Bloodborne Pathogen Control Efforts for Physical Education and Athletic Programs in Southern States

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The spread of Acquired Immune Deficiency Syndrome (AIDS) has become the most significant public health problem in the last two decades. Medical reports reveal approximately 1.5 million Americans are infected with HIV, the virus causing AIDS, with no known cure or preventive vaccination available for the disease. It is common knowledge that HIV attacks the body's immune system thus rendering the carrier susceptible to neurological problems, opportunistic infections and in most cases full-blown AIDS (Moss, et al., 1988).

The transmission of the life-threatening HIV virus is not the only bloodborne pathogenic concern of healthcare, educational and athletic personnel. Much less attention has been given to the more frequently occurring Hepatitis B virus (HBV), the major infectious bloodborne hazard facing our schools and society today. HBV infects approximately 8,700 healthcare workers annually (Coastal Video Communications Corporation, 1992). As with HIV, infected persons may be without visible symptoms or knowledge of having contracted the virus. The medical ramifications of HBV can be as serious, with severe damage to the liver, leading to cirrhosis and possibly death. Unlike with AIDS, a vaccination can prevent HBV if administered prior to or immediately after exposure.

Both bloodborne pathogens are transmitted by bodily fluids through direct routes of entry (e.g., unprotected openings in the skin, unprotected mucous membrane openings or penetration into the skin by a sharp object). Although the risk of acquiring these viruses through daily contact with active students and athletes may not be significant when compared to other forms of transmission (e.g., sharing intravenous drug apparatus, sexual contact or prenatal transmission), the risk still exists. Certainly physical educators, coaches, athletic trainers and equipment managers are exposed when healthcare services are provided to injured participants, particularly when blood is involved. Therefore, these professionals must be as knowledgeable as other healthcare professionals regarding the dangers of bloodborne pathogens and take precautions to reduce the risks of transmission to themselves and activity participants.

Various agencies have assisted health and sport professionals through dissemination of information and legislative support in control of bloodborne pathogens. The Center for Disease Control (1989) published recommendations for reducing the risk of transmission and guidelines for cleaning and disposing of blood and body fluid spills. These universal precautions include the use of disposable latex/vinyl gloves, proper waste management, disinfecting contaminated areas and handwashing.

Another abetting federal agency instrumental in the passage of laws protecting employees with risks of occupational exposure in all worksites, including public and private high schools, colleges and universities,

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is the Occupational Safety and Health Administration (OSHA). In 1991 OSHA introduced a federal standard for preventing the transmission of bloodborne pathogens in the workplace. The standard mandated establishing a written Exposure Control Plan, work practices and protective equipment (Rules and Regulations, 1991; "For Your Protection," 1992). The Occupational Exposure to Bloodborne Pathogen Standard became effective in March, 1992. In July, 1994, the standard was reinforced by the Public Employees Risk Prevention Act requiring employers to educate and provide procedures for all public employees who may be exposed to blood or infectious materials. Under penalty of law, with fines of up to $70,000 for non-compliance, employers must protect against occupational exposure to the HIV and HBV viruses and other bloodborne pathogens (O'Theary, 1995). On the collegiate level, the NCAA endorsed the standard and immediately informed its members to establish procedures for compliance.

Despite national occupational exposure laws and the abundance of literature on the subject, a question remains as to the extent of compliance that exists in the public school setting, particularly in physical education and athletic programs. State and local educational administrators are obligated to provide pertinent education for public school employees and to establish a control plan for inhibiting bloodborne pathogen transmission. Provisions of informational training sessions, adequate protective equipment and HBV vaccinations are employable strategies for accomplishing this goal and should be implemented.

In view of this background information, the purpose of this study was to determine the roles assumed by state departments of education in bloodborne pathogen exposure control to protect public school physical educators and athletic coaches from contracting the dangerous HIV and HBV viruses.

METHODS

Subjects

State departments of education in the Southern District of the American Alliance for Physical Education, Health, Recreation and Dance (SDAAHPERD) comprised the study's population. The subjects were the 14 state physical education or HIV directors identified through the SDAAHPERD Directory. The contacted representatives were located in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

Data Collection

A questionnaire was designed to elicit responses regarding state mandated guidelines and policies promoting bloodborne infection preventive procedures for public school physical educators and coaches. The survey was initially pilot tested by university professors and certified athletic trainers. To elicit a good return, the survey was conducted via telephone. Responses were recorded, tabulated and analyzed by the investigators. The research questions addressed were:

1. Are public school systems required to have a written exposure control plan for bloodborne pathogens? If so, are the universal precautions addressed in the plan?
2. a. Statewide, are physical educators and athletic coaches trained in applying universal precautions which reduce the risk of exposure to bloodborne pathogens?
   b. Is mandated testing a part of the training program to ascertain the educator's knowledge?
3. Do state-mandated written policies exist regarding expectations of physical educators and athletic coaches to respond to injured participants?
4. a. Are physical educators and appropriate athletic personnel required

or strongly recommended to have the Hepatitis B vaccination?

b. Are at-risk personnel provided this service at no personal cost?

RESULTS

Twelve of the subjects responded to the survey for a 85.7% participation rate. Seventy-five percent of the states reported having a state mandate for school systems to develop written exposure control plans. All plans included the universal precautions.

Regarding the training of physical educators and athletic coaches in the application of universal precautions, seven states (58.3%) reported that these educators were required to attend sessions on bloodborne pathogens (Figure 1). Another three state representatives (25%) indicated training sessions were offered but limited to selected physical educators and coaches. Of the other two states offering no formal training sessions, one indicated limited written information was disseminated through local school systems to educators. Only two states (16.7%) required written testing to assess general knowledge base of bloodborne pathogen transmission, although both concluded that testing was inconsistently administered throughout their school systems.

Five state directors (41.7%) indicated their physical educators and coaching staff were required by the state to administer basic emergency care to injured participants (Figure 2). Another four states (33.3%) permitted local school districts to establish written policies regarding responsibility for injury treatment. In the remaining three states, no written policies existed, but directors stated educators were encouraged to act as prudent professionals in emergency situations.

Only four states (33.3%) required or strongly encouraged physical education and at-risk coaching personnel to receive the

Figure 1. Application of Universal Precautions. Number of states requiring training for educators/coaches. The data is based on the response of twelve states.

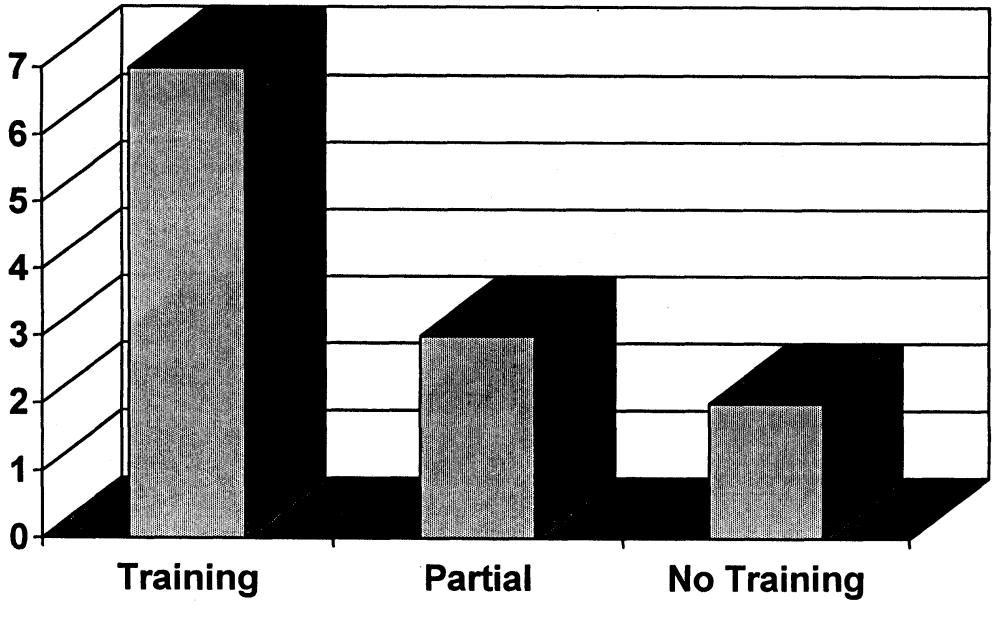
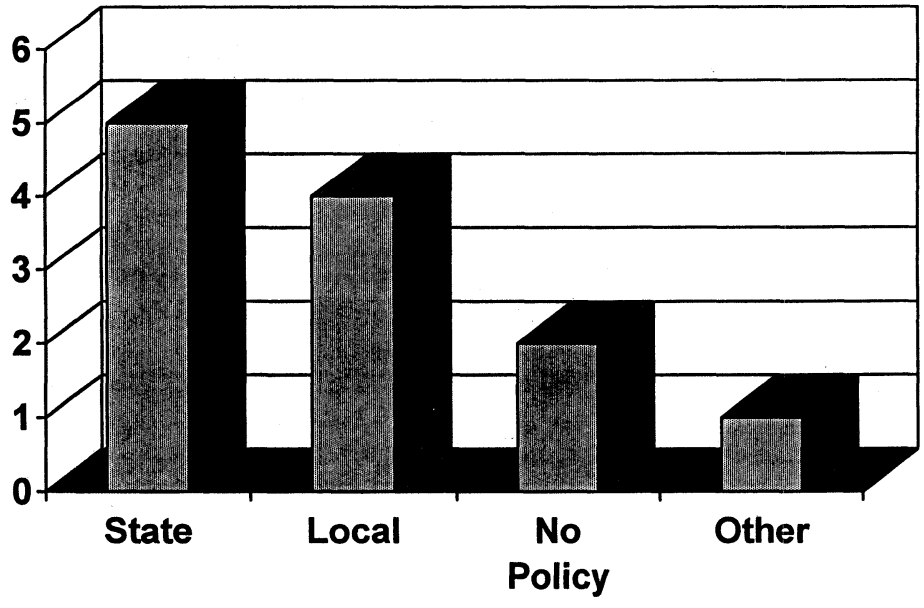


Figure 2. Student/Athlete Injury Care. Method of mandating responsibility of educators/coaches to provide injury care. (Other = state utilizes athletic trainers or emergency medical technicians.)



Hepatitis B vaccination. Three of the four offered the vaccinations courtesy of the state. The fourth required local systems to cover the costs. In a fifth state local districts selected personnel to receive vaccinations and determined the allocation of funds for this purpose.

CONCLUSIONS

Bloodborne pathogens, specifically HIV and HBV, and their transmission is a topic which must be addressed by healthcare and educational professionals who are at risk of exposure to these life-threatening viruses. Based on the study's findings, it was determined that a substantial percentage of the state departments of education within AAHPERD's Southern District fail to require full compliance with mandated guidelines set forth by the CDC and OSHA. While educational institutions fall within the parameters of worksites required to have a written exposure control plan, the fact that 25% of the reporting states required no plan within their public school systems, nor had future intentions of implementing such a policy is cause for concern among physical educators and athletic personnel. Although bloodborne pathogen exposure control programs may be conducted through state or local resources, leadership in the development and requirement of these programs should be initiated at the state level. Recommendations stemming from results of this study should be considered by state departments of education in establishing a thorough, mandated exposure control plan. These recommendations include: (1) requiring physical educators and coaches to attend annual or bi-annual training sessions on bloodborne pathogen control followed by written testing administration; (2) clearly defining these professionals' roles and precautions in responding to injured student

athletes/participants in written policy manuals; (3) supplying and requiring protective equipment/apparel for use by physical educators/coaches in dealing with injuries; and (4) providing HBV vaccinations free of charge for all at-risk personnel.

Suggested Readings

American Medical Association Department of HIV (1993). *Digest HIV/AIDS Policy*. Chicago, IL: Department of HIV, American Medical Association.

American Medical Society for Sports Medicine and American Academy of Sports Medicine (in press). Human immunodeficiency virus (HIV) and other blood-borne pathogens in sports. *American Journal of Sports Medicine.*

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