

## SHEA Position Paper

# Management of Healthcare Workers Infected With Hepatitis B Virus, Hepatitis C Virus, Human Immunodeficiency Virus, or Other Bloodborne Pathogens

AIDS/TB Committee of the Society for Healthcare Epidemiology of America

### ABSTRACT

This article provides the current recommendations of the Society for Healthcare Epidemiology of America (SHEA) regarding the management of healthcare workers infected with hepatitis B virus (HBV), hepatitis C virus (HCV), or the human immunodeficiency virus (HIV). For the reasons cited in the article, SHEA now maintains that separate virus-specific management strategies are appropriate for healthcare workers who are infected with these unrelated viruses. SHEA emphasizes the use of appropriate infection control procedures to minimize exposure of patients or providers to blood, emphasizes that transfers of blood from patients to providers and from providers to patients should be avoided, and argues that infected healthcare workers should not be prohibited from participating in patient-care activities solely on the basis of their bloodborne pathogen infection. SHEA recommends that hepatitis B e-antigen-positive healthcare workers routinely should double glove and should not perform those activities that have been identified epidemiologically as associated with a risk for provider-to-patient HBV transmission despite the use of appropriate infection control procedures. SHEA also recommends that HCV- and HIV-infected providers use double gloving for procedures, but recom-

mends that these providers not be excluded from any aspect of patient care unless epidemiologically incriminated in the transmission of these infections despite adequate precautions. SHEA argues for comprehensive education concerning bloodborne pathogens for all healthcare providers and trainees and against mandatory pathogen-specific educational requirements for infected providers. SHEA recommends against specific competence-monitoring procedures directed at these healthcare workers infected with bloodborne pathogens, arguing for managing infected providers in the context of a comprehensive approach to the management of all impaired providers. SHEA emphasizes the importance of worker privacy and medical confidentiality. SHEA emphasizes the importance of offering employees who have disabilities reasonable accommodation for their disabilities. The article discusses exposure management in detail and, in general, recommends adherence to existing guidelines for managing exposures to these agents. Finally, SHEA recommends against routine mandatory testing of providers. Specific details and the rationale for these recommendations are included in the body of the article (*Infect Control Hosp Epidemiol* 1997;18:349-363).

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**TABLE 1**

DEVELOPMENTS SINCE PUBLICATION OF THE INITIAL POSITION PAPER<sup>7</sup> ON THE MANAGEMENT OF HIV- OR HBV-INFECTED HEALTHCARE WORKERS

1. The CDC published guidelines for the management of infected providers. The US Congress mandated in a public statute that states certify that they have adopted the CDC guidelines or certify that their guidelines are "equivalent" to the CDC guidelines. State responses to that statute have been quite variable (see discussion).
2. Seven additional years' experience have been gained in the evaluation of risks for provider-to-patient transmission of HIV and other bloodborne pathogens. Except for the Florida dentist and the French orthopedist, no providers have been identified as the source for HIV transmission to their patients; however, additional clusters of provider-to-patient transmission of HBV (including one report of hepatitis B e-antigen—negative providers transmitting infection) have been identified. Since implementation of Universal Precautions and the OSHA Bloodborne Pathogens Standard, identified HBV clusters have been linked exclusively to surgeons; none have been attributed to dentists. Additional insight has been gathered regarding possible mechanisms of intraoperative transmission of HBV.
3. A substantial body of evidence has been gathered concerning the risk for hospital-associated transmission of HCV infection; risk appears to be intermediate between the HIV and HBV risk. Only two instances of provider-to-patient transmission have been reported in the literature.
4. A number of lawsuits and personnel actions taken against HIV-infected providers have since been predicated on the July 1991 CDC guidelines (and other professional societies' adoption of those guidelines) despite the relatively uneven adoption of those guidelines by state governments.
5. A number of engineering and work-practice controls have been introduced into the healthcare environment; data from studies of these interventions suggest that the risk for occupational exposures to bloodborne pathogens (and presumably therefore the risk for iatrogenic patient exposures) has been reduced considerably.

Abbreviations: CDC, Centers for Disease Control and Prevention; HIV, human immunodeficiency virus; HBV, hepatitis B virus; HCV, hepatitis C virus.

## BACKGROUND AND PURPOSE

In 1990, in response to public and professional concern that had arisen in the wake of a highly publicized cluster of cases of provider-to-patient transmission of the human immunodeficiency virus (HIV) in a Florida dentist's practice,<sup>1-6</sup> the Society for Healthcare Epidemiology of America (SHEA), in collaboration with the Association for Practitioners in Infection Control, published a position paper concerning the administrative management of healthcare providers infected with certain bloodborne pathogens.<sup>7</sup> Since that document was published, one additional case cluster of provider-to-patient transmission of HIV has been reported in France,<sup>8</sup> and additional information bearing on the management of such providers has been accumulated (Table 1).

Previously, several organizations, including the American Medical Association,<sup>9,10</sup> the American Academy of Pediatrics,<sup>11</sup> the American Hospital Association,<sup>12</sup> the American Academy of Orthopedic Surgeons,<sup>13</sup> the American College of Obstetricians and Gynecologists,<sup>14</sup> and two British working groups<sup>15,16</sup> had issued consensus statements concerning healthcare workers (HCWs) who were, or might be, infected with HIV. In these early position statements, most of these organizations concluded that few, if any, special procedures were required to manage HIV-infected HCWs. All organizations except one<sup>13</sup> opposed routine screening of HCWs for

HIV infection. More recently, the United Kingdom Department of Health has taken a more proscriptive position concerning HIV-infected and hepatitis B virus (HBV)-infected practitioners, specifically prohibiting these individuals from performing procedures categorized as "exposure-prone."<sup>17-19</sup>

In the United States, the Centers for Disease Control and Prevention (CDC), in July 1991, in the aftermath of the national and international publicity surrounding iatrogenic HIV infections linked to a Florida dentist,<sup>1-6</sup> issued guidelines for HIV- and HBV-infected providers.<sup>20</sup> From a practical perspective, three aspects of these guidelines initially proved problematic: (1) the need to classify a subset of invasive procedures as "exposure-prone," (2) the requirement that an infected practitioner notify prospective patients of her or his infection status, and (3) the legal and administrative implementation strategies concerning the establishment and workings of the "expert review panel," an administrative requirement of the guidelines. Six years following publication of the CDC guidelines, these problems largely remain unsolved. The United Kingdom guidelines classify "exposure-prone" procedures as those "... where the worker's gloved hands may be in contact with sharp instruments, needle tips, or sharp tissues (spicules of bone or teeth) inside a patient's open body cavity, wound, or confined anatomical space where the hands or fingertips may not be completely visible at

all times. Such procedures must not be performed by a healthcare worker who is either HIV-positive or hepatitis B e-antigen-positive.<sup>19</sup>

The anxiety associated with the publicity surrounding the Florida case-cluster prompted Congressional scrutiny of the new guidelines and, ultimately, resulted in the US Congress' passage of federal legislation (PL 102-141). This statute requires states to certify that they have implemented the July 1991 CDC guidelines or their "equivalent." As of August 15, 1996, of the 59 US states and territories subject to the law and monitored by the CDC, only 10 had certified that the CDC guidelines had been implemented; 48 had certified that "equivalent" guidelines had been implemented, and one still was requesting additional time.<sup>21</sup>

A few of the states' guidelines (eg, New York, Michigan) specifically state that HIV infection per se should not preclude a practitioner from performing invasive procedures. Relatively few of the states' guidelines require prospective notification of patients about an infected provider's status (CDC, David Bell, MD, personal communication, January 1997). Some authorities have argued that proscriptive state regulations are responding ". . . to a problem that does not exist."<sup>22</sup>

Finally, we would emphasize that many legal actions have been filed against infected HCWs based on either the CDC July 1991 guidelines, professional societies' adoption of these guidelines, or both. In many, if not most, of these actions, the HCW is being sued, not for infecting patients but rather for causing mental anguish, for causing "pain and suffering," for assault, for the practitioner's failure to comply with the "duty to warn" the patient of risk, or for various other legal issues. Virtually all of these suits are filed because of the possibility that patients may have been unnecessarily *exposed* to infection, not because they have been *infected* with bloodborne pathogens. Thus, we apparently find ourselves in a situation in which medical practice varies substantially from legal and regulatory requirements, and the guidelines and regulatory requirements are being used to recover "damages" from infected providers who, in fact, have not transmitted infection.

### CURRENT ASSESSMENT

The principle that "all blood and hazardous body fluids must be considered infectious, irrespective of a patient's diagnosis," applies also to HCWs infected or potentially infected with HIV, HBV, hepatitis C virus (HCV), or other bloodborne pathogen(s). The magnitude of risk for provider-to-patient HIV transmission may never be known with precision; however, the addi-

**TABLE 2**

INSTANCES OF PROVIDER-TO-PATIENT HEPATITIS B TRANSMISSION, FROM 1972 TO 1994\*

Years	United States		Non-United States <sup>†</sup>	
	Dentists	Surgeons	Dentists	Surgeons
1972-1976	3	0	0	0
1977-1981	2	2	0	5
1982-1986	2	3	0	4
1987-1991	0	2	0	4
1992-1994	0	1	0	8
Total	9	8	0	21

\* Modified from references 21 and 53.

<sup>†</sup> Includes 17 cases from the United Kingdom, and 1 case each from Canada, The Netherlands, Norway, and France.

tional experience gained over the past 5 years provides reassuring evidence that this risk is extremely small. Since the initial outbreak investigation conducted in the Florida dentist's practice,<sup>1-6</sup> numerous so-called look-back studies have been conducted, evaluating the HIV antibody status of patients retrospectively identified as having received medical or dental care from an HIV-infected practitioner.<sup>3,23-33</sup> Of these, only the recent report from France<sup>8</sup> suggests transmission; none of the remaining studies has definitively identified additional instances of provider-to-patient transmission of HIV. One unusual cluster of patient-to-patient HIV transmission in a surgical practice in Australia has been described in the literature<sup>34</sup>; however, the practitioner providing the care was not infected. Conversely, several clusters of provider-to-patient transmission of HBV have been identified in the past 4 years, both in the United States and elsewhere (Table 2).<sup>21</sup>

Historically, provider-to-patient transmission of hepatitis B has been linked to e-antigen-positive providers. One recent reports suggests that providers who harbor atypical "precore mutant" strains of hepatitis B may transmit infection, despite being e-antigen negative.<sup>35</sup>

In the prior position paper, SHEA expressed the opinion that most of the issues applicable to HBV-infected providers generally would apply to HCWs infected with HIV and also might hold for HCWs infected with HCV, although information on the nosocomial risks for transmission of HCV was quite limited at the time of the original publication.

Based on accumulating evidence, SHEA now believes that the HBV model may have outlived its usefulness, at least in terms of its use in setting policies for HIV-infected providers. First, the risk for transmission following a single parenteral exposure is at least 10-

**TABLE 3**  
CLASSIFICATION OF THE STRENGTH AND QUALITY OF EVIDENCE OF EACH RECOMMENDATION\*

Category	Definition
Categories reflecting the strength of the recommendation	
A	Good evidence to support the recommendation.
B	Moderate evidence to support the recommendation.
C	Poor evidence to support the recommendation.
Categories reflecting the quality of evidence for the recommendation	
I	Evidence from at least one properly randomized, controlled trial.
II	Evidence from at least one well-designed clinical trial without randomization, from cohort or case-controlled analytic studies (preferably from more than one center), from multiple time-series studies, or from dramatic results in uncontrolled experiments.
III	Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

\* Modified from reference 47 by deleting previously used categories D ("moderate evidence . . . against") and E ("good evidence . . . against") and requiring all recommendations to be phrased so that category A, B, or C is applicable. This modified classification scheme has been used for SHEA position papers since 1994. For purposes of this article, exposure and infection data derived from prospective studies of cohorts of healthcare workers at risk for occupational exposures and infections were assumed equivalent to "Category I" evidence.

fold and probably 100-fold lower for HIV than for HBV. Second, HIV is less likely to remain viable in the environment than is HBV<sup>36</sup> (and the environment does not presently appear to play a substantial role in the transmission even of HBV). Third, because of the substantial difference in viral burden (ie, intact virions per milliliter of blood) between HBV e-antigen-positive carriers and HIV-infected patients, circumstances that might involve a measurable risk for HBV transmission may not necessarily be associated with a measurable risk for transmission of HIV. Fourth, although the occupations of the practitioners associated with HBV clusters have changed in the past 4 years (see section I.B.2), HBV clusters of provider-to-patient infections have continued to be detected, both in the United States and elsewhere in the world. Other than the Florida dentist and the recently cited French orthopedist, additional instances of provider-to-patient transmission of HIV infection have not been identified. To date, two instances of provider-to-patient transmission of HCV infection have been reported.<sup>37-39</sup> In the first of these reports, a cardiac surgeon in Spain was implicated in transmitting HCV to five patients, all of whom had undergone valve replacement surgery.

For these reasons, SHEA now maintains that separate virus-specific management strategies are appropriate for HCWs infected with these unrelated viruses. This position is based on (1) available scien-

tific information on the magnitude of risk for provider-to-patient transmission of these bloodborne pathogens; (2) clinical hospital epidemiological and infection control experience and management of HBV-, HCV-, and HIV-related problems in the health-care setting since 1981; and (3) experience with the implementation and interpretation of prior recommendations and guidelines, including those issued previously by the United States Public Health Service.<sup>40-46</sup>

To facilitate comparison, we have prepared the revised guideline in the same format used in the original position paper. All recommendations, including those from the previous article, now have been classified according to the classification scheme shown in Table 3. For recommendations that have changed since the original paper, we have included discussions of the rationales for these changes.

## OUTLINE

### I. Practice Issues

- A. Should HCWs who are infected with bloodborne pathogens (HBV, HCV, and HIV) be allowed to practice?
- B. Should the practices of HCWs who are infected with HBV, HCV, or HIV be restricted and, if so, using what specific guidelines?
- C. How should HCWs identified as infected with bloodborne pathogens be managed?

1. Should additional education or training be mandated, and, if so, how can this be accomplished while maintaining HCW confidentiality?
2. How should students and house officers identified as acutely or chronically HBV-, HCV-, or HIV-infected be managed?
3. Should HBV-, HCV-, or HIV-infected HCWs be subject to specific monitoring programs, and, if so, how should monitoring be accomplished effectively, while still maintaining HCW confidentiality?
4. Should healthcare institutions use special information-management practices to maximize the privacy or confidentiality of HCW staff who are infected with bloodborne pathogens?
  - a. Should healthcare institutions have special procedures for the management of the medical records of an HCW or employee who has bloodborne pathogen infection or another medical problem?
  - b. Should healthcare institutions have special procedures for the internal disclosure of information about HBV-, HCV-, or HIV-infected HCWs practicing at the institution?
  - c. Should healthcare institutions have special procedures for making public statements regarding HCWs who are infected with bloodborne pathogens?
- D. Does the increasing potential for opportunistic infection associated with progression of HIV infection require further modification or restriction of an HIV-infected HCW's activities?

## **II. Disclosure Issues**

- A. Are there any routine medical settings in which an HBV-, HCV-, or HIV-infected HCW should be routinely required to notify patients of his or her bloodborne pathogen status, and, if so, what are the specific types of circumstances requiring notification?
- B. How should an HCW respond to a direct inquiry about his or her (or another HCW's) bloodborne pathogen infection status?
- C. Do coworkers have a need, or the right, to know the infection status of HCWs who are infected with bloodborne pathogens?

## **III. Exposure Management**

- A. How should an HCW-to-patient blood or other hazardous body fluid exposure be managed?
  1. Should the HCW source of a patient exposure be required to undergo testing for bloodborne pathogen infection?
  2. Should an inadvertently exposed patient be

notified of the exposure?

3. Should an inadvertently exposed patient be required to have baseline serologic testing?
4. How should an inadvertently exposed patient be followed?

## **IV. Testing Issues**

- A. Should all HCWs be tested routinely for HIV infection?
- B. Are there any specific instances or circumstances (eg, job classifications, medical tasks) in the healthcare setting in which HBV, HCV, or HIV seronegativity should be considered a prerequisite, and, if so, should mandatory screening programs be instituted for the relevant HCWs?

## **SECTION 1. PRACTICE ISSUES**

### **I.A. Should HCWs infected with bloodborne pathogens (HBV, HCV, or HIV) be allowed to practice?**

#### **Background and Rationale**

Because of the nature of health care, provider-to-patient transmission of bloodborne pathogen infection, albeit rare, will continue to occur. Additional cases of provider-to-patient transmission, similar to that described with the Florida dentist<sup>1-6</sup> and the French orthopedic surgeon,<sup>8</sup> seem inevitable.<sup>48</sup> Policy decisions should be based on thorough consideration of the risks for HCW-to-patient transmission of these pathogens, provided by (1) studies of HBV-<sup>21,35,49-53</sup> HCV,<sup>37-39</sup> and HIV-infected HCWs<sup>3,23-33</sup> and their patients; (2) studies of the frequency of occupational exposures of a variety of types<sup>54-61</sup>; (3) studies of the magnitude of risk of transmission of bloodborne pathogens following these various types of exposures<sup>62-65</sup>; (4) the substantial experience managing recognized HBV and other bloodborne infections in the healthcare workplace; and, (5) the resources required to develop a unique administrative approach for the management of HIV-infected providers.

Because the risk for provider-to-patient transmission of HIV is extremely low,<sup>66-71</sup> we have modified our position with respect to HIV-infected providers. SHEA believes mandatory proscriptions of clinical practice for otherwise qualified HIV-infected providers are unwarranted. More protection for patients likely can be provided by assuring compliance with recommended infection control procedures, such as Universal Precautions.<sup>22</sup> In the 6 years since our previous publication,<sup>7</sup> only one additional cluster of provider-to-patient transmission of HIV has been reported.<sup>8</sup> Similarly, because only two instances of provider-to-patient transmission of HCV have been identified,<sup>37-39</sup> we believe that mandatory proscrip-

tions of clinical practice for otherwise-qualified HCV-infected providers are unwarranted. Finally, some restrictions may be warranted for HBV e-antigen-positive providers who perform invasive procedures (discussed below). Routine (ie, non-invasive) patient-care activities should not be restricted for these practitioners.

A number of engineering and work-practice controls have been introduced into the healthcare environment during the past 4 years that, taken together, are likely to have reduced the risk for occupational blood exposures substantially (thereby reducing the smaller risk for occupational infection and the even smaller risk for iatrogenic infections).

### **Recommendation**

All blood and body fluids (from patients and HCWs) must be regarded as potentially infectious (Category A-I). Transfers of blood or other potentially infectious materials from HCWs to patients must be avoided (Category A-I). HBV-, HCV-, and HIV-infected HCWs should not be prohibited from participating in patient-care activities solely on the basis of their bloodborne pathogen infection (Category B-I).

**I.B. Should the practices of HCWs who are infected with HBV, HCV, or HIV be restricted, and, if so, using what specific guidelines?**

### **Background and Rationale**

*HIV.* The best epidemiological evidence bearing on the risk of HCW-to-patient transmission of HIV is the 15 years' experience managing HIV-infected patients in the healthcare workplace. Other than the two case clusters discussed above,<sup>1-6</sup> no additional cases in which a healthcare provider transmitted HIV to a patient have been identified, despite a number of aggressive look-back studies attempting to detect such transmission.<sup>3,23-33</sup> Given the extremely small risk of HIV transmission from provider to patient, practice restrictions appear to be unwarranted. Emphasis should be placed on the education of practitioners concerning appropriate infection control procedures and on the assurance of compliance with these procedures. Some experts have argued that, for provider-to-patient HIV transmission to be detected, a cluster of cases, such as the Florida case, would have to occur.<sup>72,73</sup> Nonetheless, the extremely rare occurrence of isolated clusters of infection should not be the basis for practice restrictions. As a practical matter, based on the overwhelming majority of state guidelines, a recommendation for further restriction would represent a major change in the current standard of medical practice in the United States. However, if a practitioner is implicated in a case or a cluster of HIV

transmission, she or he should be restricted from performing invasive procedures.<sup>20,41,42</sup>

*HBV.* Over the past 22 years, 38 outbreaks of HCW-to-patient HBV transmission have been detected.<sup>21,53</sup> Taken together, these outbreaks suggest a risk for HCW-to-patient HBV transmission associated with certain types of surgical procedures (eg, vaginal hysterectomy, major pelvic surgery, and cardiac surgery) and, prior to 1987, dental procedures. In some of these instances, the practitioner became aware of her or his infection status and modified his or her work practices (including use of double gloves and other infection control interventions), but continued to transmit infection to his or her patients. The risk associated with dental procedures appears to have diminished in temporal association with the increased use of aggressive infection control interventions. Prior to 1987, 9 of 23 reported clusters of provider-to-patient transmission of HBV (39%) occurred in dentistry; since 1987, no additional clusters have been linked to dentists (0 of 15 identified clusters since 1987; Table 2).<sup>21,53</sup> In every instance except one (the report of providers infected with so-called precore mutant hepatitis B strains<sup>35</sup>), transmission of hepatitis B from provider to patient has been linked to e-antigen-positive providers.

A study of the technique used by one HBV e-antigen-positive cardiovascular-thoracic surgeon implicated as the source of a cluster of HBV infections may shed some light on the risk for transmission.<sup>74,75</sup> In this study, when the surgeon repeatedly tied knots, snugging them against his index finger, shearing injuries occurred through his gloves, and both the saline irrigant used to rinse the inside of his gloves and the outer surface of the gloves were positive for HBsAg.<sup>74,75</sup> Despite evidence suggesting that double gloving decreases risk for contamination with blood or body fluids,<sup>54</sup> this surgeon did not wear two pairs of gloves, neither for clinical care nor for the experiments described above. Nonetheless, because of the extremely high viral burden associated with e-antigen positivity (100 million to 10 billion HBV particles per milliliter of blood),<sup>40</sup> barriers may be relatively ineffective in preventing transmission.

*HCV.* Neither the nosocomial epidemiology of HCV nor the magnitude of risk for occupational infection with the HCV following occupational exposure have been characterized fully. The magnitude of risk for provider-to-patient transmission is not known with precision.

Several cases of occupational infections in HCWs now have been reported as anecdotes in the medical literature.<sup>76-83</sup> The majority of published prevalence studies have demonstrated healthcare

providers to be at slightly (ie, 1.5- to 3-fold) elevated risk for HCV infection when compared with controls.<sup>84-93</sup> Finally, longitudinal studies of healthcare providers who have sustained occupational exposures to HCV have found somewhat variable rates of HCV transmission, for unclear reasons. Kiyosawa and Sodeyama and their colleagues observed clinical hepatitis in 4 of 110 exposed HCWs in their initial study<sup>93</sup> (and anti-HCV seroconversion in 3 of the 4) and in 3 of 90 exposed HCWs when these same samples were analyzed using polymerase chain reaction technology.<sup>94</sup> Hernandez and colleagues<sup>86</sup> and Bowden et al<sup>95</sup> detected no infections among their respective cohorts of occupationally exposed HCWs. Mitsui et al detected evidence of HCV infection in 7 (10.3%) of 68 HCWs who had sustained occupational needlestick exposures using the most sensitive detection techniques of all of these studies.<sup>84</sup> The risk for patient-to-provider infection following a parenteral exposure to blood from HCV-infected patients thus appears to be intermediate, falling between the risks associated with exposures to blood from a hepatitis B e-antigen-positive patient and the risk associated with exposure to blood from HIV-infected patients. To our knowledge, provider-to-patient transmission of HCV has been detected only twice.<sup>37-39</sup> Thus, because only two instances have been identified and because the risk seems likely to be substantially smaller than for e-antigen-positive HBV-infected providers, we favor allowing HCV-infected providers to practice without restriction.

*Other bloodborne pathogens.* Finally, because no available evidence suggests a clear risk for transmission of other bloodborne pathogens (eg, human T-cell leukemia/lymphoma virus (HTLV)-1, HTLV-II, the agent or agents of non-A, non-B, non-C hepatitis, hepatitis D virus, hepatitis G virus, etc), SHEA favors allowing otherwise-qualified providers who are infected with these pathogens to practice without restrictions, unless evidence of provider-to-patient transmission is suspected.

### **Summary**

SHEA favors a comprehensive approach to managing HCWs identified as having a bloodborne pathogen infection, in the broader context of all institutional health and credentialing programs. Such an approach allows the assessment of the provider-to-patient transmission risks in appropriate perspective. Thus, reasons for broadly restricting practice should be based on (1) HBV e-antigen carriage, for the subset of activities previously linked epidemiologically to clusters of provider-to-patient HBV transmission despite the use of good infection control pro-

cedures; (2) medical conditions resulting in HCW incompetence (ie, inability to perform assigned tasks); (3) documented untoward events (ie, a HCW known to transmit HBV, HCV, or HIV despite following established guidelines to prevent transmission of infectious diseases); (4) HCW refusal to follow such guidelines; or, (5) HCW inability to perform regular duties, assuming that “reasonable accommodation” has been offered for this disability. The issue of increased susceptibility of an HIV-infected HCW to infectious diseases is complex and is discussed below (see section I.D.).

### **Recommendation**

Unless a practitioner is implicated in provider-to-patient HIV or HCV transmission, HIV or HCV infection per se does not constitute a basis for barring an HIV- or HCV-infected HCW from any patient-care activity, including invasive procedures (Category B-III). Healthcare institutions should develop comprehensive occupational health programs to manage impaired HCWs, including evaluation of workers’ fitness for duty, based on competence, ability to perform routine duties, and compliance with established guidelines and procedures (Category A-III).

HBV e-antigen-positive HCWs should double glove routinely and should not perform those activities that have been identified epidemiologically as associated with a risk for provider-to-patient HBV transmission despite the use of appropriate infection control procedures (Category B-II).

**I.C. How should HCWs identified as acutely or chronically HBV-, HCV-, or HIV-infected be managed?**

**I.C.1. Should additional education or training be mandated, and, if so, how can this be accomplished while maintaining HCW confidentiality?**

### **Background and Rationale**

All HCWs should be (1) educated to understand the mechanisms of bloodborne pathogen transmission, (2) taught methods to prevent transmissions, and (3) taught to apply those methods in all circumstances. Furthermore, an institution’s infection control program should include education for all HCWs on the importance of avoiding HCW-to-patient blood transfers. Based on current assessments of the magnitude of risk for HCW-to-patient transmission of HBV, HCV, and HIV and the small number of plausible mechanisms for HCW-to-patient transmission of these pathogens, mandating a special educational program for HBV-, HCV-, or HIV-infected HCWs is not justified. Institutions may con-

sider the option of providing, in a comprehensive occupational medicine program, voluntary, confidential expert counseling for infected providers.

### **Recommendation**

Required participation of HBV-, HCV-, or HIV-infected HCWs in pathogen-specific educational programs is not justified (Category B-III). All HCWs should receive comprehensive education about techniques useful in avoiding HCW-to-patient blood exposures (Category A-I).

#### **I.C.2. How should students and house officers identified as acutely or chronically infected with HBV, HCV, or HIV be managed?**

A special problem arises when a training institution becomes aware that a trainee is infected with a bloodborne pathogen. Each of these instances should be handled on a case-by-case basis, in consultation with the institution's legal counsel. To date, these cases have been handled unevenly across the country, with some institutions focusing on the disability-law aspects and others focusing on liability.<sup>96</sup> The law concerning these issues is changing rapidly and is relatively untested in the higher courts. The institution, however, does have responsibility to make certain that the trainee is fully informed about the risks—to both the trainee and his or her patients—that are associated with clinical practice. The institution should assist the trainee in selecting a career path best suited to her or his specific situation and should provide reasonable accommodation to students and trainees who have disabling conditions.

### **Recommendation**

Healthcare institutions should make certain that students and trainees are educated fully about the risks associated with the management of patients with bloodborne pathogen infections (Category A-III), as well as the potential adverse consequences that could ensue if they themselves are tested for these infections. All HCWs who are at risk for occupational exposure to blood should be immunized with the HBV vaccine, unless contraindicated (Category A-I). Institutions should assist students and trainees who are identified as infected with bloodborne pathogens in identifying and selecting career choices that are best suited to their individual strengths (Category A-I). Healthcare institutions should maintain the privacy and medical confidentiality of students and trainees identified as infected with bloodborne pathogens (Category A-III).

**I.C.3. Should the clinical competence of HBV-, HCV-, or HIV-infected HCWs be subject to specific monitoring programs, and, if so, how should monitoring be accomplished effectively while still maintaining HCW confidentiality?**

### **Background and Rationale**

SHEA believes that these bloodborne infections are managed best within a comprehensive institutional occupational medicine program that addresses the full variety of conditions that can reduce the mental and physical capacities of HCWs. Free-standing HBV-, HCV-, or HIV-monitoring programs are difficult to accomplish without risk for compromises in HCW privacy, whereas interventions taken in the context of a comprehensive occupational health service program might have been triggered by a variety of circumstances and thus are less likely to betray confidentiality. Occupational health services should use the same mechanism for managing providers with bloodborne infections that they would use for any impaired provider, whatever the impairment. Occupational health service procedures should be designed to avoid violating the privacy and confidentiality of their clients.

Ongoing assessment of the health of infected providers is handled best by the provider's primary-care physician. That physician must recognize the importance of addressing the occupational alternatives for infected providers. Optimally, the HCW's private physician, with the infected provider's assent, can establish a liaison with those responsible for overseeing the institution's employee-health program. This liaison will permit the occupational health clinician to stay informed about the status of the potentially compromising condition.

In the absence of an institutional liaison, an infected provider should seek counsel from her or his professional society, state or county medical association or society, private physician, or specialists in infectious diseases or hospital epidemiology regarding issues related to the practitioner's continued practice.

### **Recommendation**

No special monitoring efforts are needed for HBV-, HCV-, or HIV-infected persons (Category B-III); however, with the HCW's consent, the occupational health service should initiate contact with the care provider of any HCW who has a condition associated with risk for compromised competence (Category B-III). Contact should be made with the provider as needed to assess the progress of any of these medical conditions (Category B-III).

**I.C.4. Should healthcare institutions use special information-management practices to maximize the privacy or confidentiality of HCW staff who are infected with bloodborne pathogens?**

**I.C.4.a. Should healthcare institutions have special procedures for the management of the medical records of an HCW who has HBV, HCV, or HIV infection or another medical problem?**

### **Background and Rationale**

These issues were dealt with in depth in our prior article<sup>7</sup> and essentially remain unchanged. We again emphasize the importance of maintaining confidentiality of employees' medical records, particularly in light of the varied state responses to the 1991 CDC guidelines<sup>20</sup> and the federal legislation drawn from these guidelines.

### **Recommendation**

Healthcare institutions, workers' compensation programs, and insurance providers must undertake special efforts to maximize the privacy and confidentiality of HCWs (Category A-III). When an HCW is receiving occupational health support at the institution where he or she works, every effort must be made to segregate his or her occupational health records from routine hospital medical records, including exclusion of information about the HCW's condition from the institutional computer system (Category A-III).

#### **I.C.4.b. Should healthcare institutions have special procedures for the internal disclosure of information about HBV-, HCV-, or HIV-infected HCWs practicing at the institution?**

### **Recommendation**

The institution must place the highest premium on the maintenance of HCW privacy (Category A-III). Institutional policy should specify explicitly which personnel, if any, need to be aware of an HCW's bloodborne pathogen infection in various situations (Category A-III). In most situations, coworkers and supervisors do not have a need to be aware of an HCW's medical problems (Category A-III). In instances in which other employees are aware of an employee's infection, those employees should have explicit instruction that no additional persons should learn about the infection, unless the infected HCW gives his or her permission for such disclosure (Category A-III).

#### **I.C.4.c. Should healthcare institutions have special procedures for making public statements regarding HCWs who are infected with bloodborne pathogens?**

### **Recommendation**

A healthcare institution must place the highest premium on the maintenance of HCWs' privacy (Category A-III). Institutional personnel should not disclose specific information, including presence, absence, or precise numbers of HCWs who are infected with bloodborne pathogens, because disclosure of such information may lead to inadvertent breaches of confidentiality (Category A-III).

#### **I.D. Does the increasing potential for opportunistic infection associated with progression of HIV infection require further modification or restriction of an HIV-infected HCW's activities?**

### **Background and Rationale**

The issues associated with the secondary infectious disease processes in HIV disease are complex. HIV-associated opportunistic pathogens may be segregated into several transmission categories: (1) not transmitted from person to person (eg, *Toxoplasma gondii*, *Mycobacterium avium* complex, and *Cryptococcus neoformans*); (2) transmitted from person to person, but most individuals are exposed repeatedly and are colonized from infancy (eg, *Pneumocystis carinii*); (3) transmitted from person to person, but require fecal-oral exposure (*Salmonella*, *Cryptosporidium*, *Isospora*) or a major break in basic aseptic technique (eg, cytomegalovirus, herpes simplex virus); or, (4) transmitted from person to person by airborne or droplet spread (*Mycobacterium tuberculosis*, varicella-zoster virus [VZV], and measles virus). Concerns have been raised for both immunosuppressed patients who might be at risk for acquiring infection from HCWs who have opportunistic infections and for immunocompromised HCWs who might acquire these infections in the course of routine patient-care activities. Of particular recent concern has been the emergence and nosocomial spread of *Mycobacterium tuberculosis* isolates that are resistant to multiple antituberculous agents (MDR-TB).<sup>97-105</sup> Infection with MDR-TB is a major, often life-threatening, problem for immunosuppressed individuals. Institutions must develop educational programs that ensure that staff, including immunocompromised staff, are educated about the risks inherent in working with patients at increased risk for tuberculosis. The US Public Health Service recently issued detailed, revised guidelines concerning strategies to reduce the risks for transmission of *M tuberculosis* in the healthcare setting.<sup>106,107</sup> These guidelines provide general recommendations for the management of HCWs who have immunocompromising conditions and emphasize the importance of compliance with the Americans with Disabilities Act of 1990.

### **Recommendation**

Institutional policy should prohibit all HCWs who are susceptible to VZV, rubella, or measles from providing direct patient care to patients who have active VZV infection, rubella, or measles (Category A-I).

Healthcare institutions should require that HCWs who have signs and symptoms consistent with

pulmonary tuberculosis be evaluated for active tuberculosis (Category A-I). For all HCWs known to have impaired cellular immunity, irrespective of the underlying cause, institutional occupational medicine personnel should maintain an increased index of suspicion for opportunistic infections, and especially for tuberculosis, in settings in which the prevalence of these infections is high (Category A-III).

Assignment of duties for HCWs who are known to have compromised immunity should be made in collaboration with the HCW and her or his primary physician; when assignments must be altered, the new assignment must provide "reasonable accommodation" to the compromised HCW (Category A-III).

## SECTION II. DISCLOSURE ISSUES

### **II.A. Are there any medical settings in which HBV-, HCV-, or HIV-infected HCWs should be required to notify patients of their infection status, and, if so, what are the circumstances requiring notification?**

#### ***Background and Rationale***

Our position on these issues essentially remains unchanged. The American Hospital Association Bill of Rights argues for disclosure of relevant information to patients,<sup>108</sup> and the American Medical Association Council on Judicial Affairs also includes a general statement in favor of patient disclosure.<sup>109</sup> Societal trends toward patients' rights are strong, and most patients feel that they have a right to know if their physician or other HCW is HIV infected.<sup>110</sup> Case law generally has concluded that informed consent includes disclosure of risks that may be perceived by patients as being important even if, by rational consideration, they are negligible.

Nonetheless, in our original article, we concluded that a requirement for such disclosure very likely would require an HCW to abandon healthcare work—an unwarranted outcome in light of our current understanding of the risks for HCW-to-patient transmission of these bloodborne pathogens. Despite the requirement detailed in the 1991 CDC guidelines<sup>20</sup> that patients who are to have "exposure-prone invasive procedures" performed by HIV-infected or e-antigen-positive HBV-infected practitioners be notified of the practitioner's infection status prior to the procedure, SHEA feels that such a position is unwarranted. In the absence of an adverse patient exposure to blood or blood-containing body fluids (discussed below), the risk for HCW-to-patient transmission is so small that it cannot be measured accurately, and the jeopardy to an infected HCW's career is so overwhelming that routine disclosure does not appear justified.

#### ***Recommendation***

With the exception of situations in which a patient clearly has been exposed to an HCW's blood or other hazardous body fluid, HBV-, HCV-, and HIV-infected HCWs should not be required to disclose their infection status to any patient (Category B-III).

### **II.B. How should an HCW respond to a direct inquiry about his or her or another HCW's bloodborne pathogen infection status?**

#### ***Background and Rationale***

If an HCW is asked about his or her or another HCW's bloodborne pathogen infection status by a patient, the HCW should explain that, in the absence of a clear exposure to blood or hazardous body fluids, patients are at extremely low risk to acquire bloodborne infections. HCWs should be encouraged to provide an indirect answer to all such questions regarding their own or a coworker's health and should be encouraged to refer such questions to the appropriate institutional management personnel. An institutional approach to questions regarding HCWs' HBV-, HCV-, and HIV-infection status maximizes the privacy and confidentiality of infected HCWs.

#### ***Recommendation***

HCWs should refer questions about their own, or a coworker's, health or bloodborne pathogen infection status to appropriate institutional management personnel (Category A-III).

### **II.C. Do coworkers have a need, or the right, to know the infection status of HCWs who are infected with bloodborne pathogens?**

#### ***Recommendation***

HCWs have no need to know the HBV-, HCV-, or HIV-infection status of coworkers (Category A-III).

## SECTION III. EXPOSURE MANAGEMENT

### **III.A. How should an HCW-to-patient blood or hazardous body fluid exposure be managed?**

#### **III.A.1. Should the HCW source of a patient exposure be required to undergo testing for bloodborne pathogen infection?**

#### ***Background and Rationale***

Should an HCW-to-patient blood exposure occur, the patient has a right to know the HCW's status with respect to infection with bloodborne pathogens for purposes of consideration of prophylaxis and to undertake steps to avoid subsequent transfers of bloodborne pathogens. Even in institutions in which patient-source testing after patient-to-HCW exposure is voluntary, there are differences in the HCW-to-patient context: (1) HCWs have a greater responsibility to their

patients than the converse, (2) the patient rarely has any personal responsibility for an HCW-to-patient exposure, and, (3) healthcare institutions have limited power to compel patients in any matter.

In this area, state policies and procedures vary substantially. Healthcare institutions electing to develop policies that compel source testing should make certain that such policies are legal in their jurisdiction and should apply such policies only to exposures for which scientific evidence establishes that HBV, HCV, or HIV transmission could occur. Voluntary testing might be encouraged in circumstances in which more marginal exposures have occurred. Although we support the principle, compulsory testing of source HCWs as a condition of further employment or receipt of credentials may not be possible in certain jurisdictions or because of local laws or negotiated contracts. Other sanctions, such as reprimands, denial of promotion, etc, should be considered.

### ***Recommendation***

An HCW who knows that he or she is the source of a significant patient exposure to blood or hazardous body fluid is obligated ethically to undergo testing for infection with bloodborne pathogens (Category A-III). Healthcare institutions should develop specific policies to deal with such exposures and should consider establishing sanctions for source HCWs who refuse testing for bloodborne pathogens (Category A-III). Such policies should be formally drawn and approved by institutional attorneys and governing boards (Category A-III).

#### **III.A.2. Should an inadvertently exposed patient be notified of the exposure?**

### ***Background and Rationale***

Because patients sustaining blood exposures are at risk for acquiring bloodborne infections, patients always should be notified of such occurrences. Needlestick transmission of HBV, HCV, and HIV infection all have been documented amply. Because negative serologic tests do not exclude the risk for transmission of bloodborne pathogens completely, any blood exposure creates a requirement for notification of the exposed patient. Notification also allows the exposed patient to have the option of receiving recommended postexposure chemoprophylaxis or immunoprophylaxis.<sup>20,111</sup> Institutions should designate a person to be responsible for informing an exposed patient and assuring patient follow-up. Ultimate responsibility for ensuring proper follow-up remains with the patient's physician, even if he or she is the source; however, we would not recommend that the source for the exposure be involved

in the counseling, informed consent process, or test explanation process. In light of the potential for conflict of interest, the hospital epidemiologist, infection control practitioner, or other staff knowledgeable about the risks and routes of transmission of bloodborne pathogens, as well as the counseling of individuals exposed to bloodborne pathogens, should be used for support and consultation.

### ***Recommendation***

An exposed patient should (1) be notified promptly about the exposure; (2) subsequently be notified of the outcome of the source HCW's HBV, HCV, and HIV tests; (3) receive expert counseling regarding the implications of the event; and (4) be offered effective postexposure prophylaxis (Category A-III). Institutions should establish policies requiring self-reporting to the infection control program or occupational health program and to the exposed patient's primary physician of HCW-to-patient blood or body fluid exposure (Category A-III). Irrespective of the mechanism for reporting, the exposed patient and his or her physician should be notified whenever HCW-to-patient blood or hazardous body fluid exposure has occurred (Category A-III). The exposed patient need not be notified of the source HCW's name or of the exact circumstances of the exposure, but should be provided enough information to understand the implication of the exposure fully (Category A-III).

#### **III.A.3. Should an inadvertently exposed patient be required to have baseline serologic testing?**

### ***Background and Rationale***

Although the exposed patient cannot be compelled to have such testing performed, and clearly may choose not to, such testing would help establish the basis (and some of the best evidence) for a claim against the institution or the practitioner. Exposed patients should be made aware of the potential value and detriment of negative and positive tests. For patients refusing testing (and consonant with state and local laws regarding testing), institutions should attempt to obtain informed consent from the patient to allow the institution to preserve a carefully labeled and dated baseline serum sample from the exposed patient. Although such samples cannot be tested against the patient's will, these samples ultimately represent important evidence in such a case. Patients refusing to consent to serum storage should be asked to sign a form noting their declination of both serologic testing and serum storage.

### **Recommendation**

Consonant with state laws, the exposed patient and his or her physician should be asked for consent to perform baseline testing for bloodborne infections (Category A-III). If consent is obtained, the patient's serum should be assayed for serologic markers of HBV, HCV, and HIV infection (Category A-III). If the patient refuses testing, the institution should ask the patient's permission to store available baseline serum from the patient (Category B-III). If the patient refuses both testing and serum storage, the patient should be asked to sign a formal declination (Category B-III).

#### **III.A.4. How should an inadvertently exposed patient be followed?**

### **Recommendation**

Exposed patients should be counseled regarding the risks for infection and the symptoms of acute HBV, HCV, and HIV infection (Category A-III), should be offered postexposure chemoprophylaxis or immunoprophylaxis (Category B-II), and should be followed in a manner analogous to the existing guidelines for HCWs who sustain occupational exposures to HIV or other bloodborne pathogens (Category A-III).

## **SECTION IV. TESTING ISSUES**

### **IV.A. Should all HCWs be tested routinely for HBV, HCV, and HIV infection?**

#### **Background and Rationale**

A strong case can be made that it is to the advantage of HIV-infected persons to be aware of their HIV infection, thus affording the infected individual the opportunity of enhancing his or her own health care. However, we examine here situations in which healthcare employment may establish additional bases for HIV testing. Rationales for testing may be ethical, legal, financial (eg, to strengthen a workers' compensation claim), or for the protection of the institution. To date, no evidence suggests that any of these reasons for routine testing of HCWs justifies the substantial burden of such a course.

Any discussion of HIV testing must include specification of the distribution of the HIV test results. To justify any degree of coercion, one must establish that the test outcome would produce contingent change and that the benefit from the change outweighs the compromise to privacy resulting from the distribution of the test results.

Virtually all groups have opposed routine HIV screening of broad HCW groups for infection control purposes, and, with the exception of specific instances in which testing should be required follow-

ing an adverse exposure, we know of no evidence that argues strongly to the contrary.

Because of the accumulating evidence that HBV infection can be transmitted to patients during certain healthcare procedures, we have taken the position that HCWs who are HBV e-antigen-positive should not perform the subset of invasive procedures that, despite the appropriate use of barriers and infection control procedures, have been linked epidemiologically to instances of provider-to-patient transmission of HBV (eg, vaginal hysterectomy, major pelvic procedure, cardiac surgery). For that reason, we therefore must recommend that the personnel who perform these procedures be aware of their HBV infection status.

### **Recommendation**

HCWs need not be screened routinely for HIV or HCV infection (Category A-III); however, HCWs who have community or occupational exposures to HIV or HCV should be encouraged to seek careful serologic follow-up for these exposures (Category A-I). HCWs who perform invasive procedures that have been linked epidemiologically to provider-to-patient HBV transmission should know their HBV serologic status; those found to be HBsAg positive should determine their HBeAg statuses (Category B-III). HCWs who are HBeAg positive should not perform procedures that have been linked epidemiologically to instances of provider-to-patient HBV transmission (Category B-III).

#### **IV.B. Are there any specific instances or circumstances (eg, job classifications, medical tasks, etc) in the healthcare setting in which HBV, HCV, or HIV seronegativity should be considered a prerequisite, and, if so, should mandatory screening programs be instituted for the relevant HCWs?**

#### **Background and Rationale**

Four years after publication of our initial position paper, SHEA again has concluded that available data do not provide a basis for mandatory proscription of any activity by an HIV- or HCV-infected HCW (see section I.B). Accordingly, no mandatory HIV or HCV screening programs are warranted.

With the exception of the military and programs in laboratories handling HIV, we remain unaware of any broad-based program in which the institution and implementation of mandatory screening programs for HCWs has been successful. A number of substantive impediments block successful implementation of such a program for HCWs. Institution of other kinds of screening programs has led uniformly to protracted litigation, and programs have not been implement-

ed without a clear demonstration of societal benefit. Mandatory screening programs also are intrinsically adversarial. Implementation of such a program would require such cumbersome procedures as picture identification cards, complex techniques to prevent blood-tube substitution, extensive procedures to maintain confidentiality, and recurrent testing at defined intervals. Finally, no HIV screening program assumes zero risk. The sensitivity of HIV-antibody testing is unknown, but clearly it is not 100%. Incident infections will not be detected until subsequent tests are performed.

### Recommendation

Mandatory HBV, HCV, or HIV screening of HCWs is not warranted (Category A-III). An HCW who knows that he or she is the source of a significant patient exposure to his or her blood or hazardous blood or body fluid is obligated ethically to undergo testing for infection with bloodborne pathogens (Category A-III).

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## Practical Healthcare Epidemiology

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# Intramural and Extramural Communication

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### ABSTRACT

Effective communication with hospital administrators, with medical staff, with the media, and with peers in healthcare epidemiology is a vital skill for hospital epidemiologists. This article will describe a number of practi-

cal ways to improve such communication based on the author's experience, on interviews with senior SHEA members, and on relevant articles from the literature (*Infect Control Hosp Epidemiol* 1997;18:364-368).

*Experience is the name everyone  
gives to his mistakes.*

—Oscar Wilde

*Lady Windermere's Fan*

### INTRODUCTION AND METHODS

Hospital epidemiologists must communicate regularly with hospital administrators, medical and nursing staff, and staff in other hospital departments. In addition, many hospital epidemiologists also must communicate with peers at scientific meetings and with collaborators from outside institutions such as other hospitals, medical schools, local and state health departments, and federal agencies such as the Centers for Disease Control and Prevention. Finally, hospital epidemiologists also might need to speak with members of the press or the public. Thus, effective communication is a vital skill for a hospital epidemiologist.

Basic principles of effective communication can be found in textbooks or may be taught in school, but there is little in the literature that specifically addresses the needs of a hospital epidemiologist. Articles, books, and courses may help hospital epidemiologists improve their communication skills. However, one usually learns to communicate more

effectively through hard experience. Therefore, to provide a broader background for this article, the author interviewed eight senior members of the Society for Healthcare Epidemiology of America (SHEA). These experts provided practical advice about improving intramural communication and dealing with the media. They also suggested ways to approach problems in presenting and publishing epidemiological data. The author collated their responses, his own experience, and relevant articles from the literature to form the basis of this article.

### INTRAMURAL COMMUNICATION

#### *Hospital Administration*

One of the hospital epidemiologist's vital functions is to communicate with administrators. The hospital epidemiologist must communicate regularly and effectively with administrators not only to solve ongoing problems such as outbreaks but also to maintain resources for the infection control program—perhaps even the salaries of the infection control nurse and the hospital epidemiologist.

The hospital epidemiologist needs a clearly defined chain of reporting and access to the chief administrator. This chain usually includes an administrative representative who is a member of the

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The author interviewed eight SHEA members by telephone, all of whom contributed practical suggestions and advice to this article: Robert Weinstein, MD, Glen Mayhall, MD, Bryan Simmons, MD, Michael Decker, MD, John Weems, MD, William Scheckler, MD, Joel Ehrenkranz, MD, and John McGowan, Jr, MD.*

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