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# Editorial

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## HIV Transmission, Healthcare Workers and Media Hype

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Early in the acquired immunodeficiency syndrome (AIDS) epidemic, healthcare workers (HCWs) caring for AIDS patients recognized the potential for transmission of AIDS in the workplace. Discovery of the human immunodeficiency virus (HIV) and the development and application of serologic testing for HIV caused many HCWs to breathe a sigh of relief. A few were not so fortunate. The plethora of information related to HIV transmission published thus far has relieved most HCWs, for in fact the risk of nosocomial infection appears “low” and is seemingly related to direct exposure to blood.

However, recent events suggest a growing concern among HCWs related to their risk of occupational exposure and infection. Notably, a surgeon from San Francisco, California recently appeared on ABC’s “Nightline” and CBS’ “60 Minutes” and suggested that the occupational risk of HIV infection is underestimated by AIDS experts. The two programs alluded to or directly accused several AIDS researchers and agencies of obscuring data and misleading HCWs with regard to HIV transmission in the workplace. This national media attention properly jars HCWs into examining the facts and figures behind the statement that there is a “low risk” of becoming infected in the workplace. This editorial attempts to summarize the approaches employed to determine occupational risk of HIV and to put occupational risk and risk prevention in perspective.

Although several retrospective cases of occupational HIV infection have been reported, these reports provide little insight into the degree of risk per exposure. The best data related to HIV transmis-

sion have been derived from careful prospective epidemiologic studies. One approach to understanding HCWs’ risk of HIV infection is to look for evidence of HIV following accidental exposure to the virus. Several large prospective studies of work-related exposure to HIV have been reported.<sup>1</sup> In the largest study reported, 1107 HCWs were followed for more than six months by serologic testing after exposure to HIV. Of these, 3 became HIV-antibody positive, and one additional HCW was positive without a baseline test (0.36%).<sup>2</sup> In fact, of the 12 studies that investigated the outcome of accidental exposure to HIV in the workplace and were reported at the Vth International Conference on AIDS, none discovered a rate of HIV transmission higher than what had been previously described. Thus, the risk of infection following a percutaneous, skin or mucous membrane exposure to blood or body fluids from a patient with HIV infection or AIDS is known, and is about 1 in 250.

It is therefore reasonable to suspect that a cross-section of HCWs in a high prevalence area who have occupational exposure to HIV and no other risk behaviors would have a low rate of HIV infection. Gerberding, et al. investigated HCWs at San Francisco General Hospital. They found that 35% of the group had sustained accidental parenteral exposures from HIV-infected patients (342 episodes), yet none of 175 persons tested ten months after a baseline antibody test had developed HIV antibodies.<sup>3</sup> Dentists practicing in areas with high rates of HIV infection similarly show a low rate of occupational infection.<sup>4</sup>

Another approach to assessing occupational risk of HIV infection is to compare HCWs with AIDS and non-HCWs with AIDS. HCWs comprise 5.5% of the labor force, and not coincidentally, 5.5% of reported AIDS cases on whom information is available.<sup>5</sup> HCWs with AIDS have the same demographic background (age, sex, race) and reported risk behaviors as non-HCWs with AIDS, suggesting that their HIV infec-

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tion was acquired outside of work. Furthermore, in patients with AIDS who do not have an HIV risk behavior identified, HCWs are not over-represented when compared with non-HCWs. Among those HCWs without an identified risk, current studies indicate that there is no correlation between the job-related degree of blood exposure and the likelihood of HIV infection. However, one needs to exercise caution, for if the power of these studies is limited, it will require much larger studies to detect a difference if the risk is not large.

Similarly, employees in an African hospital were assessed for HIV infection. The incidence of infection was representative of the community and was not related to marked differences in the intensity of nosocomial exposure to blood or the type of patient exposures." Thus, the magnitude of risk of occupational HIV transmission is consistently low when evaluated by several different approaches. Current research needs to focus on defining the factors related to transmission so that the risk from a single exposure can be more accurately stratified. The type and severity of exposure, and status of the source patient (stage of illness, antiviral therapy, risk category, etc.) may play a role in transmission efficiency. Because the overall infection rate is so low, it may be impossible to determine the relative weight that each of these factors contributes to HIV transmission.

So why are some HCWs, particularly surgeons, discontinuing their careers or significantly altering their practices? It has been shown in several studies that surgeons are at increased risk of infection with hepatitis B virus relative to other HCWs,<sup>7</sup> and clearly the most intense exposure to blood occurs in the trauma and operative arenas. The cumulative risk of occupational HIV transmission to HCWs depends on the number of direct blood exposures from infected individuals. In view of this, it is a wonder that there are not more intense efforts to implement strategies minimizing accidents in the workplace. Simple measures to avoid needlesticks (no recapping needles), skin exposure (wearing gloves while drawing blood), mucous membrane exposure (protective eye coverings while producing splatters and aerosols) and avoiding operative accidents with scalpels and other sharp instruments (no hand passing of instruments) are not rigorously observed. We are fortunate that HIV transmission is inefficient in these settings. Continued and heightened emphasis on these preventative measures can not be overemphasized.

What roles do the media have in informing or alarming the public and HCWs regarding this issue? Traditional journalism must appeal to a large mainstream audience and rely on "authorities" for information and validation. News stories often rely on a single articulate spokesperson, and topics involving conspiracy or controversy are favored.<sup>8</sup> During a recent presentation at The University of Iowa Hospitals and Clinics it was implied that there is a politically motivated conspiracy by AIDS experts to ignore alternative views of HIV transmission. For example, the

speaker and handout stated that AIDS experts in 1983 had denied that blood transmission could occur.<sup>9</sup> While some individuals may have held that view in 1983, the official Centers for Disease Control publication (*Morbidity and Mortality Weekly Report*) made no such claims. In fact, in November 1982, guidelines were recommended to help prevent the transmission of AIDS for clinical and laboratory staff.<sup>10</sup> These guidelines have been refined and expanded five times in the subsequent seven years. However, the initial guidelines were remarkably complete in retrospect. They emphasized the potential for bloodborne transmission of AIDS and recommended measures to minimize HCW exposure. The sensational approach that questions the expertise of authorities in the context of implied prior mistakes creates distrust in present recommendations and belittles or ignores the substantial epidemiologic data highlighted above.

So what's the harm if sensationalism scares some HCWs into improved compliance with established guidelines? If that were the only outcome of this approach, most would have no argument with it. Unfortunately the fear and anxiety that naturally occur in dealing with HIV is heightened out of proportion to the documented occupational risk. This may well translate into decreased quality or access to medical care for HIV-infected individuals, and irrationally discourage HCWs from working in areas they fear place them at unacceptable risk of infection. Intensive reinforcement of the guidelines to prevent HIV transmission in the healthcare setting and efforts to improve compliance with practices that decrease the likelihood of accidental exposure to blood should have the highest possible priority. Fortunately, the risk of occupational infection with HIV has been demonstrated in extensive epidemiologic evaluation and is acceptable to most HCWs.

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