ACOEM GUIDANCE STATEMENT

# HIV and AIDS in the Workplace


## Medical Center Occupational Health Section




From the early 1980s through 2006, an estimated 565,000 deaths from acquired immunodeficiency syndrome (AIDS) have occurred in the U.S., and approximately 1 million Americans are currently infected with human immunodeficiency virus (HIV).[1] Worldwide, more than 33 million are estimated to be infected, and during 2007 alone, AIDS caused the deaths of an estimated 2 million people, while 2.7 million became newly infected.[2] Of new HIV diagnoses during 2006 in the U.S., approximately 78% have occurred in persons aged 25 to 54, substantially impacting the American workplace.[1] One in six large U.S. worksites (>50 employees) and one in 15 small U.S. worksites (<50 employees) have had an employee or employees with HIV infection or AIDS.[3]

In addition to the sheer number of young people affected, the profound impact of AIDS upon the American workplace and the special attention garnered by the disease have stemmed from a wide range of sensitive medical, social, and political issues. From the onset of the epidemic, AIDS struck disproportionately members of certain stigmatized groups, such as gay men and intravenous drug abusers, triggering concerns in the workplace around confidentiality and discrimination. Because it is an infectious illness, widespread ignorance regarding disease transmission, particularly during the early years of the epidemic, led to an increased risk of ostracism at work. The episodic nature of an illness marked by recurrent opportunistic infections also presented difficulties to both employers and to those infected individuals trying to remain occupationally productive. Today, as more AIDS patients benefit from highly effective antiretroviral therapy, their reintegration into the workplace adds yet another layer of complexity.

Occupational and environmental medicine (OEM) physicians, uniquely positioned as medical professionals responsive to both employees and employers, play a pivotal role in addressing issues of HIV infection and AIDS in the workplace. This guidance statement of the American College of Occupational and Environmental Medicine (ACOEM) addresses general issues of HIV and AIDS in the workplace, including the role of the OEM physician within the context of the Americans with Disabilities Act (ADA) of 1990 and the Family and Medical Leave Act (FMLA) of 1993. In addition, workplace issues specific to the health care industry, including the infected health care worker, exposure prevention, and prophylactic therapy are addressed.

## ADA and FMLA

AIDS and HIV infection are considered disabilities under the ADA of 1990.[4–7] The Act applies to all employers with at least 15 employees working at least 20 weeks in the current or preceding calendar year, and expands upon the protections of the Federal Rehabilitation Act of 1973, which applied only to workplaces receiving federal funding.[8] Under ADA, discrimination is prohibited in all employment practices including recruitment, hiring, promotion, training, layoffs, pay, firing, job assignments, leave, and benefits. Only individuals who are qualified for a particular job and who can perform the job, with or without reasonable accommodation, are protected. Because the act applies to people with disabilities and perceived disabilities, ADA protects not only those who are infected with HIV, but also those who are perceived as such.[9,10]

The act requires that employers provide "reasonable accommodation" for disabled employees. Reasonable accommodation is a change or adjustment to a work environment that permits a qualified individual to participate in the job application process, to perform the essential functions of the job, or to enjoy the benefits and privileges of employment equal to those enjoyed by employees without disabilities. Reasonable accommodations must be provided only for known physical or mental limitations resulting from a disability.

If an individual with HIV infection or AIDS is temporarily unable to perform the essential functions of the job, she/he may come under the protection of the FMLA of 1993.[11] This legislation applies to employees with at least 1 year of service (>1250 work hours during the year) at a workplace with 50 or more employees within a 75-mile radius. Under FMLA, HIV infection and AIDS are considered "serious health conditions," which may qualify the affected individual for up to 12 weeks of unpaid leave per 12-month period. FMLA also provides unpaid leave

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for employees who must care for a spouse, child, or parent with a serious medical condition, including HIV infection and AIDS. Employees may be required to provide advanced notice when the leave is "foreseeable," and employers may require medical certification to support a request for leave, as well as second or third medical opinions at the employer's expense.

In order for individuals with HIV infection or AIDS to invoke the protections of either Act, the disclosure of medical information to the employer may be required. (Employers are not required to provide reasonable accommodation under ADA nor unpaid medical leave under FMLA if they are not informed that a disability or serious medical condition exists.) If an employee makes an employer aware of AIDS, HIV infection, or any other disability or serious medical condition, the law requires that information be held in strict confidence, and that it be maintained in a separate, locked file which is not part of the personnel file. The handling of sensitive medical information, as well as the complexities of designing reasonable accommodations and evaluating the appropriateness of FMLA leaves, is a process in which OEM physicians should play an integral role.

## Recommendations

- During the preplacement medical examination the OEM physician should inquire whether the newly hired employee is able to perform the essential functions of the job, and whether any accommodations are necessary. The physician should be familiar with both the employee's job description and the circumstances under which the employee will work. The decision to disclose HIV status is the prerogative of the HIV-positive individual, and the OEM physician should not inquire regarding HIV status, nor should HIV serological screening be undertaken as part of a preplacement examination.
- For employees reporting HIV infection or AIDS under ADA, reasonable accommodations might include modifying physical facilities to enhance access, restructuring jobs, changing schedules, or transferring marginal functions to another employee. The goal of accommodations in the general workplace is to address the medical needs of the affected employee, not to establish unnecessary precautions against HIV transmission to other workers. The special case of an HIV-infected health care worker is addressed in the next section. The OEM physician should work with administrative and supervisory personnel during the design and implementation process of workplace accommodations, as well as with the primary health care provider of the employee, to make certain that accommodations are appropriately implemented. Consistent with the ACOEM,[12,13] the OEM physician should not reveal to managerial/supervisory staff the employee's health condition, only the necessary work restrictions.
- More broadly, the OEM physician should be intimately involved in the development of institutional policies addressing AIDS and HIV in the workplace, assuring that at a minimum such policies encompass the requirements of ADA and FMLA, and that they are appropriate from medical and infection control perspectives.
- The OEM physician should assume a leadership role in the design and implementation of workplace educational programs around HIV infection and AIDS, making certain that such programs educate employees about the following: 1) HIV transmission and prevention; 2) nondiscrimination; and 3) the ADA and FMLA. Depending upon the specific workplace, employees should also be educated about the Standard (Universal) Precautions and the OSHA Bloodborne Pathogen Standard. The OEM physician should also serve as a resource to provide advice as needed to both employers and employees about HIV infection and AIDS, and be prepared to respond to an HIV- or AIDS-related medical problem with appropriate triage or care.

## The HIV-Infected Health Care Worker

According to the U.S. Centers for Disease Control and Prevention (CDC), 57 health care workers have acquired HIV due to workplace exposures, representing a tiny fraction of the thousands of health care workers who are HIV-positive.[14] Health care workers enjoy the same protections under the ADA and FMLA as do employees in other industries. However, because some perform medical procedures in which there is a small risk of viral transmission to patients, they are subject to additional guidelines.

Since the onset of the AIDS epidemic there have been two instances in which health care workers transmitted HIV to patients. The first was a well-publicized case in which a Florida dentist transmitted HIV to six patients in his practice.[15–19] More recently, a French orthopedic surgeon who likely became infected on the job in 1983 transmitted HIV to a patient on whom he performed a 10-hour surgical procedure in 1992.[20] Of the 982 other patients who underwent procedures with the same surgeon, serological testing revealed no other transmissions.[21] Numerous serological surveys of patients treated by other HIV-positive health care workers, including dentists, surgeons, obstetricians, and other physicians have revealed no other transmissions of HIV from health care workers to patients.[22–26] In contrast, more than 350 patients have become infected with hepatitis B following procedures by hepatitis B-infected health care workers.[27,28] Transmissions have taken place during dental procedures before widespread use of examining gloves, and during vagi-

nal hysterectomies, major pelvic surgeries, and cardiac surgeries, and nearly all transmissions were linked to hepatitis B e-antigen-positive health care providers. Clusters in which hepatitis C was transmitted from health care providers to patients have also been reported.[29,30] CDC has estimated that the risk for transmission of HIV or hepatitis B lies between 1/42,000 and 1/420,000.

On July 12, 1991, CDC issued guidelines addressing HIV and hepatitis B infection of health care workers, particularly among those who performed certain "exposure prone" procedures.[31] The guidelines stated that infected health care workers who adhere to universal precautions and who do not perform invasive procedures pose no risk for transmitting HIV or hepatitis B to patients, but that those who perform certain exposure-prone procedures pose a small risk for transmitting hepatitis B or HIV. Exposure-prone procedures were characterized as those in which a needle tip was digitally palpated in a body cavity or a health care worker's fingers and a needle or other sharp instrument or object are simultaneously present in a poorly visualized or highly confined anatomic site. Initial efforts to develop standard lists of procedures meeting these criteria were abandoned shortly after the guidelines were issued.

The guidelines stated further that health care workers performing exposure-prone procedures should know their HIV antibody status, and if nonimmune to hepatitis B, their hepatitis B surface antigen and hepatitis B e-antigen status. Health care workers infected with HIV or hepatitis B (and e-antigen positive) were further instructed not to perform exposure-prone procedures unless they had sought counsel from an expert review panel and been advised under what circumstances, if any, they might continue to perform these procedures. Such circumstances would include notifying prospective patients of the health care worker's seropositivity before they underwent exposure-prone invasive procedures. Mandatory testing of health care workers for HIV antibody, hepatitis B surface antigen, or hepatitis B e-antigen was not recommended.

Several court decisions have rejected health care workers' discrimination claims regarding forced alterations of medical practice.[32] The Fifth Circuit Court of Appeals held in 1994 that a hospital did not violate the Rehabilitation Act of 1973 in reassigning an HIV-positive surgical assistant to a position as procurement assistant in a purchasing department.[33] A New Jersey court held that a hospital's policy of restricting an HIV-infected surgeon's staff privileges was substantially justified by a reasonable probability of harm to the patient.[34] A U.S. District Court found in favor of a hospital which suspended, then reinstated a surgeon's privileges contingent on his informing patients of his HIV status before he performed an invasive procedure.[35,36]

A number of professional organizations also responded to the July 12, 1991, guidelines. The Society for Healthcare Epidemiology of America distinguished the very low potential for transmission of hepatitis C and HIV from the somewhat higher potential for transmission from a hepatitis B e-antigen positive health care worker performing invasive procedures. The Society for Healthcare Epidemiology of America also stated that patients should not be informed of a surgeon's serological status unless a clear exposure had taken place.[37]

The American College of Physicians and the Infectious Disease Society of America generally reflected the CDC Guidelines, but stressed the need for case by case evaluations of practice restrictions and the ethical obligations of individual physicians.[38] The American College of Surgeons distinguished between HIV and hepatitis B, stating that HIV-infected surgeons should be allowed to continue to practice and perform invasive procedures unless there were clear evidence that a significant risk of transmission existed, but that surgeons who were hepatitis B e-antigen positive should seek counsel from an unbiased expert review panel.[39,40]

In contrast, the American Academy of Orthopedic Surgeons stated that HIV-infected orthopedic surgeons should not perform invasive surgical procedures where there is substantial risk that the patient will come into contact with the surgeon's blood. American Academy of Orthopedic Surgeons was the only professional organization which sought to define "exposure-prone" procedures, characterizing them as those of long duration involving blind probing or use of internal fixation devices or implanted wires.[41] The American Hospital Association stated that if an expert panel has already made a determination that a health care worker poses no reasonable risk to a patient, disclosure of the health care worker's infection status unnecessarily invades the health care worker's privacy. The American Hospital Association stated further that providing patients with the HIV status of their caregivers is unacceptable.[42]

## Recommendations

In consideration of the minimal additional evidence for transmission of HIV from health care workers to patients in the years since CDC's Guidelines were issued, ACOEM makes the following position statement with regard to the HIV-infected health care worker:

- The HIV-infected health care worker should practice standard (universal) precautions at all times. HIV-infected health care workers who carry out invasive procedures should double glove during all procedures and minimize to the extent possible digital palpation of needle tips and blind probing in poorly visualized or highly confined anatomic sites. Surgical gloves should be changed following portions of surgical procedures linked with glove failure, such as tying sternal wires or forceful contact with sharp

edges. Surgical gloves should be changed at least every 2 hours during longer procedures.
- Based on the accumulated evidence, ACOEM does not consider that any invasive medical procedure has distinguished itself as "exposure-prone" with respect to HIV transmission from health care worker to patient. Hence, ACOEM finds no basis to otherwise restrict the practice of health care workers infected with HIV who perform invasive procedures, and does not support notification of patients of a health care worker's HIV status unless an exposure has taken place.

## HIV Exposure Prevention

During 2001, the Needlestick Safety and Prevention Act was incorporated into the OSHA Bloodborne Pathogens Standard (29 CFR 1910.1030).[43,44] The amendment requires that employers review and update their Exposure Control Plans required under the Bloodborne Pathogens Standard to "reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens," and "document consideration and implementation of appropriate commercially available and effective safer medical devices designed to eliminate or minimize occupational exposure." In addition, employers are required to establish and maintain a sharps injury log to record percutaneous injuries from contaminated sharps. The log must be maintained in such a manner as to protect the confidentiality of the injured employee and it must contain information regarding: 1) the type and brand of device involved in the incident; 2) the department or work area where the exposure incident occurred; and 3) an explanation of how the incident occurred. Employers must also solicit input from non-managerial employees responsible for direct patient care to assist in identifying, evaluating, and selecting effective safety devices and work practice controls.

The Needlestick Safety and Prevention Act was the federal government's response to a substantial body of evidence that safer medical devices are associated with reductions in percutaneous injuries among health care workers. Significant reductions in injury rates among health care workers have been demonstrated for phlebotomy devices with engineered safety features and for needleless intravenous delivery systems.[45–48] Several studies have documented reduction in percutaneous injury rates among operating room staff following implementation of blunt needles for certain procedures.[49–51] In addition, a number of studies have demonstrated the benefit of educational programs addressing safe use of phlebotomy equipment and safe methods of operating room instrument usage.[52–57]

### Recommendations

- ACOEM embraces the amended Bloodborne Pathogen Standard as an effective piece of legislation to reduce percutaneous injuries and the risk of bloodborne pathogen transmission to health care workers.
- OEM physicians in practice settings where employees have potential bloodborne exposures should involve themselves substantially in workplace education efforts addressing bloodborne pathogen exposure reduction. Such educational programs should address standard (universal) precautions, proper usage of specific medical devices, and procedures for immediate exposure triage.
- OEM physicians should take a leadership role in identifying and implementing safety devices in the workplace, conducting institutional reviews of sharps injury logs to determine the circumstances under which exposures occur, and working with other professionals in the health care setting toward effective solutions.

## Acute Exposure to HIV

On June 7, 1996, the U.S. Public Health Service (USPHS) published provisional recommendations for chemoprophylaxis after occupational exposure to HIV, which were made final May 15,1998, and updated June 29, 2001, and September 30, 2005.[58–61] The USPHS recommendations were based primarily upon a case-control study of health care workers who seroconverted following HIV-positive blood exposures, a clinical trial of zidovudine administration to HIV-positive pregnant women, and a number of animal studies of antiretroviral prophylaxis. The case-control study assessed risk factors for seroconversion in 33 health care workers who became HIV positive following bloodborne occupational exposure to HIV.[62,63] Compared to a control group who did not seroconvert, cases were significantly less likely to have used anti-retroviral prophylactic medication (zidovudine) when adjusted for other HIV transmission risk factors. The second study cited in support of the guidelines was the AIDS Clinical Trials Group protocol 076, in which zidovudine was administered to HIV-positive pregnant women.[64,65] The trial was halted due to the markedly lower transmission of HIV to the fetus in the treated versus the placebo group (7.6% transmission in treatment group, 22.6% transmission in placebo group, $P < 0.001$). Viral load testing at a later date revealed that a relatively small proportion of the difference could be attributed to reduction in maternal viral load, suggesting that zidovudine may have acted prophylactically in the fetus.[66] Animal studies have shown mixed results, but generally have demonstrated a greater effect when medications were administered immediately following exposure.[67–70]

The current guidelines stratify exposed health care workers into risk levels based on source patient characteristics and nature of exposure. Combination therapy with antiretroviral agents is tailored to risk level and probable patterns of resistance in the source patient virus.

Several authors have reported on the experiences of large medical centers in implementing the USPHS

guidelines, pointing out a number of challenges for the OEM physician practicing in such settings. More often than not, the HIV status of the patient to whom the health care worker is exposed is not known at the time exposure occurs. Because of frequent logistic difficulties in obtaining blood from the source patient, many health care workers receive prophylaxis as a precautionary step while awaiting source patient HIV testing. Most such individuals are later demonstrated to have been exposed to HIV-negative source patients, and are treated for fewer than 4 days.[71,72] However, despite the importance of source patient serological testing, some authors have reported that it is obtained in only about 50% of cases.[73,74]

Because prophylactic medications should be administered as rapidly as possible, emergency departments are often relied upon to carry out the initial evaluations of exposed health care workers on nights and weekends when on-site occupational health clinics are not open. This requires both familiarity of emergency department clinicians with the USPHS Guidelines and concerted efforts to coordinate follow-up testing, treatment, and counseling. Coordination of exposure evaluation and treatment by the OEM physician is even more challenging when occupational health clinics serve exposed personnel who do not work within the hospital environment, (eg, police officers, firefighters, and nursing home employees), or when they serve health care workers employed in HIV-endemic areas of the developing world where antiretroviral medications may not be immediately available in the event of exposure.[75]

Although the USPHS guidelines are based on best evidence to date, ACOEM recognizes that issues remain to be resolved regarding whether and to what degree combination antiretroviral therapy may benefit HIV-exposed health care workers. To date, epidemiological studies of prophylaxis in health care workers have evaluated only the effect of zidovudine,[62,63] although recent studies reveal possible benefit of combination antiretroviral therapy following potential non-occupational exposure to HIV through sexual contact or injection drug use.[76] Laboratory studies of health care workers exposed to HIV also leave unanswered questions. It has been shown that individuals exposed to HIV who do not seroconvert may develop markers of T-cell mediated response to the virus,[77–79] but that HIV-exposed health care workers treated with antiretroviral prophylaxis are less likely to develop the response.[80] It is not known whether that indicates non-viability of the virus in the setting of early prophylactic therapy. To date, there have been 22 cases of HIV seroconversion among health care workers despite use of prophylaxis, and six of those cases were administered combination therapy (Elise Beltrami, personal communication, March 2001). The side effects of antiretroviral prophylaxis also cannot be ignored. The recent report of an HIV-exposed health care worker who suffered fulminant hepatic failure requiring liver transplantation following antiretroviral prophylaxis with a nevirapine-containing regimen strikes a cautionary note.[81] Because a randomized, placebo-controlled clinical trial of antiretroviral prophylaxis is not likely to take place, judgment regarding the efficacy of currently recommended prophylactic regimens awaits the accumulation of sufficient numbers of exposed subjects for additional retrospective studies to be conducted.

## Recommendations

- OEM physicians who treat health care workers or other individuals with potential for exposure to bloodborne pathogens should thoroughly familiarize themselves with current CDC guidelines for evaluation and treatment of such exposures.
- OEM physicians should ensure that workplaces for which they have responsibility provide training for employees addressing immediate steps to take in the event of a potential bloodborne pathogen exposure. Medical coverage should be available 24 hrs/d to evaluate and treat exposures, assess exposure risk, provide counseling, and administer post-exposure prophylaxis where appropriate. OEM physicians who treat exposures should be familiar with the pharmacologic action, toxicities and drug interactions of antiretroviral medications.
- OEM physicians who treat workers with potential for exposure to bloodborne pathogens should be aware of possible drug resistance in the viral strains to which their patients are exposed, and combination antiretroviral therapeutic regimens should be designed appropriately. When exposure occurs to a source patient who may harbor resistant virus (based on that patient's clinical course, history of antiretroviral medication use, or patterns of viral resistance in a community), expert advice should be sought from an infectious disease physician, ideally one familiar with the source patient's clinical course. Initial therapy, however, should not be delayed while an ideal therapeutic regimen is designed, and the OEM physician should strive to initiate prophylactic treatment as soon as possible following exposure.
- Although it has been recommended in the past that prophylaxis should begin within 1 to 2 hours following exposure, the time period after which initiation of prophylaxis is no longer indicated has not been established. When an exposed individual does not seek evaluation and treatment until many hours after exposure, initiation of prophylaxis may still be indicated, even if the interval since exposure exceeds 36 hours.
- Because the HIV serology of a source patient is often not known at the time of exposure, the OEM physician should base initiation of prophylaxis on an assessment of the likelihood of source patient HIV positivity. Testing of the source patient's blood should be

accomplished as quickly as possible and applicable state laws regarding that process should be followed. A rapid HIV assay, which can provide a result within hours, is recommended in order to minimize the amount of medication taken by individuals exposed to HIV-negative patients. Once the source patient is established to be HIV-negative, prophylaxis should be discontinued.

- Individuals exposed to HIV-positive source patients and prescribed antiretrovirals should be monitored for the specific side effects associated with those medications, and prophylaxis should be administered for a 4-week period. Serological follow-up to determine whether HIV seroconversion has taken place should be carried out at 6 weeks, 3 months, and 6 months after exposure. ELISA testing is currently considered to be the test of choice for such monitoring. If an individual is exposed to both HIV and hepatitis C, and becomes infected with hepatitis C, monitoring for HIV seroconversion should be extended to 12 months, due to a possible delay of HIV seroconversion in hepatitis C-infected individuals.[82]

## Summary

Since the onset of the HIV epidemic, AIDS and HIV infection have presented tremendous challenges to infected individuals seeking to remain productive in the workplace, to employers coping with the special needs of such individuals, and to physicians who treat and counsel exposed or infected personnel. OEM physicians should strive to ensure that employers are familiar with legislation and guidelines protecting the rights of infected employees, and support rational workplace policies applying to employees with HIV infection or AIDS. Where there is potential for occupational HIV exposure, OEM physicians should assure that adequate training around exposure prevention, triage, and treatment is provided. OEM physicians who treat individuals with occupational HIV exposures should involve themselves in institutional efforts to prevent exposures through use of safer devices and procedures, and should assure that immediate and adequate clinical evaluation of exposures is available at all times.

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