

Hepatitis Awareness Month and Testing Day — May 2016

This month marks the 21st Hepatitis Awareness Month and the 5th observance of May 19 as National Hepatitis Testing Day in the United States. Approximately 90% of U.S. deaths from viral hepatitis are caused by infection with hepatitis C virus (HCV). In 2013, for the first time, deaths associated with HCV infection surpassed the total number of deaths from 60 other nationally notifiable infectious diseases (1). In 2014, the HCV-related incidence rate and mortality rate among American Indian/Alaska Native (AI/AN) populations were approximately twofold greater than the comparable rates for the general population (2).

This issue of *MMWR* includes two reports describing actions in AI communities to improve access to HCV testing, care, and curative treatment. The first report evaluates a tribal HCV testing policy established by the Cherokee Nation (CN). Findings indicated that, during 2012–2015, first-time testing for HCV increased fivefold, and HCV treatment more than doubled among CN members. The second report examines the impact of an Indian Health Service (IHS) program to promote implementation of the CDC recommendation for one-time HCV testing for persons in the 1945–1965 birth cohort. As a result, during 2012–2015, HCV testing increased fourfold among those in the birth cohort across IHS clinics in 34 states. Data from both reports reveal that strategies such as provider education, clinical decision tools, and telehealth models of care can expand access to HCV testing and treatment, helping to eliminate hepatitis C as a health disparity for AI/AN populations.

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Identification and Clinical Management of Persons with Chronic Hepatitis C Virus Infection — Cherokee Nation, 2012–2015

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An estimated 3.5 million persons in the United States are living with hepatitis C virus (HCV) infection, resulting in approximately 20,000 deaths each year, primarily from cirrhosis or hepatocellular carcinoma (1,2). American Indian/Alaska Native (AI/AN) populations have the highest incidence of acute

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Continuing Education examination available at http://www.cdc.gov/mmwr/cme/conted_info.html#weekly.



who had at least one medical visit in the preceding 3 years and no documented HCV antibody test in the medical record.

In conjunction with expanded testing, CNHS increased capacity to provide care for HCV-infected patients as well as to decrease patients' waiting and travel time for evaluation. The Extension for Community Healthcare Outcomes (ECHO) telehealth program (7,8) was implemented in July 2014 to increase primary care provider capacity to care for HCV-infected patients. ECHO implementation enabled expansion of HCV care and treatment services from one clinic with one health care provider with expertise in HCV care to five clinics staffed by seven HCV-trained health care providers, including three physicians, two nurse practitioners, and two pharmacists. In January 2014, an HCV registry was established to monitor clinical care for HCV RNA-positive patients who initiated antiviral treatment. The registry is maintained by the infectious diseases clinic of CNHS. In October 2015, public health nurses began outreach activities for HCV-infected patients, including home visits.

To evaluate the impact of the new testing and care and treatment strategies, de-identified data from the CNHS centralized EHR system and the HCV registry were extracted and analyzed. HCV testing coverage was calculated as the proportion of patients with at least one clinical encounter with CNHS during October 2012–July 2015 who received one or more HCV antibody tests during that period. Progression along the steps of the cascade of care was examined by two methods: 1) the percentage of persons with HCV antibodies who completed each step, and 2) the percentage of persons at each step who moved to the next step. SVR was defined as undetectable HCV RNA obtained at least 12 weeks after the end of treatment. Advanced liver disease was determined based on noninvasive liver staging methods as identified by serologic biomarkers (fibrosis-4 index >3.25) (9).

During October 2012–July 2015, a total of 92,012 patients aged ≥20 years had at least one medical encounter with CNHS. Among these patients, 90% were residents of the 14-county CNHS tribal jurisdictional area, 56% were female, and 29.4% were born during 1945–1965. The cumulative proportion of the population tested for HCV antibodies increased fivefold, from 3.6% to 18.2%, and did not differ by sex. By July 2015, the largest cumulative percentage of persons tested (39.5%) were in the baby boomer cohort (1945–1954 and 1955–1964), representing a sixfold increase (Figure 1).

Among the 16,772 patients tested for HCV antibody, 715 (4.3%) were antibody-positive.

Among the HCV antibody-positive patients, 488 (68.3%) had a confirmatory HCV RNA test performed, of whom 388 (79.5%) were found to be chronically infected (HCV RNA-positive). More than half (57.5%) of persons with chronic HCV infection initiated treatment, of whom 89.6% achieved SVR (Figure 2).

FIGURE 1. Cumulative percentage of persons who received one or more hepatitis C virus antibody tests, by birth cohort — Cherokee Nation Health Services, October 2012–July 2015

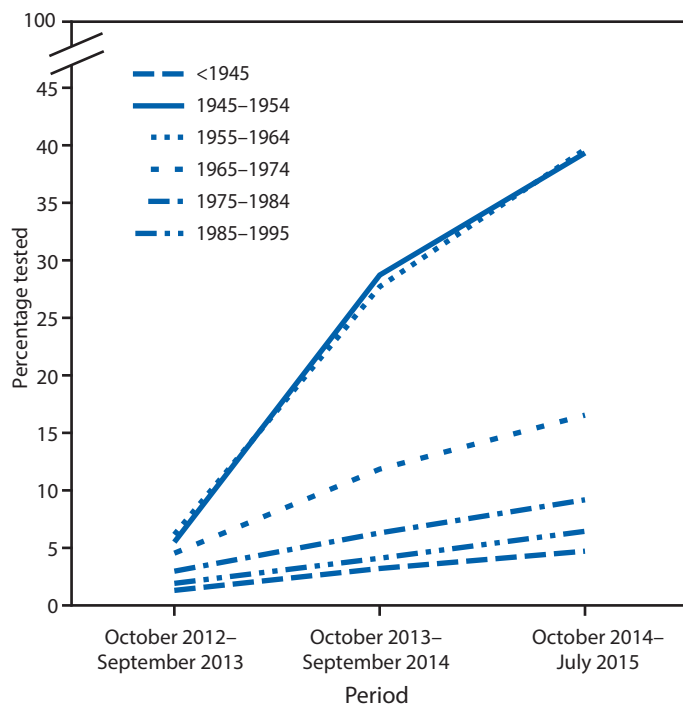
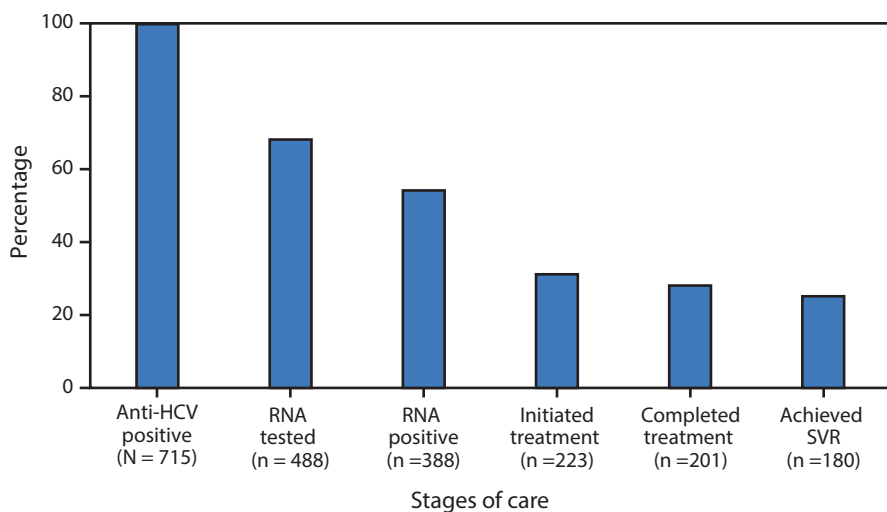


FIGURE 2. Percentages for 715 hepatitis C virus (HCV) antibody-positive patients, showing cascade of care — Cherokee Nation Health Services, October 2012–July 2015



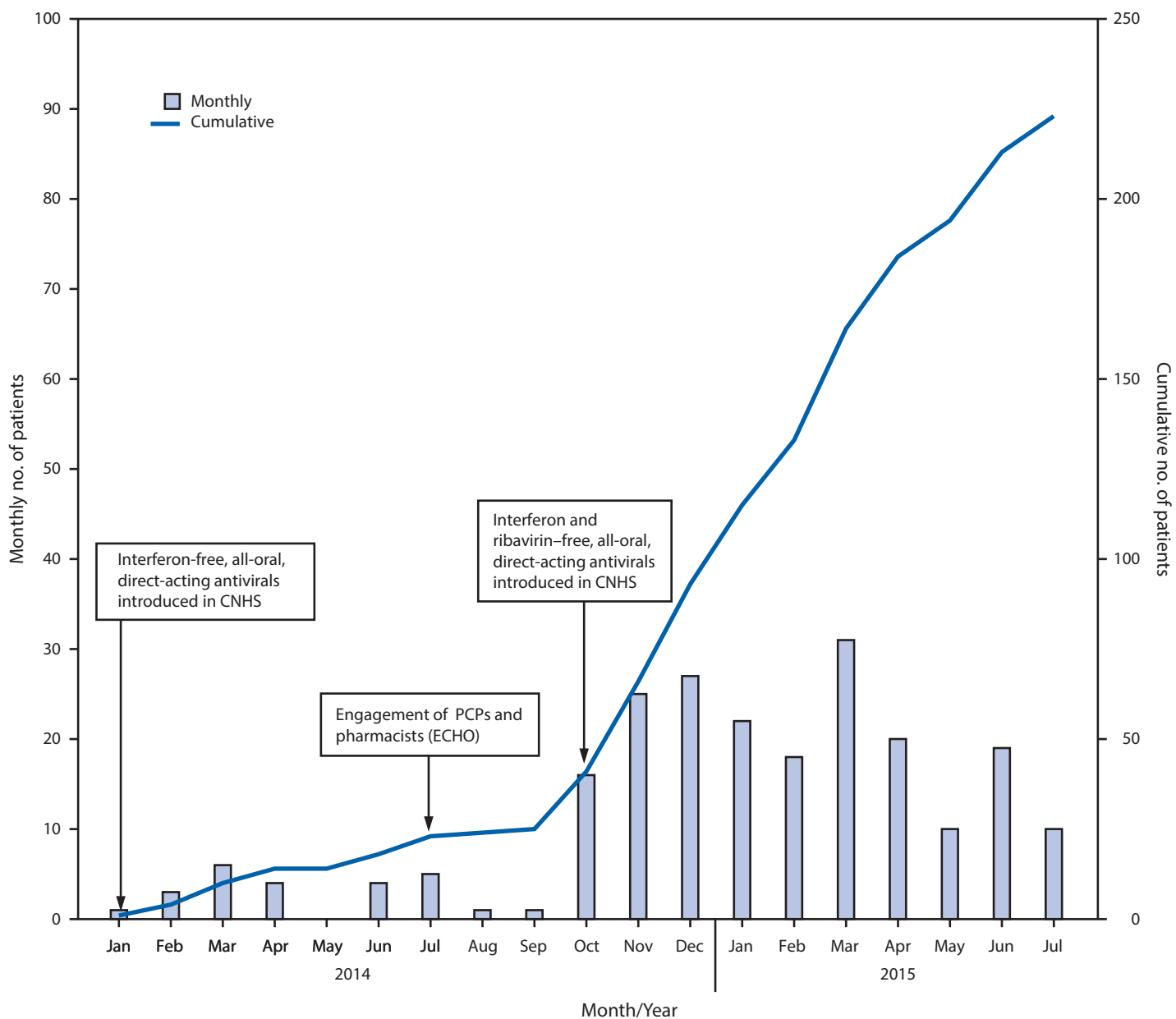
Abbreviation: SVR = sustained virologic response.

Among the 223 patients initiating treatment, HCV genotype 1 (GT1) was the most common infection (157 patients, 70.4%), followed by GT2 (35 patients, 15.7%), GT3 (30 patients, 13.5%) and GT4 (one patient, 0.5%). Among the 134 patients in the baby boomer birth cohort, 50 (37.3%) were found to have advanced liver disease. Among the 86 patients with chronic HCV infection born after 1965, 23 (26.7%) had evidence of advanced liver disease. Seven patients who initiated treatment failed

to complete treatment because of noncompliance (four), psychiatric complications (two), and pregnancy (one). Twenty-one patients were lost to follow up (including one who died) before testing for SVR.

As direct, oral, interferon-free antiviral agents became available and clinic capacity improved, the number of patients treated for chronic HCV infection increased over time. More than 15 patients (range = 16–31) initiated treatment in eight of the 19 months (Figure 3).

FIGURE 3. Number of patients with hepatitis C virus (HCV) infection who tested RNA positive and initiated all-oral, anti-HCV therapy, by month and cumulative total — Cherokee Nation Health Services (CNHS), January 2014–July 2015



Abbreviations: ECHO = Extension for Community Healthcare Outcomes; PCPs = primary care providers.

Summary**What is already known about this topic?**

Hepatitis C virus (HCV) infection, the most common bloodborne infection in the United States, is the leading cause of liver-related mortality and disproportionately affects the American Indian/Alaska Native (AI/AN) populations. New all-oral HCV therapies can halt disease progression and provide a cure, but increased testing is needed to identify persons living with chronic HCV infection because more than half of infected persons are unaware of their infection.

What is added by this report?

Beginning in October 2012, Cherokee Nation Health Services (CNHS) implemented measures to improve HCV testing and care among the AI/AN population in northeastern Oklahoma. During October 2012–July 2015, the percentage of all persons tested for the first time increased fivefold. HCV treatment was initiated for more than half of the approximately 400 patients identified with chronic HCV infection, 90% of whom completed treatment and were cured.

What are the implications for public health practice?

CNHS successfully increased HCV testing and treatment and is now collaborating with external partners to develop an HCV elimination program for the Cherokee Nation that might serve as a model for similar settings.

Discussion

HCV antibody testing by CNHS increased fivefold over the approximately 33-month evaluation period. As of July 2015, testing coverage among persons in the baby boomer birth cohort was nearly 40%. The substantial increase in the number of tests ordered among persons born during 1945–1965 likely resulted from implementation of the EHR reminder in August 2013. Although the EHR reminder specifically targeted the baby boomer birth cohort, HCV testing also increased among other birth cohorts during this period, although to a lesser degree. Increased testing in younger populations could have resulted from enhanced primary care provider education and more awareness of HCV-related risk factors. Over the entire 33-month period, only 57.5% of eligible patients initiated treatment; however, the number of patients initiating treatment increased substantially over time. The increase occurred during a period when interferon-free oral, anti-HCV agents became available and followed implementation of the ECHO program and enhanced primary care education and training in July 2014.

The increase in HCV testing and case finding increased the need for HCV RNA confirmatory testing and linkage to care. Approximately 30% of patients found to be HCV antibody-positive had not received a confirmatory HCV RNA test. Furthermore, among patients identified with chronic HCV infection, 32% had advanced liver disease and needed immediate treatment. There is a clear need for increased health

care capacity to identify and treat persons with chronic HCV infection to prevent further morbidity and mortality. Thus, the role of primary care providers has been critical in addressing the clinical needs of the growing volume of patients identified with HCV infection. Another important component of increasing capacity has been the work of public health nurses in outreach activities for patients infected with HCV, including making home visits and drawing blood for further testing (i.e., for HCV RNA), if needed. CNHS has posted fliers in clinic waiting areas to prompt patients who might already know they are HCV antibody-positive to contact one of the clinics that provides HCV care. The Cherokee Nation is systematically continuing to identify and treat chronic HCV infection, and expanding clinical capacity to meet patient needs by leveraging telehealth within its primary care delivery system. The Cherokee Nation has declared October 30 as CNHS HCV Awareness Day.

The findings in this report are subject to at least four limitations. First, the results are not generalizable to other populations because they were specific to the AI/AN community managed in a specific tribal health care system. Second, the data were observational, and the outcomes cannot be directly attributed to the interventions. Third, the availability of three new oral antiviral regimens during this period (sofosbuvir in January 2014, sofosbuvir/ledipasvir in October 2014, and ombitasvir/paritaprevir/ritonavir/dasabuvir in December 2014) might have contributed to the observed increase in antiviral treatments in addition to the reported increase in clinical capacity. Finally, the cascade of care does not include a population-based estimate of the number of HCV cases because these data are not yet available.

In response to findings of the expanded CNHS testing initiative, in October 2015, with the assistance of CDC and other partners, the Cherokee Nation launched The Path Toward Elimination of HCV program. The Cherokee Nation is committed to implementing a comprehensive program with goals for eliminating HCV as a health disparity for the population. The program includes expansion of a clinical phase to implement broad-based HCV testing, care, and treatment activities in CNHS with the goal of treating 85% of CNHS patients with HCV infection over a 3-year period. As a first step, tribal HCV screening policy was expanded to include persons aged 20–69 years. In addition, CNHS is striving to increase clinical capacity to 20 providers and eight pharmacists trained as HCV care providers. A second phase will be a community-based effort to implement interventions as necessary to interrupt HCV transmission, focused primarily on persons who inject drugs.

Currently CNHS is collaborating with the Cherokee Nation Tribal Council, Cherokee Nation Public Health, CDC, the University of Oklahoma Health Sciences Center, Yale School of Public Health, Oklahoma State Department of Health, Gilead Foundation, and community-based organizations to develop

effective strategies and programs to prevent, test, treat, and cure HCV infection. Cherokee Nation's HCV elimination program is the first of its kind in the United States. The National Academies of Science, Engineering, and Medicine currently is examining the feasibility of eliminating hepatitis C in the United States and developing recommendations for specific actions to hasten the end of HCV transmission and disease (10).

Acknowledgments

Tara Ritter, DNP; Jennifer Shade, MBA; Kristin Meyers; Amanda Hicks; Rachel Ray, MD; Adam Sprankle, MD; Karie Benham; Julie Gaskins, ARNP; Cheryl Mike; Dwayne David, PharmD; Weston Lovell, PharmD; Crystal David, PharmD; Kendra Round, APRN; Evon Ashley; Patricia Hawk; Roger Montgomery, MD; Brian Hail, MBA; Connie Davis, MSN; Douglas Nolan, DO, Charles Grim, DDS; Lisa Neel, MPH; Karla Thornton, MD; James Stallcup, MD; Lisa Pivec, MS; Mary Williams, PhD; Sohail Kahn, MBBS, MPH.

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