

## **Educating Providers and Persons With Diabetes to Prevent the Transmission of Bloodborne Infections and Avoid Injuries From Sharps**

**American Association  
of Diabetes Educators**

**\*Currently there  
is a committee  
considering  
a revision of this  
Position Statement**

**I**n 1988 the American Association of Diabetes Educators (AADE) published a position paper on preventing the transmission of bloodborne pathogens, including the hepatitis B virus (HBV) and the human immunodeficiency virus (HIV). The 1988 position paper incorporated recommendations for universal precautions that had been released the previous year by the Centers for Disease Control and Prevention (CDC), which stressed that *all* patients should be assumed to be infectious for HIV and other bloodborne pathogens.<sup>1,2</sup> This precept is still the first rule for preventing bloodborne infections<sup>2,5</sup> and continues to be emphasized in the publication of this revised position statement, which reflects a review of the related literature that has been published since 1988.

Capillary testing for blood glucose concentrations necessarily involves an invasive procedure to obtain a blood sample. Injecting or infusing insulin may also involve contact with blood or serous fluid. Both healthcare providers and persons with diabetes can be exposed to bloodborne pathogens such as HBV, HIV, and hepatitis C virus (HCV) if they do not take proper precautions in handling the fluids (eg, blood and serous) and equipment of others.<sup>2,7</sup> Self-monitoring of blood glucose and screening for diabetes in high-risk populations may increase in the future.<sup>8,9</sup> Diabetes educators should be aware of the risk for transmission of infection in these activities.

Uncontained sharps (eg, needles and lancets) that are disposed of in residential settings may expose waste industry workers and the general public to injury or infection.<sup>10,11</sup> Safe disposal of sharps is also an issue of concern for diabetes educators.

Diabetes educators are challenged to communicate precautions for preventing injuries from sharps and cross-exposure of blood to all individuals involved in monitoring of blood glucose and disposal of sharps.<sup>10-13</sup> Whether in clinical settings, shopping malls, other public areas, or in the home, it is critical that safe practices be carried out consistently and thoroughly.

### **EPIDEMIOLOGY**

Exposure to contaminated blood is the single most important cause of HBV and HIV transmission in occupational settings<sup>3-5</sup> and has been implicated in the transmission of hepatitis C virus (HCV) as well.<sup>7</sup> The modes of transmission for HBV and HIV are similar; transmission routes and rates for HCV are not well established, although transmission following injury from medical sharps has been documented.<sup>7</sup>

The potential for contracting HIV through direct exposure to infected blood is lower than that for HBV, probably because concentrations of HBV are greater than HIV in the blood of individuals with these infections. Persons who have not had prior HBV vaccination or postexposure prophylaxis who receive a needlestick exposure from an individual who is positive for hepatitis B surface

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antigen (HBsAg) face a 6% to 30% risk of infection.<sup>4</sup> The risk of infection with HIV following one needlestick exposure to blood from a patient known to be infected with HIV is approximately 0.3%.<sup>5,14</sup>

Transmission of HBV among persons requiring blood glucose monitoring in clinical settings has been documented.<sup>15,16</sup> In 1990 the CDC reported an outbreak of hepatitis B among 27 patients with diabetes who were hospitalized in an endocrine unit.<sup>15</sup> Failure to change the platforms on a spring-loaded lancet device after it was used on an infected patient appears to have caused the transmission. The Food and Drug Administration (FDA) subsequently issued a safety alert in the fall of 1990 to warn care providers of the risk of cross-infection when platforms are not changed after each use.<sup>17</sup>

## **RECOMMENDATIONS**

Applying universal precautions when indicated, regardless of the setting (eg, clinic, summer camp, or home), is critical for preventing the transmission of bloodborne infections. Because HBV is both hardier and more infectious than HIV, recommendations for preventing the transmission of HBV also are effective for preventing transmission of HIV. Universal precautions should be followed in all situations in which a healthcare worker or other person might be exposed to human blood, blood-containing fluids, or human tissue.

Proper disposal of needles can reduce injuries to workers involved in waste disposal or recycling and minimize their exposure to bloodborne infections from needles that may be contaminated with a

virus. Educators should be aware that puncture injuries to waste industry workers from unsafe disposal of self-care syringes in home trash have been reported, although instances of disease transmission were not reported.<sup>10,11</sup> Diabetes educators and other providers of diabetes care are responsible for communicating effectively to all persons involved in glucose monitoring and insulin injection about appropriate practices for preventing injuries and transmission of bloodborne infections. Thus, communicating and reinforcing these practices to persons engaged in self-care should be considered a critical part of self-management education for such individuals. Diabetes educators should also be aware that their clients may test family and friends for diabetes and share meters, lancet-holding devices, or even lancets in the process. There is an anecdotal report of an HIV-infected woman who tested several family members and friends using lancets she had used herself; however, transmission of HIV was not reported.<sup>18</sup>

In the community, diabetes educators should work with departments of sanitation, recycling, and solid-waste management, as well as with health departments, health facilities, pharmacies, voluntary agencies, and other organizations to promote safe disposal of sharps and to increase the number of disposal options. In settings that have not promoted education about safe needle disposal, diabetes educators should identify local options that treat used sharps as medical waste (eg, disposal systems for household medical waste; returning the sharps to a practitioner's office, hospital,

pharmacy, or other medical setting) or advocate for the establishment of such options.

## **SUGGESTIONS FOR EDUCATING HEALTHCARE PROVIDERS AND PERSONS WITH DIABETES**

Education about the principles of universal precautions and specific infection control practices must be provided to all persons with diabetes and/or those involved in caring for persons with diabetes, including both healthcare providers and community workers engaged in screening or educational interventions. In addition, appropriate and locally specific education about infection control practices and safe disposal of used sharps must be provided to persons with diabetes who monitor their own glucose or take insulin. Actual practices of both healthcare providers and persons with diabetes should be reassessed regularly and follow-up reinforcement should be provided as necessary. Changes in clinical systems to accommodate these practices will be required in some settings.

Healthcare educators should communicate the following to providers and persons with diabetes:

### **Educating Healthcare Providers**

1. Educate healthcare coworkers about the epidemiology, modes of transmission, and prevention of bloodborne infections.<sup>2,4</sup>
2. Encourage healthcare workers to be vaccinated against hepatitis B if they are occupationally exposed to blood and other body fluids potentially contaminated with this virus.<sup>4,13,19</sup>
3. Always wear gloves when performing finger sticks.

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**4.** Wash hands with soap and water after removing gloves, after each client, and before leaving the work area. Wash hands immediately and thoroughly with soap and water if they become contaminated with blood or body fluids.

**5.** Use a lancet-holding device for monitoring blood glucose. When performing a finger puncture, direct the blood drop away from the face. Squeezing a puncture site to obtain an adequate amount of blood can cause a blood splash onto the face or mucous membranes.

**6.** In public or healthcare settings, consider selecting a single-use device that retracts the lancet upon puncture and is then discarded as medical waste.

**7.** If choosing a multiple-use lancet-holding device for the healthcare setting, select one with a disposable, single-use-only lancet and an endcap that encloses and retains the used lancet for proper disposal. Use a new lancet and endcap for each client. After each use of a multiple-use lancet-holding device, continue to wear gloves while cleaning the device thoroughly and disinfecting it with (a) a solution prepared daily containing 1 part household bleach to 100 parts water (approximately ¼ cup of bleach per gallon of tap water or 1 tablespoon per quart of water), (b) a hospital disinfectant chemical germicide registered with the Environmental Protection Agency (EPA), or (c) a commercially available hard-surface germicide solution containing at least 500 ppm free available chlorine (equivalent to a 1:100 dilution of common household bleach).<sup>2,4</sup>

**8.** Promptly place used lancets, endcaps, and platforms in a readily accessible, puncture-resistant container. Do not recap, bend, or break

used lancets because these practices are potential causes of needlestick injury. Disposal of the container should be consistent with current infection control procedures and institutional and local regulations.

**9.** Special precautions apply for glucose meters that must be used on multiple clients and that require the lanced finger to be brought to the surface of the meter. Continue to wear gloves while cleaning the device thoroughly after each use and disinfecting it according to manufacturers' recommendations (eg, germicidal preparation as described previously).

**10.** When the surface of any blood glucose meter is contaminated with blood, or if it seems at all possible that contamination has occurred, clean the affected area of the meter thoroughly while continuing to wear gloves (as described previously). Clean meters routinely (once a week) while wearing gloves.

**11.** Immediately and thoroughly clean countertops and surfaces that have become contaminated and disinfect with a germicidal solution (as described previously).

**12.** Report and manage accidental needle sticks and mucous membrane exposure in accordance with regulations established by the Occupational Safety and Health Administration (OSHA)<sup>19</sup> and recommendations promulgated by the CDC.<sup>4</sup>

## **Educating Persons With Diabetes**

**1.** Persons who practice self-care must *never* share syringes used for injection or lancets, lancet devices, or platforms used for glucose monitoring because this practice may transmit bloodborne pathogens if one of the users is infected.

**2.** Sharing of glucose meters is strongly discouraged. If persons *must* share a meter or lancet-holding device, they must clean and disinfect these devices between users.

**3.** Surfaces exposed to blood should be cleaned immediately with soap and water and then disinfected with a germicidal solution (as described previously).

**4.** State, county, and city ordinances regulate disposal of sharps in residential settings. The telephone numbers of resources such as health department and sanitation offices are listed in the government blue pages section of the phone book. Local or state ordinances take precedence over federal guidelines, such as those promulgated by the EPA, and may specify the type of container that may be used, require destruction of needle or syringe units, or prohibit disposal of sharps in household trash.

**5.** Used sharps should be treated as medical waste. Some communities have such programs for collection of medical waste. If these options are not available and if state or local regulations do not specify otherwise, used sharps should be disposed of in a puncture-resistant container labeled *Do Not Recycle* that is sealed and then placed in household trash. A screw-top container is preferable. Instructional information regarding sharps disposal for people with diabetes is available.<sup>20,21</sup>

## **EDUCATIONAL RESOURCE MATERIALS**

- Three publications are available from the EPA: *Disposal Tips for Home Health Care* for the general public (EPA530-F-93-027B) and for healthcare professionals (EPA530-F-93-027A), and *Handle with Care: How to Throw Out Used Insulin*

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*Syringes and Lancets at Home* (EPA/530-SW-90-039). These publications may be obtained by calling the EPA at 1-800/424-9346.

- A syringe disposal brochure for persons with diabetes can be obtained by calling the American Diabetes Association at 1-800/ADA-DISC.
- *Morbidity and Mortality Weekly Report* provides references for healthcare professionals and educational publications for the general public that can be obtained by calling the CDC National AIDS Clearinghouse at 1-800/458-5231.

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