

ADVANCES IN HEPATOLOGY

Current Developments in the Treatment of Hepatitis and Hepatobiliary Disease

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Elimination of Hepatitis B and C Virus Infections



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G&H Is it feasible to eliminate hepatitis B and C virus infections in the United States?

AA Hepatitis B virus (HBV) and hepatitis C virus (HCV) are significant public health issues in the United States, as there are currently approximately 1.3 million cases of HBV infection and approximately 3.5 million cases of HCV infection. Although there are several barriers that will need to be overcome, it is feasible to eliminate both of these diseases in the United States.

G&H What are the most significant barriers to the elimination of these diseases?

AA For HBV infection, one of the keys to elimination is identifying people who have the disease and making sure that they are appropriately linked to care. Another key point involves universal vaccination. Elimination strategies would be more effective for HBV infection if there was a cure for this disease, rather than just using medications that suppress the virus effectively. The currently available medications for HBV infection are very effective at suppressing the virus, which improves patient outcomes; however, a curative therapy is still being investigated.

HCV elimination strategies share some of the characteristics of HBV elimination strategies as far as case finding and making sure that patients are appropriately diagnosed and linked to care. However, HCV infection tends to involve different patient populations, as well as unique barriers to care, compared to patients with HBV

infection. Thus, strategies to engage patients with HCV infection in care are crucial. Once patients are in care, it is important to make sure that they are able to receive

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curative therapy. HCV medications are extremely safe and have cure rates near 100%; however, access to these medicines and their high costs have been barriers to cure.

G&H What has prompted the creation of these elimination strategies?

AA In 2016, the World Health Organization (WHO) recognized viral hepatitis as a “largely ignored” health problem, which led to a World Health Assembly resolution to eliminate viral hepatitis as a major public health problem by 2030. The WHO has developed guidelines for elimination strategies, and different countries or cities are adapting some of the more general guidelines to make them pertinent for their own populations. For example, the United States is facing an opioid epidemic, which is

closely tied to HCV transmission. Therefore, elimination strategies in the United States will not only have to suggest mechanisms for HCV treatment, but also address opioid use as a key factor to reduce both the incidence and prevalence of disease.

G&H Have any specific targets been set so far regarding elimination of HBV and HCV infections on the national level?

AA The National Academy of Medicine has released 2 reports, *Eliminating the Public Health Problem of Hepatitis B and C in the United States: Phase One Report* in 2016 and *A National Strategy for the Elimination of Hepatitis B and C: Phase Two Report* in 2017. These reports were sponsored by the Centers for Disease Control and Prevention, the US Department of Health and Human Services, the National Viral Hepatitis Roundtable, the Infectious Diseases Society of America, and the American Association for the Study of Liver Diseases. The reports focus on how elimination requires a multipronged approach that includes understanding disease prevalence and transmission, diagnosis, linkage to care, scaling up harm reduction services to decrease transmission of disease, and expanding access to treatment. The reports also focus on the need for participation and cooperation from the government, health care providers, health care systems, and patients. A specific elimination target for HCV infection is to avert approximately 90,000 deaths by 2030, which would be a 90% reduction in incidence and a 65% reduction in mortality. For HBV infection, the elimination target was set to decrease mortality by 50% by 2030, which would avert over 60,000 deaths.

G&H Are any of the targets or recommendations being acted upon yet?

AA The final report was released in March 2017, so many elimination programs are starting to scale up efforts. On the federal level, there has not been as much movement as we would have liked to see. However, we are seeing more and more local elimination projects that are using these reports as a template or strategy. A good example of a multidisciplinary elimination strategy is END Hep C SF, which has the goal of eliminating HCV infection on a local level in San Francisco by using an organizational structure to provide prevention, education, testing, treatment, and linkage to reduce morbidity and mortality related to this disease.

G&H Could you expand on the roles of the state and federal governments in the elimination of HBV and HCV infections?

AA At nearly every step in the elimination plans discussed in the National Academy of Medicine reports, state and federal government agencies will need to have central roles. One of the recommendations from the phase 2 report is a central coordinating office that would be key in organizing different state and federal agencies toward the goal of elimination. On the federal side, the appropriation

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of funds for harm reduction services and improved access to medications is crucial, which would trickle down to state or local programs for the improvement of access to care, testing, linkage to care, harm reduction, and even Medicaid programs.

G&H Could you discuss further how HBV and HCV transmission rates could be reduced to help facilitate elimination of these diseases?

AA A lot of data have shown that harm reduction services are a key part of reducing the transmission of HCV infection. Such services include needle exchange for people using injection drugs, access to rehabilitation, treatment for opioid use and addiction, and medication-assisted treatment programs involving drugs such as buprenorphine and methadone. Some of these principles are also true for HBV infection; however, prevention of disease through the identification of at-risk people as well as vaccination and therapy are cornerstones to reducing HBV transmission.

G&H How can screening for HBV and HCV infections be improved? Should universal screening be implemented?

AA Currently, the recommendations for both diseases are to screen only at-risk populations as well as people in specific age groups. For HBV infection, the challenge of screening effectively is identifying these at-risk populations. This can be difficult because many patients infected with HBV may have immigrated from high-prevalence regions of the world and may have limited access to health care. For HCV infection, there has been a push for universal screening rather than risk- or age-based screening,

although this would have to be balanced with the cost of expanding the screening process. I am a proponent for universal screening for HCV infection because the demographics of individuals infected with this disease are

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constantly changing, and by implementing universal screening, it is not necessary to try to guess who might be at risk. Universal screening would ensure that everyone who needs to be tested would be tested.

G&H Are there any ways that the testing process could be improved to help achieve elimination of HBV and HCV infections?

AA One of the challenges with HCV testing, especially testing in nontraditional settings (ie, not in a doctor's office or in an emergency department) is that most tests just check for HCV antibodies, which may not always be diagnostic. Point-of-care testing that reports HCV RNA levels would improve screening because it is a more accurate depiction of infection and eliminates the delay for the patient to receive confirmatory testing. If there is a large delay from when patients know that their initial screening is positive to when they are officially diagnosed with the disease, there is a risk that they will fall out of care.

G&H How can treatment access be improved, especially for low- and middle-income individuals?

AA As previously mentioned, the new drugs for HCV infection have nearly a 100% cure rate with very minimal side effects, but access to these drugs has been a challenge. In some states, Medicaid programs are not covering medications for patients who have low levels of fibrosis or who have a recent history of substance or alcohol use. Elimination will not be possible unless all patients who are infected can be treated. The reports by the National Academy of Medicine suggest several possible mechanisms in which medications could cost less. One possibility would be for the government to buy a license from a pharmaceutical company to produce one of the newer HCV medications at a cheaper cost,

specifically for use in HCV-infected patients who have limited access to treatment (eg, individuals who are incarcerated or who have Medicaid). This is one option that would bring down the price of treatment. However, it should be noted that the price of treatment is already coming down just with free market competition. The most recent medications that have come to market are at a considerably cheaper price, so we may reach the point where prices will drop far enough that access improves on its own.

In addition, advocacy is extremely important. Efforts by various advocacy groups to ensure that medication is available for those with Medicaid as well as commercial insurance programs have been, and will continue to be, crucial to ensure that all patients have access to a cure.

G&H How else can service delivery be improved, especially for incarcerated people?

AA Addressing HCV infection in people in correctional systems is a key part of elimination of the disease. A large percentage of people infected with HCV have been in correctional systems at one point in their life. Thus, expansion of HCV-related services to correctional systems would be a good opportunity to screen and treat high-risk individuals, especially now that HCV treatments are safe and can cure nearly all patients in as little as 8 weeks. During incarceration, these HCV-infected individuals can also receive counseling and addiction services (if needed) so that, upon release from prison, they will have some of the tools required to keep themselves from becoming reinfected.

However, medical care within correctional systems can be somewhat disjointed, and funds are not always sufficient for all of the care that is needed. A more centralized approach in which there can be a real effort to expand testing and treating within prisons will be key. Incentives will also likely be required to make it financially feasible to offer this type of care to incarcerated individuals.

G&H Are there any other ways that the management of these diseases can be improved to facilitate elimination?

AA Capacity building, especially with HCV infection, is crucial. Both HCV and HBV infections have traditionally been managed in specialty clinics through gastroenterologists, hepatologists, and infectious disease doctors. One of the key strategies for elimination will be to expand viral hepatitis care into a primary care setting. Although some of the sickest patients infected with either HBV or HCV require specialty care, many patients,

especially those with earlier stages of disease, can be treated in a primary care setting if primary care providers receive training. Therefore, one of the recommendations of the National Academy of Medicine reports is to help build capacity by offering different types of viral hepatitis educational models for providers in primary care so that they can start managing (and triaging, if necessary) patients infected with HBV and HCV.

G&H What are the next steps for achieving the elimination of HBV and HCV infections in the United States?

AA One of the next steps is to think about how to coordinate efforts of the many different stakeholders who are interested in elimination. For example, eliminating HCV infection would require improving access to care, medications, and harm reduction services and, at the same time, building capacity within clinics around the country, as previously discussed. This involves more than just one group of people taking action; elimination has to be attacked from many different angles. This type of effort cannot occur in isolated silos, but rather as an organized effort with central leadership. As we start to see what works and what does not work on a local level, hopefully efforts will expand and be enacted on a national level as well.

G&H What further research is needed to help facilitate elimination?

AA Research is needed along each step of the continuum of care. Well-designed public health research pertaining to disease surveillance and delivery of care will be crucial to elimination efforts. Economic research on how to effectively contain cost and improve outcomes based on the amount of money available will also be important. In addition, medical research is needed for a cure for HBV infection (rather than just suppression) and for a HCV vaccine to help prevent disease, especially in high-risk populations.

Dr Aronsohn has no relevant conflicts of interest to disclose.

Suggested Reading

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