

AMERICAN ACADEMY OF PEDIATRICS

Committee on Sports Medicine and Fitness

Human Immunodeficiency Virus and Other Blood-borne Viral Pathogens in the Athletic Setting

ABSTRACT. Because athletes and the staff of athletic programs can be exposed to blood during athletic activity, they have a very small risk of becoming infected with human immunodeficiency virus, hepatitis B virus, or hepatitis C virus. This statement, which updates a previous position statement of the American Academy of Pediatrics,¹ discusses sports participation for athletes infected with these pathogens and the precautions needed to reduce the risk of infection to others in the athletic setting. Each of the recommendations in this statement is dependent upon and intended to be considered with reference to the other recommendations in this statement and not in isolation.

ABBREVIATIONS. HIV, human immunodeficiency virus; HBV, hepatitis B virus; HCV, hepatitis C virus; CI, 95% confidence interval; AAP, American Academy of Pediatrics; OSHA, Occupational Safety and Health Administration.

During sports participation, the blood of an athlete who is infected with human immunodeficiency virus (HIV), hepatitis B virus (HBV), or hepatitis C virus (HCV) may occasionally contaminate the skin or mucous membranes of other athletes or the staff of athletic programs. Common sense suggests that this likelihood is greatest in contact sports, but transmission can potentially occur indirectly or in noncontact sports. Even in contact sports, the very limited available data indicate that bleeding wounds are not necessarily common.²

HIV INFECTION

The risk of HIV infection via skin or mucous membrane exposure to blood or other infectious bodily fluids during sports participation is very low. The most relevant research has been conducted with health care workers, for whom the risk from skin or mucous membrane exposure is less than the risk from parenteral exposure, which is .2% to .3% per exposure (95% confidence interval [CI], .1%–.5%).³ The risk from exposure to mucous membranes or damaged skin determined from pooling 6 prospective studies was 1 infection in 1007 exposures, or .1% (95% CI, .01%–.5%). Such transmission appears to require, in addition to a portal of entry, prolonged

The recommendations in this statement are based upon present available knowledge. They do not indicate an exclusive course of treatment or serve as a standard of medical care. Laws vary from state to state and state law may dictate a different course of action for the physician or those in charge of an athletic program. Variations, taking into account individual circumstances, may also be appropriate.

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exposure to large quantities of blood.³ Transmission through intact skin has not been documented: no HIV infections occurred after 2712 such exposures in 1 large prospective study (95% CI, 0%–.1%).³ Transmission of HIV in sports has not been documented. One unsubstantiated report describes possible transmission during a collision between professional soccer players.⁴

HBV INFECTION

The HBV is more easily transmitted via exposure to infected blood than is HIV.³ In 2 studies of health care professionals who had percutaneous exposure to HBV-infected blood, the risk of infection was 27% and 45%; approximately 25% of cases were symptomatic. The risk of infection was greater if the blood was positive for HBV e antigen. The health care workers received immune serum globulin, and so some of them were protected from infection.^{5,6} Transmission of infection by contamination of mucous membranes or broken skin with infected blood has been documented, but the magnitude of risk has not been quantified.³

Although transmission of HBV is apparently rare in sports, 2 reports document such transmission. An asymptomatic high school sumo wrestler who had a chronic infection transmitted HBV to other members of his team.⁷ An epidemic of HBV infection occurred through unknown means among Swedish athletes participating in track finding (orienteering).⁸ The epidemiologists concluded that the most likely route of infection was the use of water contaminated with infected blood to clean wounds caused by branches and thorns.

An effective way of preventing HBV transmission in the athletic setting is through immunization of athletes. The American Academy of Pediatrics (AAP) recommends that all children and adolescents be immunized.⁹ Clinicians and the staff of athletic programs should aggressively promote immunization.

HCV INFECTION

Although the transmission risks of HCV infection are not completely understood, the risk of infection from percutaneous exposure to infected blood is estimated to be 10 times greater than that of HIV but lower than that of HBV.³ Transmission via contamination of mucous membranes or broken skin also probably has a risk intermediate between that for blood infected with HIV and HBV.³

SUMMARY

Because of the very low probability of transmission of their infection to other athletes, athletes infected with HIV, HBV, or HCV should be allowed to participate in all sports.

CONFIDENTIALITY AND OTHER LEGAL ISSUES

Confidentiality about an athlete's infection with a blood-borne pathogen is necessary to prevent exclusion of the athlete from sports because of inappropriate fear among others in the program. Except for the reporting required by law, the patient (and parent or guardian if the patient is a minor) must give informed consent for clinicians to share information about these medical conditions with a school or sports organization. Testing of athletes for these viral infections is not indicated. Infected athletes should be told that they have a very small risk of infecting other competitors. This risk, although unknown for any sport, is probably greatest in wrestling and boxing. Infected athletes can be encouraged not to participate in these activities or in others in which contamination of skin or mucous membranes with blood is relatively likely. This may also be protective for infected athletes themselves, reducing their possible exposure to blood-borne pathogens other than the one(s) with which they are infected.

The AAP opposes boxing as a sport for youth. Pediatricians should counsel athletes not to participate in this sport, whatever their infection status.

Athletic programs should inform athletes and parents that athletes have a very small but finite risk of contracting a blood-borne infection from another athlete. This is part of the duty to warn about risks of participation that is the responsibility of all athletic programs.

Pediatricians can avoid reporting the presence of infections with blood-borne pathogens by making it clear on the preparticipation form or elsewhere that they support the AAP policy, "Human Immunodeficiency Virus and Other Blood-borne Pathogens in the Athletic Setting," and that the AAP policy acknowledges that the physician should respect the right of infected athletes to confidentiality.

The US Supreme Court has not ruled specifically on the legality of excluding from competition an athlete who has a chronic infection with a blood-borne viral pathogen but has held that a person infected with a contagious disease may be handicapped and therefore entitled to protection from unlawful discrimination. On the basis of this authority, when considering whether an athlete infected with a blood-borne viral pathogen can be excluded from competition, an inquiry would have to be made "based on reasonable medical judgements given the state of medical knowledge" into whether the athlete poses a significant risk of communicating the disease to others in the competition that cannot be eliminated by reasonable accommodation.^{10,11}

PREVENTION OF INFECTION

Strict safety precautions are particularly important for those persons in athletic programs who provide

first aid and have repeated exposure to blood or other bodily fluids visibly contaminated with blood. Specific precautions are discussed in Recommendation 10 below. Other discussions of safety precautions appropriate for sports programs, with some additional information, are available elsewhere.^{10,12-14}

EDUCATION OF ATHLETES

Coaches, athletic trainers, and health care professionals can expand discussions about the risks of transmission of blood-borne viral pathogens during sports participation to teach athletes about how these pathogens are transmitted and how to prevent infection.

RECOMMENDATIONS

1. Athletes infected with HIV, HBV, or HCV should be allowed to participate in all competitive sports.
2. The physician should respect the right of infected athletes to confidentiality. This includes not disclosing the patient's infection status to other participants or the staff of athletic programs.
3. Athletes should not be tested for blood-borne pathogens because they are sports participants.
4. Pediatricians are encouraged to counsel athletes who are infected with HIV, HBV, or HCV that they have a very small risk of infecting other competitors. Infected athletes can consider choosing a sport in which this risk is apparently relatively low. This may be protective for other participants and for infected athletes themselves, reducing their possible exposure to blood-borne pathogens other than the one(s) with which they are infected. Wrestling and boxing, a sport opposed by the AAP, probably have the greatest potential for contamination of injured skin by blood.
5. Athletic programs should inform athletes and their parents that the program is operating under the policies in Recommendations 1 through 3 and that the athletes have a very small risk of becoming infected with a blood-borne pathogen.
6. Clinicians and the staff of athletic programs should aggressively promote HBV immunization among athletes and among coaches, athletic trainers, equipment handlers, laundry personnel, and any other persons at risk of exposure to athletes' blood as an occupational hazard. All athletes should, if possible, receive HBV immunization; >95% of those who receive this immunization will be protected against infection.⁹
7. Each coach and athletic trainer must receive training in first aid and emergency care and in the prevention of transmission of blood-borne pathogens in the athletic setting. These staff members can then help to implement recommendations made here.
8. Coaches and members of the health care team should educate athletes about the precautions described in these recommendations and about the greater risks of transmission of HIV and other blood-borne pathogens through sexual ac-

tivity and needle sharing during the use of illicit drugs, including anabolic steroids. Athletes should be told not to share personal items, such as razors, toothbrushes, and nail clippers that might be contaminated with blood.

9. In some states, depending on state law, schools may need to comply with Occupational Safety and Health Administration (OSHA) regulations¹³ for the prevention of transmission of blood-borne pathogens. The athletic program must determine what rules apply. Compliance with OSHA regulations is a reasonable and recommended precaution even if this is not specifically required by the state.
10. The following precautions should be adopted in sports with direct body contact and other sports in which an athlete's blood or other bodily fluids visibly tinged with blood may contaminate the skin or mucous membranes of other participants or staff members of the athletic program. Even if these precautions are adopted, the risk that a participant or staff member may become infected with a blood-borne pathogen in the athletic setting will not be entirely eliminated.
 - Athletes must cover existing cuts, abrasions, wounds, or other areas of broken skin with an occlusive dressing before and during participation. Caregivers should cover their own damaged skin to prevent transmission of infection to or from an injured athlete.
 - Disposable, water-impervious vinyl or latex gloves should be worn to avoid contact with blood or other bodily fluids visibly tinged with blood and any object such as equipment, bandages, or uniforms contaminated with these fluids. Hands should be cleaned with soap and water or an alcohol-based antiseptic handwash as soon as possible after gloves are removed.
 - Athletes with active bleeding should be removed from competition as soon as possible and the bleeding stopped. Wounds should be cleaned with soap and water. Skin antiseptics may be used if soap and water are not available. Wounds must be covered with an occlusive dressing that remains intact during further play before athletes return to competition.
 - Athletes should be advised to report injuries and wounds in a timely fashion before or during competition.
 - Minor cuts or abrasions that are not bleeding do not require interruption of play but can be cleaned and covered during scheduled breaks. During these breaks, if an athlete's equipment or uniform fabric is wet with blood, the equipment should be cleaned and disinfected (see below), or the uniform should be replaced.
 - Equipment and playing areas contaminated with blood must be cleaned until all visible blood is gone and then disinfected with an appropriate germicide such as a freshly-made bleach solution containing 1 part bleach in 10 parts of water. The decontaminated equipment or area should be in contact with the

bleach solution for at least 30 seconds. The area may be wiped with a disposable cloth after the minimum contact time or be allowed to air dry.⁹

- Emergency care must not be delayed because gloves or other protective equipment is not available. If the caregiver does not have the appropriate protective equipment, a towel may be used to cover the wound until an off-the-field location is reached where gloves can be used during more definitive treatment.
- Breathing (Ambu) bags and oral airways should be available for giving resuscitation. Mouth-to-mouth resuscitation is recommended only if this equipment is not available.¹²
- Equipment handlers, laundry personnel, and janitorial staff must be trained in proper procedures for handling washable or disposable materials contaminated with blood.^{9, 12}

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