

ADVANCES IN HEPATOLOGY

Current Developments in the Treatment of Hepatitis and Hepatobiliary Disease

Section Editor: Eugene R. Schiff, MD

Improving the Detection and Care of People With Hepatitis B and C

David L. Thomas, MD
Head, Division of Infectious Disease
Professor of Medicine
Johns Hopkins School of Medicine
Baltimore, Maryland

G&H Could you discuss the current infrastructure for detecting and treating hepatitis B and C?

DT There are several key elements to an effective public health program for chronic hepatitis. Prevention includes procedures to vaccinate for hepatitis A and B and strategies to reduce the risk of drug use practices for hepatitis C. Surveillance is important for identifying previously unrecognized cases and disease outbreaks, and it also establishes the disease burden to allow appropriate resource allocation. As treatments improve, case management has become increasingly crucial; diagnosed patients may need encouragement to actually visit a care provider for comprehensive management. Psychological harm can result from discovering the presence of a chronic hepatitis infection. Thus, it is very important to combine programs to detect infection with comprehensive management that provides direct health benefits.

The existing public health response is heterogeneous, varying from state to state and even within a state. Some areas have virtually no public health system designed to detect hepatitis or to help those found to have chronic hepatitis. In other areas, services are more comprehensive and are linked to other existing public health programs.

There is a good public health model already. For HIV, there are comparatively effective systems in place to provide testing and counseling, coordinate case management, and fund all of the key elements. Through these systems, people infected with this disease can obtain treatment, at-risk individuals can be vaccinated for hepatitis B,

and pharmaceuticals can be obtained through the AIDS Drug Assistance Program, a special pharmacy for people infected with HIV. Approximately three quarters of all HIV-infected people in the United States have been identified, and although efforts to find them at earlier disease stages are ongoing, there are programs to fund comprehensive management once they are found. Interestingly, there are also comparatively high rates of hepatitis virus testing and vaccination among HIV-infected persons.

On the other extreme, most hepatitis C patients do not know that they have the disease and are unlikely to encounter or seek out any screening programs. Furthermore, many patients do not have health insurance, so even if the disease is detected, they are unlikely to obtain treatment.

G&H How does the general healthcare infrastructure in the United States impact hepatitis?

DT Chronic hepatitis is similar to other health problems in that it suffers from the fragmented nature of our public health system, the compartmentalized approach to reimbursement, and the high cost for various health procedures. Comprehensive hepatitis management is justified on many levels, even by cost-benefit analyses. However, when trying to understand why action is not yet occurring, the disconnect between those responsible for paying for care and those who benefit must be acknowledged. For example, hepatitis patients can live without symptoms for years but may require a liver transplant 10 years after diagnosis. Insurers know that most people stay with a given provider for 3–5 years. There is little incentive for an insurer to pay the \$35,000–\$50,000 to treat a hepatitis C patient early on when the disease will take its toll only years later, when the patient is enrolled in another plan. The benefit goes to the later insurer who would have had to pay for the liver transplant.

Many people with chronic hepatitis do not have health insurance. If such a person does not receive any treatment, eventually he or she may be admitted to a local hospital with liver failure. This extremely expensive care will need to be paid for by the hospital if the patient does not have insurance. This cost could have been prevented, but there is a disconnect between the entities that would need to bear the initial costs and those that would eventually experience the cost savings. Most physicians are aware of these core problems, but it is difficult to fix them.

G&H With regard to hepatitis B, has the vaccine eliminated the need for further prevention?

DT The hepatitis B vaccine, which has been available since the early 1980s, is one of the safest and most effective vaccines ever made. In Taiwan, universal vaccination for hepatitis B has been in place the longest, and today the rates of hepatitis B–related complications are markedly reduced. The experience is very instructive, further confirming the validity of a universal, widespread approach to vaccination.

Universal hepatitis B virus vaccination of infants is also now recommended (and generally performed) in the United States. This program will reduce the disease burden, but we still have a number of adults who need the hepatitis B virus vaccine but cannot afford it. The vaccine costs approximately \$100 per dose, and an individual without health insurance and who is not enrolled in a medical plan is unlikely to pay \$100 for a vaccine. Again, the disconnect between payer and beneficiary arises: paying \$100 now could prevent extremely high treatment costs later, but the party responsible for covering the vaccine is not the same as the party responsible for covering treatment 10 years later.

G&H Is this experience instructive for hepatitis C prevention?

DT With no vaccine currently available, preventing hepatitis C hinges on preventing transmission, which occurs chiefly from illegal drug use. There is some evidence that needle exchange programs and other harm-reduction measures may be contributing to a reduced incidence of hepatitis C among drug users. However, the infection is still occurring, so clearly these measures are not sufficient.

G&H What are some of the complexities involved in detecting hepatitis?

DT Obviously, people with hepatitis cannot benefit from treatment until they know they are infected. Con-

sidering that over 5 million people have hepatitis B or C, it is reasonable to ask what is the most effective way to identify them. Some want the entire burden of detection to fall on family practice doctors who are taught to ask about risk factors and then test those who are at risk. However, this approach has not been effective in most settings. One reason is that patients visiting a doctor for a specific symptom do not want to be bothered with questions they view as unnecessary. Also, physician visits simply do not allow sufficient time to ask sensitive, ancillary questions in an effective way. In addition to the reluctance to discuss these matters with their doctor, many patients are also concerned that their responses will be added to their electronic medical record, which will eventually go to the insurer, leading to an increase in coverage costs. As a consequence of these various issues, approximately 75% of people with hepatitis C do not know they are infected.

Thus, the general strategy of recommending that physicians discuss risk factors has not worked very well. The same lessons were learned with hepatitis B vaccination of at-risk people, which was much less effective than the universal infant vaccination program now in place. Likewise, risk factor screening was judged to be too ineffective for HIV, and guidelines now call for testing of every individual between 13 and 64 years of age. It is also instructive to note that the imperative for this change in HIV testing was the marked improvement in HIV treatments that was documented in the 1990s. Thus, as treatments for hepatitis B and C virus improve, it will become imperative to have a better method for disease ascertainment. In my opinion, this will require a vastly improved risk screening method and/or routine testing of people in settings where the chronic hepatitis prevalence is known to be high.

G&H Are there any concrete ideas for more effective screening methods?

DT We need to drastically and urgently improve our detection of both hepatitis B and C, but it is not clear which approach would work best. Testing everyone in a certain age group might work, as described above. Alternatively, questionnaires that ask, in a nonthreatening way, about the presence of risk factors could be available at physicians' offices. If the questionnaire could be completed outside of the doctor-patient visit—say, in the waiting room before an appointment—then patients might be more open to testing and may know to ask for the test. These are ideas that need to be tested, and the Centers for Disease Control and Prevention are appropriately examining these and other strategies.

G&H Why is this issue so urgent?

DT Currently, we are entering a time when curative treatments will be available for chronic hepatitis. Telaprevir and boceprevir have both been found to be effective for the treatment of hepatitis B and C in clinical trials, and both are in phase III studies. These drugs are expected to be approved by the US Food and Drug Administration in approximately 1 year. A metaphor would be: If you do not have any food, then finding out who is hungry is not terribly important. However, if you suddenly have an abundance of food, then you want to know who is starving. This is the scenario that we are moving toward today.

G&H Is there a political component to the problem of detecting hepatitis?

DT Yes, I think so. There is no strong political will to combat this problem. Hepatitis has some very dedicated advocates, but, overall, its voice is not nearly as loud as that for HIV. In addition, with a few notable exceptions, there is generally reluctance among politicians to attach their names to hepatitis as a cause.

G&H What are some programs that are improving the situation when it comes to hepatitis screening?

DT In January 2010, the Institute of Medicine produced a report for a comprehensive transformation of the US public health response to chronic hepatitis. The Centers for Disease Control and Prevention are already investigating better methods for screening and certainly need additional funding to promote surveillance and case management at the state level. Other agencies, including the Health Resources and Services Administration, are exploring education as a way to improve awareness among healthcare professionals. Given the financial constraints on our public health system, it is also useful to recognize that promotion of expanded hepatitis testing and case management helps the companies that make these drugs as well as the patients and the public health system. It makes sense to structure partnerships in a thoughtful way that has a net benefit to patients and public health. Promotion of independently produced education is an obvious example.

G&H What other approaches might work?

DT Providing reimbursement for hepatitis B and C screening would likely improve detection rates. For example, if a physician's office were efficiently reimbursed extra for counseling and testing, then many doctors would undoubtedly incorporate screening into their routine care. Although a "carrot" approach is much preferred, physicians also respond to rules. For example, within the hospital setting, establishing a metric required for accreditation has improved the frequency of specific health practices.

A good deal of the care for indigent patients is provided by federally qualified health centers (FQHCs), which receive federal funding. In order for FQHCs to obtain their funding, they must meet certain requirements determined by various constituencies. In addition, there are certain special grants that FQHCs can receive for select programs, such as for HIV management. Not surprisingly, the required and funded elements of care are disproportionately delivered. As hepatitis incidence rates are disproportionately high among the poor, requiring and funding FQHCs to have a hepatitis testing program could vastly improve detection rates.

We need to urgently find ways to detect and treat hepatitis early on, so that patients do not reach the point of needing a liver transplant. Not only are such procedures expensive, costing approximately \$300,000, they do not cure the disease. Awareness about this problem needs to be increased with multiple small steps, so all of the various facets of healthcare can work together to improve the situation.

Suggested Reading

IOM (Institute of Medicine). *Hepatitis and Liver Cancer: A National Strategy for the Prevention and Control of Hepatitis B and C*. Washington, DC: The National Academies Press; 2010.

Ghany MG, Strader DB, Thomas DL, Seeff LB; American Association for the Study of Liver Diseases. Diagnosis, management, and treatment of hepatitis C: an update. *Hepatology*. 2009;49:1335-1374.

Lok AS, McMahon BJ. Chronic hepatitis B: update 2009. *Hepatology*. 2009; 50:661-662.

McHutchison JG, Manns MP, Muir AJ, et al. Telaprevir for previously treated chronic HCV infection. *N Engl J Med*. 2010;362:1292-1303.