

ADVANCES IN HEPATOLOGY

Current Developments in the Treatment of Hepatitis and Hepatobiliary Disease

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Global Elimination of Hepatitis C Virus



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G&H How do we define the elimination of hepatitis C virus?

JW According to the World Health Organization, the goal is to eliminate hepatitis C virus (HCV) as a public health threat. Specifically, the goal is dramatic and large-scale reductions in new transmissions of HCV, as well as in the number of people becoming ill and dying from HCV, to a level where HCV no longer represents a major health concern. In numeric terms, the World Health Organization has proposed reductions of 60% in HCV-related mortality and 90% in HCV transmission globally and in member countries, including the United States.

G&H Is elimination of HCV feasible?

JW The World Health Assembly has endorsed the World Health Organization's elimination goals as feasible and achievable for the world.

The National Academies of Sciences (NAS), formerly known as the Institute of Medicine, convened a panel to assess the feasibility of the elimination of HCV as a public health threat in the United States. This past spring, the NAS released a report online assessing whether it was feasible to set elimination targets. The NAS determined that this was indeed feasible and is now working on establishing what these goals should be as well as what barriers there are to achieving elimination and how they can be reduced. A final report is expected in the first quarter of 2017.

Thus, elimination, as set out by the World Health Organization, is achievable. However, to meet the elimination targets, there needs to be improvements in infection control to reduce the risk of transmission in health care settings, improvements in interventions that can

eliminate the risk of HCV among injection drug users, implementation of improved HCV testing, linkage to treatment as an expected routine clinical service, resources for surveillance systems to detect new infections, and the public health capacity to immediately intervene and stop transmission. In addition, monitoring systems must be put in place to track the number of HCV-infected persons receiving recommended care and treatment services, as well as bridge the gaps in delivery of preventive and treatment services. With this information, public health professionals can work with clinicians to improve the delivery of HCV care, testing, and treatment.

G&H How can HCV transmission rates be reduced?

JW HCV is a blood-borne virus. Globally, the most common mode of transmission is unsafe health care, including blood transfusions that are not properly screened for HCV infection. Thus, it is important to make sure that the blood supply is safe.

In addition, the re-use of medical equipment (particularly injection equipment) that has been contaminated with HCV is a major mode of transmission. Compounding this problem in many parts of the world is the large number of unnecessary injections of medications because of social preference; replacing injectable medications with oral formulations can help eliminate HCV transmission.

Globally, the population with the highest prevalence of HCV infection is injection drug users; approximately 2 of every 3 are thought to be infected with HCV. For those who are injecting medication, prevention of transmission from blood-borne pathogens such as HCV and HIV has been improved with service programs that provide access to clean injection equipment, changes in pharmacy laws

that make it possible to purchase injection equipment legally from pharmacies, and syringe service programs in combination with access to drug treatment programs for people injecting drugs so that they can have an avenue for moving away from drug injection and the addicted behavior associated with it. Models have shown that bringing together effective syringe service programs and drug treatment programs can prevent 80% of transmission among injection drug users.

Finally, curative HCV treatment also helps prevent transmission because as patients are treated, they are no longer a source of transmission to others, especially in health care settings. If there are fewer patients with HCV infection in a hospital or clinic, fewer other patients will be infected if there is a break in infection control. It is also of value to make HCV testing and linkage to treatment available so that an infected person can be treated and not be a source of transmission to others.

G&H Is universal screening necessary to identify all people who have HCV infection?

JW The Centers for Disease Control and Prevention (CDC) and the US Preventive Services Task Force recommend that all persons born from 1945 to 1965, the so-called baby boomers, be tested at least once for HCV infection and that persons at risk for HCV transmission, such as those with a history of injection drug use, also be tested. Through the Affordable Care Act, HCV testing should be available at no cost to most patients in health systems in the country.

I often refer to HCV as having twin epidemics. The most well-known epidemic consists of baby boomers. Approximately 3 of every 4 people living with HCV in the United States are baby boomers, and studies have shown that approximately 1 of every 4 people in that age group already have severe liver disease. These people are at immediate risk for complications, or may already be experiencing them, and are at risk for progression to liver cancer. Therefore, it is very important to adopt universal screening of baby boomers as a routine clinical practice so that the persons at highest risk of disease and death from HCV are identified, placed into clinical care, and cured of their infection.

The second epidemic of HCV is among young people, who are increasingly becoming infected because of increased injection drug use. Right now, identifying those individuals relies upon risk-based testing; as injection drug users are identified, they should be tested. It is important to promote this testing strategy while continuing to evaluate evidence for broader screening for these patients.

In addition, there has recently been an increase in HCV among pregnant women. As more young people

become infected, more women of childbearing age are becoming infected as well. There is approximately a 5% to 12% risk of transmitting HCV from an infected mother to a newborn. Thus, policies should be examined to make sure that pregnant women who are HCV-infected are identified so that their children can also be tested and treated. This brings up the importance of identifying these women earlier on so that they can be cured before becoming pregnant.

G&H What are the most significant barriers to HCV testing?

JW One barrier is patient/provider knowledge and education. Both patients and providers need to be aware of who should be tested and of the importance of testing. For example, the patient should know how testing can help him or her, and the provider should know what to do if a patient tests positive (eg, what information should a patient receive, and what type of clinical management is needed for that patient). In both of those areas, there are activities to educate patients and providers about the importance of HCV testing.

Another barrier is the complexity of testing. Right now, it takes 2 tests to diagnose current HCV infection. Approximately 7 of 10 people who become infected with HCV remain infected, and the other 3 will clear the virus on their own. It is recommended to first perform one test to check for HCV antibodies (ie, evidence that the person has been infected), followed by a second test, which looks for the virus itself (ie, evidence that the person is currently infected with HCV). However, there is a fairly sizable drop-off from the number of people who test positive for the first test to the number of people who undergo the second test; only approximately half of the people who test positive for the first test undergo the second test. In the past, people had to return to the clinic for a second blood draw for the second test, which they were often reluctant to do, or the provider would not order the second test because he or she did not think that treatment was indicated for the patient (because HCV treatment was more difficult for patients in the past).

The third barrier to testing involves the difficulty of getting treatment approved by Medicaid or an insurance company. Focus groups have shown that this difficulty can be a disincentive to testing. It is important to remind clinicians of the value of treatment and that they should pursue approvals for insurance coverage. There is also evidence that people benefit from knowing that they are infected. For example, people who know that they are infected often make healthy changes in their lives, such as drinking less, which is important because alcohol use can accelerate the progression of liver disease caused by HCV.

G&H How can HCV testing rates be improved?

JW One way is to promote reflex testing, whereby the same blood draw can be used for both of the 2 tests required for HCV diagnosis. If the first test is positive, the same specimen can be used for the second test. With reflex testing, the patient does not have to return and undergo a second blood draw, which greatly increases the number of people undergoing both tests and the number of people being accurately diagnosed for current infection.

Another way to simplify the testing process is to remind clinicians of who should be tested using clinical decision tools. With pop-ups, whenever a patient in the baby boomer birth cohort checks into a clinic, a reminder comes up on the screen of the patient's electronic health record that the patient needs to be tested for HCV. Multiple clinics have shown that these tools are very effective at increasing testing rates. In other institutions, standing orders have been placed so that whenever a patient checks in, he or she is told that it is the standard procedure of the institution to test all persons for HCV who were born between 1945 and 1965. This has been done in several emergency departments, for example, and they have reported very high acceptance by patients (over 90%) and have found a surprisingly high prevalence of HCV among populations who were not previously offered testing.

G&H How have recent therapeutic advances in HCV opened the door to the elimination of HCV infection?

JW With the recent advances in direct-acting antiviral agents, HCV therapies are now very safe and very effective, especially compared to HCV therapies in the past. The new, highly curative therapies are making HCV elimination feasible. This is particularly true because the cure rates being seen in clinical trials are similar to those observed in everyday clinical practice. In other words, these drugs are working very well in routine medical care.

G&H Have the costs of these new therapies been a challenge to HCV elimination?

JW The costs of the new HCV therapies have resulted in some restrictive criteria for treatment approval by payers, which has choked access to HCV therapy for some patients. However, these restrictions are beginning to ease as the costs of HCV therapies are starting to fall due to negotiations between payers and industry as well as the emergence of new compounds to the market, which has added competition.

In addition, there was recently sternly written correspondence from the Centers for Medicare and Medicaid

Services to Medicaid programs, reminding the programs of their statutory obligations to provide pharmaceutical services in an appropriate manner guided by national recommendations for treatment. The correspondence recognized the large difference between who is being recommended for treatment and who is being approved for treatment by Medicaid programs. In addition, a recent court ruling found some of the restrictions to be inappropriate, resulting in the restrictions being removed in that state and others.

Nevertheless, it should be noted that treatment costs and access are still issues and represent barriers for some people, such as those with low incomes or with insurance plans that restrict access. In the past, government programs have been developed to support the treatment of specific diseases, such as chronic kidney disease or HIV. This is one way forward for ensuring access to treatment for HCV.

G&H How else could the management of HCV be improved to facilitate elimination of the disease?

JW To achieve elimination, we need to expand the delivery of HCV treatment from the domain of specialists (hepatologists, infectious disease doctors) and include primary care doctors or midlevel providers. HCV treatment consists of several pills per day for at least 8 weeks. This is a condition that could be managed at the primary care level. It would be ideal to have co-localization of testing and treatment, whereby more and more clinicians are testing for HCV and, if they find that a patient is infected with HCV, they have the knowledge and access to therapy to provide treatment for that patient. This makes it easier for the patient, and it increases the number of treaters, thereby increasing the number of patients who can be treated.

G&H Is a vaccine necessary to achieve HCV elimination?

JW A safe and effective vaccine would be helpful. There is at least 1 potential HCV vaccine that I am aware of currently in clinical trial. We will need to wait for the study results, as earlier HCV vaccines have not been effective. However, a vaccine is not essential to achieve the elimination targets that have been set for the world.

G&H What are the next steps for achieving elimination of HCV?

JW There are demonstration projects in communities around the country to determine how to bring together public health, academic medicine, and primary care

expertise to expand access to testing and treatment. We should learn from these projects to help others expand access to HCV testing and treatment. The second phase of the CDC's education campaign has been launched to continue to send a message of the importance of testing and treatment to the public and to clinical care providers. State health departments are being funded to work with federally qualified health centers so that persons who often have marginalized access to health care, but often have some of the highest rates of HCV, are not left out of this curative era for HCV. Public health resources are being concentrated to help states develop those connections with qualified health centers so that persons at risk for HCV are being tested and are receiving clinical care. Public health surveillance is being strengthened to make better use of electronic health record data to monitor the cure cascade for HCV (how well people are being tested, and, once found to be infected, whether they are being treated and cured). In addition, public health surveillance is focusing on the detection of new infections with HCV, recognizing that that is the leading cause of transmission in communities.

The CDC has proposed developing model elimination programs that bring together resources such as education, partnerships between public health and clinical care, clinical decision tools, data to inform and drive the process forward, and elimination targets from local communities. The Cherokee Nation of Eastern Oklahoma is the first community in the country to commit itself to

targets for the elimination of HCV as a public health threat. The CDC would like to help this and other communities take on this challenge and eliminate HCV as a health threat in their area.

Dr Ward has no relevant conflicts of interest to disclose.

Suggested Reading

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