



STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene

Larry Hogan, Governor - Boyd K. Rutherford, Lt. Governor - Dennis R. Schrader, Secretary

January 23, 2017

The Honorable Larry Hogan
Governor
State of Maryland
Annapolis, MD 21401-1991

The Honorable Joan Carter Conway
Senate Education, Health, and
Environmental Affairs Committee
2 West Miller Senate Building
Annapolis, MD 21401-1991

The Honorable Shane E. Pendergrass
House Health and Government
Operations Committee
Room 241 House Office Building
Annapolis, MD 21401-1991

**RE: Health-General Article, § 18-1002, Annotated Code of Maryland-2016 Annual Report-
Implementation of Hepatitis B and Hepatitis C Prevention and Control in Maryland**

Dear Governor Hogan, Chair Conway, and Chair Pendergrass:

Pursuant to Health-General Article, §18-1002 the Department of Health and Mental Hygiene (the Department) is required to submit an annual report on its activities relating to the prevention and control of Hepatitis B (HBV) and Hepatitis C (HCV) infection in Maryland. The attached is a report of the Department's activities in 2016 related to HBV and HCV prevention and control in Maryland.

I hope this information is helpful. If you have any questions or comments concerning the report, please contact Webster Ye, Director, Office of Governmental Affairs at (410) 767-6480.

Sincerely,

Dennis R. Schrader
Secretary

Enclosure

cc: Webster Ye, Director, Office of Governmental Affairs
Howard Haft, MD, MMM, CPE, FACPE, Deputy Secretary, Public Health Services
Donna Gugel, Director, Prevention and Health Promotion Administration
Jeffrey Hitt, MEd, Director, Infectious Disease Prevention and Health Services Bureau
Sarah T. Albert, MSAR# 9310



Prevention and Health Promotion Administration

**2016 Annual Report
Implementation of Hepatitis B and Hepatitis C
Prevention and Control in Maryland
Health-General Article §18-1002**

**Larry Hogan
Governor**

**Boyd Rutherford
Lieutenant Governor**

**Dennis R. Schrader
Secretary, Department of
Health and Mental Hygiene**

Table of Contents

I. Background	3
Global Hepatitis B Virus and Hepatitis C Virus Infections.....	3
Hepatitis B Virus and Hepatitis C Virus in the United States	3
Hepatitis B Virus and Hepatitis C Virus Infections in Maryland.....	4
II. The Department of Health and Mental Hygiene’s Hepatitis B Virus and Hepatitis C Virus Infection Activities, 2016	5
The Viral Hepatitis Prevention Coordinator Program	5
Activities Related to Hepatitis Infection and Injection Drug Use in the Appalachian Region.....	6
Expansion of HCV Testing Efforts	7
Administrative Support for the Maryland Hepatitis Coalition	7
Implementation of the CDC-sponsored Maryland Community-based Programs to Test and Cure Hepatitis C	8
Enhanced Surveillance Activities and Linkage-to-Care Work	9
Implementation of Hepatitis B and Hepatitis C Infection Education and Training	10
III. Conclusion	12
Appendix: Glossary of Key Terms.....	13

I. Background

Global Hepatitis B Virus and Hepatitis C Virus Infections

Viral hepatitis is the seventh leading cause of death worldwide, and is a significant global public health burden.¹ The number of viral hepatitis-related deaths has increased by 63 percent from 1990 to 2013. Viral hepatitis affects 400 million people worldwide and causes 6-10 million new infections each year. Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections account for more than 50 percent of new cases of chronic liver disease and are the cause of approximately 80 percent of liver cancer deaths, contributing to 1.4 million deaths worldwide every year.^{2,3} Three to five times more individuals are living with chronic HBV and HCV infections than Human Immunodeficiency Virus (HIV) infections.⁴

Hepatitis B Virus and Hepatitis C Virus in the United States

Approximately 5 million people in the U.S. are living with HBV or HCV infections. These infections disproportionately impact individuals who are foreign-born, racial or ethnic minorities, of low socioeconomic status, born between 1945 and 1965, injection drug users, and those who are medically underserved or underinsured. Expanded HBV and HCV screening, vaccination, and treatment are needed to address the high rates of infection that persist in the U.S.

An estimated 850,000-2.2 million people in the U.S. are living with HBV.⁵ HBV is 50-100 times more infectious than HIV and infections can be either acute or chronic.⁶ Chronic HBV infection occurs when the acute infection is not cleared by the immune system. Young children are more likely to develop chronic infections than adults. Specifically, 90 percent of infants become chronically infected compared to 25-50 percent of children aged one to five, and 6-10 percent of children older than five and adults. Among those children who develop chronic HBV, 15-25 percent will develop chronic liver disease, including cirrhosis, liver failure, or liver cancer.⁷ Although HBV infection rates remain high in the U.S., the rate of new HBV infections

¹ Stanaway, Jeffrey D., Abraham D. Flaxman, Mohsen Naghavi, Christina Fitzmaurice, Theo Vos, Ibrahim Abubakar, Laith J. Abu-Raddad, Reza Assadi, Neeraj Bhalra, Benjamin Cowie, Mohammad H. Forouzanfar, Justina Groeger, Khayriyyah Mohd Hanafiah, Kathryn H. Jacobsen, Spencer L. James, Jennifer Maclachlan, Reza Malekzadeh, Natasha K. Martin, Ali A. Mokdad, Ali H. Mokdad, Christopher J L Murray, Dietrich Plass, Saleem Rana, David B. Rein, Jan Hendrik Richardus, Juan Sanabria, Mete Saylan, Saeid Shahrzad, Samuel So, Vasilii V. Vlassov, Elisabete Weiderpass, Steven T. Wiersma, Mustafa Younis, Chuanhua Yu, Maysaa El Sayed Zaki, and Graham S. Cooke, "The Global Burden of Viral Hepatitis from 1990 to 2013: Findings from the Global Burden of Disease Study 2013," *The Lancet*, 388, no. 10049 (2016): 1081-088, 31 October 2016 <[http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736\(16\)30579-7.pdf](http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(16)30579-7.pdf)>.

² "World Hepatitis Day," 2016, Centers for Disease Control and Prevention, 23 September 2016 <<http://www.cdc.gov/features/worldhepatitisday/>>.

³ Hirschall, Gottfried, "There's a Reason Viral Hepatitis Has Been Dubbed the 'Silent Killer'," 2 September 2015, World Health Organization, 23 September 2015 <<http://www.who.int/mediacentre/commentaries/viral-hepatitis/en/>>.

⁴ Colvin, Heather M., and Abigail E. Mitchell, "Hepatitis and Liver Cancer: A National Strategy for Prevention and Control of Hepatitis B and C," 2010, Washington, DC: National Academies Press, 31 October 2016 <<http://www.cdc.gov/hepatitis/pdfs/iom-hepatitisandlivercancerreport.pdf>>.

⁵ "The ABCs of Hepatitis," 2016, Centers for Disease Control and Prevention, 23 September 2016 <<https://www.cdc.gov/hepatitis/resources/professionals/pdfs/abctable.pdf>>.

⁶ "Hepatitis B and Sexual Health," October 2013, Centers for Disease Control and Prevention, 28 September 2016 <<http://www.cdc.gov/hepatitis/HBV/PDFs/HepBSexualHealth.pdf>>.

⁷ *Id* fn 4.

has declined by 82 percent since 1991 due to the implementation of strategies to combat and eradicate HBV, such as routine vaccination of children.⁸

An estimated one percent of the U.S. population (approximately 2.7 - 3.9 million people) is living with HCV. Although 15-25 percent of those who become infected will be able to clear the virus from their bodies without treatment, HCV infection develops into a chronic infection in 75-85 percent of cases.⁹ Complications of chronic HCV infection include cirrhosis, liver failure, and liver cancer. Chronic HCV infection is the leading cause of liver cancer. An article published in 2016 in *Clinical Infectious Diseases* reported that in 2013, HCV-related mortality in the U.S. surpassed the total number of deaths due to 60 other infectious diseases combined.¹⁰ In recent years, new HCV therapies called “direct acting antivirals” have been shown to cure over 90 percent of chronic HCV cases; however, only 50 percent of those living with HCV are aware that they have HCV, and over 50 percent of those who are aware of their status have not been linked to care or initiated treatment.

Hepatitis B Virus and Hepatitis C Virus Infections in Maryland

In Maryland, the rate of reported chronic HBV increased from 22.0 cases per 100,000 in 2010 to 27.6 cases per 100,000 in 2015. In 2015, there were 40 reported cases of acute HBV and 1,647 reported cases of chronic HBV.¹¹ Based on 2015 surveillance data, the jurisdictions in Maryland with the highest rates of reported chronic HBV were Montgomery County, Prince George’s County, and Baltimore City. Dorchester County’s acute HBV reporting rate in 2015 was 6.1 per 100,000 residents, up from 3.1 per 100,000 in 2014, while Baltimore City’s rate slightly increased from 0.5 per 100,000 in 2014 to 0.7 per 100,000 in 2015.

Maryland has seen significant increases in acute and chronic HCV. An estimated 47,000-73,000 individuals in Maryland will become infected with HCV during their lifetime.¹² In 2015, there were 7,573 cases of chronic HCV reported, an increase from the 7,089 cases reported in 2014. Reports of chronic HCV increased by 55.8 percent from 2009 (81.3 cases per 100,000) to 2015 (126.7 cases per 100,000). The Maryland jurisdictions with the highest rates of reported chronic HCV are Baltimore City, Cecil County, and Dorchester County, respectively. The jurisdictions with the highest absolute numbers of chronic HCV are Baltimore City and Baltimore County, which accounted for 50 percent of all reported chronic HCV cases in 2015. The baby boomer cohort, composed of individuals born between 1945 and 1965, has the highest prevalence of HCV infection of any age group in Maryland, as well as nationwide. Despite making up only

⁸ “Hepatitis B FAQs for Health Professionals,” 4 August 2016, Centers for Disease Control and Prevention, 28 September 2016 <<http://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#overview>>.

⁹ “Hepatitis C FAQs for Health Professionals,” 21 July 2016, Centers for Disease Control and Prevention, 28 September 2016 <<http://www.cdc.gov/hepatitis/hcv/hcvfaq.htm#a4>>.

¹⁰ Ly, Kathleen N., Elizabeth M. Hughes, Ruth B. Jiles, and Scott D. Holmberg, “Rising Mortality Associated with Hepatitis C Virus in the United States, 2003–2013,” *Clin Infect Dis. Clinical Infectious Diseases* 62, no. 10 (2016): 1287-288, 31 October 2016 <<http://www.natap.org/2016/HCV/Clin8.pdf>>.

¹¹ Maryland Department of Health and Mental Hygiene, Prevention and Health Promotion Administration. Data Source: Maryland National Electronic Disease Surveillance System (NEDSS). September 2016.

¹² Denniston, Maxine M., Ruth B. Jiles, Jan Drobeniuc, R. Monina Klevens, John W. Ward, Geraldine M. McQuillan, and Scott D. Holmberg, “Chronic Hepatitis C Virus Infection in the United States, National Health and Nutrition Examination Survey 2003 to 2010,” *Annals of Internal Medicine* 160, no. 5 (2014): 293-300, 21 November 2016 <http://www.natap.org/2014/HCV/030514_01.htm>.

26.2 percent of Maryland's population, this cohort accounted for 63.2 percent of reported chronic HCV cases in 2015.¹³

Another major contributing factor to chronic HBV and HCV in Maryland is substance and injection drug use. According to the Centers for Disease Control and Prevention (CDC), nationwide, injection drug use was the most common risk exposure and behavior category for individuals with acute HBV and HCV.¹⁴ From 2009 to 2010, Maryland was among the top ten states nationwide with the highest rates of illicit drug use among individuals who are 12 years of age and older. The 2014 Maryland Youth Risk Behavior Survey (YRBS), which was developed to monitor behaviors affecting morbidity and mortality among high school students, shows an increase in illicit drug use among middle and high school students. The percentage of middle school youth who had ever used marijuana, inhalants, prescription drugs, cocaine, steroids, and heroin was 7.0 percent, 6.3 percent, 4.5 percent, 3.5 percent, 2.4 percent, and 1.8 percent, respectively. The percentage of youth who had ever used a needle to inject any illegal drug increased from 2.0 percent in 2005 to 3.6 percent in 2014.¹⁵ National trends show a rise in HBV and HCV infection among individuals who inject drugs. Therefore, these data may indicate that Maryland youth who inject drugs may be at increased risk for contracting HBV and HCV. Further, the National Survey on Drug Use and Health found that 8.1 percent of Marylanders reported using illicit drugs in the past month.¹⁶ These data demonstrate the need for targeted efforts to prevent and control HBV and HCV infection among people who inject drugs.

II. The Department of Health and Mental Hygiene's Hepatitis B Virus and Hepatitis C Virus Infection Activities, 2016

The Hepatitis C Advisory Council, established in 2003, solicits funding for and reviews and recommends changes to the Maryland Hepatitis C Prevention and Control Plan. The Department of Health and Mental Hygiene (the Department) continues to implement the recommendations of the Hepatitis C Advisory Council. The Department works with public, private, and community partners to maximize resources to address both HBV and HCV in Maryland. Activities conducted in calendar year 2016 are described below.

The Viral Hepatitis Prevention Coordinator Program

CDC funds Viral Hepatitis Prevention Coordinators (VHPCs) across 48 states and in several major U.S. cities. In 2016, the Department extended activities under the Maryland VHPC program through a 12 month, no cost extension to the original CDC grant. The VHPC is charged with implementing interventions to (1) increase HBV and HCV testing; (2) develop plans and

¹³ U.S. Census Bureau, Population Division, "Annual Estimates of the Resident Population by Single Year of Age and Sex for the United States, States, and Puerto Rico Commonwealth: April 1, 2010 to July 1, 2015," June 2016, 22 July 2016 <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2015_PEPSYASEX&prodType=table>.

¹⁴ "Surveillance for Viral Hepatitis – United States, 2014," 2016, Centers for Disease Control and Prevention, 23 September 2016 <<http://www.cdc.gov/hepatitis/statistics/2014surveillance/index.htm>>.

¹⁵ Maryland Department of Health and Mental Hygiene, Maryland Youth Risk Behavior Survey, 2014. 21 June 2016 <<http://phpa.dhmh.maryland.gov/ccdpc/Reports/Documents/2014%20YRBS%20Reports/2014%20Maryland%20YRBS%20Report.pdf>>.

¹⁶ Office of National Drug Control Policy, "Maryland Drug Control Update," January 2013, 23 September 2016 <https://www.whitehouse.gov/sites/default/files/docs/state_profile-maryland.pdf>.

materials that will educate providers about the need for HBV and HCV interventions including screening, vaccination, and treatment; and (3) monitor and evaluate interventions and their outcomes. The VHPC plays a critical role in the coordination and leadership of Statewide efforts to address HBV and HCV. For the Department, these activities are primarily conducted by the VHPC and Special Projects Director in the Infectious Disease Prevention and Health Services Bureau (IDPHSB).

Activities Related to Hepatitis Infection and Injection Drug Use in the Appalachian Region

In 2016, the VHPC participated in the Appalachia Work Group (AWG). The work group was formed in response to concerns expressed to the New York Viral Hepatitis Technical Assistance Center (TA Center) by VHPCs from Kentucky, Tennessee, West Virginia, and Virginia about emerging HBV and HCV epidemics observed among adolescents and young adults in their regions. The TA Center, managed by the New York State Department of Health, provides technical assistance for VHPCs across the country. The four original states in the AWG each had similar challenges of limited infrastructure, minimal harm reduction services, and vulnerable jurisdictions that were mostly rural and socioeconomically distressed. Upon learning about the AWG, the Maryland VHPC reached out to the TA Center and was invited to join the group. The AWG was later expanded to include North Carolina and Pennsylvania as well. The overall goal of the AWG is to build the capacity of VHPCs to address emerging HBV and HCV opioid epidemics in the Appalachian region. Further, the AWG seeks to address burgeoning opioid and hepatitis epidemics in the region among adolescents and young adults who inject drugs. The AWG serves as a peer learning collaborative where states can share strategic approaches, tools, and lessons learned developing a response to epidemics in their states.

AWG members developed State-specific epidemiological profiles consisting of quantitative and qualitative data that reflect factors associated with the increasing incidence of substance use-related HBV and HCV. The Maryland VHPC worked closely with IDPHSB to provide a comprehensive outlook on trends in substance use, opioid overdose, and HBV and HCV in Maryland. The VHPC also provided information on existing prevention, screening, and vaccination and care services in Maryland. The profile includes data on HCV testing and treatment practices at key partner agencies in Baltimore City and Baltimore County. Targeted efforts to integrate HCV services into primary care settings in these jurisdictions are implemented through *Maryland Community-based Programs to Test and Cure Hepatitis C*, a CDC-sponsored program to expand HCV screening and treatment efforts in Baltimore City and Baltimore County. The profile also provides an overview of trends related to substance use among adolescents and adults. Next steps for the profile include an update to the data provided, and integration of the profile into county-specific analyses to assess the regional impact of HBV and HCV in Maryland.

In July 2016, IDPHSB's Director and VHPC program staff participated in an Appalachia Regional meeting in Kentucky along with other HIV Directors and VHPCs from the Appalachian region. Invitations to the meeting were limited to states that participated in the AWG and completed an epidemiological profile. Additionally, several representatives from CDC, including the Director of CDC's Division of Viral Hepatitis, participated in the meeting. The first day of the meeting was dedicated to presentations addressing public health initiatives designed to study and to reduce transmission of HBV and HCV, focusing on special populations

including the baby boomer cohort, injection drug users, pregnant women, and racial and ethnic minorities. On the second day, states shared successes and challenges around opioid use and HBV and HCV in their jurisdictions. Maryland shared the State's success in implementing its CDC-sponsored collaborative program to train primary care clinicians to screen and treat HCV. Overall, the meeting highlighted the need for intra and inter-agency partnerships to support information sharing on substance use, outbreak response, and HBV and HCV trends to inform a Statewide response that could potentially have a larger impact on the greater Appalachian region.

Expansion of HCV Testing Efforts

An estimated 25 percent of individuals living with HIV are co-infected with HCV. Studies show that co-infection with HCV and HIV can more than triple the risk of liver-related death from HCV. HCV is one of the most common co-infections associated with HIV because it has a similar route of transmission, primarily injection drug use.¹⁷ The VHPC shadowed staff in the IDPHSB Center for HIV Prevention and Health Services during their site visits to HIV testing and linkage-to-care programs. The VHPC accompanied HIV testing staff during the site visits as they evaluated and collected data on the funded testing programs, including linkage-to-care and partner services; surveyed the physical space; and reviewed testing logs and protocols specific to data collection and infectious disease reporting. The shadowing opportunity allowed the VHPC to explore ways to integrate HBV and HCV testing, care, and treatment into these existing programs.

HCV is often referred to as the “silent epidemic” because symptoms of infection may not appear for a number of years. For this reason, many people living with HCV are unaware of their status. Therefore, efforts to increase testing and awareness of status are needed. Following the VHPC's shadowing of the HIV testing program, efforts have been initiated to integrate HCV rapid testing into the Center for HIV Prevention and Health Services HIV testing programs. In October 2016, the Center assessed each HIV testing site's capacity to screen, test, and treat or link individuals to care for HCV. The VHPC then provided HCV rapid test kits to selected sites. The VHPC created comprehensive HCV testing guidance to inform HCV testing procedures and to guide Department funded testing programs as well as other local partners who initiate HCV testing.

The VHPC program is piloting a rapid HCV testing program with Chase Brexton and the Johns Hopkins Adult Emergency Department. During the pilot, the VHPC will work closely with both facilities in order to support testing in both settings. The pilot will allow the VHPC to gain insight into the benefits and challenges associated with integrating rapid HCV testing into emergency departments and busy community health centers.

Administrative Support for the Maryland Hepatitis Coalition

The VHPC provides administrative and technical support to the Maryland Hepatitis Coalition (the Coalition). The Coalition is a volunteer community group made up of physicians, scientists, ethicists, researchers, health care workers, coordinators, and individuals from the community living with HBV and HCV. The Coalition establishes and maintains linkages to community-based organizations (CBOs) and HBV and HCV treatment sites. Members of the Coalition

¹⁷ “Hepatitis C,” 30 June 2015, AIDS.gov . 1 December 2016 <<https://www.aids.gov/hiv-aids-basics/staying-healthy-with-hiv-aids/potential-related-health-problems/hepatitis-c/>>.

provide recommendations, guidance, and feedback to inform HBV and HCV activities in Maryland.

Implementation of the CDC-sponsored Maryland Community-based Programs to Test and Cure Hepatitis C

New innovations in HCV treatment have paved the way for therapies that cure the infection in as little as eight weeks. In the past, liver, transplant, and infectious disease specialists primarily treated HCV, thereby limiting the number of health care providers available to treat the infection. Since 2014, the Department has been working to increase the availability of care and treatment for individuals infected with HCV by strengthening health care capacity to diagnose and cure HCV infection. These activities are conducted in collaboration with local partners and sponsored by CDC. Specifically, CDC awards \$1.2 million annually to the Department to expand existing HCV testing and treatment efforts in Baltimore City and Baltimore County. This four-year initiative, titled *Maryland Community-based Programs to Test and Cure Hepatitis C*, was established to provide extensive training for primary care providers to learn state-of-the-art HCV medical treatment to cure HCV-infected individuals.

In 2016 (year two of the CDC grant), the Department continued efforts to grow this initiative, with the goal of reducing HCV-related morbidity and mortality utilizing the following six strategies:

- Provider training and ongoing telemedicine consultation, developed and administered by the Johns Hopkins Viral Hepatitis Center, to increase HCV treatment and case management by primary care providers;
- Provider education to increase HCV testing by primary care providers;
- Linkage-to-care services, provided by the Baltimore City Health Department, to ensure HCV-infected individuals are linked to treatment and support in adhering to a treatment regimen;
- Collaboration between the Department, the Baltimore City Health Department, and the Baltimore County Health Department to increase HCV surveillance infrastructure and data sharing to refine population-level estimates of HCV infection and health outcomes;
- Increasing utilization of electronic medical records by participating clinical sites in an effort to enhance HCV services, evaluate service outcomes, and inform quality improvement; and
- Policy initiatives to leverage the Affordable Care Act to improve individual access to HCV testing and care.

Determining whether these strategies are successful is an ongoing process as more partners are recruited for the program. The program is administered through Department partners including the Baltimore City Health Department, the Baltimore County Health Department, Johns Hopkins University (Division of Infectious Diseases and Viral Hepatitis Center), the Maryland Medical Assistance Program (Medicaid), STD clinics, Chase Brexton Health Care, Health Care for the Homeless, Jai Medical Center, Total Health Care, and the University of Maryland Baltimore. The clinician training and telemedicine component of the program, *Sharing the Cure*, is administered by Johns Hopkins University, Division of Infectious Diseases. The Department and

Johns Hopkins recently completed training of the second cohort of primary care providers selected from clinical partner sites. To date, 31 clinicians have been trained and another 16 are enrolled in the year three cohort.

Once provider training was fully implemented, the need for enhanced clinical infrastructure to support HCV testing and treatment became apparent; this led to a shift in focus during year two of the grant. The Department provided technical assistance to clinical partners to facilitate the development of infrastructure for HCV testing and treatment. Each clinic has successfully developed and implemented clinic-wide policies and procedures; enhanced their electronic medical records systems; implemented support tools to facilitate clinical decision making; integrated case management and other treatment adherence supports; and identified additional ways to facilitate clinic-specific approaches to HCV care and treatment, based on target populations and available resources including the integration of pharmacy staff into HCV care teams.

Building upon the clinics' existing comprehensive case management programs, HCV-specific case management services were developed at each clinical site. These services focus on patient adherence to treatment and include insurance screening and assistance to obtain insurance; assessment of barriers to treatment adherence, including psycho-social factors such as unstable housing and lack of employment; appointment and prescription reminders, including providing patients with pocket calendars and reminder calls or texts; outreach to patients when they miss an appointment, lab draw, or fail to pick up a prescription; and transportation assistance. The Baltimore City Health Department provides case management and outreach in collaboration with partners to initiate follow-up and to re-engage clients who clinical staff are unable to locate or engage.

Enhanced Surveillance Activities and Linkage-to-Care Work

Maryland law requires health care providers, health care institutions, and medical laboratories to report both chronic and acute symptomatic HBV and HCV to local health departments. Local health departments follow-up with the individual or institution that makes the report to complete a case investigation. Local health departments and the Department receive both electronic and paper-based reports.

One of the major challenges with HCV surveillance has been the high volume of paper reports received by local health departments. The high volume of paper reports is not specific to HCV, but since the burden of HCV is so high in certain jurisdictions, systems may be overwhelmed by large numbers of daily paper HCV reports from laboratories. To strengthen HCV surveillance in Baltimore City and Baltimore County, the Department worked with both jurisdictions to increase the number of data entry staff in order to reduce the backlog of paper HCV lab reports and continue the timely review of electronic reports. There was a 23.2 percent increase in reports of chronic HCV cases between 2014 and 2015, which reflects both a stronger emphasis on testing for HCV as well as increased local health department capacity to follow-up on reports.

Additionally, the Department's Center for Disease Surveillance continues to investigate new reports of acute HCV cases to identify clusters and outbreaks in the community, and assess risk factors. There is also a continued effort to expand the number of laboratories that electronically

report lab results to local health departments. Many major hospital and laboratory systems have transitioned to electronic reporting (including Medstar and LabCorp), which has reduced the number of laboratory reports requiring hand entry by local health department staff. In 2016, Bon Secours Hospital, Carroll Memorial Hospital, McCready Hospital, Upper Chesapeake Hospital/Harford Memorial Hospital, and Southern Maryland Hospital Center started electronic reporting as well.

In addition to enhancing surveillance activities, the Baltimore City Health Department is coordinating linkage-to-care services that use surveillance data to identify individuals who are diagnosed with HCV and ensure that they are linked with providers who can facilitate appropriate care and follow-up. Using surveillance data for patient follow-up is a relatively new public health strategy known as “data to care” that was developed to link HIV-diagnosed individuals to care.¹⁸ There are many similarities between the HIV and HCV epidemics, and the data to care method can support the HCV care continuum from diagnosis through successful treatment. The recent availability of effective, well-tolerated, and less complex HCV treatment has made curing HCV infection a real possibility for many more individuals living with chronic HCV. Therefore, engaging and linking individuals to treatment is critical. The Baltimore City Health Department linkage-to-care specialists use surveillance data and work with local clinical providers to identify individuals in need of HCV care to engage or re-engage them with providers in the area. Linkage-to-care coordinators also connect individuals to health insurance or Medicaid through the Maryland Health Connection. Coordinators also help address immediate barriers to care such as transportation and childcare. As of May 2016, the Baltimore City Health Department has initiated linkage-to-care for 161 clients and successfully linked 51 clients to care. Work is underway to partner with the Maryland Department of Public Safety and Correctional Services to develop a system of linkage to HCV services for individuals upon release.

Implementation of Hepatitis B and Hepatitis C Infection Education and Training

In November 2016, the Department received \$124,628 in new funding from CDC for a four-year grant to support increased HBV and HCV testing, diagnosis, and referral to treatment. This new funding opportunity will replace the previously funded VHPC program; however, Maryland will maintain its VHPC program and staff will be primarily charged with completing the new CDC grant activities. The Department proposed comprehensive strategies and activities that span a four-year project period with the goals of: (1) increasing the number of individuals in Maryland living with HBV and HCV infection who are tested for HBV and HCV and made aware of their status, and (2) linking individuals with HBV or HCV infection to appropriate care and treatment services. The proposed activities include:

- A jurisdiction-wide situational analysis to: (1) describe disease burden, epidemiological trends, and laws and policies impacting testing, care, and treatment of HBV and HCV infection; (2) identify high prevalence areas; and (3) identify settings where testing should be conducted, as recommended by CDC.

¹⁸ “Using HIV Surveillance Data to Support the HIV Care Continuum,” Centers for Disease Control and Prevention, 22 September 2016 <<https://effectiveinterventions.cdc.gov/en/highimpactprevention/publichealthstrategies/DataToCare.aspx>>.

- Months 1-3: The Department will develop a limited Statewide analysis of HBV and HCV prevalence and mortality data to identify the counties with the highest prevalence.
 - Months 3-6: The Department will develop a specific situational analysis for the county with the highest prevalence of HBV and HCV using (1) data from the National Electronic Disease Surveillance Site (NEDSS), (2) programs that provide services to populations disproportionately impacted by HBV and HCV, (3) interagency workgroup collaboration, and (4) detailed assessments of federally qualified health care centers within the county.
 - Months 6-12: The Department will conduct assessments of other sights within the county, such as safety-net hospitals, correctional facilities, and substance use treatment centers. Over the last three months of the first year, the Department will partner with at least three organizations within the county that provide HBV or HCV testing and detection services to expand these services.
 - Years 2-4: Situational analyses will be conducted in other high prevalence counties in Maryland in order to identify and prioritize expanding HBV and HCV services in similar settings.
- Intervention Partnerships: The outcomes of the situational analyses will inform the identification of partners and the development of interventions in counties of high prevalence.
 - Proposed Intervention #1: Universal HCV Testing in a Local Emergency Department. The Department will partner with the Johns Hopkins Hospital Adult Emergency Department and laboratory leadership to develop a process to enhance HCV testing. In response to evidence that the emergency department patient population has an extremely high burden of HCV, an HCV linkage-to-care program for known HCV positive patients was initiated in 2015. The emergency department testing program has been successful, but follow-up has been challenging, as there has been a significant drop-off between those who have a positive screening and those who complete confirmatory testing. The Department will also provide limited funds to support staffing to develop and implement HCV point of care testing, similar to a routine HIV screening program in order to increase opportunities to identify emergency department patients who are unaware of their HCV status.
 - Proposed Intervention #2: HBV and HCV Screening, and HBV Vaccination of Asian and African Immigrants. The Department will partner with the Hepatitis B Initiative of Washington, DC to provide HBV and HCV screening, HBV vaccination, and referral services to hard-to-reach, at-risk populations.
 - Proposed Intervention #3: HCV Education for Support and Other Staff of Local Federally Qualified Health Centers. The VHPC will collaborate with the *Maryland Community-based Programs to Test and Cure Hepatitis C* to train federally qualified health center leadership and support staff in the highest prevalence county on national HCV screening recommendations and updates. The training will promote clinic-wide integration of HCV testing and care to support existing capacity building activities.

- The Department will partner with the Georgetown University O'Neill Institute for National and Global Health Law to evaluate the effectiveness of local laws and policies to improve HCV outcomes.

To date, the Department has developed a Statewide analysis of HBV and HCV prevalence and mortality data and has used the analysis to identify the Maryland counties with the highest prevalence. Since identifying Baltimore City as the county with the highest prevalence of HBV and HCV in Maryland, the Department has started a county-specific situational analysis using data from NEDSS, and information from programs already providing services to populations most impacted by HBV and HCV. Detailed assessments of federally qualified health centers within Baltimore City are underway to determine the impact of existing services and how best to expand them.

The Department is developing an inter-agency workgroup made up of multidisciplinary stakeholders that provide various services. These stakeholders have skills and resources needed to identify need and implement necessary changes to effectively address HBV and HCV care. Members of the inter-agency workgroup are responsible for providing data and evaluating policy implications of each agency's work related to HBV and HCV.

III. Conclusion

In 2016, the Department continued to provide leadership, guidance, and technical assistance across the State to support growing efforts to address HBV and HCV in Maryland. Over the last year, the Department has significantly expanded work to increase the availability of screening, testing, and treatment for HBV and HCV across the State. In 2017, the Department will work to ensure that all Marylanders know their HBV and HCV status and have access to lifesaving health care and treatment.

Appendix: Glossary of Key Terms

This glossary provides definitions of key terms used in this report.

Acronym	Term	Definition
AWG	Appalachia Work Group	A work group created in response to concerns expressed by Viral Hepatitis Prevention Coordinators in the Appalachian regions about the emerging hepatitis B and hepatitis C epidemic.
CBO	Community Based Organization	Nonprofit organization or group (including a church or religious entity) that is representative of a community or a significant segment of a community, and is engaged in meeting human, educational, environmental, or public safety community needs.
CDC	Centers for Disease Control and Prevention	The U.S. agency charged with tracking and investigating public health trends.
HBV	Hepatitis B Virus	A virus that causes hepatitis B and can lead to inflammation and damage to the liver.
HCV	Hepatitis C Virus	A virus that causes hepatitis C and can lead to inflammation and damage of the liver.
HIV	Human Immunodeficiency Virus	A virus that attacks the immune system.
IDPHSB	Infectious Disease Prevention and Health Services Bureau	The bureau within the Prevention and Health Promotion Administration charged with infectious disease prevention and health services program management for the State.
	Linkage-to-care	The process of engaging newly diagnosed HBV and/or HCV infected persons into HBV and/or HCV care for treatment.
NEDSS	National Electronic Disease Surveillance System	A secure online framework that allows health care professionals and government agencies to communicate about disease patterns and coordinate national response to outbreaks.
STD	Sexually Transmitted Disease	Any disease characteristically transmitted by sexual contact including some (as syphilis, gonorrhea, chlamydia, genital herpes) chiefly spread by sexual means and others (as hepatitis and AIDS) often contracted by nonsexual means.
TA	Technical Assistance	Advice, assistance, or training pertaining to program development, implementation, maintenance, or evaluation that is provided by the funding agency.
VHPC	Viral Hepatitis Prevention Coordinator	Personnel that provide the technical expertise necessary for the management and coordination of activities directed toward prevention of viral hepatitis infections and integration of viral hepatitis prevention services into health care settings and public health programs that serve adults at risk for viral hepatitis.
YRBS	Youth Risk Behavior Survey	A biennial survey of adolescent health risk and health protective behaviors such as smoking, drinking, drug use, diet, and physical activity conducted by the Centers for Disease Control and Prevention.