possible relationship to their prior surgery.

After my diagnosis in 1999, I found little reassurance from information provided by the CDC and the Society for Hospital Epidemiology of America (SHEA). The CDC based its lack of recommendation on the lack of reported cases of transmission. But, as best that I can tell, this was based on "we never looked." One of the occupational health experts whom I contacted (Dr. Paul Rountree, University of Texas) did a mathematical model of cumulative risk based on logical but conservative assumptions. He concluded that I would have a greater than 50% risk of transmitting the virus during 10 years of practice. A similar conclusion was reached by an independent analysis.[7] In my case it was already 100%, because, as mentioned above, I already knew of at least one of my patients whom I had probably infected.

When does a surgeon become a definable risk to his or her patients or institution? When should informed consent be required? Can monitoring and practice modification make informed consent unnecessary? These are tough questions for which more data are still clearly needed. I really do not believe we have reached a national consensus. One thing is for sure, the public in New York does not accept the CDC's current position on informed consent and I am not surprised. Like it or not, we are going to have to deal with this issue.

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William P. Fiser, Jr., MD, FACS
Division of Cardiothoracic Surgery
Department of Surgery
University of Arkansas for Medical Sciences
Little Rock, Arkansas

Protecting Patients From Surgical Hepatitis C Virus Infection

To the Editor:

Healthcare workers probably risk occupational infection from patients with major blood-borne pathogens such as hepatitis B virus (HBV), hepatitis C virus (HCV), or human immunodeficiency virus (HIV) more often than they transmit blood-borne pathogens to their patients. Surgeons and other healthcare professionals infected with a blood-borne pathogen who perform exposure-prone invasive procedures, as defined by the 1991 Center for Disease Control (CDC) guidelines,[1] pose a small risk of transmission to patients via inadvertent intraoperative blood exposure from sharps injuries, absent other identified routes of transmission.

The risk of transmission by a contaminated needlestick from HCV-infected patients to healthcare workers is approximately 2%.[2] Although the seroprevalence of HCV in the United States is approximately 1.8% (corresponding to an estimated 3 to 4 million HCV-infected individuals), the seroprevalence of HCV among hospital-based patients is 5.2% (3-fold higher than that for the general population).[3] The risk of transmission of HCV to surgeons is 20- to 40-fold greater than the risk of transmission of HIV (comparative source prevalences × transmission risks). Once infected, a surgeon risks transmission of blood-borne pathogens in the reverse direction (to patients). This risk is small, but not zero, and should not be ignored.

The 1991 CDC guidelines for preventing transmission of HIV and HBV from infected surgeons included Expert Review Panels to determine restrictions or modifications of practice procedures and prospective informed consent for surgeons infected with HBV or HIV to continue operating. These recommendations became a requirement in the United States with enactment of 1991 public (federal) law #102-141. These recommendations, originally driven primarily by intense concern about HIV, were written prior to current knowledge of risk of transmission of HCV by needlestick, testing, and curative treatments,[4] especially for acute infection.[5] The occurrence of clusters of HCV-infected surgical patients[6,7] with genetic verification of transmission from their surgeons compels us to revisit and add HCV to these recommendations.

In 1992, the South Carolina Medical Association developed an Expert Review Panel approved by the Department of Health in accordance with federal and state law and CDC guidelines for practice review and requirements. We have reviewed seven surgeons and other healthcare professionals performing exposure-prone invasive procedures infected with HIV or HCV whose status was discovered via voluntary testing and who requested review. Four voluntarily ceased performing exposure-prone invasive procedures, two modified their procedures to reduce their risk of transmission to nil or obtained preoperative informed consent, and one unsuccessfully resisted any disclosure, informed consent, or notification of intraoperatively exposed patients. Most healthcare professionals have assumed that disclosure and informed consent are career-ending events, whereas alternative, career-limiting options exist that have been successfully implemented. Further, with current successful curative therapies (albeit with side effects), HCV-infected surgeons now often opt for a 1-year hiatus from exposure-prone invasive procedures while therapy clears their virus.

Currently, HCV-infected surgeons' options include (1) eliminating any risk of transmission to patients by voluntarily observing the Hippocratic Oath's tenet "primum non nocere," ceasing to perform exposure-prone invasive procedures, using curative therapies, or moving to supervisory or academic settings; (2) obtaining recommendations from the Expert Review Panel and getting informed consent from patients; (3) waiting until a cluster of infected patients is discovered before getting tested, undergoing investigation, and then undergoing the above process; or (4) silently avoiding disclosure, informed consent, and even notification of patients regarding inadvertent intraoperative patient exposures (an

unwise and unethical "don't ask, don't tell, don't test" approach). The current controversy surrounding the reportedly proficient and prolific HCV-infected cardiovascular surgeon in Long Island, New York,[7] exemplifies these conundrums and compels us to ask ourselves how we should manage such events ethically and fairly.

Additional dilemmas include the current double standard that the surgeon must protect the patient's confidentiality and may be obligated to operate on an infected patient, but the patient is not prohibited from disclosing the surgeon's status publicly and choosing another surgeon. Disability coverage for the infected surgeon is usually suboptimal, another barrier to disclosure. Also, there is no simple answer to treating intraoperatively exposed patients unless the surgeon immediately discloses the exposure and allows his blood-borne pathogen status to be determined, both unlikely events in today's climate. This means that patients are frequently put at risk without the benefit of notification, testing, and therapy when appropriate.

Although postexposure treatment of healthcare workers as mandated by the Occupational Safety and Health Administration has been well established and recommendations for protecting healthcare workers have been updated by the CDC,[8] most hospitals have yet to accept responsibility for protecting patients to the same degree when exposures occur. They should establish *patient* postexposure treatment procedures (including baseline and follow-up testing and prophylactic and curative therapy similar to that provided for healthcare workers[5]). Hospitals could opt to notify patients of an intraoperative exposure without revealing which member of the surgical team is infected, while providing for the exposed patient's postexposure medical needs.

In general, we should apply patient-to-surgeon exposure management principles to any surgeon-to-patient exposures, including notification, baseline and follow-up testing, and any appropriate postexposure prophylaxis, treatments, or both. HCV is clearly transmissible in both directions between patients and surgeons and should be added to the 1991 CDC guidelines for protecting patients from infection by surgeons infected with blood-borne viruses. There remain several complex unanswered questions, which should also inspire more aggressive investigation.

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Robert T. Ball, Jr., MD, MPH
South Carolina Department of Health and Environmental Control
University of South Carolina
School of Medicine
Infectious Disease Division
Columbia, South Carolina

Safer Generation of Spring-Loaded Fingerstick Lancets

To the Editor:

Desenclos et al. present a convincing case for the nosocomial transmission of hepatitis C virus associated with the use of a fingerstick device in a cystic fibrosis and diabetes hospital in France.[1] They attribute transmission to the inappropriate reuse of a disposable platform attached to the spring-loaded base unit of a fingerstick device. The same device was implicated in a similar nosocomial outbreak of hepatitis B virus reported by Polish et al.[2] Both reports identify the device in their titles as a "spring-loaded finger-stick device." Although true, this term suggests an association between the spring-loaded mechanism and the risk of infection, when, in fact, the removable platform is implicated as the transmission vehicle in both cases.

This point is worth mentioning because the Needlestick Safety and Prevention Act passed in the United States in November 2000 effectively renders illegal the use of this particular lancet in healthcare institutions in the United States—not because it is spring loaded, but because it has no needlestick protection integrated into its design.[3] There exist on the U.S. market at least eight single-use fingerstick lancets incorporating some type of spring-loaded mechanism that instantly retracts the lancet into a protective casing after activation, precluding both reuse and occupational needlesticks. These self-retracting lancets are listed on the web site www.med.virginia.edu/epinet. The widespread use of such safety-engineered spring-loaded lancets in healthcare institutions in the United States and other countries will go a long way toward minimizing the risk of infection associated with conventional lancets for both patients and healthcare workers.

Also, the possibility that hand contamination of healthcare personnel could have contributed to the nosocomial transmission of hepatitis C virus in this patient population should not be discounted. Although the authors state that the patients practiced "self-monitoring" of capillary blood glucose, a significant portion of them were young children who could not have performed the procedure without adult assistance. Scrupulous hand hygiene before and after each patient contact must be rigorously observed whenever capillary blood sampling is performed in healthcare facilities. Even the safest single-use lancet cannot prevent the transmission of pathogens due to hand contamination.

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