

**Division of Viral Hepatitis (DVH) Strategic Plan, 2016–2020:  
Bringing Together Science and Public-Health Practice for the Elimination of Viral Hepatitis**



## Division of Viral Hepatitis Strategic Plan, 2016–2020

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, a total of 240 million and 130 million persons are estimated to be living with HBV and HCV infection, respectively. In 2013, viral hepatitis took more than 1.4 million lives, a death toll surpassing that of HIV, malaria, and tuberculosis. In the United States, as many as 5.7 million persons are living with HBV or HCV infection, which together are major causes of chronic liver disease. In contrast to the declining rates of deaths from other cancers, deaths from liver cancer are rising in the United States, with much of the increase attributed to viral hepatitis. Of particular concern is the annual number of HCV-associated deaths, which now exceed the number of deaths from 60 other nationally notifiable diseases combined.

New cases of viral hepatitis also are on the rise in the United States. The number of new HCV infections reported to the Centers for Disease Control and Prevention (CDC) increased by more than 150% during 2010–2014, most of them occurring among adolescents and young adults. During 2012–2013, the number of new cases of HBV infections rose as a result of increased transmission among persons who inject drugs (PWID) and those with other HBV-related risks. This upward trend in incidence is not inevitable. New cases of viral hepatitis can be prevented with effective interventions. For hepatitis A virus (HAV) and HBV, effective vaccines can protect persons from becoming infected. No vaccine is currently available for hepatitis C and although there is a vaccine for hepatitis E virus (HEV), it is not currently approved for use in the United States. For hepatitis B and C, 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.

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, at least half of persons living with hepatitis B or hepatitis C do not know they are infected. Only through testing and knowledge of infection status can these persons 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. Persons who achieve virologic cure of their HCV infection have dramatically lower risks for 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 chronic hepatitis B (e.g., Asians/Pacific Islanders, persons aged 55–64 years, and persons infected at birth) and chronic hepatitis C (persons born during 1945–1965 and African Americans). These populations need targeted interventions that can prevent new cases of viral infection (e.g., education and vaccination) and improve quality of life for persons already infected (e.g., testing, care, and treatment).

The global hepatitis challenges are similar to those faced in the United States. In many countries, resources for testing and treatment are constrained, provider and public awareness about viral hepatitis is lacking, capacity to diagnose and treat viral hepatitis is limited, and transmission of HBV and HCV resulting from unsafe injection practices continues to occur.

With this plan as a guide, CDC’s Division of Viral Hepatitis (DVH) will prioritize the public health actions needed to prevent transmission, reduce morbidity and mortality, and meet the needs of disproportionately impacted populations, further prioritizing those populations at highest risk for adverse health outcomes in the absence of interventions. The Plan was developed and will be implemented in line with the following [National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention \(NCHHSTP\) Strategic Plan through 2020](#) strategies: 1) targeting, prioritizing, and improving policies and programs using data from surveillance, modeling, and other programs, as well as results from evaluation and research efforts; 2) addressing critical scientific gaps by identifying, developing, and evaluating interventions, policies, and technologies; 3) increasing knowledge of HIV, viral hepatitis, STDs, and TB and promoting adoption of behaviors that prevent infection and associated morbidity and mortality; 4) maximizing opportunities afforded by the healthcare system for preventing infections, morbidity, and mortality; 5) promoting better collaboration across NCHHSTP Divisions in design and implementation of surveillance, research, communication, and prevention programs to support service integration and utilizing Center and partner resources most effectively; and 6) supporting excellence in science and programs by ensuring efficient business and scientific administration, implementing effective communication and policies, enhancing skills of current staff, and developing the NCHHSTP public health workforce.

This document outlines the Division’s four strategic imperatives (I through IV) for accomplishing its goals. To provide additional detail about how the Division will carry out these imperatives and measure success during the 5-year lifespan of this plan, each imperative is accompanied by objectives and strategies. To measure progress toward the goals and objectives, key measures have been identified, frequently with accompanying target and baseline data; some measures draw on [Healthy People 2020 \(HP2020\) Immunization and Infectious Disease objectives](#) (IID) and NCHHSTP Strategic Plan indicators, with a preference given to health-outcome/output-related measures. Because they have been newly identified, some of the measures included in this plan are considered “developmental;” baseline data and their targets have not yet been determined for these measures.

The Division’s mission is to bring together science and public health practices to eliminate viral hepatitis. The Division aims to prevent viral hepatitis and reduce rates of morbidity and mortality associated with these infections, protecting persons at greatest risk from becoming infected and helping those who are living with viral hepatitis infection lead healthy, productive lives. The Division’s plan addresses many of the goals and strategies of the [2014 HHS Action](#)

**Division of Viral Hepatitis Strategic Plan Overview**

**Vision:** To eliminate viral hepatitis in the United States and worldwide

**Mission:** To bring together science and public-health practices to eliminate viral hepatitis

**Goals:** Decrease incidence and prevalence of viral hepatitis  
Decrease morbidity and mortality from viral hepatitis  
Reduce viral hepatitis-related health disparities

[Plan for Viral Hepatitis Prevention, Care, and Treatment](#) including 1) decreasing the number of new hepatitis B and hepatitis C infections and the number of people living with undiagnosed chronic viral hepatitis (especially in populations disproportionately affected) and 2) decreasing illness and deaths by eliminating vaccine-preventable viral hepatitis and identifying infected persons early and linking them to care and treatment. The DVH Strategic Plan further aligns with the NCHHSTP Strategic Plan goals of decreasing disease incidence, morbidity and mortality, and health disparities.

<b>DVH Strategic Plan 2016–2020: Strategic Imperatives and Objectives</b>				
<b>Strategic Imperatives (SI)</b>	<b>I. Assure vulnerable populations are vaccinated to prevent viral hepatitis</b>	<b>II. Assure early detection and response to stop transmission of hepatitis B and hepatitis C</b>	<b>III. Assure persons living with hepatitis B and hepatitis C are identified and linked to recommended care and treatment services</b>	<b>IV. Act globally to prevent, detect, and control viral hepatitis</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>Optimize hepatitis A and hepatitis B vaccination strategies among vulnerable populations.</li> <li>Promote development and implementation of new or improved viral hepatitis vaccines.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce hepatitis B and hepatitis C transmission associated with drug use.</li> <li>Protect healthcare workers and patients from hepatitis B and hepatitis C infections.</li> <li>Improve detection and reporting of new hepatitis B and hepatitis C infections including the use of novel virologic technologies and studies to investigate transmission.</li> <li>Develop evidence to guide use of “cure and prevention” strategies to prevent hepatitis C transmission.</li> </ul>	<ul style="list-style-type: none"> <li>Increase testing by raising healthcare-provider and public awareness of viral hepatitis and the importance of testing.</li> <li>Increase access to testing, care, and treatment for persons at risk for, or living with, viral hepatitis.</li> <li>Implement strategies for preventing perinatal transmission of hepatitis B and hepatitis C.</li> </ul>	<ul style="list-style-type: none"> <li>Provide support and assistance to the World Health Organization in the achievement of goals to eliminate hepatitis B and hepatitis C as global public health threats.</li> <li>Assist priority countries to develop, implement, monitor, and evaluate viral hepatitis-related guidelines, policies, plans, and programs.</li> <li>Develop, implement, and evaluate innovative viral hepatitis detection, prevention, care, and treatment strategies.</li> </ul>

## **Strategic Imperative I:**

### **Assure Vulnerable Populations Are Vaccinated to Prevent Viral Hepatitis**

With progressive infant hepatitis A vaccination recommendations since 1996 and universal infant vaccination since 2006, vaccination rates and evidence of vaccine-induced immunity in young patients have increased over the past decade. Despite this progress, rates of hepatitis A vaccination coverage remain lower than rates of other childhood vaccines recommended by the Advisory Committee on Immunization Practices (ACIP). In addition, although adults who fall into a high-risk group are recommended to receive vaccine, they often are not vaccinated and remain susceptible to infection. Since 2006, hepatitis A vaccination has been recommended for all children at age 1 year, persons at increased risk for infection, persons at increased risk for complications from hepatitis A, and any person wishing to obtain immunity. The hepatitis B vaccine also has been successfully integrated into the childhood vaccination schedule, contributing to a 95% decline in the incidence of acute hepatitis B in children and adolescents aged  $\leq 19$  years and a 62% decline among persons of all ages from 2000 to 2013. Despite this success, recommended strategies to prevent perinatal transmission of HBV through newborn vaccination are not implemented by all birthing facilities. For perinatal HBV transmission, anti-viral prophylaxis presents new prevention options, and new vaccine candidates have shown great promise in preventing HEV transmission. Research to identify effective HCV vaccine candidates is ongoing.

Currently, approximately 95% of new HBV infections occur among unvaccinated adults with behavioral risk factors (e.g., injection-drug use and unsafe sexual activity) and those receiving medical procedures that pose risks for HBV transmission (e.g., persons with diabetes). HBV can be transmitted through sexual contact. Because an estimated 80%–95% of sexually transmitted diseases (STDs) are diagnosed in medical settings other than STD clinics, primary-care and specialty medical-care providers should provide hepatitis B vaccination whenever indicated or requested by patients as part of regular preventive care. Furthermore, because HBV transmission associated with injection-drug use has increased in recent years, routine hepatitis B vaccination should be broadly implemented in substance-use-disorder treatment programs and syringe-services programs. Hepatitis B vaccination of persons with diabetes can reduce the two-fold greater risk of hepatitis B for this population compared with other adults.

The following table outlines the objectives and strategies needed to ensure that vulnerable populations are vaccinated to prevent viral hepatitis. DVH plans to undertake several, more specific actions during 2016–2020 to achieve this imperative, including updating national recommendations for hepatitis A and hepatitis B vaccination; assisting with the implementation of strategies to increase vaccination coverage, particularly hepatitis B vaccination of newborns beginning with a birth-dose and adults at risk; and promoting the appropriate use of new vaccines once they are approved by the U.S. Food and Drug Administration (FDA).

# Roadmap for Achieving DVH's Strategic Imperatives, 2016–2020

## DVH Strategic Imperative I:

### Assure Vulnerable Populations Are Vaccinated to Prevent Viral Hepatitis

Objectives	Strategies	Measures, Targets, and Baselines
<ul style="list-style-type: none"> <li>• <b>Optimize hepatitis A and hepatitis B vaccination strategies among vulnerable populations.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conduct studies to guide revisions of CDC hepatitis A and hepatitis B vaccine recommendations.</li> <li>• Inform changes in vaccination practices by updating Advisory Committee on Immunization Practices (ACIP)/CDC recommendations for hepatitis A and hepatitis B vaccination, as appropriate.</li> <li>• Promote implementation of new vaccine recommendations through provider education, strategic partnerships, and other measures.</li> <li>• Use surveillance data and other strategic information to detect populations at risk, gaps in vaccination coverage, and loss of immunoprotection.</li> <li>• Collaborate with partners to improve hepatitis B vaccination levels among high-risk adults.</li> </ul>	<p><b>Measure:</b> IID-7.9: Children receiving a birth dose of hepatitis B vaccine within 3 days of birth (percentage) [National Immunization Survey (NIS)]  <b>Target:</b> 85  <b>Baseline:</b> 72 (2014)</p> <p><b>Measure:</b> IID-23: Acute (new) cases of hepatitis A (per 100,000 population)  <b>Target:</b> 0.3 [National Notifiable Diseases Surveillance System (NNDSS)]  <b>Baseline:</b> 0.4 (2014)</p> <p><b>Measure:</b> IID-1.3: Acute (new) cases of hepatitis B (per 100,000, 2–18 years of age)  <b>Target:</b> 0 (NNDSS)  <b>Baseline:</b> 0.02 (2014)</p> <p><b>Measure:</b> IID15.3: Healthcare personnel vaccinated against hepatitis B (percentage)  <b>Target:</b> 90 [National Health Interview Survey (NHIS)]  <b>Baseline:</b> 68</p> <p><b>Measure:</b> [Developmental] Increase hepatitis A vaccine coverage among persons who inject drugs (PWID) (percentage)  <b>Target:</b> To be determined (TBD)  <b>Baseline:</b> TBD</p>

## DVH Strategic Imperative I:

### Assure Vulnerable Populations Are Vaccinated to Prevent Viral Hepatitis

Objectives	Strategies	Measures, Targets, and Baselines
<p><i>(Continued)</i></p> <ul style="list-style-type: none"> <li>• <b>Optimize hepatitis A and hepatitis B vaccination strategies among vulnerable populations.</b></li> </ul>		<p><b>Measure:</b> <i>[Developmental]</i> Increase hepatitis B vaccine coverage among PWID (percentage)  <b>Target:</b> TBD  <b>Baseline:</b> TBD</p> <p><b>Measure:</b> Increase hepatitis B vaccine coverage among adults with diabetes mellitus (percentage)  <b>Target:</b> TBD  <b>Baseline:</b> TBD</p>
<ul style="list-style-type: none"> <li>• <b>Promote development and implementation of new or improved viral hepatitis vaccines.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Promote development of a hepatitis C vaccine by providing technical expertise and strategic information.</li> <li>• Following licensure, incorporate newly licensed viral hepatitis vaccines in program guidance and national recommendations.</li> <li>• Complete studies of hepatitis E vaccine candidates and develop partnerships for further vaccine study, possible licensure, and production.</li> </ul>	<p><b>Measure:</b> Number of new partnerships formed towards new vaccine development  <b>Target:</b> At least one</p> <p><b>Measure:</b> Issue updated CDC guidelines upon FDA-approval of new viral hepatitis vaccines on a timely basis  <b>Target:</b> Within one year</p>

## Strategic Imperative II:

### **Assure Early Detection and Response to Stop Transmission of Hepatitis B and Hepatitis C**

National surveillance and other data obtained from select funded sites, national surveys, and vital statistics enable the detection of trends in viral hepatitis infection, thus serving as the foundation for informing response and prevention initiatives and prioritizing those populations in greatest need for intervention. Surveillance data can help identify populations disproportionately affected by viral hepatitis due to behavioral and demographic risk factors (e.g., injecting drugs, belonging to a particular birth cohort with high HCV infection prevalence, receiving invasive health procedures, and working in certain health-care settings), largely influencing viral hepatitis recommendations and policies. Surveillance data for recent years have revealed that new viral hepatitis infections are on the rise: rates of acute hepatitis C increased during 2009–2014, and CDC is increasingly receiving reports of cases of HCV infection occurring among young PWID living in rural areas and among women of childbearing age. Recently, hepatitis B surveillance data demonstrated that although the number of acute cases of HBV infection decreased by nearly 12% during 2010–2013, increases were reported in Alabama, Arizona, Indiana, Kentucky, Louisiana, Massachusetts, Mississippi, Ohio, Tennessee, Utah, Vermont, West Virginia, and Wisconsin during this time period. Outbreaks of HBV and HCV transmission in healthcare settings add to the burden of disease in the United States. Collectively, these data signal the need for targeted interventions for those Americans at highest risk.

In the United States, surveillance capacity for viral hepatitis is limited. Although national-level surveillance infrastructure is in place for receiving reports of both acute and chronic viral hepatitis infections, only 30 states submitted data for both acute (hepatitis A, B, and C) and chronic (hepatitis B and C) cases for inclusion in the 2014 CDC national surveillance report. Further, 40 and 34 states agreed to publish case-report data for chronic HBV and past or present HCV infections, respectively, which account for the greatest burden of disease. Limited resources necessitate prioritization of activities that have the greatest impact at the state and local level, including those that improve detection of HBV and HCV transmission and identification of transmission routes, along with other activities known to effectively halt the spread of viral hepatitis.

The following table outlines the objectives and strategies needed to ensure early detection and response to stop transmission of HBV and HCV. DVH plans to undertake several, more specific actions during 2016–2020 to achieve this imperative, including assisting state and local health authorities to improve detection of acute (new) infections, particularly in those states that have not yet reached the *HP2020* target for incident HBV and HCV infection among adults; facilitating state and local health department reporting of surveillance data for select populations disproportionately affected by viral hepatitis (e.g., American Indians/Alaska Natives, Asians/Pacific Islanders, African Americans, rural/low-income whites in Appalachia, and PWID); developing technical assistance and guidance documents regarding molecular bioinformatics and information technologies for the detection of viral hepatitis transmission; analyzing HBV- and HCV-related data from existing health systems/clinical health records and disseminating to state and local health departments; and developing the guidance and partnerships for the implementation of a package of interventions to prevent HBV and HCV transmission.



## DVH Strategic Imperative II:

### Assure Early Detection and Response to Stop Transmission of Hepatitis B and Hepatitis C

Objectives	Strategies	Measures, Targets, and Baselines
<ul style="list-style-type: none"> <li>• <b>Reduce hepatitis B and hepatitis C transmission associated with drug use.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Increase identification of persons with acute (new) hepatitis B and hepatitis C infection, assess indicators of high-risk behaviors, and evaluate reinfection after viral clearance by gathering and analyzing multi-sectoral (e.g., clinical, public health, and law enforcement) data.</li> <li>• Participate in patient-centered outcomes research to identify strategies that promote treatment adherence and completion among persons who inject drugs (PWID).</li> <li>• Conduct prevention research to demonstrate how to locate, refer to care, and provide a comprehensive set of interventions for PWID, including broad access to hepatitis C testing and treatment as components of a “cure and prevention” strategy together with medication-assisted treatment and adequate access to syringe-service programs to sustain prevention gains.</li> <li>• Promote access to hepatitis B and hepatitis C testing in substance-use-disorder treatment programs, emergency departments, correctional facilities, and other settings.</li> <li>• Prepare and disseminate programmatic guidance and associated implementation tools to assist state and local health departments and other partners in preventing the spread of hepatitis B and hepatitis C.</li> <li>• Assist and support the National Academies of Science, Engineering, and Medicine; the U.S. Department of Health and Human Services; other national organizations; and, state and tribal health agencies to set targets and develop plans for reductions in hepatitis B and hepatitis C incidence.</li> </ul>	<p><b>Measure:</b> NCHHSTP 1.1b: New hepatitis B infections in adults (per 100,000 population, ≥19 years)  <b>Target:</b> 0.5 [National Notifiable Diseases Surveillance System (NNDSS)]  <b>Baseline:</b> 1.3 (2014)</p> <p><b>Measure:</b> IID-26: New cases of hepatitis C (per 100,000 population)  <b>Target:</b> 0.25 (NNDSS)  <b>Baseline:</b> 0.7 (2014)</p> <p><b>Measure:</b> Number of states and DC reporting to CDC surveillance data for both acute (new) and chronic hepatitis B and hepatitis C  <b>Target:</b> 50 states and DC (NNDSS)  <b>Baseline:</b> 30 states (2014)</p>

## DVH Strategic Imperative II:

### Assure Early Detection and Response to Stop Transmission of Hepatitis B and Hepatitis C

Objectives	Strategies	Measures, Targets, and Baselines
<ul style="list-style-type: none"> <li>• <b>Protect healthcare workers and patients from hepatitis B and hepatitis C infections.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Improve identification and investigation of healthcare-associated viral hepatitis.</li> <li>• Build partnerships to promote implementation of prevention strategies in settings associated with increased rates of hepatitis B and hepatitis C transmission (e.g., dialysis facilities).</li> <li>• Lead or participate in updating guidelines for management of hepatitis C exposures in healthcare settings.</li> </ul>	<p><b>Measure:</b> States that routinely follow-up on reported acute hepatitis B and acute hepatitis C cases to identify possible healthcare-associated hepatitis transmission events (number)</p> <p><b>Target:</b> To be determined [TBD]</p> <p><b>Baseline:</b> TBD</p>
<ul style="list-style-type: none"> <li>• <b>Improve investigations of transmission including the use of novel virologic technologies and studies to investigate transmission.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Revise and implement case definitions that improve reporting of new or recent hepatitis B and hepatitis C infection.</li> <li>• Provide updated surveillance guidelines and build capacity for states to collect and report a core set of surveillance data, particularly states with rising rates of hepatitis B and hepatitis C transmission.</li> <li>• Improve detection of hepatitis B and hepatitis C among risk populations, including pregnant women and their newborns.</li> <li>• Apply advanced molecular, computational, and information technologies for surveillance.</li> <li>• Strengthen laboratory capacity of state and local health departments for outbreak investigations.</li> </ul>	<p><b>Measure:</b> States sharing molecular epidemiologic data with CDC (number)</p> <p><b>Target:</b> 8 (GHOST website)</p> <p><b>Baseline:</b> 0</p> <p><b>Measure:</b> States actively investigating and reporting viral hepatitis cases to CDC (number)</p> <p><b>Target:</b> TBD</p> <p><b>Baseline:</b> TBD</p>

## **Strategic Imperative III:**

### **Assure Persons Living with Hepatitis B and Hepatitis C Are Identified and Linked to Recommended Care and Treatment Services**

As many as 5.7 million persons are living with hepatitis B or hepatitis C, half of whom do not know they are infected and therefore do not receive needed care and treatment services. Persons infected with either HBV or HCV can have clinically silent infections for decades until they develop liver damage, cirrhosis, liver failure, or liver cancer. With respect to hepatitis C, persons born during 1945–1965 have the highest burden of infection, and at least half of those who are infected do not know their infection status; persons born in these years account for more than 70% of all HCV-associated deaths. Although African Americans comprise less than 11% of the population born during 1945–1965, they represent 25% of persons living with HCV infection. In the case of hepatitis C in particular, treatment can cure most persons of their infection; the earlier treatment is received, the lower the risk of severe liver disease, extra-hepatic manifestations, and risk for transmission. Therefore, nearly all HCV-infected persons can benefit from HCV treatment, regardless of severity of liver disease.

CDC and the U.S. Preventive Services Task Force (USPSTF) have issued recommendations for identifying and managing persons with hepatitis B, to include testing of persons born in Asia, Africa, the Pacific Islands, and countries in other regions with moderate to high rates of hepatitis B. Two of three Asian Americans are unaware they are living with hepatitis B, and while Asian Americans represent less than 5% of U.S. population, they are estimated to account for more than one half of all cases of chronic HBV infection. Testing is also recommended for persons born in the United States, including 1) men who have sex with men and 2) persons who were not vaccinated at birth and have at least one parent born in Asia or other areas with high rates of hepatitis B. To increase identification of persons with HCV infection in the United States, CDC and USPSTF recommend one-time HCV testing for persons born during 1945–1965; both CDC and USPSTF also recommend testing for persons at high risk for HCV infection. HCV testing linked to care and treatment is cost-effective, with health benefits comparable to other routine preventive health services.

Despite recommendations for routine testing of pregnant women for HBV and hepatitis B vaccination of infants beginning at birth, cases of mother-to-child transmission of HBV continue to occur. Of infants infected at the time of birth, 90% develop chronic HBV infection. Left undiagnosed and untreated, nearly one in four of these infants will develop serious liver problems, including liver cancer. To stop transmission, HBV testing is recommended for all pregnant women, and hepatitis B vaccine-based strategies are recommended for their newborns beginning immediately after delivery. CDC has published cost-effectiveness data demonstrating the value of testing and treating HBV-infected women to prevent perinatal HBV transmission. CDC-supported public health programs provide case-management services to ensure mothers and infants receive these interventions, programs that can be built upon to further address perinatal transmission of HCV.

CDC has evaluated strategies that support implementation of HBV and HCV testing and linkage to care. Specifically, in 2012, DVH funded demonstration sites to test persons for hepatitis B and hepatitis C and refer infected persons to appropriate care and treatment. The success achieved through these

projects prompted CDC to fund additional programs in FY 2014 to strengthen the public health and clinical care capacity to track, diagnose, and treat HBV infection and to cure HCV infection. New resources will enable CDC to improve hepatitis B and hepatitis C testing, care, and treatment to prevent HBV- and HCV-related mortality, particularly to develop new prevention strategies to reduce HCV transmission by leveraging FDA-approved, safe, and curative therapies. For persons currently infected with hepatitis B, medications are available that can reduce their risk for liver cancer by 50%–80%. More than one third of persons living with hepatitis C are expected to die from HCV-related complications that could be averted with care and treatment. CDC estimates that more than 320,000 lives could be saved with a modest increase in capacity to improve HCV testing, linkage to care, and treatment.

The following table outlines the objectives and strategies needed to ensure that persons living with hepatitis B and hepatitis C are identified and linked to recommended care and treatment services. DVH plans to undertake several, more specific actions during 2016–2020 to achieve this imperative, including expanding and enhancing online viral hepatitis training resources for providers; continuing to support state and local viral hepatitis prevention activities; collaborating with partners to develop and implement prevention strategies for reaching persons with viral hepatitis-related health disparities; developing best practices to ensure high-quality testing and care for patients living with viral hepatitis; using electronic health record information to improve post-vaccination serologic testing and referral of children with perinatal HBV infection; and analyzing data from a variety of sources, including from national and local surveys, vital records, and health systems. These data will be used to monitor progress toward national goals as well as to assist state and local partners in evaluating progress in the numbers of HBV- and HCV-infected persons tested, referred for care, and treated, along with the outcomes of these interventions. Many of these efforts will leverage changes in the healthcare system to increase access to and coverage of viral hepatitis clinical services.

## DVH Strategic Imperative III:

### Assure Persons Living with Hepatitis B and Hepatitis C Are Identified and Linked to Recommended Care and Treatment Services

Objectives	Strategies	Measures, Targets, and Baselines
<ul style="list-style-type: none"> <li>• <b>Increase testing by raising health-professional and public awareness of viral hepatitis and the importance of testing and linkages to care and treatment.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Educate primary-care and other providers at various stages of medical education to assure delivery of recommended care and treatment services.</li> <li>• Educate the public about viral hepatitis to facilitate patient requests for recommended interventions during medical visits.</li> <li>• In collaboration with partners, promote implementation of clinical decision tools, electronic health records, standing orders, models of care, and other interventions that prompt and facilitate service delivery.</li> </ul>	<p><b>Measure:</b> NCHHSTP 2.4.b: Persons aware of their hepatitis B infection (percentage)  <b>Target:</b> 66 [National Health and Nutrition Examination Survey (NHANES)]  <b>Baseline:</b> 33 (2009, Racial and Ethnic Approaches to Community Health Risk Factor Survey)</p> <p><b>Measure:</b> NCHHSTP 2.4.c/IID-27: Proportion of hepatitis C-infected persons who are aware of their infection (percentage)  <b>Target:</b> 66 (NHANES)  <b>Baseline:</b> 54 (2013–2014)</p> <p><b>Measure:</b> Asians/Pacific Islanders who report receiving a blood test for hepatitis B (percentage)  <b>Target:</b> ≥45 [National Health Interview Survey (NHIS)]  <b>Baseline:</b> 29 (2014)</p> <p><b>Measure:</b> Persons born 1945–1965 who report receiving a test for hepatitis C (percentage)  <b>Target:</b> 25 (NHIS)  <b>Baseline:</b> 11 (2014)</p> <p><b>Measure:</b> [Developmental] Foreign-born persons who report receiving a blood test for hepatitis B (percentage)  <b>Target:</b> To be determined (TBD)  <b>Baseline:</b> TBD</p>

## DVH Strategic Imperative III:

### Assure Persons Living with Hepatitis B and Hepatitis C Are Identified and Linked to Recommended Care and Treatment Services

Objectives	Strategies	Measures, Targets, and Baselines
<p><i>(Continued)</i></p> <ul style="list-style-type: none"> <li>• <b>Increase testing by raising health-professional and public awareness of viral hepatitis and the importance of testing.</b></li> </ul>		<p><b>Measure:</b> [Developmental] Primary-care providers ordering viral hepatitis testing for patients for whom testing is recommended (percentage)  <b>Target:</b> To be determined (TBD)  <b>Baseline:</b> TBD</p>
<ul style="list-style-type: none"> <li>• <b>Increase access to testing, care, and treatment services for persons at risk for, or living with, viral hepatitis.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Promote implementation of CDC/USPSTF recommendations for hepatitis B and hepatitis C testing as routine clinical preventive services for populations disproportionately affected by viral hepatitis.</li> <li>• Review and update CDC recommendations to assure at-risk populations have access to hepatitis B and hepatitis C testing with linkages to care and treatment.</li> <li>• Reduce health disparities by targeting populations in need of enhanced interventions based on epidemiologic, socio-economic, and other factors.</li> <li>• Build partnerships to promote CDC recommendations and access to hepatitis B and hepatitis C testing, care, and treatment.</li> <li>• Conduct prevention research to inform clinical service, health insurance, and public health policies; identify and disseminate best practices; and evaluate program effectiveness.</li> <li>• Collect and analyze data from a variety of sources to monitor the cascade of testing, care, and treatment services for persons living with viral hepatitis, including monitoring and reporting on the proportion of infected persons diagnosed, treated, and (for hepatitis C) cured.</li> </ul>	<p><b>Measure:</b> NCHHSTP 2.1.a: Deaths from viral hepatitis B  <b>Target:</b> 1,754 (National Notifiable Diseases Surveillance System [NNDSS])  <b>Baseline:</b> 1,843 (2014)</p> <p><b>Measure:</b> NCHHSTP 2.1.b: Deaths from viral hepatitis C  <b>Target:</b> 16,370 (NNDSS)  <b>Baseline:</b> 19,659 (2014)</p> <p><b>Measure:</b> [Developmental] Persons who are aware that they are living with hepatitis B or hepatitis C who are linked to care (percentage)  <b>Target:</b> TBD  <b>Baseline:</b> TBD</p> <p><b>Measure:</b> [Developmental] Persons who achieve sustained virologic response (SVR) (percentage)  <b>Target:</b> TBD  <b>Baseline:</b> TBD</p>

## DVH Strategic Imperative III:

### Assure Persons Living with Hepatitis B and Hepatitis C Are Identified and Linked to Recommended Care and Treatment Services

Objectives	Strategies	Measures, Targets, and Baselines
<ul style="list-style-type: none"> <li>• <b>Implement strategies for preventing perinatal transmission of hepatitis B and hepatitis C.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Develop guidance for maternal screening and use of antivirals during pregnancy to prevent hepatitis B vaccine failures among newborns.</li> <li>• Develop policies and partnerships to improve clinical management of hepatitis B-infected pregnant women and patient navigation services for hepatitis B-exposed newborns.</li> <li>• Develop and implement novel strategies to detect and deliver recommended services to women at highest risk for perinatal hepatitis B transmission and their newborns.</li> <li>• Improve post-vaccination serologic testing for infants born to hepatitis B-infected women.</li> <li>• Identify and assess hepatitis C prevention strategies for pregnant women and women of childbearing age.</li> <li>• Update policies regarding hepatitis C testing of pregnant women, monitoring of test results, and management of hepatitis C-exposed infants.</li> </ul>	<p><b>Measure:</b> IID-24: Chronic perinatal hepatitis B virus infections (number, 1–24 months)  <b>Target:</b> 400 (National Vital Statistics System; Perinatal Hepatitis B Prevention Program)  <b>Baseline:</b> 652 (2013)</p> <p><b>Measure:</b> States reporting perinatal hepatitis C cases to CDC using CSTE case definition (number)  <b>Target:</b> 25 states  <b>Baseline:</b> 0</p>

## **Strategic Imperative IV:**

### **Act Globally to Prevent, Detect, and Control Viral Hepatitis**

The core of DVH's global work is in lending technical assistance to governmental and non-governmental entities as they develop hepatitis-related prevention policies and programs, respond to outbreaks, develop viral hepatitis surveillance, and monitor and evaluate these activities. For these efforts, DVH works with country-specific and global counterparts and partners, including local Ministries of Health and/or National Centers for Disease Control, other U.S. CDC programs, the United States Agency for International Development, the United States Department of State, and the World Health Organization (WHO). At the international level, DVH primarily works with WHO to develop global and regional strategies, policies, and guidelines for viral hepatitis prevention and control. DVH also supports staff at WHO headquarters to lead the WHO Global Hepatitis Program, which provides guidance and technical assistance to viral hepatitis control programs at the global, regional, and national levels. In recent years, CDC has responded to requests for assistance from countries experiencing a high burden of viral hepatitis, including China, Egypt, Georgia, India, Pakistan, and Vietnam. In so doing, this CDC programmatic assistance to other countries can reduce the burden of disease for travelers and among persons migrating to the United States while identifying best practices in viral hepatitis prevention and control that can serve as models for other countries including the United States.

The following table outlines the objectives and strategies needed to act globally to prevent, detect, and control viral hepatitis. DVH plans to undertake several, more specific actions during 2016–2020 to achieve this imperative, including providing subject-matter expertise for the development of global guidelines and policy documents; providing technical assistance for the development and implementation of national plans of action and viral hepatitis control strategies, including model elimination programs; assisting countries with assessing the burden of viral hepatitis transmission and disease, evaluating the quality of viral hepatitis testing in reference laboratories and at other testing sites; and providing technical assistance on the design and implementation of measures to control viral hepatitis outbreaks and prevent future transmission.



## DVH Strategic Imperative IV:

### Act Globally to Prevent, Detect, and Control Viral Hepatitis

Objectives	Strategies	Measures, Targets, and Baselines
<ul style="list-style-type: none"> <li>• <b>Provide support and assistance to the World Health Organization (WHO) in the achievement of goals to eliminate hepatitis B and hepatitis C as global public health threats.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Provide technical assistance to strengthen global prevention plans and/or normative guidance regarding viral hepatitis surveillance, vaccination, prevention, testing, retention in care, and treatment, particularly in settings with limited resources.</li> </ul>	<p><b>Measure:</b> WHO strategic plans and/or normative guidance drafted or updated for which DVH technical assistance has been provided (annual number)  <b>Target:</b> Two  <b>Baseline:</b> One</p>
<ul style="list-style-type: none"> <li>• <b>Assist priority countries to develop, implement, monitor, and evaluate viral hepatitis-related guidelines, policies, plans, and programs.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Assist with development of national action plans.</li> <li>• Assist with implementation and evaluation of viral hepatitis control and elimination strategies.</li> <li>• Leverage resources to support programs through partnership development.</li> <li>• Provide technical assistance and consultation in the investigation and control of viral hepatitis outbreaks.</li> </ul>	<p><b>Measure:</b> Countries receiving technical assistance from DVH regarding development and implementation of national plans with measurable targets for viral hepatitis prevention and control (annual number)  <b>Target:</b> Two  <b>Baseline:</b> One</p>
<ul style="list-style-type: none"> <li>• <b>Develop, implement, and evaluate innovative viral hepatitis detection, prevention, care, and treatment strategies.</b></li> </ul>	<ul style="list-style-type: none"> <li>• Promote quality laboratory testing through proficiency testing and development and implementation of accurate, low cost, simple tests to diagnose current hepatitis C infection and assess response to therapy.</li> <li>• Collaborate in the design and evaluation of model programs to demonstrate effective strategies in the detection, prevention, and control of viral hepatitis.</li> </ul>	<p><b>Measure:</b> Assist countries in evaluating the quality of viral hepatitis testing (annual number)  <b>Target:</b> Eight  <b>Baseline:</b> Two</p>