

Blood-Borne Pathogens

Exposure Control Plan

X District



Occupational Safety and Health

- Law passed in 2001 requires public agencies in Missouri employing persons who might be occupationally exposed to blood-borne pathogens to prepare an exposure control plan equivalent to that required by the federal Occupational Safety and Health Administration(OSHA). Previously applied only to private agencies in Missouri.



Missouri Law

- ❑ RSMo 191.640, passed in 2001
- ❑ Rule promulgated in 2003:
19 CSR 20-20-092
- ❑ Rule states that MO law will mirror the federal OSHA standard for blood-borne pathogens
- ❑ Applies to public schools as employers with employees at occupational risk



What does that mean?

- Certain personnel in schools provide health services to children that involve exposure to blood-borne pathogens and other infectious agents, as part of their job.



Who is at Risk?

- School nurse and health room aide
- Designated first aid and CPR responders, including secretarial staff
- Special education teachers
- Teacher aides with children who are developmentally disabled
- Speech, OT and PT
- Bus drivers for special education



Exposure Determination

- Reasonably anticipated exposure to skin, eye, mucous membrane or blood exposure during the course of employee's duties without regard to whether the employee is using personal protective equipment



Requirements of Law

- Exposure Control Plan
- Staff Education
 - Blood-borne Diseases
 - Universal Precautions
 - Use of Personal Protective Equipment
- Vaccination Program
- Exposure Incident Follow-up
- Record Keeping



How do we protect employees

- Education of employees
 - Blood-borne pathogens
- Minimizing exposure
 - Enforce use of universal precautions
 - Provide handwashing facilities and supplies
 - Provide personal protective equipment



How do we protect employees (continued)

- Appropriate sharps and waste disposal
- Appropriate housekeeping procedures
- Use of bio-hazard labeling
- Hepatitis B vaccine, when indicated
- Plan for follow up in event of exposure



Agenda (Required Training)

- Overview of Exposure Control Plan
- Identification of those at risk
- Potentially infectious agents
- Modes of transmission of infectious agents
- Standard Precautions



Agenda (continued)

- Personal Protective Equipment
- Housekeeping Procedures
- Hepatitis B Vaccination
- Handling an Exposure Incident



District Exposure Control Plan

- ❑ (Insert name of person in charge of plan) – Exposure Control Officer
- ❑ Describes the responsibility of both employer and employee
- ❑ District required to provide certain information, materials, etc.
- ❑ All employees must comply with plan requirements



Purpose of District Plan

- ❑ To eliminate or minimize employee exposure to blood or other potentially infectious materials.
- ❑ To educate staff regarding methods of compliance to be implemented – personal responsibility
- ❑ To provide active protection to those at risk with hepatitis B vaccination



Training Objectives

The employee will be able to:

- ❑ list the common blood-borne pathogens and other infectious agents
- ❑ describe the modes of transmission of various agents
- ❑ demonstrate the principles of universal precautions and use of protective equipment
- ❑ describe the appropriate action in the event of an exposure incident
- ❑ comply with Exposure Control Plan



What do we need to worry about?

- Potential for exposure to blood-borne pathogens
- Using safe practices to prevent exposure



What are blood-borne pathogens?

- Pathogens, or infectious agents, that are transmitted by exposure to infected blood through breaks in the skin or mucous membrane



Types of Blood-borne Pathogens

- Hepatitis B, C, and D viruses
- Human Immunodeficiency Virus (HIV)



Hepatitis

- Means inflammation of the liver – may be acute or chronic
- Can be caused by:
 - Viruses
 - Bacterial invasion
 - Physical agents (gall bladder disease, cancer)
 - Chemical agents (alcohol, certain drugs)



Forms of Hepatitis of Concern

(Hepatitis A is not blood-borne)

- Hepatitis B
- Hepatitis C and D can also be transmitted in the school setting



Hepatitis B Virus (HBV)

- Spread by direct contact with infected body fluids (blood, semen, saliva), most commonly by sexual contact, needle sharing or needle stick injury
- Virus can survive on surfaces for more than 7 days so transmission can occur through contact with contaminated objects/surfaces (including dried blood)



HBV (continued)

- ❑ Can cause chronic liver disease, may be fatal
- ❑ Fatalities much more common in HBV than HIV
(in 2003, 428 HBV deaths compared to 124 AIDS deaths)



HBV (continued)

- ❑ May appear as a mild flu-like illness, or be more severe, requiring hospitalization
- ❑ Symptoms may appear from 28-160 days after exposure
- ❑ Vaccine now given to all babies at birth and to adolescents
- ❑ Potential for occupational exposure



HBV (continued)

- ❑ Not spread by casual contact so exclusion from school or work is not indicated
- ❑ Passive immunization (Hepatitis B immune globulin) can be administered upon exposure, if person is not vaccinated for HBV
- ❑ Vaccine is available for permanent protection



Hepatitis C (HCV)

- Usually occurs in persons with large or repeated exposure to infected blood, i.e., persons undergoing dialysis, history of blood transfusions (blood banks now test for this), exposure during tattooing and piercings, etc.
- No vaccine available
- Some treatment available



Other Hepatitis viruses

- ❑ Hepatitis D – occurs only in individuals with HBV - transmitted through blood and sexual contact.
- ❑ Hepatitis G – identified in 1996 – is transmitted through blood and sexual contact
- ❑ Best protection is avoiding exposure
- ❑ Hep B and C (acute and chronic) account for 4 of the 10 most common infections in Missouri



Human Immunodeficiency Virus

- ❑ First raised awareness of critical need for good personal hygiene in schools
- ❑ Casual person-person contact poses no risk so exclusion not usually recommended
- ❑ Transmitted through blood, sexual contact
- ❑ Does not survive easily in environment
- ❑ No vaccine available; treatment is available



HIV (continued)

- ❑ Treatment continues to be effective in prolonging life
- ❑ May take 6-12 weeks to appear in blood
- ❑ 1 – 15 years from HIV infection to AIDS diagnosis
- ❑ Communicable from 6 – 12 weeks after exposure until death occurs
- ❑ Drug-resistant strains developing



Comparison of HBV and HIV

□ Mode of transmission

	<u>HBV</u>	<u>HIV</u>
Blood	yes	yes
Semen	yes	yes
Vaginal fluids	yes	yes
Saliva	Maybe	no
Target in body	liver	immune system



Risk of Infection from Needlestick

	HBV	HIV
Exposure to blood	6-30%	0.5%
High Number of Virus in blood	yes	no
Vaccine available	yes	no



Exposure Incident

- ❑ Means a specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact with blood or other potentially infectious materials that result from the performance of an employee's duties.
- ❑ Does not include body-fluid clean up or exposure to blood when protected by PPE or intact skin (wearing gloves)



Methods to Reduce Exposure

- Engineering controls
- Personal protective equipment
- Work practice controls
 - Universal precautions
 - Handwashing
 - Housekeeping guidelines
 - Laundry handling



Handwashing

- Most important technique to prevent transmission of disease
Requires soap, water and vigorous scrubbing of hands - front, back and between fingers for 10-20 seconds

(time it takes to sing one verse of Old Macdonald, or Happy Birthday twice)



Handwashing (continued)

- Should wash hands before eating,
- And after:
 - Using the toilet
 - Diapering or assisting with personal care
 - Any contact with blood, body fluid or soiled object, including facial tissues
 - Removing gloves used as a barrier



Handwashing (continued)

- Use warm water and soap whenever possible
- Use paper towels to turn off faucets
- Use paper towel to open restroom door, then discard



Alcohol-based Hand Sanitizers

- ❑ Have been deemed “acceptable” by CDC when soap and water not available
- ❑ Have been shown to reduce infection
- ❑ Individual should use soap and water when hands are visibly soiled
- ❑ Should use soap and water as soon as possible after use of hand sanitizers



Control of Exposure

- Engineering Controls
 - Isolate or remove the blood-borne pathogens from the work place, i.e., sharps disposal, auto-injection devices
- Work Practice Controls
 - Reduces likelihood of exposure by altering manner in which task is performed
- Universal Precautions
 - Assumes all persons might be infectious, and includes use of personal protective equipment and environmental practices



Work Practice Controls

- ❑ Universal Precautions
- ❑ Handwashing technique and facilities
- ❑ Guidelines for handling body fluids in school
- ❑ Proper sharps use and disposal
- ❑ Rules for personal hygiene and eating in workplace



Work Practice Controls (Cont.)

- Equipment cleaning
- Carpet cleaning
- Handling of contaminated waste/materials
- Communication of hazards (labels, red containers)



Personal Protective Equipment (PPE)

- ❑ Appropriate for assignment, expected exposure
- ❑ Must not allow blood or potentially infectious material to pass through material to reach clothing, skin, mucous membrane
- ❑ Includes use of gloves, face masks, gowns, goggles, resuscitation masks, etc.



PPE (continued)

- ❑ Must be provided without cost to employee
- ❑ Must be accessible, and in correct sizes
- ❑ Hypoallergenic gloves must be available
- ❑ District responsible for cleaning and maintenance to assure PPE is used
- ❑ Responsibility of employee to use PPE if there is an expected risk of exposure



Gloves

- Disposable gloves – can't be washed or decontaminated
- Discard if torn or punctured
- Utility gloves may be worn for cleaning purposes, can be decontaminated if intact



Level I Protection

Indications for Glove Use

- ❑ Injections and intravascular procedures
- ❑ Good practice for:
 - Blood glucose monitoring
 - Minor wound care, or dressing changes
 - Catheterizations, diapering and toileting
 - Applying topical medications
 - Assisting with tooth brushing and oral care
 - Emesis clean up



Glove Use (continued)

- Changing ostomy bags
- Cleaning nose/mouth secretions
- Feeding (oral or by gastrostomy tubes)
- Suctioning
- Changing personal hygiene pads
- Taking oral temperatures
- Used when caregiver has open lesion on hand(s) – cuts, rashes, etc.



Use of Utility Gloves

- Cleaning up body spills
- Emptying trash cans
- Handling sharps containers
- Handling contaminated materials/containers
- Cleaning/sweeping up contaminated glass
- Handling contaminated laundry



Level II Protection (Use of Gloves and Other PPE)

- Routine exposure expected during assignment (usually with children with special health care needs). This group is more likely to be at increased risk of exposure to blood-borne pathogens due to:
 - vulnerability to injury,
 - special medical needs, and
 - dependent on adults for personal care needs



Level II Protection (Use of Gloves and Other PPE)

- ❑ Changing pads with body fluids present
- ❑ Diapering, toileting with gross contamination
- ❑ Wound care for combative child
- ❑ Handling contaminated laundry
- ❑ Disposing of grossly contaminated waste
- ❑ Caring for children with little or no impulse control (diapering, feeding, suctioning, etc.)



Level III Protection (Requires additional PPE)

- May be exposure to face, nose, or eyes (use of masks)
 - Feeding a child with forceful coughing
 - History of spitting, vomiting
 - Suctioning tracheostomy with copious secretions and forceful coughing
 - Assisting with severe injury and spurting blood
 - Cleaning up spills that may splatter



Resuscitation Masks

- ❑ Use as a barrier from saliva, emesis or other potentially infectious materials during CPR
- ❑ Should be easily accessible for emergencies
- ❑ Must contain a one-way valve
- ❑ Must be properly cleaned for re-use
- ❑ Disposable, single-use masks available



Housekeeping

- ❑ Routine cleaning
- ❑ Decontamination after contact with blood and other body fluids
- ❑ Provision of required housekeeping materials (absorbent materials, germicides, etc.)
- ❑ Use of EPA approved agent



Communication of Hazards

- ❑ Information and training at time of employment regarding hazardous materials, labeling, etc.
- ❑ Warning labels or red containers for waste
- ❑ Warning labels for equipment



Biohazard Labels

- ❑ Red or red-orange with letters and symbols in contrasting color
- ❑ Disposal bags in red
- ❑ Items may be double-bagged, with red outer bag



Hepatitis B Vaccine

- ❑ Requires three immunizations
- ❑ Protection lasts at least 13 years, but no booster is recommended at this time
- ❑ Some contraindications to vaccine
- ❑ Very safe, given in upper deltoid muscle
- ❑ Very few side effects to this vaccine



Handling Exposure Incident

- ❑ Employee with exposure must report
- ❑ Exposure Control Officer will document necessary information and make arrangements for medical follow-up
- ❑ May involve blood-testing of both employee and source individual
- ❑ All information kept confidential
- ❑ Affected employee will receive recommendations from health care provider



Post-exposure Evaluation

- Employee is provided a medical evaluation
 - Documentation of exposure
 - Identification of source individual
 - Results of blood testing of source individual
 - Collection and testing of employee's blood
 - Post-exposure protection when indicated
 - Counseling
 - Evaluation of reported illnesses
 - Copy of medical evaluation and recommendations



Record Keeping

- All records kept confidential – not released without written consent of employee
 - Records of employee training
 - Records of hepatitis B vaccination
 - Record of any exposure incident, including medical evaluation, testing results and follow-up



Employer's Responsibilities

- Develop Exposure Control Plan
- Identify those at occupational risk
- Provide education to all employees re risk of blood-borne pathogens
- Provide personal protective equipment
- Offer hepatitis B vaccine, if indicated
- Provide medical follow-up in the event of exposure incident



Employee's Responsibility

- Proper handwashing
- Utilizing standard precautions and personal protective equipment when indicated
- Getting hepatitis B vaccine unless contraindicated
- Proper disposal of contaminated waste/sharps/laundry
- Immediate reporting of an exposure incident
- Compliance with follow-up of exposure

