THE DENTAL CLINICS OF NORTH AMERICA

Dent Clin N Am 47 (2003) 745–756

Legal issues for healthcare workers with bloodborne infectious disease

Helene S. Bednarsh, RDH, BS, MPH[a,*], Bennett Klein, ESQ[b]

[a]*HIV Dental, AIDS Program, Boston Public Health Commission, 774 Albany Street, Boston, MA 02118, USA*

[b]*Gay & Lesbian Advocates & Defenders, 294 Washington Street, Suite 301, Boston, MA 02108, USA*

Bloodborne disease transmission, as related to dental health care workers (DHCWs), is impacted by science, policy, and law. The risk of transmission is very low from a patient to a provider, between patients, and from a provider to a patient [1]. Although this consensus is supported by available data, the stigma and fear associated with HIV and other diseases drive public policy and judicial decisions to be influenced by emotion rather than relying solely on objective data. Despite evidence of decreasing injuries among DHCWs and despite evidence that, other than the 1990 case of HIV transmission, DHCWs have not been implicated in disease transmission [2], the United States Public Health Service (USPHS) has not updated its guidelines regarding infected health care workers [3]. The only USPHS update per se pertains to hepatitis C virus (HCV), which was published in 1997 and was not part of the original USPHS guidelines of 1991 [4]. However, many dental/medical and infection control organizations have updated their guidelines based on current scientific evidence.

The science

Data over the last decade indicate that the risk of health care worker (HCW) to patient transmission of bloodborne viruses, such as HIV, hepatitis B virus (HBV), or HCV, is extremely low. The Centers for Disease

* Corresponding author.
E-mail address: Helene_Bednarsh@BPHC.org (H.S. Bednarsh).

0011-8532/03/$ - see front matter
doi:10.1016/S0011-8532(03)00040-5

Control and Prevention (CDC) cites three conditions necessary for HCWs to be at risk for transmission of bloodborne viruses to patients:

1. The health care provider must be infected and have infectious virus circulating in the bloodstream.
2. The health care provider must be injured or have a condition (eg, weeping dermatitis) that provides direct exposure to infected blood or body fluids.
3. The injury mechanism or condition must present an opportunity for the provider's blood or body fluids to directly contact a patient's mucous membranes, wound, or traumatized tissue (recontact) [1].

There are few reports of provider to patient transmission. There have been no reports of HIV transmission by a dentist since 1991 and no reports of HBV transmission by a dentist since 1987 [5]. Before 1987, nine clusters of HBV transmission were attributed to dentists and eight of these nine dentists tested positive for HBV e-antigen positive [6]. These occurred during invasive procedures that increase the likelihood that a patient could become contaminated by blood from an injured provider [7]. There is a possibility that the degree of infectiousness (HBV e-antigen positive) affected the risk of transmission, although other factors may have contributed, such as breaches in infection control. There has never been a report of hepatitis C transmission by a dentist.

Of the transmissions reported outside of dentistry, the majority still involves HBV. "Nearly all known cases of HBV transmission in the United States occurred before hepatitis B vaccination was available or widely used and before standard (universal) precautions were implemented" [1]. Even with high vaccination rates and increased adherence to standard precautions, there have been continued reports of HBV transmission by surgeons, suggesting that some risk of transmission still remains [8].

There have been no reports of HCV transmission by dentists or surgeons in the United States. There have been three reports of provider transmission outside the United States [9]. Thus, although limited, the available data imply that the risk of HCV transmission from an infected provider to a patient is very low.

There have only been two reports of confirmed provider HIV transmission: one in the United States in 1990 and one in France in 1997 [10]. The CDC has summarized data on 22,759 patients of 66 health care professionals with HIV infection (excluding the one dentist from 1990) through December 2000. Included among these providers are 29 dentists and dental students [11]. The results of this investigation suggest that no HCW has been implicated as the source of patient infection, validating the assumption that the risk of transmission is extremely low. These data argue against routine testing of HCWs for bloodborne viruses or for restriction of their duties.

The consensus is that transmission can be prevented by the following:

1. HBV vaccination, which is a primary prevention strategy and most likely is responsible for the 90% decrease in HBV infections in HCWs since 1985 [12]. A majority of younger dentists has completed the vaccination series and as the dental population ages, those dentists not protected will be replaced by those who are.
2. Strict adherence to standard precautions, especially handwashing, use of personal protective equipment, safe handling of sharps and double-gloving as procedurally indicated [13], which minimizes the risk of transmission.
3. Modification of technique to use safer work practices such as restricting the use of fingers during anesthetic injections and suturing, and the use of engineering controls such as safety devices, thus preventing percutaneous injuries.

In addition, evaluations of transmission events have provided information on possible mechanisms of transmission and have demonstrated the role of universal precautions in preventing infection. More engineering controls and safer work practices have been introduced, and the data indicate that the risk of occupational exposure has thereby been reduced. There also is more information regarding HCV transmission than has previously been available.

The widespread use of HBV immunization has certainly reduced the risk of HBV transmission. The role of adherence to standard precautions is also evident. On a personal health basis, there is improved treatment and more options available for an HIV-infected HCW than there were in 1991. Additionally, there are tests to determine the viral load of an HIV-infected person that were not available before the mid-1990s. The 1991 guidelines discussed levels of infectivity affecting the risk of transmission but noted that, unlike HBV, there wasn't a laboratory test for increased HIV infectivity [3]. Indeed, one of the CDC's reasons for updating the postexposure management guidelines in regard to HIV infection is the number of antiretrovirals now available. And, if for no other reason, the guidelines need revision to include hepatitis C virus, about which little was known when the recommendations were released in 1991, and which was therefore not addressed in that policy. A consensus has developed within the profession that a new, comprehensive guideline is indicated.

Policy

In July 1991, the CDC published their first comprehensive guidelines relative to HIV/HBV–infected health care workers, "Recommendations for Preventing Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Patients During Exposure-Prone Invasive Procedures." Before this time there were no specific recommendations for an infected HCW, although CDC did recommend that HCWs know their status (to protect

their own health). The risk to patients was considered to be very low, and mandatory testing or restriction of work procedures was not recommended. The 1991 guidelines replaced all previous recommendations and were based on the following considerations:

1. Infected HCWs who adhere to universal precautions and who do not perform invasive procedures pose no risk for transmitting HIV or HBV to patients.
2. Infected HCWs who adhere to universal precautions and who perform certain exposure-prone procedures pose a small risk for transmitting HBV to patients.
3. HIV is transmitted much less readily than HBV.
4. Mandatory testing of HCWs for HIV, HBsAg, or HBeAg is not recommended [3].

The recommendations emphasized the significance of universal precautions to minimize the risk of transmission of HIV/HBV from an HCW to a patient, a patient to an HCW, and between patients. The importance of education and training of all staff, the use of the HBV vaccination, and the monitoring of compliance to appropriate infection control procedures were discussed as critical risk abatement measures [3].

The ''characteristics of an exposure prone procedure include digital palpation of a needle tip in a body cavity or the simultaneous presence of the HCW's fingers and a needle or other sharp instrument in a poorly visualized or highly confined anatomic site.'' Also, procedures associated with increased risk for provider injury need special consideration. HCWs who perform procedures associated with HBV transmission should know their HBV status. Procedures unlike these would have a lower risk of transmission of bloodborne pathogens. The problem was how to determine which procedures were exposure prone (EEP). This relied upon guidance from the medical and dental professions, which could not be provided. Therefore, although the guidelines recommended listing EEP, no such list exists [3].

Although most dental procedures are provided in confined spaces in the oral cavity, no specific exposure-prone procedures have been implicated in an injury. Injuries, when they occur, appear to be random, not procedure-specific events. There is no consistent evidence of specific dental injuries except, perhaps, those involving wire injuries during fracture reductions. And there are safer work practices that may be used to reduce these wire-associated injuries.

The issue of an HCW potentially infecting a patient with a bloodborne pathogen did not arise until July 1990, when the CDC reported on the possible transmission of HIV from an infected DHCW, Dr. David Acer, to a patient during the delivery of dental care [2]. Within a year, the likelihood that this had indeed occurred in the office of Dr. Acer was considered probable, as the count of those infected in his office rose from one to six [14].

This event generated public outrage, fueled by the media and Congress. In response to the Acer case, Congress pushed for a range of measures to "protect the public." In hearings in 1991 before the United States House of Representatives Subcommittee on Health and the Environment of the Committee on Energy and Commerce, the Vice-Chairman of the National Commission on AIDS, David Rogers, MD, testified that "concerns about HIV-infected health professionals are terrifying the public. After the institution of universal precautions in 1987, the transmission of HBV in health care settings decreased to nearly zero."

In a compromise measure, the Kennedy-Hatch Bill proposed to require that states be given 1 year to develop guidelines for HIV/HBV–infected HCWs or lose their public health service funding. PL 102-141, passed in October 1991, required states to adopt the CDC guidelines by either certifying adherence or submitting an equivalent proposal for review and acceptance by the CDC. By 1994 all states had complied; however, there was great variability with respect to what states considered to be an equivalent proposal. The literature suggests that the majority of states rejected mandatory testing, rejected patient notification, agreed with the use of expert review panels, and emphasized training, education, and the use of universal precautions [15]. There were discussions on the appropriateness of getting an informed consent from the patient if the HCW was positive for a bloodborne pathogen. Thus, the management of infected HCWs tends to be inconsistent and is often based on current state policy and emotions.

There have been no reports of transmission of HIV, HBV, or HCV among dental professionals since 1991. Thus, currently available data provide no basis for recommendations to restrict the practice of HCWs infected with HIV, HBV, or HCV who perform duties or procedures not identified as exposure prone and who are not previously implicated in transmission, provided that the infected HCWs practice recommended surgical/dental technique and comply with standard precautions and current recommendations for sterilization and disinfection. In addition, there are significant improvements in technology for dental health care settings, such as the availability of safer devices and safer work practices [16].

Observational studies of DHCWs have indicated a threefold decrease in the number of reported injuries from the mid-1980s to the present [17]. In observational studies by the CDC, among 17,000 anesthetic injections, there was only one needlestick and there were no injuries among 4000 oral surgery extractions [18]. Given that no injuries were observed in these studies, that in general the rate of injury has significantly decreased, and that most injuries when they do occur are outside the mouth, little opportunity remains for a dental provider to be associated with transmission. More dental facilities have policies and procedures intended to prevent transmission of bloodborne pathogens. Dental institutions are providing training in standard precautions, and students increasingly adhere to infection control procedures as a matter of course.

Although the CDC has not updated their 1991 guidelines, other organizations have developed more current guidelines.

The American Dental Association's (ADA) policy is that HIV infection alone does not justify limiting professional duties or automatically mandate disclosure unless the DHCW poses a risk of transmitting infection through noncompliance. The ADA's policies regarding HIV disease and infection control state that "current epidemiological evidence indicates that there (1) is no significant risk of contracting bloodborne diseases through the provision of dental treatment when universal precaution and recommended infection control procedures are routinely followed, and (2) that the practice of universal precautions is an effective means of reducing blood contacts that can result in bloodborne disease transmission, minimizing even further the already low risk of disease transmission in the dental office [19].

The ADA maintains that the welfare of the patient is the dentist's primary ethical obligation and recommends that a dentist who contracts any disease or becomes impaired in any way that might endanger patients or dental staff should consult with a physician or qualified authority and limit activities to those not considered a risk to patients or other health care providers. If there is an exposure incident wherein the dentist is the source individual, there is an ethical obligation to disclose bloodborne status to the evaluating health care professional and submit to testing as indicated. In addition, the ADA has determined that a dentist will be considered totally disabled if he/she discontinues practice because of a legal requirement to disclose his/her bloodborne pathogen status to patients. The ADA will assist and support infected dentists in career changes and encourage insurance carriers to provide disability benefits [19].

Because only one case of HIV and two cases of HCV involving HCWs have been reported since 1991, the Society for Healthcare Epidemiology of America (SHEA) does not advocate the restriction of duties for HCWs infected with these viruses. However, transmission of HBV continues to occur and, therefore, some restrictions may be indicated for HBV e-antigen positive HCWs performing invasive procedures, but not for routine procedures. HBV e-antigen positive HCWS should double glove routinely and not practice procedures "that have been identified epidemiologically as associated with a risk for provider-to-patient HBV transmission despite the use of appropriate infection control procedures" [13].

SHEA updated their recommendations for infected HCWs in 1997. These guidelines emphasize separate virus-specific management strategies, the use of appropriate infection control procedures, comprehensive education, worker confidentiality, reasonable accommodation, and recommend against mandatory testing for HIV or screening for HBV or HCV. Confidentiality must be maintained [13].

SHEA recommends against notification to patients of an infected HCW's status, except when there is an exposure incident. An HCW who is aware of "significant patient exposure to blood or hazardous body fluid is obligated

ethically to undergo testing for infections with bloodborne pathogens. Patients always should be notified of such occurrences.'' There should be a designated individual to manage patient exposures [13].

The case of an infected student is more complicated. Various institutions handle the infected student situation differently, ranging from denial of admission to removal from education or to modifications in the academic/clinical program. Fredekind et al [20] raised concern for dental training institutions in 1991, noting that there were no clear guidelines for students. He was especially concerned for the HbeAg positive dental school applicant and the necessity to balance the absolute need to protect patients against the ''career interests of the applicants. At the least, applicants should be made aware that the HbeAg (+) serostatus could exclude them from dental education.'' However, with respect to bloodborne pathogen status, no coherent and consistent policy exists [20].

The SHEA guidelines address students in institutions and suggest that management of infected students should be on a case-by-case basis. In 2001, The American College Health Association, the professional association for health care providers in colleges and universities, convened a conference to develop policy for students infected with a bloodborne pathogen. Their recommendations fall into four categories:

1. Disclosure: Applicants to health professional training institutions should be encouraged to know their bloodborne pathogen status and to consult with their primary care physician in this regard.
2. Testing: Applicants should not be required to disclose their status as part of an admissions process. Mandatory testing is not recommended, but mandatory hepatitis B immunization and hepatitis B surface antibody testing after vaccine administration to assure effective immunization are.
3. Exposure management: Schools should have appropriate exposure management programs. If the student is the source of an exposure, there must be immediate reporting and testing consistent with state laws/regulations. During the educational process, before any exposure, students should be educated as to their obligations and responsibilities, and
4. Curriculum modification: Applicants should review the institutions' policies to determine if they can meet the standards ''with (or without) reasonable accommodations.'' If reasonable accommodations are indicated, applicants should disclose their status. Schools should seek expert advice in these matters. Counseling is recommended with regard to situations that may occur during the student's career due to their bloodborne serostatus [21].

Accreditation standards address issues of immunization against HBV and appropriate education on infectious hazards and infection control. An applicant to or a student in a dental training institution should at least be

aware of the institution's policies regarding infected applicants or students. Training institutions may also have other issues affecting a student with a bloodborne pathogen. The concerns over liability and the ramifications of an infected student treating patients during their training may differ from concerns associated with licensed practitioners. The manner in which infected DHCWs are managed may be associated more with emotions and liability than with science.

The law

Employment discrimination has been a significant concern for DHCWs who are infected with bloodborne pathogens, particularly HIV. Although there have not been any published judicial decisions involving employment discrimination against HCWs with HBV or HCV, there have been several reported judicial cases of HCWs with HIV who have been terminated or had their duties restricted based on the employer's claim of a risk of disease transmission to patients [22]. These cases have involved surgeons, surgical assistants, and DHCWs.

Federal and state disability antidiscrimination laws provide the legal framework for claims of employment discrimination by HCWs who are infected with bloodborne pathogens. Title I of the Americans with Disabilities Act (AwDA) was passed by Congress in 1990 and prohibits discrimination against individuals with disabilities by private employers with at least 15 employees [23]. In addition, the Federal Rehabilitation Act of 1973 prohibits similar discrimination by any program or entity receiving federal financial assistance [24]. This statute typically applies to hospitals, most colleges and universities, and HCWs who accept Medicaid reimbursement. If any part of the institution receives federal funds, the entire institution is covered under the law [25]. Finally, states have disability antidiscrimination laws that are usually similar to their federal counterparts. Because of the similarities among these laws, this discussion focuses on the AwDA.

Disability antidiscrimination laws only protect individuals who have a "disability" as defined by the statute. The use of the term "disability" has been the subject of confusion among judges, the media, and the general public as well as the subject of frequent litigation under the AwDA. The notion that the AwDA prohibits discrimination only against individuals who are significantly debilitated or who appear outwardly ill reflects a fundamental misunderstanding of the statute. The purpose of the AwDA is to ensure that individuals who are capable of working are not prevented from doing so because of stereotypes and ignorance about a serious health condition [26]. Congress, however, did not specify any disease or condition as a "disability" in the text of the AwDA but rather used broad general language to fulfill the goal of prohibiting discrimination on the basis of a wide range of health conditions. Thus, the AwDA defines disability as "(A) a physical or mental impairment that substantially limits one or more

major life activities of such individual; (B) a record of such an impairment; or (C) being regarded as having such an impairment'' [27].

The United States Supreme Court ruled in *Bragdon versus Abbott* (1998) that an individual with HIV infection is covered under the AwDA's definition of ''disability,'' even if the person does not have an AIDS diagnosis or visible symptoms of disease [28]. Although the Supreme Court in *Bragdon* focused on the risks and complexities involved in the major life activity of reproduction, the breadth of the Court's analysis leads to the conclusion that HIV is a disability at every stage [29] and subsequent judicial decisions have construed HIV infection to be a disability [30]. Although the subject of less frequent litigation, most courts have ruled that HBV and HCV are disabilities under the AwDA or Rehabilitation Act [31]. Case law about coverage of individuals with HBV and HCV under the AwDA is still evolving, however, and some courts have excluded certain individuals with HBV or HCV from coverage [32].

Employment discrimination cases against HCWs with bloodborne pathogens have focused on the AwDA's ''direct threat'' defense. Under the employment provisions of the AwDA, an employer is not required to hire or retain an individual who poses a direct threat to the health or safety of others in the workplace [33]. Title I of the AwDA defines a direct threat as a ''significant risk to the health or safety of others that cannot be eliminated by reasonable accommodation'' [34]. The determination that a person poses a ''significant risk'' under the AwDA and the Rehabilitation Act requires ''findings of fact based on reasonable medical judgments given the state of medical knowledge, about (a) the nature of the risk, (how the disease is transmitted), (b) the duration of the risk (how long is the carrier infectious), (c) the severity of the risk (what is the potential harm to third parties), and (d) the probabilities the disease will be transmitted and will cause varying degrees of harm'' [35]. In *Bragdon versus Abbott*, the United States Supreme Court affirmed that determinations of direct threat must be based on objective, scientific information rather than subjective views or even good faith beliefs of an employer [36]. Moreover, in assessing the reasonableness of a decision about direct threat, the Supreme Court has directed lower courts to give special weight to the views of public health authorities such as the USPHS [36]. Moreover, it is significant that in the legislative history to the AwDA, Congress made clear that remote or speculative risks were insufficient to meet the direct threat test and employees were not required to prove that they posed no risk [37].

Not surprisingly, employment disputes involving claims of potential HIV transmission as the basis for a direct threat have focused on how to balance the severity of a risk with the probability that the risk will occur [22]. Contrary to Congress's mandate in the AwDA's legislative history that theoretical or remote risks cannot justify discrimination, the small number of courts addressing HCWS with HIV has ruled that even a theoretical risk of HIV transmission satisfies the direct threat test [22]. In essence, in these cases,

courts have ignored the extremely remote probability of the risk and have focused on the nature, duration, and severity of the risk. One court's reasoning in the case of an HIV-positive neurosurgeon who was terminated by a hospital is typical of the rulings in this area. In finding that the neurosurgeon posed a direct threat, the Court reasoned that "[a]lthough there may presently be no documented case of surgeon-to-patient transmission, such transmission is clearly possible. And, the risk of percutaneous injury can never be eliminated through reasonable accommodation... Thus, even if Dr. Doe takes extra precautions...some measure of risk will always exist" [38].

Two of the reported cases involve dentistry. In *Waddell versus Valley Forge Dental Associates, Inc*., the Court upheld the termination of an HIV-positive dental hygienist [39]. Relying on an impossible "zero risk" standard, the Court ruled that: "The combination of sharp instruments used by the hygienists and a patient's blood commonly being present indicate that the hygienist could cut or prick himself with such an instrument, pierce the skin of his protective glove, and transfer his blood into the patient's mouth, where it could come into contact with an oral cut or abrasion.... None of Waddell's medical experts, moreover, appear to dispute that transmission theoretically could happen, even though the risk is small and such an event never before has occurred" [39]. Similarly, in *Doe versus Washington University*, the court upheld the dismissal of an HIV-positive student from a dental school. The court reasoned that the risk of transmission was "low but existent" and upheld the dismissal because "*some risk* of transmission" cannot be denied [40].

These cases stand in sharp contrast to discrimination cases where a health care provider has refused to treat an HIV-positive patient based on claims of potential HIV transmission to the provider [41]. In those cases, courts have applied the identical direct threat test under the AwDA's public accommodation provisions [42]. In the patient cases, however, courts have ruled the exact opposite of the health care worker cases, reasoning that in spite of the severity of the potential harm, a low or theoretical risk is insufficient to justify discrimination against patients. In the Court of Appeals ruling in the *Bragdon* case, for example, the Court stated that "under the ADA a service provider...is not entitled to demand absolute safety" [41].

It seems difficult to reconcile the outcome in the health care worker cases, given the rulings in the patient cases and in light of Congress's clear directive that speculative or remote risks should not be the basis for discrimination. One explanation for the differing rulings is that courts believe that health care workers and patients are not similarly situated. Courts have pointed to the health care workers' ethical duty to first do no harm to patients as a basis for excluding even a theoretical risk [22].

Only a small number of courts have addressed the legal rights of HIV-positive health care workers [22]. There will undoubtedly be continued litigation and disputes about the proper balance of severity of harm and probability of occurrence in the application of the direct threat test, and it is likely that the United States Supreme Court will ultimately address that

issue. At present, because no court has yet articulated the view that HIV status alone cannot be the basis for adverse employment actions, HIV-positive health care workers who face potential job discrimination must consult with an attorney on employment-related issues.

Summary

The risk of bloodborne disease transmission in dental settings is very low. Available data support the low risk of transmission. The rate of occupational injuries among dental health care workers has decreased over the last decade and, other than the 1990 case of HIV transmission in a dental office, there have been no additional reports of bloodborne disease transmission by dental health care workers. However, public policy and judicial decisions focus less on science and more on emotion. Although many infection control organizations have updated their policies to remain current with science, the USPHS's policy remains as released in 1991. It would be prudent for these guidelines to be updated to reflect current scientific evidence and be inclusive for all bloodborne pathogens.

References

[1] Chiarello LA, Cardo DM, Panlilio A, et al. Risks and prevention of bloodborne virus transmission from infected healthcare providers. Semin Infection Control 2001;1(1):61–72.
[2] Centers for Disease Control and Prevention. Possible transmission of human immunodeficiency virus to a patient during and invasive dental procedure. MMWR 1990;39:489–93.
[3] Centers for Disease Control and Prevention. Recommendations for preventing transmission of human immunodeficiency virus and hepatitis b virus to patients during exposure-prone invasive procedures. MMWR 1991;40(RR-8):1–9.
[4] Centers for Disease Control and Prevention. Recommendations for prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease. MMWR 1998; 47(RR-19):1–38.
[5] Centers for Disease Control and Prevention. Outbreak of hepatitis B associated with an oral surgeon. New Hampshire. MMWR 1987;36:132–3.
[6] Centers for Disease Control and Prevention. Atlanta (GA): Hepatitis surveillance report. 1995.
[7] Shaw FE Jr, Barrett CL, Hamm R, et al. Lethal outbreak of hepatitis B in a dental practice. JAMA 1986;255:3260–4.
[8] Harpaz R, et al. Transmission of hepatitis B virus to multiple patients from a surgeon without evidence of inadequate infection control. N Engl J Med 1996;334(9):549.
[9] Estebon J, et al. Transmission of hepatitis C virus by a cardiac surgeon. N Engl J Med 1996;334(9):555.
[10] Lot F, Seguier JC, Fegueux S, et al. HIV transmission from an orthopedic surgeon to a patient in France. Ann Intern Med 1999;130:1–6.
[11] Robert LM, Chamberland ME, Cleveland JL, et al. Investigations of patients of healthcare workers infected with HIV. Ann Intern Med 1995;122:653–7.
[12] Mahoney FJ, Stewart K, Hu HX, et al. Progress toward the elimination of hepatitis B virus transmission among health care workers in the United States. Arch Intern Med 1997; 157:2601–5.
[13] AIDS/TB Committee of the Society for Healthcare Epidemiology of America. SHEA Position Paper, Management of healthcare workers infected with hepatitis B virus,

hepatitis C virus, Human Immunodeficiency Virus, or other bloodborne pathogens. Infect Control Hosp Epidemiol 1997;18(5):349–63.
[14] Centers for Disease Control and Prevention. Update: Transmission of HIV infection during invasive dental procedures – Florida. MMWR 1991;40:21–27,33.
[15] Bednarsh H, Davenport R. An analysis of state plans for preventing transmission of HIV/HBV in the delivery of health care services. APHA 125th Annual Meeting 1997. Indianapolis, IN: American Public Health Association. 1997.
[16] Beltrami EM, William IT, Shapiro N, Chamberland ME. Risk and management of bloodborne infections in health care workers. Clin Microbiol Rev 2000;13(3):385–407.
[17] Cleveland JL, Gooch BF, Lockwood SA. Occupational blood exposure in dentistry: a decade in review. Infect Control Hosp Epidemiol 1997;18:717–21.
[18] Cleveland JL, Lockwood SA, Gooch BF, et al. Percutaneous injuries in dentistry: an observational study. JADA 1995;126:745–51.
[19] Policy statement on bloodborne pathogens, infection control and the practice of dentistry. Adopted by the American Dental Association House of Delegates, October 1999.
[20] Fredekind RJ, Cuny EJ, Peltier B, Carpenter WM. The hepatitis B e-antigen positive dental school applicant. J Dent Educ 1999;63(10):766–71.
[21] Members of the Student Health Services at Academic Medical Centers Task Force. Bloodborne pathogen disease in health science students: recommendations from the Lexington Conference, November 6–7, 2000. J Am Coll Health 2001;50(3):107–20.
[22] *Waddell v. Valley Forge Dental Associates, Inc*., 276 F.3d 1275 (11th Cir., 2001); *Doe v. Univ. of Maryland Medical System Corp*., 50 F. 3d 1261 (4th Cir. 1995); *Bradley v. Univ. of Texas M.D. Anderson Cancer Ctr*., 3 F. 3d 92 (5th Cir. 1993); Estate of Mauro v. Borgess Med. Center, 137 F. 3d 398 (6th Cir., 1998); *Doe v. Washington University*, 780 F. Supp. 628 (E.D. Mo. 1991).
[23] 42 U.S.C. §§ 12101–12117.
[24] 29 U.S.C. § 794(a).
[25] 29 U.S.C. § 794(b).
[26] 42 U.S.C. § 12101.
[27] 42 U.S.C. § 12102(2).
[28] *Bragdon v. Abbott*, 524 US 624 (1998).
[29] Klein B. Legal issues related to HIV/AIDS. In: Eichner SJ, Criffin CM, editors. Legal rights of individuals with disabilities. vol. 2. 609 MCLE 2002.
[30] *See*, *e.g*., *Doe v. County of Centre, PA* 242 F. 3d 437 (3rd Cir. 2001).
[31] *See*, *e.g*., *White v. Bank of America Mortgage Corporation*, 2000 WL 1664162 (N.D. Tex.) (Hepatitis C as a disability); *Quick v. Tripp, Scott, Conklin & Smith*, P.A., 43 F. Supp. 2d 1357 (S.D. Fla. 1999) (Hepatitis C as a disability); *Roe v. District of Columbia*, 842 F. Supp. 563 (D.D.C. 1994) (Hepatitis B as a disability).
[32] *See*, *e.g*., *Qualls v. Lack's Stores, Inc*., 1999 WL 731758 (N.D. Tex.) (Hepatitis C not a disability for that plaintiff); *Boyer v. KRS Computer & Business School*, 171 F. Supp. 2d 950 (D. Minn. 2001) (''dormant'' Hepatitis B not a disability).
[33] 42 U.S.C. § 12113(b); 29 C.F.R. 1630.15(2).
[34] 42 U.S.C. § 12111(3).
[35] *School Bd. Of Nassau County v. Arline*, 480 US 273, 288 (1987); *Bragdon v. Abbott*, 524 US 624, 649(1998).
[36] *Bragdon v. Abbott*, 524 US 624, 649–50 (1998).
[37] *See* S. Rep. No. 116, 101st Cong., 1st Sess. 23 at 27 (1989); H.R. Rep. No. 101–485, pt. 2 at 56 and pt. 3 at 46 (1990), reprinted in 1990 U.S.C.C.A.N. 267 at 338 and 469.
[38] *Doe v. University of Maryland Medical System Corporation*, 50 F. 3d 1261, 1266 (1995).
[39] *Waddell v. Valley Forge Dental Associates, Inc*., 276 F. 3d 1275 (11th Cir., 2001).
[40] *Doe v. Washington University* 780 F. Supp. 628 (E.D. Mo. 1991).
[41] *See*, *e.g*., *Abbott v. Bragdon*, 107 F. 3d 934, 948 (1st Cir. 1997).
[42] 42 U.S.C. § 12182(b)(3).