014 through 2015. With a 2015 annual incidence rate of 0.43 cases per 100,000 U.S. population, the 2015 target of 0.38 per 100,000 was not met. The incidence rate of HAV is subject to variation, in large part due to HAV outbreaks. For example, in 2013, a large HAV outbreak occurred among persons who consumed imported pomegranate seeds in several southwestern states and Hawaii.

**Reduction needed to meet 2020 goal:** A 30.2% reduction from the incidence rate reported in 2015 is needed to meet the 2020 goal of 0.30 cases per 100,000 U.S. population.

This reduction can best be achieved by

- Updating CDC recommendations for hepatitis A vaccination (including post-exposure prophylaxis) to target vaccination among emerging at-risk populations.
- Assisting state and local health departments and other federal partners in outbreak detection and response.
- Promoting evidence-based strategies recommended by the Community Preventive Services Task Force to increase vaccinations.
- Analyzing surveillance data and other strategic information to detect populations at risk and gaps in vaccination coverage.
- Continuing to promote routine childhood vaccination schedules and vaccination of adults at increased risk for hepatitis A.

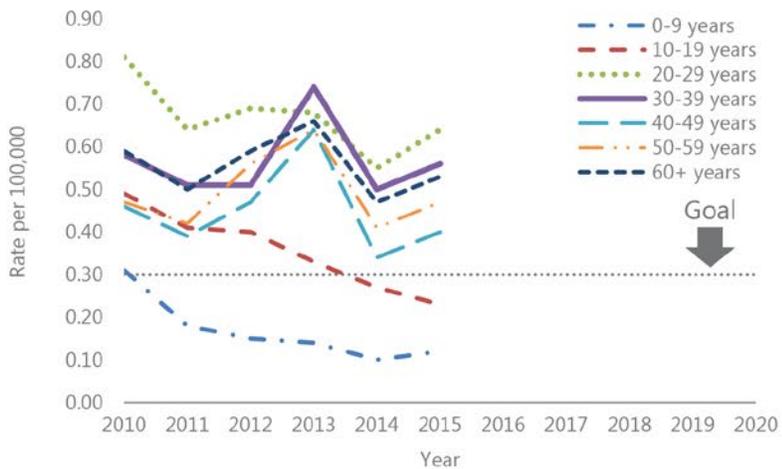## Incidence rate* of reported HAV infections, by **sex**
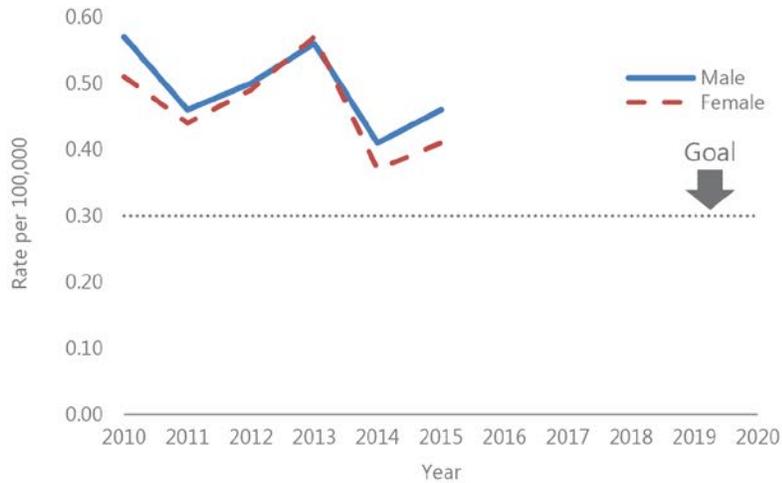
Men and women have similar incidence rates of HAV; men have slightly higher rates in the most recent years.

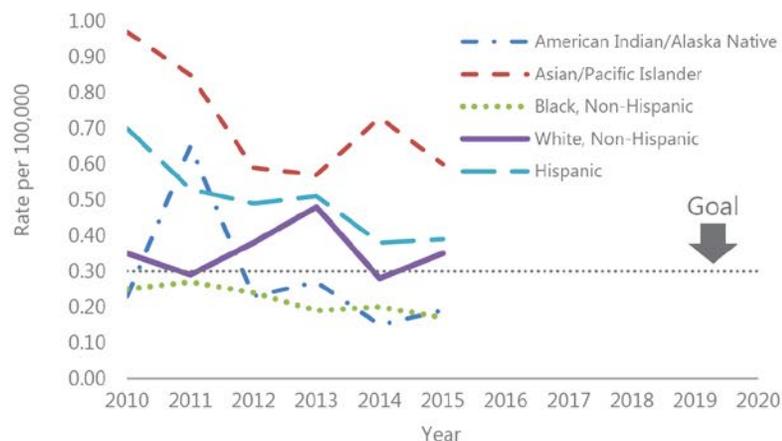## Incidence rate* of reported HAV infections, by **age group**

Young adults aged 20-29 years have the highest incidence rates of HAV. Children 0-19 years of age have the lowest incidence rates of HAV, having achieved the 2020 goal of 0.30 cases per 100,000 U.S. population.

Incidence rate* of reported HAV infections, by **race/ethnicity**

Asian/Pacific Islanders have the highest incidence rates of HAV. Non-Hispanic black and American Indian/ Alaska Native persons have the lowest incidence rates of HAV, both groups having already met the 2020 goal of 0.30 cases per 100,000 U.S. population.
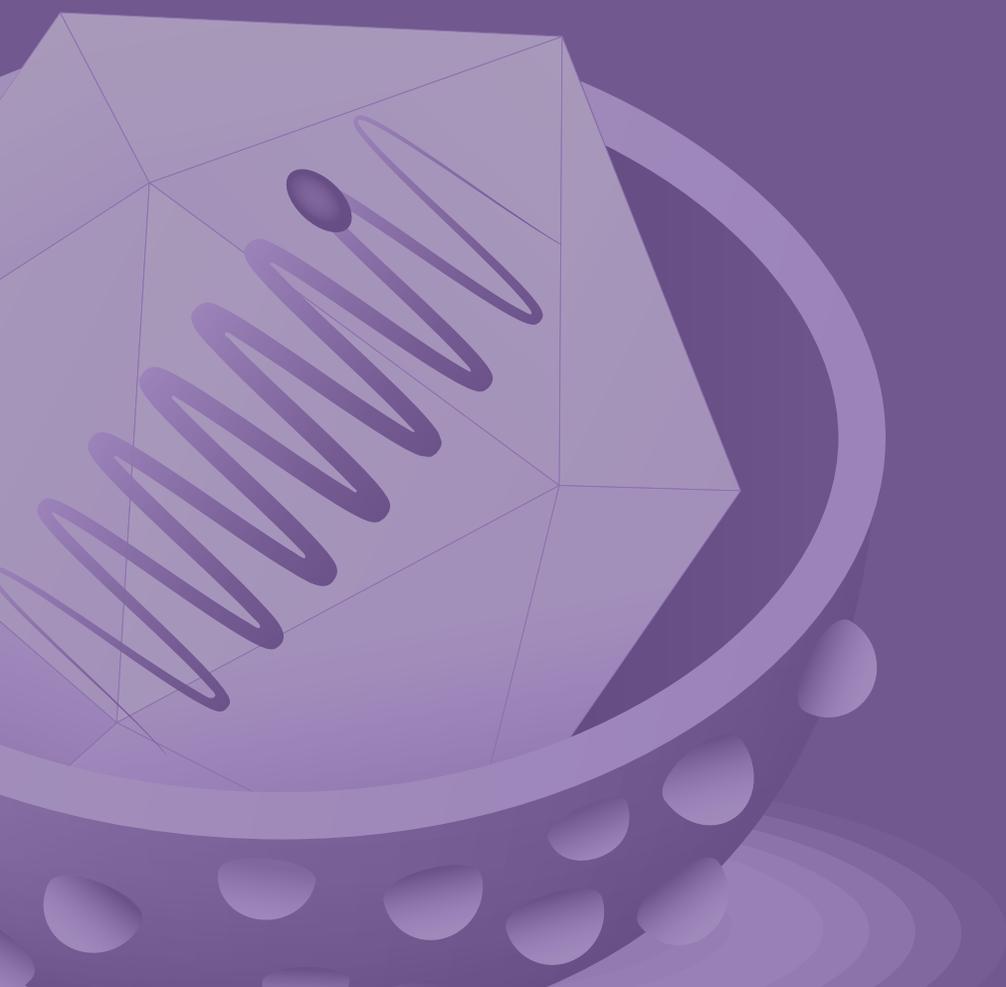
Source: CDC, National Notifiable Diseases Surveillance System[7]
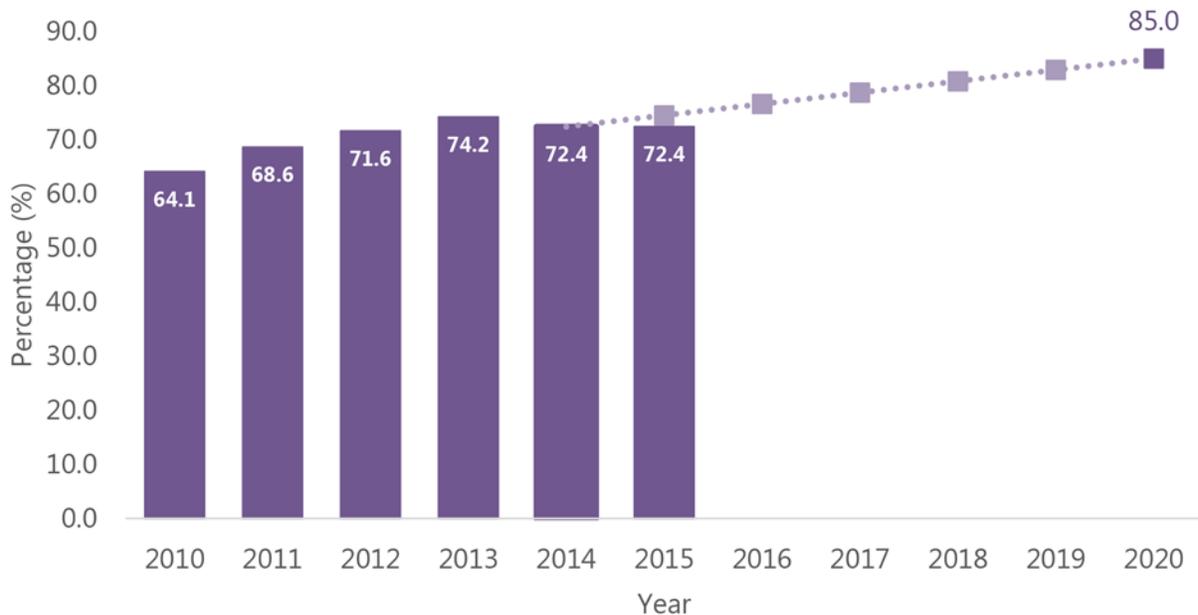*Rate per 100,000 U.S. population

Hepatitis B

Increase the percentage of infants who receive hepatitis B vaccine within 3 days of birth

Percentage of children aged 19-35 months* who received hepatitis B vaccine within 3 days of birth†

STATUS ❌

Bar chart showing percentage of children who received hepatitis B vaccine within 3 days of birth. Y-axis: Percentage (%) from 0.0 to 90.0. X-axis: Year from 2010 to 2020. Bar values: 2010: 64.1; 2011: 68.6; 2012: 71.6; 2013: 74.2; 2014: 72.4; 2015: 72.4. A dotted trend line rises to reach 85.0 in 2020.

Source: CDC, National Immunization Survey-Child[10-11]

*For 2010, children born 1/2007-5/2009; for 2011, children born 1/2008-5/2010; for 2012, children born 1/2009-5/2011; for 2013, children born 1/2010-5/2012; for 2014, children born 1/2011-5/2013; and for 2015, children born 1/2012-5/2014.

†One dose of hepatitis B vaccination administered from birth through age 3 days.

The percentage of infants receiving hepatitis B vaccine within 3 days of birth increased from 64.1% in 2010 to 74.2% in 2013 and was 72.4% in 2014 and 2015, below the 2015 annual target of 74.5% coverage.
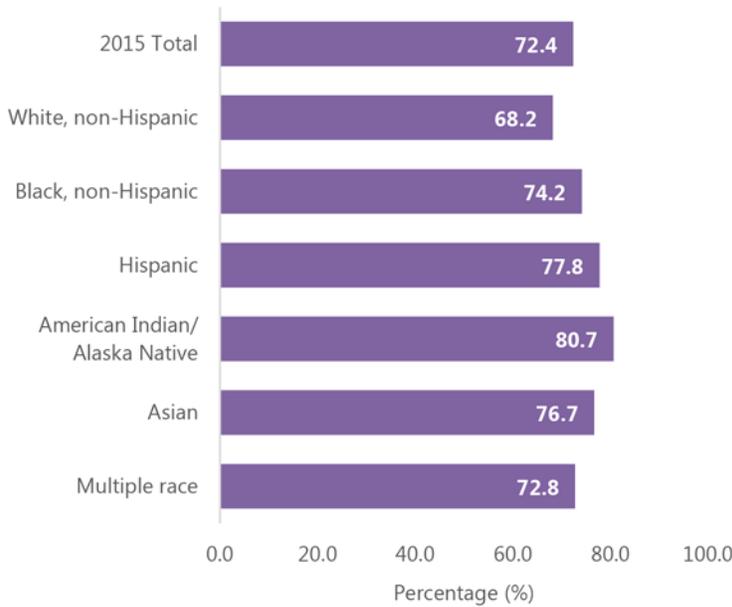
Increase needed to meet 2020 goal:

A 17.4% increase from the vaccination percentage reported in 2015 is needed to meet the 2020 goal of 85%.

This increase can best be achieved by

- Ensuring that providers continue to follow existing immunization schedules and Advisory Committee on Immunization Practices (ACIP) Vaccine Recommendations and Guidelines.
- Assisting birthing facilities in implementing routine vaccination of all newborns before hospital discharge.
- Assessing hospital measures and reimbursement policies to identify and remove any barriers to infants receiving the birth dose.
- Promoting the existing National Quality Forum (NQF)-Endorsed® Measure related to newborn hepatitis B vaccine coverage.

Percentage of children aged 19-35 months in 2015* who received hepatitis B vaccine within 3 days of birth[†], by race/ethnicity[‡]


2015 Total — 72.4
White, non-Hispanic — 68.2
Black, non-Hispanic — 74.2
Hispanic — 77.8
American Indian/ Alaska Native — 80.7
Asian — 76.7
Multiple race — 72.8

Percentage (%)

In 2015, American Indian/ Alaska Native children had the highest percentage receiving hepatitis B vaccine within 3 days of birth (80.7%). Non-Hispanic white children had the lowest percentage (68.2%).

Percentage of children aged 19-35 months in 2015* who received hepatitis B vaccine within 3 days of birth[†], by poverty level[¶]

2015 Total — 72.4
At or above poverty level — 70.2
Below poverty level — 76.3
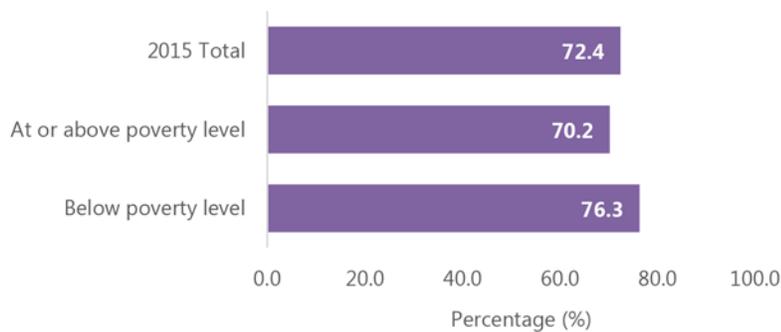
Percentage (%)

In 2015, a lower percentage of children in households with a total family income at or above the poverty threshold received hepatitis B vaccine within 3 days of birth compared with those in households below the poverty level (70.2% vs. 76.3%, respectively).

Source: CDC, National Immunization Survey-Child[10]

*Children born 1/2012-5/2014.

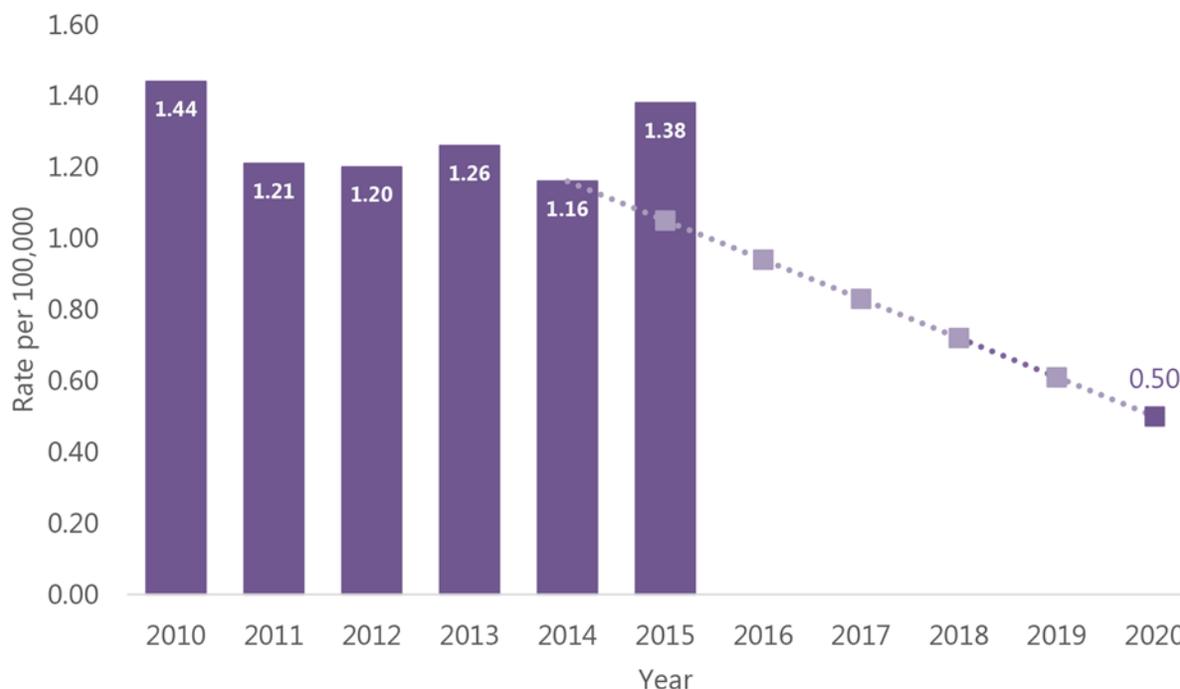[†]One dose of hepatitis B vaccination administered from birth through age 3 days.

[‡]Race/ethnicity was reported by parent/guardian respondent. Children of Hispanic ethnicity may be of any race. Children identified as multiple race had more than one race category selected. Children identified as white, black, Asian, Native Hawaiian/other Pacific Islander, American Indian/Alaska Native or multiple races were non-Hispanic.

[¶]Children were classified as below poverty if their total family income was less than the poverty threshold specified for the applicable family size and number of children aged <18 years. Children with total family income at or above the poverty threshold specified for the applicable family size and number of children aged <18 years were classified as at or above poverty. Four hundred ninety two children with adequate provider data and missing data on income were excluded from the analysis. Poverty thresholds reflect yearly changes in the Consumer Price Index.

Reduce the rate of reported acute HBV infections among persons aged ≥19 years

Incidence rate* of reported HBV infections among persons aged ≥19 years

Bar chart showing Rate per 100,000 by Year:
- 2010: 1.44
- 2011: 1.21
- 2012: 1.20
- 2013: 1.26
- 2014: 1.16
- 2015: 1.38
- (dotted trend line projecting toward) 2020: 0.50

Source: CDC, National Notifiable Diseases Surveillance System (data run, April 28, 2017)

*Rate per 100,000 U.S. population

The rate of reported acute HBV infections among persons aged ≥19 years increased from 1.16 per 100,000 U.S. population in 2014 to 1.38 per 100,000 in 2015, negating much of the progress that had been made since 2010. Because of this increase, the 2015 target of 1.05 cases per 100,000 U.S. population was not met.

Reduction needed to meet 2020 goal: A 63.8% reduction from the 2015 reported acute HBV infection rate is needed to meet the 2020 goal of 0.50 cases per 100,000 U.S. population.

This reduction can best be achieved by

- Updating CDC recommendations for hepatitis B vaccination to target vaccination among emerging at-risk populations.
- Promoting implementation of vaccine recommendations through provider education, strategic partnerships, and other measures.
- Building capacity for states to collect and use a core set of surveillance data to detect populations at risk and gaps in vaccination coverage.
- Conducting prevention research to demonstrate how to provide hepatitis B vaccination, testing, and treatment as part of a comprehensive set of interventions for persons who inject drugs.
- Encouraging unvaccinated individuals to use HHS's Adult Vaccine Finder to locate providers of recommended adult vaccines and get immunized.

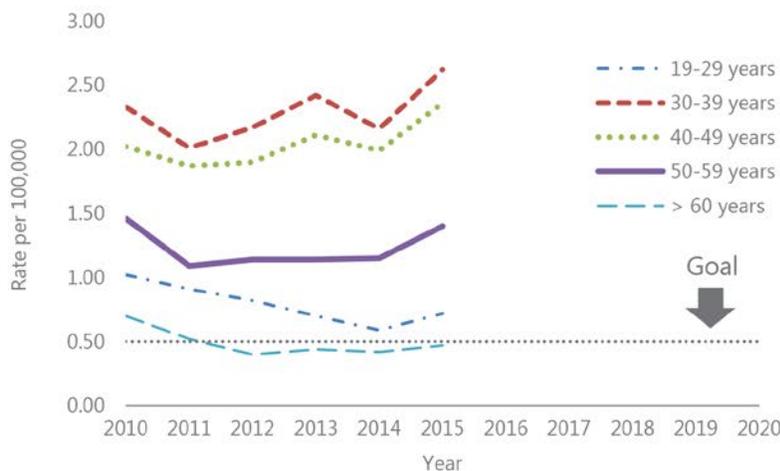## Incidence rate* of reported HBV infections among persons aged ≥19 years, by **sex**
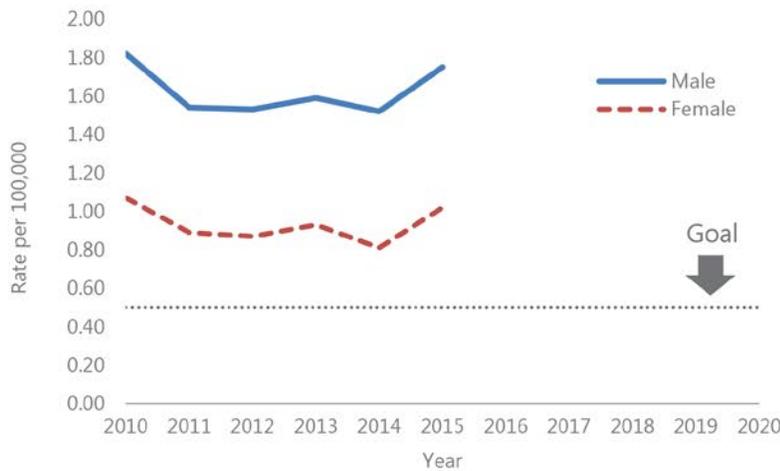
In 2015, the HBV incidence rate among adult men was 1.7 times that of adult women. Incidence rates for both adult men and women fell short of the 2020 goal of less than 0.5 acute cases per 100,000 U.S. population.

## Incidence rate* of reported HBV infections among persons aged ≥19 years, by **age group**

Persons aged 30-59 years have the highest rates of acute HBV, and rates in these groups increased during 2014-2015. Those aged ≥60 years have the lowest incidence rates, already below the 2020 goal.

Incidence rate* of reported HBV infections among persons aged ≥19 years, by **race/ethnicity**
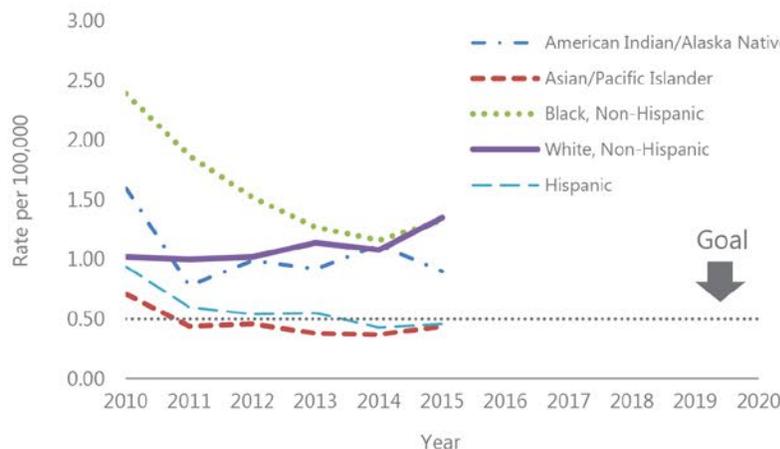
Incidence rates of HBV infections in adult non-Hispanic black persons decreased from 2010-2014, eliminating previous disparities between blacks and whites; however, incidence rates in both groups increased in 2015. Hispanic and Asian/Pacific Islander adults are the only groups with incidence rates at or below the 2020 goal.
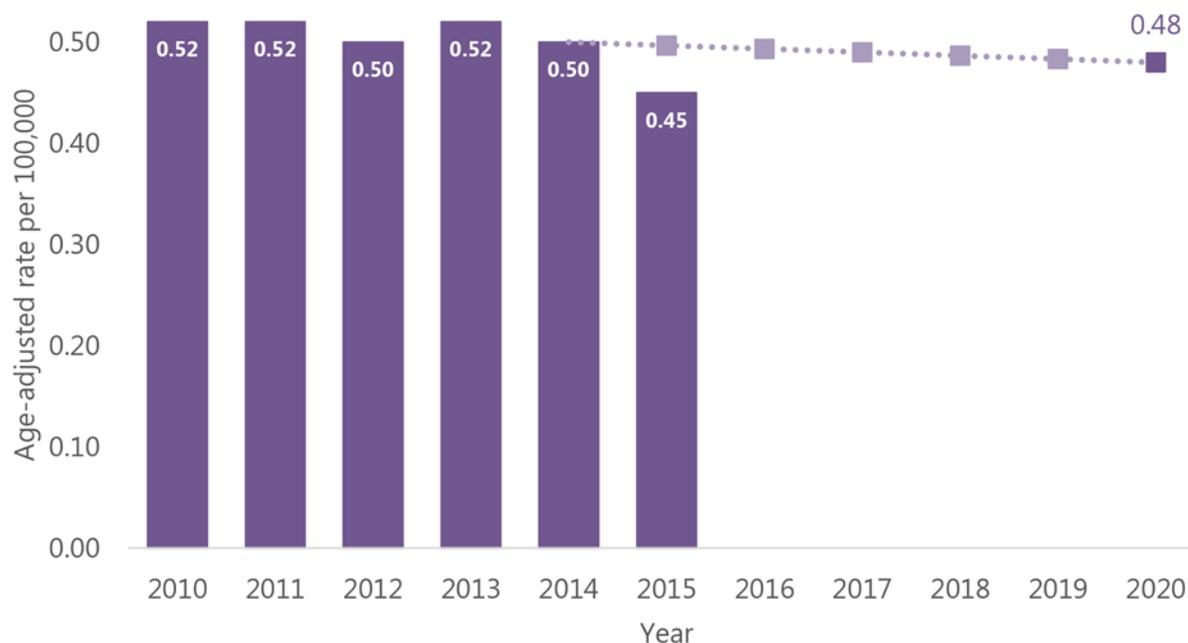
Source: CDC, National Notifiable Diseases Surveillance System (data run, April 28, 2017)
*Rate per 100,000 U.S. population.

Reduce the rate of HBV-related deaths

Age-adjusted rate* of HBV-related deaths†

STATUS ✅

Source: CDC, National Vital Statistics System[7,12]

*Rates are age-adjusted per 100,000 U.S. standard population in 2000.

†Cause of death is defined as the underlying cause of death or one of the multiple causes of death and is based on the International Classification of Disease, 10th Revision (ICD-10) codes B16, B17.0, B18.0, and B18.1.

The age-adjusted HBV-related mortality rate decreased from 0.50 per 100,000 U.S. population in 2014 to 0.45 per 100,000 in 2015, and it is already below the 2020 goal of 0.48 per 100,000.
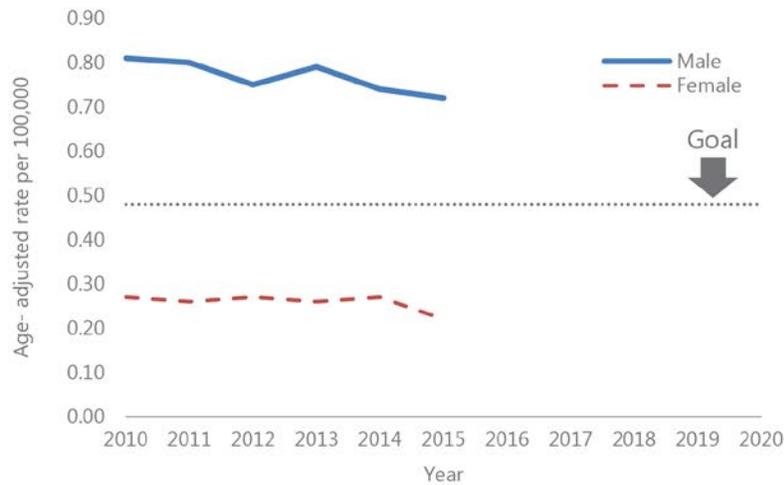
The 2020 goal will be met by maintaining the current HBV-related death rate.

Further reduction can best be achieved by

- Increasing the proportion of persons tested for HBV infection.
- Increasing the proportion of currently infected persons who are referred for care and receiving appropriate treatment.
- Developing trainings, technical assistance, and tools for primary care and other health care providers to support implementation of HBV testing and referral to care.
- Using digital technology and telemedicine models to expand access to specialty health care providers.

- Developing innovative/useful clinical decision support tools that increase implementation of HBV screening, testing, and linkage to care.
- Conducting cost-benefit analyses to determine how payer policies can be revised to expand access to HBV services.
- Supporting research and development for new and more effective HBV therapies with the goal of identifying a functional cure for HBV.
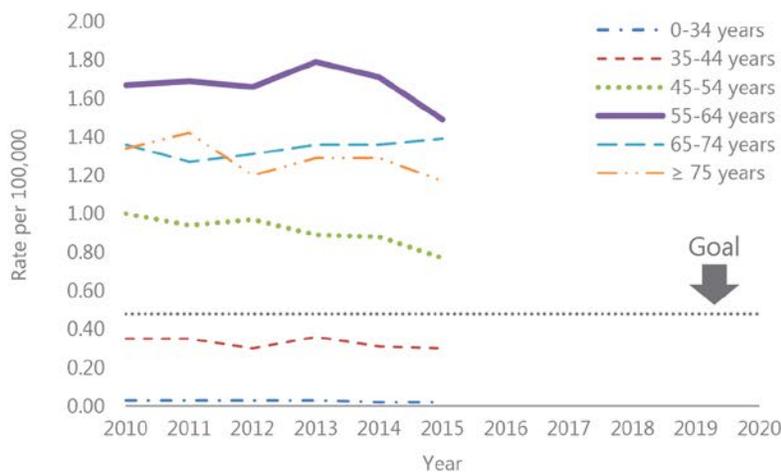
Age-adjusted rate* of HBV-related deaths,[†] by **sex**

Age-adjusted rate per 100,000

0.90, 0.80, 0.70, 0.60, 0.50, 0.40, 0.30, 0.20, 0.10, 0.00

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

Year

Male — Female

Goal

Men have more than 3 times higher age-adjusted HBV-related death rates than women.

Rate of HBV-related deaths per 100,000 population,[†] by **age group[‡]**

Rate per 100,000

2.00, 1.80, 1.60, 1.40, 1.20, 1.00, 0.80, 0.60, 0.40, 0.20, 0.00

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

Year

0-34 years
35-44 years
45-54 years
55-64 years
65-74 years
≥ 75 years
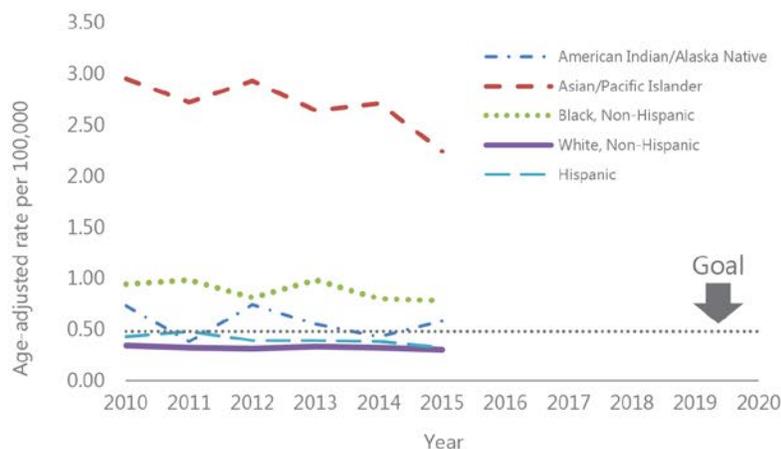
Goal

Persons aged 55-74 years have the highest HBV-related death rates. The HBV-related death rates have begun to decrease for persons aged 55-64 years in the most recent years.

Age-adjusted rate* of HBV-related deaths,[†] by **race/ethnicity[¶]**

Age-adjusted rate per 100,000

3.50, 3.00, 2.50, 2.00, 1.50, 1.00, 0.50, 0.00

2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

Year

American Indian/Alaska Native
Asian/Pacific Islander
Black, Non-Hispanic
White, Non-Hispanic
Hispanic

Goal

Asian/Pacific Islanders have the highest age-adjusted HBV-related death rates, nearly 3 times higher than any other group.

Source: CDC, National Vital Statistics System[7,12]

*Rates for sex and race/ethnicity are age-adjusted per 100,000 U.S. standard population in 2000.

[†]Cause of death is defined as the underlying cause of death or one of the multiple causes of death and is based on the International Classification of Disease, 10th Revision (ICD-10) codes B16, B17.0, B18.0, and B18.1.

[‡]1 death in 2015 is not represented due to missing age data.

[¶]6 deaths in 2010, 7 deaths in 2011, 5 deaths in 2012, 7 deaths in 2013, 16 deaths in 2014, and 16 deaths in 2015 are not represented due to missing race/ethnicity data.

Hepatitis C

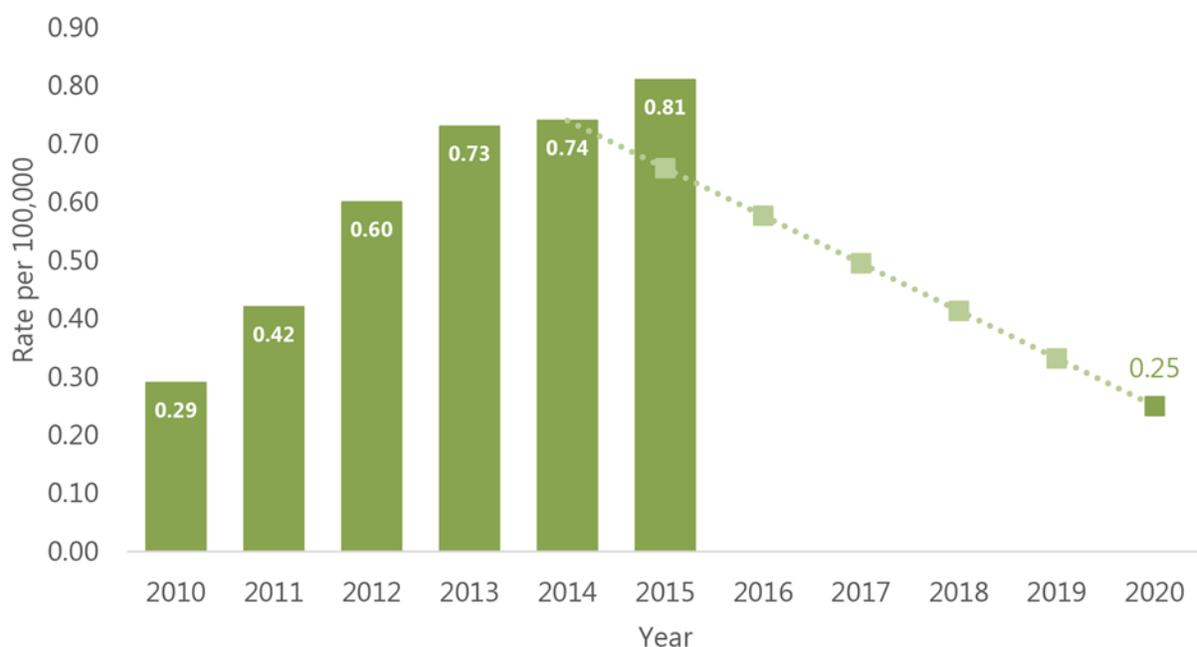# Reduce the rate of reported acute HCV infections

Incidence rate* of reported HCV infections

Bar chart showing Rate per 100,000 by Year:
- 2010: 0.29
- 2011: 0.42
- 2012: 0.60
- 2013: 0.73
- 2014: 0.74
- 2015: 0.81
- 2020 (projected goal): 0.25

Source: CDC, National Notifiable Diseases Surveillance System (data run, April 28, 2017)

*Rate per 100,000 U.S. population

The rate of acute HCV infections reported to CDC has increased since 2010 to 0.81 cases per 100,000 U.S. population in 2015, well above the 2015 target rate of 0.66 per 100,000. Recent increases are thought to reflect both true increases in incidence and, to a lesser extent, improved case ascertainment. Injection drug use is the most common risk reported for persons with HCV infection, and increases in HCV incidence are temporally associated with increases in this risk behavior. A small proportion of cases can be attributed to healthcare-associated outbreaks of HCV. In 2014, CDC participated in four state-based investigations of this type.

### Reduction needed to meet 2020 goal:

A 69.1% reduction from the 2015 reported acute HCV infection rate is needed to meet the 2020 goal of 0.25 cases per 100,000 U.S. population.

This reduction can best be achieved by

- Supporting local, state, and federal public health surveillance and other data collection initiatives to detect where HCV transmission is occurring and provide evidence to guide strategies aimed at reducing hepatitis C incidence.

- Applying advanced molecular, computational, and information technologies to strengthen the laboratory capacity of state and local health departments for outbreak investigations.

- Providing HCV-related health services, including routine HCV testing of persons at risk for HCV infection and appropriate care and curative HCV treatment for persons living with hepatitis C.

- Supporting implementation of comprehensive community-level programs for PWID (e.g., access to syringe services programs, linkage to medication-assisted treatment programs, vaccination, testing, and treatment).

- Conducting prevention research to improve the effectiveness of HCV prevention and decrease HCV incidence.

- Building partnerships to promote implementation of prevention strategies in settings associated with increased rates of hepatitis C virus transmission.
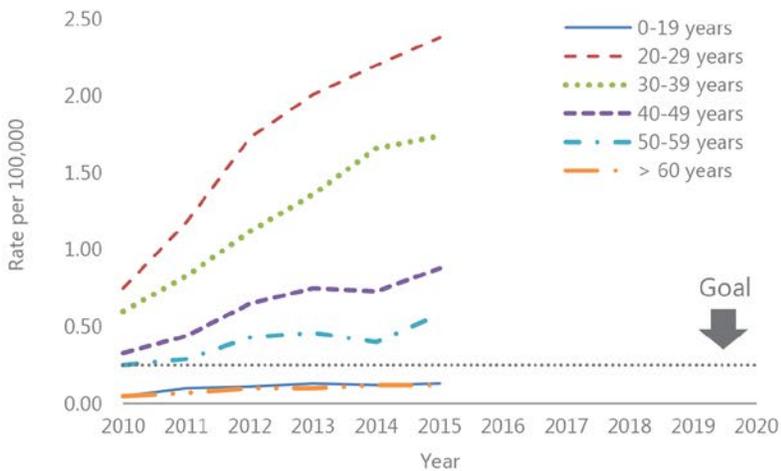
Incidence rate* of reported HCV infections, by **sex**
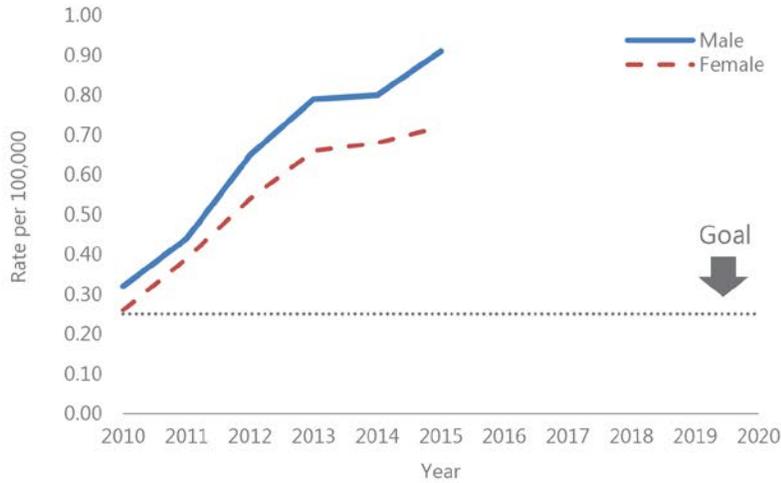
Men have 20% higher rates of acute HCV infection than women; rates are increasing in both groups.

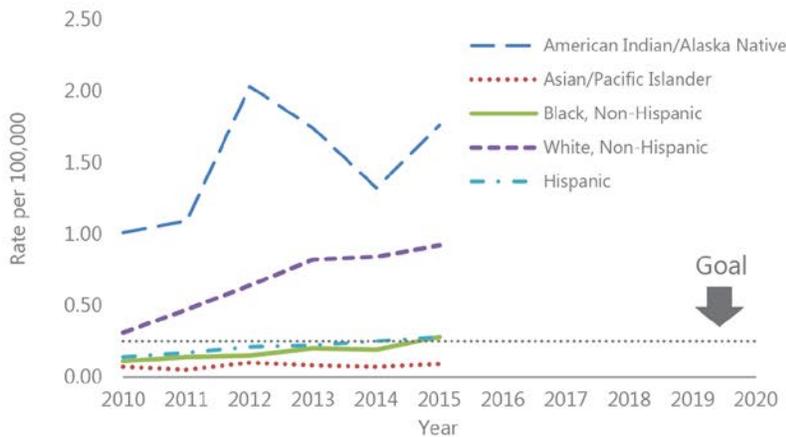## Incidence rate* of reported HCV infections, by **age group**

Young adults have the highest rates of acute HCV infections, and rates in this group are increasing at a higher rate than other age groups.

Incidence rate* of reported HCV infection, by **race/ethnicity**

American Indian/Alaska Natives have the highest incidence rates of reported HCV infections, followed by non-Hispanic whites.
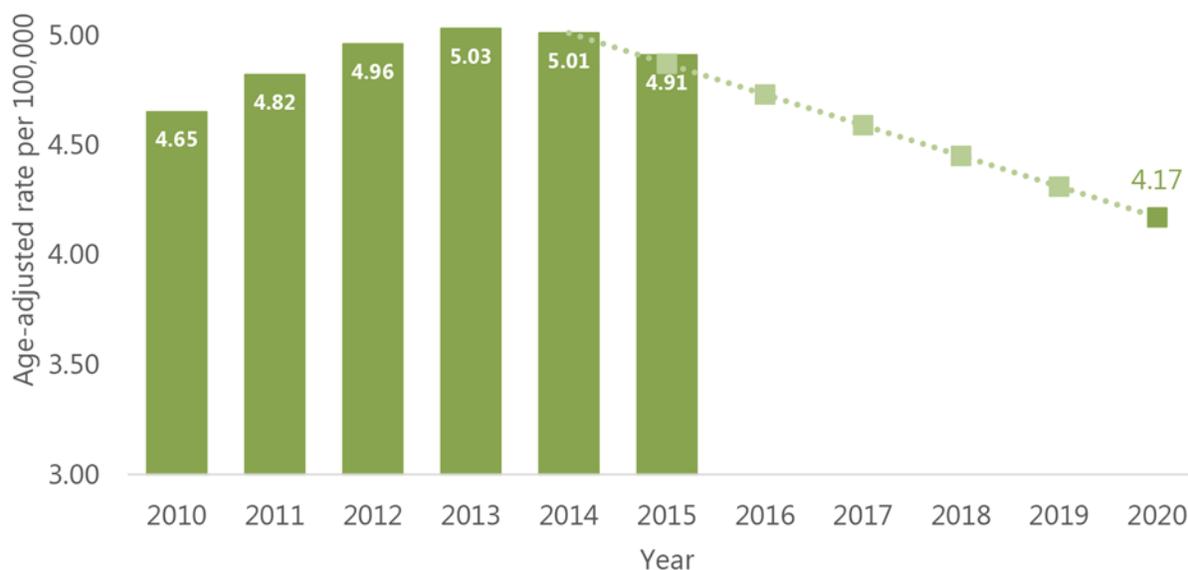
Reduce the rate of HCV-related deaths

Age-adjusted rate* of HCV-related deaths†

Source: CDC, National Vital Statistics System[7,12]

*Rates are age-adjusted per 100,000 U.S. standard population in 2000.

†Cause of death is defined as the underlying cause of death or one of the multiple causes of death and is based on the International Classification of Disease, 10th Revision (ICD-10) codes B17.1 and B18.2.

The age-adjusted HCV-related mortality rate increased from 2010 through 2013, but began to decline in 2014. Despite this recent decline, the observed 2015 HCV-related death rate was above the 2015 annual target of 4.87 deaths per 100,000 U.S. population.

**Reduction needed to meet 2020 goal:** A 15.1% further reduction from the death rate reported in 2015 is needed to meet the 2020 goal of 4.17 deaths per 100,000 U.S. population.

This reduction can best be achieved by

- Increasing the proportion of persons receiving recommended testing for HCV.

- Increasing the proportion currently infected persons who are referred for care and receiving appropriate treatment.

- Fostering collaborations that increase HCV drug affordability, cost savings for payers, and access for patients.

- Disseminating tools (e.g., telemedicine models) that help healthcare systems expand their capacity to identify, link to care, and treat persons living with hepatitis C.

- Implementing educational campaigns to encourage testing and dispel myths about who is at increased risk for HCV infection.

- Using case surveillance and electronic health records to ensure HCV infected persons are identified and enrolled in HCV-specific care.
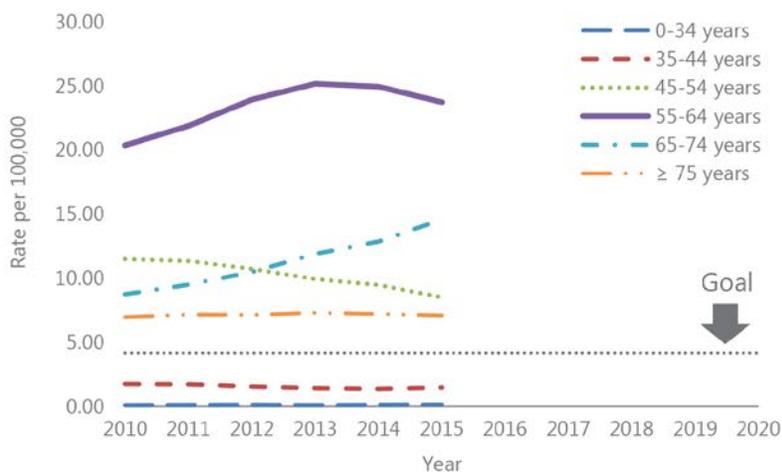
Age-adjusted rate* of HCV-related deaths,[†] by **sex**

Age-adjusted rate per 100,000

Year

Male
Female

Goal
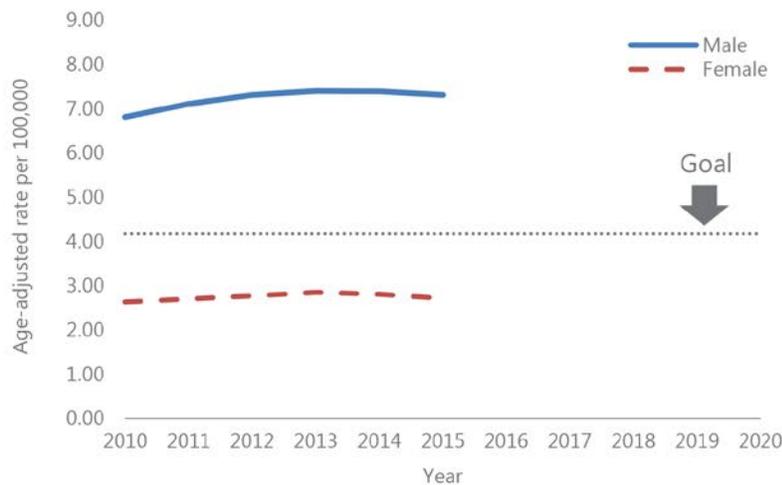
Men have more than 2.7 times higher age-adjusted HCV-related death rates than women.

Rate of HCV-related deaths per 100,000 population,[†] by **age group[‡]**

Rate per 100,000

Year

0-34 years
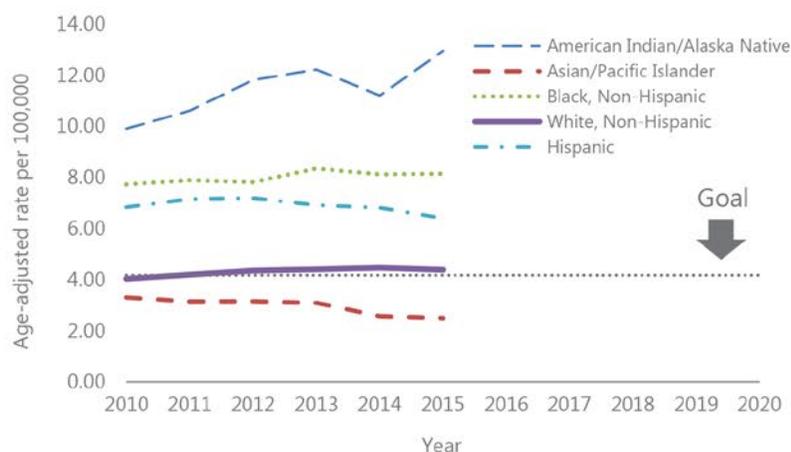35-44 years
45-54 years
55-64 years
65-74 years
≥ 75 years

Goal

Persons aged 55-64 years have the highest HCV-related death rates. Death rates for persons 65-74 years have increased since 2010.

Age-adjusted rate* of HCV-related deaths,[†] by **race/ethnicity[¶]**

Age-adjusted rate per 100,000

Year

American Indian/Alaska Native
Asian/Pacific Islander
Black, Non-Hispanic
White, Non-Hispanic
Hispanic

Goal

American Indians/Alaska Natives have the highest death rates of all racial/ethnic populations, and rates for this group increased by 16% from 2014 to 2015. Death rates are also elevated for non-Hispanic black and Hispanic persons compared with other populations.

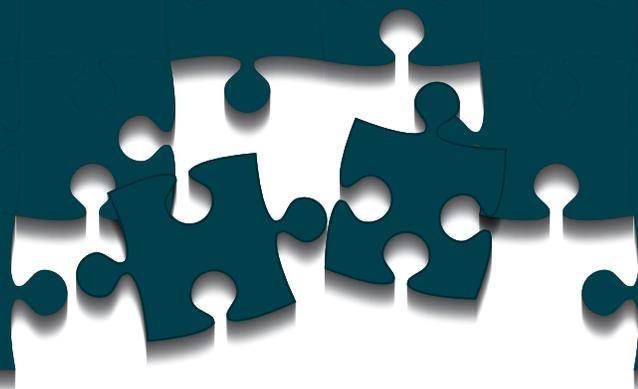**Source:** CDC, National Vital Statistics System[7,12]

*Rates for sex and race/ethnicity are age-adjusted per 100,000 U.S. standard population in 2000.

[†]Cause of death is defined as the underlying cause of death or one of the multiple causes of death and is based on the International Classification of Disease, 10th Revision (ICD-10) codes B17.1 and B18.2.

[‡]2 deaths in 2010, 1 death in 2011, 2 deaths in 2012, 2 deaths in 2013, 5 deaths in 2014, and 1 death in 2015 are not represented due to missing age data.

[¶]65 deaths in 2010, 73 deaths in 2011, 126 deaths in 2012, 111 deaths in 2013, 142 deaths in 2014, and 157 deaths in 2015 are not represented due to missing race/ethnicity data.

Technical Notes

Increase the percentage of children aged 19–35 months who receive ≥2 doses of hepatitis A vaccine

GOAL:

By 2020, increase the percentage of children aged 19–35 months who receive ≥2 doses of hepatitis A vaccine to 85%

INDICATOR:

Percentage of children aged 19–35 months who received ≥2 doses of hepatitis A vaccine

Data Source: CDC, National Immunization Survey-Child (NIS-Child)
_____

Numerator: Number of children aged 19-35 months who had received ≥2 doses of hepatitis A vaccine
_____

Denominator: Number of children aged 19-35 months

Indicator Notes:[10-11,13] The NIS-Child monitors vaccination coverage among children aged 19-35 months in the 50 states, the District of Columbia, selected local areas, and U.S. territories using a random-digit dialing sample of landline and cellular telephone numbers. After identifying a household with at least one age-eligible child, a telephone interview is conducted to collect sociodemographic characteristics for all age-eligible children and to request permission to contact the child's vaccination providers. If consent is given, a survey is mailed to each provider to request the child's vaccination history, including dates of receipt of vaccine doses. Data are weighted to represent the population of children aged 19-35 months, with adjustments for households with multiple telephone lines and mixed telephone use (landline and cellular), household nonresponse, and exclusion of households without telephone service. Beginning in 2011, surveys include landline and cellular telephone households. NIS-Child data for 2010 include children born January 2007 through May 2009; for 2011, children born January 2008 through May 2010; for 2012, children born January 2009 through May 2011; for 2013, children born January 2010 through May 2012; for 2014, children born January 2011 through May 2013; and for 2015, children born January 2012 through May 2014.

Goal Setting: Data from 2014 were chosen as a baseline to maintain uniformity across all indicators in this report and to be consistent with CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Data prior to 2014 are presented to provide additional context for data trends. The 2020 goal of 85% was set to be consistent with the Healthy People 2020 Objective (IID-7.8) to maintain consistency with national programs, regulations, policies, and laws, and because this goal is achievable given low hepatitis A vaccination coverage levels compared with other recommended childhood vaccinations. Annual targets assume a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal.

Limitations: Low response rates, incomplete sampling frames, and potential misclassification of vaccination status in the NIS-Child may lead to bias in estimating vaccination coverage. NIS-Child estimates of ≥2 hepatitis A doses likely underestimate the proportion of children who ultimately reach complete vaccination levels. Children are recommended to receive a dose of hepatitis A vaccine at age 12–23 months, with a second dose 6–18 months later. Therefore, a child could be on schedule but not receive the second dose of hepatitis A vaccine until age 41 months; this second dose would not be captured by the NIS-Child, which does not assess coverage for children aged >35 months.

Reduce the rate of reported HAV infections

GOAL:

By 2020, reduce the rate of reported HAV infections to 0.30 per 100,000 U.S. population

INDICATOR:

Incidence rate of reported HAV infections

Data Source: CDC, National Notifiable Diseases Surveillance System (NNDSS); and CDC/NCHS/US Census Bureau, Bridged-race Population Estimates

Numerator: Number of HAV infections reported annually

Denominator: Total population in reporting states

Indicator Notes:[7] The NNDSS is a nationwide collaboration that enables all levels of public health to share notifiable-disease-related health information. In some jurisdictions, viral hepatitis is a *reportable* disease: health care providers, hospitals, and laboratories are mandated to report cases to the state health department. In other jurisdictions, viral hepatitis is a *notifiable* disease, rendering such case reporting voluntary. Each state has its own laws and regulations defining whether viral hepatitis is reportable or notifiable. CDC in turn receives voluntary viral hepatitis case notification from each state or reporting jurisdiction. Surveillance for viral hepatitis through NNDSS is based on case definitions developed and approved by the Council of State and Territorial Epidemiologists (CSTE) and CDC. Reported cases of acute viral hepatitis A are required to meet specific clinical and laboratory criteria. Only these confirmed cases of acute viral hepatitis are presented in this report. Case rates per 100,000 U.S. population are calculated based on the resident population of the United States for the data years involved. For census years (e.g., 2010), population counts enumerated as of April 1 are used. For all other years, population estimates as of July 1 are used.

Goal Setting: 2014 was established as the baseline year for this indicator to maintain uniformity across all indicators in this report and to be consistent with CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Data prior to 2014 are presented to provide additional context for data trends. The 2020 goal of 0.30 per 100,000 U.S. population was set to be consistent with the Healthy People 2020 Objective (IID-23), and CDC's Viral Hepatitis Strategic Plan, 2016-2020. Annual targets assume a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal.

Limitations: Viral hepatitis is largely underreported in the NNDDS: based on a simple probabilistic model for estimating the fraction of patients who would have been symptomatic, sought health care tests, and reported to health officials in 2015, actual HAV cases are estimated to be 1.96 times the number reported to CDC.[14] Additionally, rates may vary over time based on changes in public and provider awareness, changes in laboratory and diagnostic techniques, and changes in the definition of the condition.

Increase the percentage of infants who receive hepatitis B vaccine within 3 days of birth

GOAL:

By 2020, increase the percentage of infants who receive hepatitis B vaccine within 3 days of birth to 85%

INDICATOR:

Percentage of children aged 19-35 months who received hepatitis B vaccine within 3 days of birth

Data Source: CDC, National Immunization Survey-Child (NIS-Child)
_____

Numerator: Number of children aged 19-35 months who received hepatitis B vaccine within 3 days of birth
_____

Denominator: Number of children aged 19-35 months

Indicator Notes:[10-11,13] The NIS-Child monitors vaccination coverage among children aged 19-35 months in the 50 states, the District of Columbia, selected local areas, and U.S. territories using a random-digit dialing sample of landline and cellular telephone numbers. After identifying a household with at least one age-eligible child, a telephone interview is conducted to collect sociodemographic characteristics for all age-eligible children and to request permission to contact the child's vaccination providers. If consent is given, a survey is mailed to each provider to request the child's vaccination history, including dates of receipt of vaccine doses. Data are weighted to represent the population of children aged 19-35 months, with adjustments for households with multiple telephone lines and mixed telephone use (landline and cellular), household nonresponse, and exclusion of households without telephone service. Beginning in 2011, surveys include landline and cellular telephone households. NIS-Child data for 2010 include children born January 2007 through May 2009; for 2011, children born January 2008 through May 2010; for 2012, children born January 2009 through May 2011; for 2013, children born January 2010 through May 2012; for 2014, children born January 2011 through May 2013; and for 2015, children born January 2012 through May 2014.

Goal Setting: Data from 2014 were chosen as a baseline to maintain uniformity across all indicators in this report and to be consistent with CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Data prior to 2014 are presented to provide additional context for data trends. The 2020 goal of 85% was set to be consistent with the Healthy People 2020 Objective (IID-7.9) to maintain consistency with national programs, regulations, policies, and laws and based on modeling of NIS data from 2003-2008, which showed an average increase of 2.46% per year, making 85% coverage an achievable 2020 goal. The 85% Healthy People 2020 goal was also subsequently adopted in both CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Annual targets assume a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal.

Limitations: Low response rates, incomplete sampling frames, and potential misclassification of vaccination status in the NIS may lead to bias in estimating vaccination coverage.

Reduce the rate of reported acute HBV infections among persons aged ≥19 years

GOAL:

By 2020, reduce the rate of reported acute HBV infections among persons aged ≥19 years to 0.50 per 100,000 U.S. population

INDICATOR:

Incidence rate of reported HBV infections among persons aged ≥19 years

Data Source: CDC, National Notifiable Diseases Surveillance System (NNDSS); and CDC/NCHS/U.S. Census Bureau, Bridged-race Population Estimates

Numerator: Number of acute HBV infections reported among persons aged ≥19 years annually

Denominator: Total population of persons aged ≥19 years in reporting states

Indicator Notes: The NNDSS is a nationwide collaboration that enables all levels of public health to share notifiable-disease-related health information. In some jurisdictions, viral hepatitis is a *reportable* disease: health care providers, hospitals, and laboratories are mandated to report cases to the state health department. In other jurisdictions, viral hepatitis is a *notifiable* disease, making case reporting voluntary. Each state has its own laws and regulations defining whether viral hepatitis is reportable or notifiable. CDC in turn receives voluntary viral hepatitis case notification from each state or reporting jurisdiction. Surveillance for viral hepatitis through the NNDSS is based on case definitions developed and approved by CSTE and CDC. Reported cases of acute viral hepatitis B are required to meet specific clinical and laboratory criteria. Only these confirmed cases are presented in this report. Case rates per 100,000 U.S. population are calculated based on the resident population of the United States for the data years involved. For census years (e.g., 2010), population counts enumerated as of April 1 are used. For all other years, population estimates as of July 1 are used.

Goal Setting: Data from 2014 were chosen as a baseline to maintain uniformity across all indicators in this report and to be consistent with CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Data prior to 2014 are presented to provide additional context for data trends. The 2020 goal of 0.50 per 100,000 U.S. population aged ≥19 years was set to be consistent with the Healthy People 2020 Objective (IID-25.1) and CDC's Viral Hepatitis Strategic Plan, 2016-2020. Annual targets assume a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal.

Limitations: Viral hepatitis is largely underreported in the NNDDS: based on a simple probabilistic model for estimating the fraction of patients who would have been symptomatic, sought health care tests, and reported to health officials in 2015, the actual number of acute HBV cases for all age groups combined is estimated to be 6.48 times the number reported to CDC.[14] Additionally, rates may vary over time based on changes in public and provider awareness, changes in laboratory and diagnostic techniques, and changes in the definition of the condition.

Reduce the rate of HBV-related deaths

GOAL:

By 2020, reduce the rate of HBV-related deaths to 0.48 per 100,000 U.S. population

INDICATOR:

Age-adjusted rate of HBV-related deaths

Data Source: CDC, National Vital Statistics System (NVSS)

Numerator: Number of death records with a report of hepatitis B listed as the underlying or one of multiple causes of death

Denominator: Total U.S. Census population

Indicator Notes:[7,12,15] Death certificates are completed for all deaths registered in the United States. Information for death certificates is provided by funeral directors, attending physicians, medical examiners, and coroners, and certificates are filed in vital statistics offices within each state and the District of Columbia. Through the NVSS, information from death certificates is compiled by CDC to produce national multiple-cause-of-death data; causes of death are coded in accordance with the International Classification of Diseases, Tenth Revision.[16] National multiple-cause mortality data from NVSS were obtained and analyzed, and those death records with a report of hepatitis B (ICD-10: B16, B17.0, B18.0, or B18.1) listed as the underlying or one of the multiple (e.g., contributing) causes of death in the record were enumerated. Rates were calculated as the number of deaths related to hepatitis B divided by the total U.S. Census population. Rates for race/ethnicity, sex, and overall total were standardized to the age distribution of the U.S. standard population in 2000.

Goal Setting: Data from 2014 were chosen as a baseline to maintain uniformity across all indicators in this report and to be consistent with CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Data prior to 2014 are presented to provide additional context for data trends. A goal of reducing the number of deaths from viral hepatitis B from 1,843 in 2014 to 1,754 in 2020 was set in CDC's Viral Hepatitis Strategic Plan, 2016-2020, and a similar goal was defined in HHS's National Viral Hepatitis Action Plan, 2017-2020. However, death counts are susceptible to changes in the distribution of the underlying population, potentially confounding trends over time. For purposes of this report, a proportional reduction goal was applied to the 2014 rate (0.50 deaths per 100,000 U.S. population) instead of the count. Annual targets assume a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal.

Limitations: Mortality data must be interpreted with caution due to the potential for misclassification of ICD-10 codes on the death record, underrepresentation of certain racial/ethnic populations in U.S. Census data, and underreporting of viral hepatitis as a cause of death on death certificates.

Reduce the rate of reported acute HCV infections

GOAL:

By 2020, reduce the rate of reported acute HCV infections to 0.25 per 100,000 U.S. population

INDICATOR:

Incidence rate of reported HCV infections

Data Source: CDC, National Notifiable Diseases Surveillance System (NNDSS); and CDC/NCHS/U.S. Census Bureau, Bridged-race Population Estimates

Numerator: Number of acute HCV infections reported annually

Denominator: Total population in reporting states

Indicator Notes:[7] The NNDSS is a nationwide collaboration that enables all levels of public health to share notifiable-disease-related health information. In some jurisdictions, viral hepatitis is a reportable disease: health care providers, hospitals, and laboratories report cases to the state health department. In other jurisdictions, viral hepatitis is a notifiable disease, rendering such reporting voluntary. Each state has its own laws and regulations defining whether viral hepatitis is reportable or notifiable. CDC in turn receives voluntary viral hepatitis case notification from each state or reporting jurisdiction. Surveillance for viral hepatitis through the NNDSS is based on case definitions developed and approved by CSTE and CDC. Reported cases of acute viral hepatitis C are required to meet specific clinical and laboratory criteria. Only these confirmed cases are presented in this report. Case rates per 100,000 U.S. population are calculated based on the resident population of the United States for the data years involved. For census years (e.g., 2010), population counts enumerated as of April 1 are used. For all other years, population estimates as of July 1 are used.

Goal Setting: Data from 2014 were chosen as a baseline to maintain uniformity across all indicators in this report and to be consistent with CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Data prior to 2014 are presented to provide additional context for data trends. The 2020 goal of 0.25 per 100,000 U.S. population was set to be consistent with the Healthy People 2020 Objective (IID-26) and CDC's Viral Hepatitis Strategic Plan, 2016-2020. Annual targets assume a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal.

Limitations: Viral hepatitis is largely underreported in the NNDDS: based on a simple probabilistic model for estimating the fraction of patients who would have been symptomatic, sought health care tests, and reported to health officials in 2015, the actual number of acute HCV cases is estimated to be 13.9 times the number reported to CDC.[14] Additionally, rates may vary over time based on changes in public and provider awareness, changes in laboratory and diagnostic techniques, and changes in the definition of the condition.

Reduce the rate of HCV-related deaths

GOAL:

By 2020, reduce the rate of HCV-related deaths to 4.17 per 100,000 U.S. population

INDICATOR:

Age-adjusted rate of HCV-related deaths

Data Source: CDC, National Vital Statistics System (NVSS)

Numerator: Number of death records with a report of hepatitis C listed as the underlying or one of multiple causes of death

Denominator: Total U.S. Census population

Indicator Notes:[7,12,15] Death certificates are completed for all deaths registered in the United States. Information for death certificates is provided by funeral directors, attending physicians, medical examiners, and coroners, and certificates are filed in vital statistics offices within each state and the District of Columbia. Through the NVSS, information from death certificates is compiled by CDC to produce national multiple-cause-of-death data; causes of death are coded in accordance with the International Classification of Diseases, Tenth Revision.[16] National multiple-cause mortality data from NVSS were obtained and analyzed, and those death records with a report of hepatitis C (ICD-10: B16, B17.0, B18.0, or B18.1) listed as the underlying or one of the multiple (e.g., contributing) causes of death in the record were enumerated. Rates were calculated as the number of deaths related to hepatitis C divided by the total U.S. Census population. Rates for race/ethnicity, sex, and overall total were standardized to the age distribution of the U.S. standard population in 2000.

Goal Setting: Data from 2014 were chosen as a baseline to maintain uniformity across all indicators in this report and to be consistent with CDC's Viral Hepatitis Strategic Plan, 2016-2020 and HHS's National Viral Hepatitis Action Plan, 2017-2020. Data prior to 2014 are presented to provide additional context for data trends. A goal of reducing the number of deaths from viral hepatitis C from 19,659 in 2014 to 16,370 in 2020 was set in CDC's Viral Hepatitis Strategic Plan, 2016-2020, and a similar goal was defined in HHS's National Viral Hepatitis Action Plan, 2017-2020. However, because death counts are susceptible to changes in the distribution of the underlying population potentially confounding trends over time, for purposes of this report, a proportional reduction goal was applied to the 2014 rate (5.01 deaths per 100,000 U.S. population) instead of the count. Annual targets assume a constant (linear) rate of change from the observed baseline (2014) to the 2020 goal.

Limitations: Mortality data must be interpreted with caution due to the potential for misclassification of ICD-10 codes on the death record, underrepresentation of certain racial/ethnic populations in U.S. Census data, and underreporting of viral hepatitis as causes of death on death certificates.

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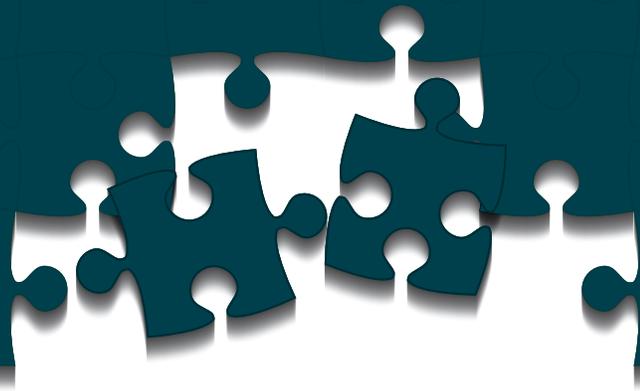
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