

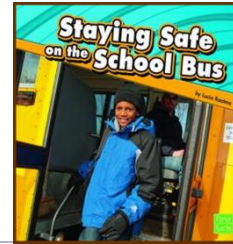
**Training for WPS School Bus Personnel
November 6, 2017**

**Transportation Department
Worcester Public School**

Training by Lynn Rose

**Based on training materials from the
MA Department of Labor Standards**

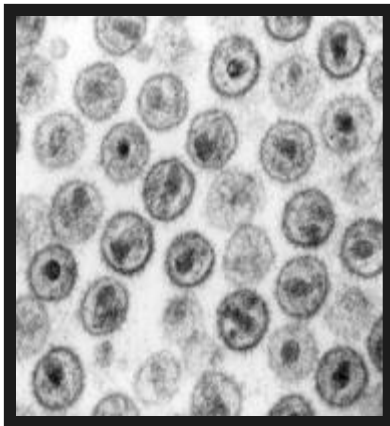
Presentation Overview



- **What diseases are found in blood and body substances?**
- **What are the symptoms and health affects of these diseases?**
- **How do these diseases pose an occupational hazard to drivers and children on the bus?**
- **What can be done to prevent transmission of these diseases?**
- **How do you clean-up a spill?**

What is a *Bloodborne Pathogen*?

A virus or bacteria that is carried in the blood which can cause illness in people.



Courtesy of Owen Mumford, Inc.

What are Other “Potentially Infectious Materials” (OPIM)?

- **Semen and vaginal secretions**
- **ANY body fluid visibly contaminated w/ blood**
- **ALL body fluids in situations where it is difficult or impossible to differentiate between body fluids**
- **Other internal fluids from the brain or spine, joints, lungs, around the heart or abdomen, or in the womb**
- **Human tissue**

*What other non – Blood or OPIM substances could transmit diseases? **Brainstorm***

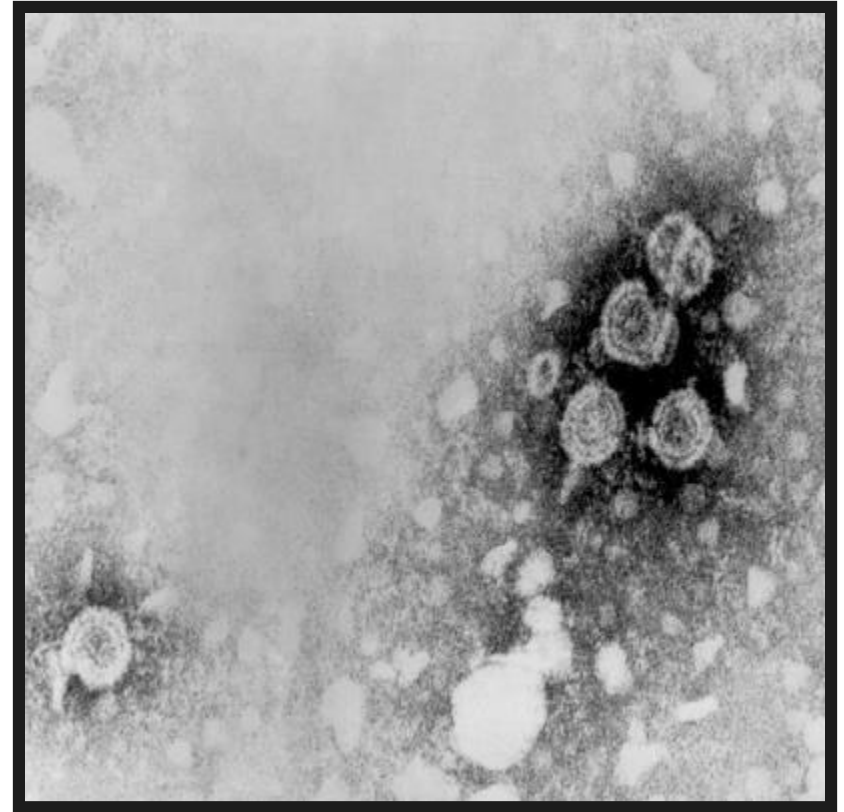
These are NOT bloodborne pathogens *unless* they are visibly contaminated with blood, *but* they can be infectious with bacteria and viruses:

- Urine
- Feces
- Vomit
- Sewage Water



What types of BBP are there?

- **Hepatitis
B & C**
- **HIV**



Hepatitis-B

BBP: *Hepatitis Overview*

“Hepa” = liver; “titis” = inflammation of

- 6 types = A, B, C, D, E, and G**
- Types B and C are bloodborne**
- Type D and G only occurs in those already infected with type B**
- Types A, E spread through fecal-oral mode of transmission**

Concentration of Hep B in Various Body Fluids

High	Moderate	Low/Not Detectable
blood	semen	urine
serum	vaginal fluid	feces
wound exudates	saliva	sweat
		tears
		breast milk

Source: CDC

BBP: *Hep B*

Treatment and Risks

How is Hep B infection treated?

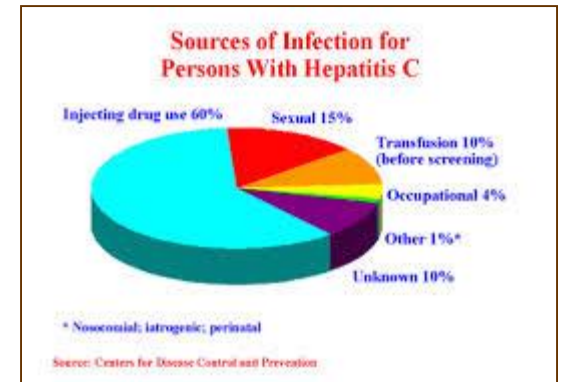
- ***Acute infection*** - no medication is available.
- ***Chronic infection*** - several antiviral drugs are available. The disease can continue to progress to damage liver or cause cancer. Chronic carriers have 100% greater chance of developing liver cancer.

How likely is Hep B infection to become chronic?

- The risk varies according to the age at infection and is greatest among young children.
- Approximately 95% of adults recover completely

BBP: *Hep C*

- **Currently, most common type of viral hepatitis in US**
- **No cure**
- **No vaccine available**
- **Leading cause for need for liver transplants in the U.S.**



BBP: *What are the health effects from Hep B and C?*

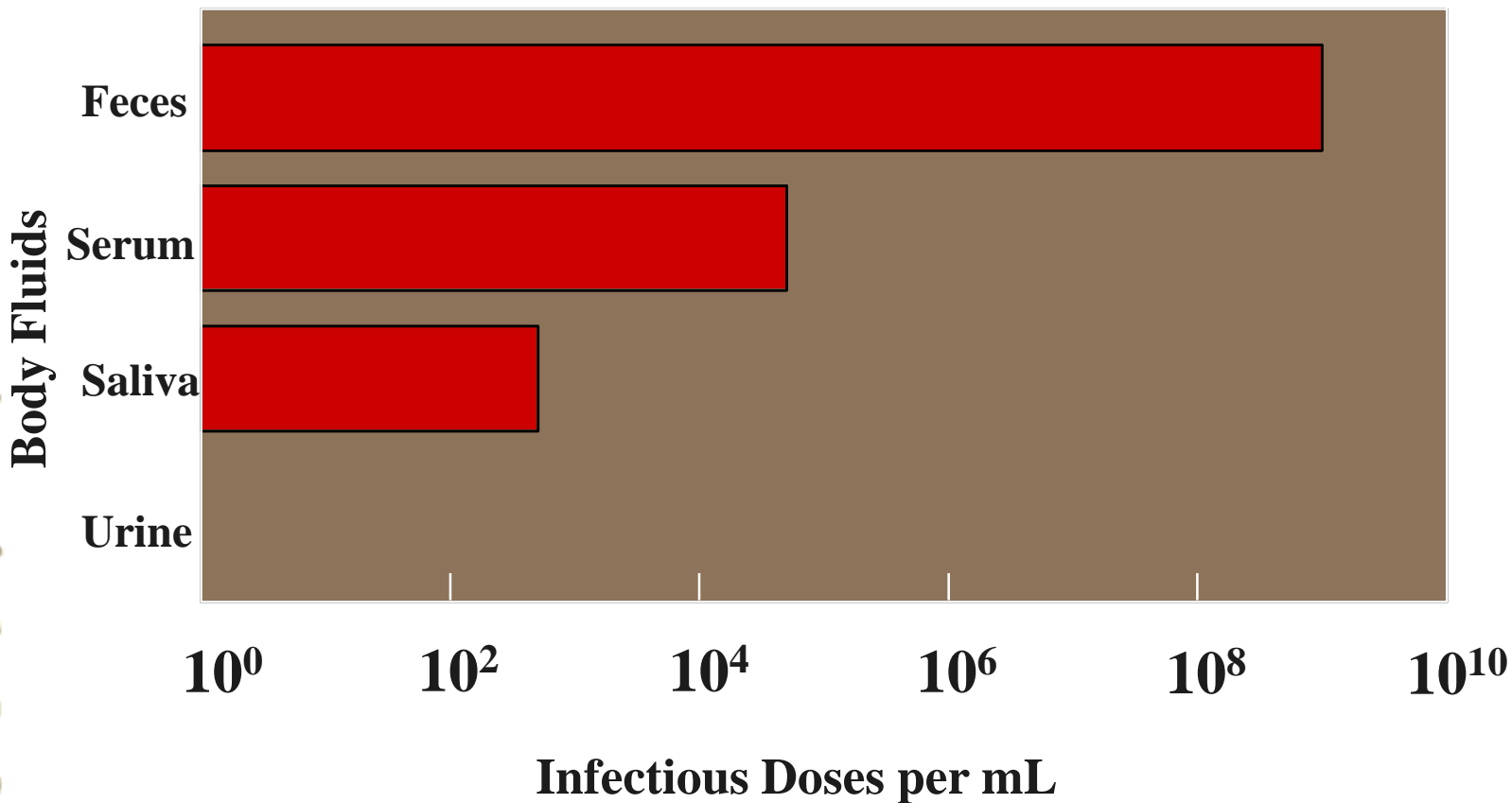
There are three main types of liver damage caused by Hepatitis-B and Hepatitis-C:

- 1. Inflammation of liver**
- 2. Cirrhosis (scarring)**
- 3. Liver cancer**



Cirrhosis

BBP: Hep A



Concentration of Hepatitis A Virus in Various Body Fluids

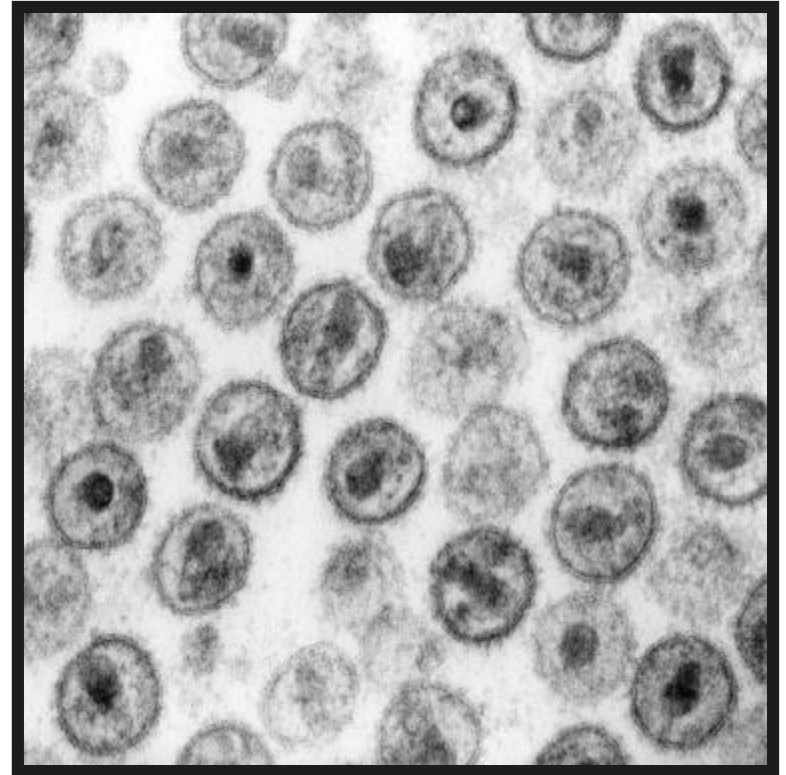
What are the symptoms of hepatitis?

Symptoms	Hep A	Hep B	Hep C
fatigue	X	X	X
abdominal pain	X	X	
appetite reduced	X	X	X
nausea	X	X	X
vomiting	X	X	
dark urine		X	
yellowing of skin or eyes	X	X	
muscle and joint pain		X	X
enlarged liver			X
enlarged spleen			X
fever	X	X	

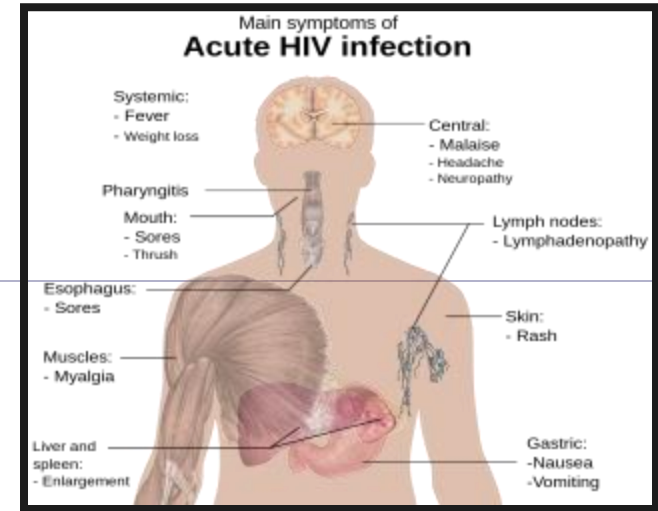
What is the Human Immunodeficiency Virus (HIV)?

HIV is the virus that:

- **damages the immune system**
- **causes AIDS**



BBP: *HIV/AIDS*



Acute HIV Infection (usually <14 days)	NONE	AIDS Illness (1-3 yr until death)
<ul style="list-style-type: none"> • “Mono-like” syndrome • Fever, Nausea, Fatigue • Rash • Enlarged lymph nodes • Sore throat • But NO runny nose 	<p>But virus is active and multiplying and contagious</p>	<ul style="list-style-type: none"> • Yeast infections • Kaposi’s sarcoma • Lymphoma • Severe weight loss • Swollen glands • Opportunistic disease
“Mono” like symptoms	No symptoms	AIDS symptoms
2-6 wk	1-10 years	1-3 yr until death

Transmission of BBPs: *through contact with blood and OPIM contaminated with blood*

Contact with HIV, Hep B or Hep C in blood through:

- **opening in the skin**
- **through the mucous membranes (eyes, nose, mouth)**
- **Needlestick or sharp object injection**



Non-Workplace

Injecting Drug Use

Sex Partners

STDs

Born to HIV+ mother

Transmission: *HIV*

YES

- **Blood**
- **Saliva with visible blood**
- **Sharing needles, razors, toothbrush**
- **Needle stick**

NO

- **Urine**
- **Feces**
- **Vomit**
- **Sweat**
- **Casual contact**
- **Human Bites (unless trauma with extensive tissue tearing and visible blood)**
- **Sports**
- **Air**
- **Sewage water**

Transmission:

*Does saliva
transmit BBPs?*

According to CDC:



<http://www.nyaa.edu/images/ballpointSP05/spit.jpg>

- **Hep. B may be able to survive in saliva regardless of whether there is blood or not**
- **Although HIV has been found in saliva and in blood in saliva, the CDC says that saliva has not been found to *transmit* HIV.**
- **Hep. C – probably the same as HIV**

Transmission:

Can BBPs be transmitted through bites?

- **There is evidence that Hep. B can.**
- **There is no evidence that the AIDS virus can unless there was extensive tissue tearing (CDC). The presence of blood in the saliva increases the risk.**
- **Hepatitis C – there is no indication found at this time**



Transmission: *What is the Highest Risk Mode for BBP?* **Brainstorm**

- **Sharp instrument and needle stick injuries are the riskiest and account for >than 60% occupational cases of BBP.**
- **The skin, if intact, is a good barrier. Thus, transmission potential increases with cuts or abrasions in skin.**
- **Contact with mucous membranes in eyes, mouth, or nose poses a slight possibility of transmission.**

Transmission: *Do these diseases travel outside of the body?*

- **These diseases may be transmitted indirectly when:**
 - **you touch an object or surface contaminated with blood or infectious materials, and**
 - **then transfer them to your mouth, eyes, nose or opening in your skin.**

Transmission: *How long can these diseases live outside of the body?*

Disease	Lifespan (CDC)
Hep A	Can survive for 12 weeks or more depending on environmental conditions. It is killed by heating to 185 degrees F (85 ° C) for one minute.
Hep B	Can survive and transmit disease even in dried blood on surfaces for at least 7 days
Hep C	Can survive outside body at room temperature for at least 16 hours to 4 days.
HIV	Begins to die off almost immediately once it is outside of the body (exposed to air). University of Miami BBP Training says 3-5 hours.

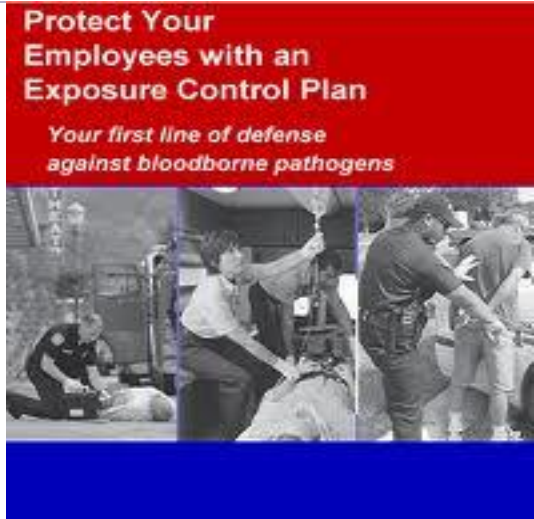
Hepatitis A: *Transmission*

children serve as reservoir of infection

- **Fecal-oral**
- **Close personal contact**
(e.g. assisting on and off bus)
- **Blood exposure (rare)**
(e.g. spill clean-up, first aid)

Exposure Control Plan (ECP)

- **District specific written plan to eliminate or minimize occupational exposure to BBP**
- **Several WPS departments involved: School Nurses, Custodial, Athletics, Human Resources, Transportation**



ECP: When do you need worker protection?

Whenever there is

reasonably anticipated

direct or indirect contact with

blood or body fluids,

worker protection is required.



ECP: *Hazard Determination*

***Occupational Exposure* means reasonably anticipated skin, eye and mucous membrane contact with blood or other potentially infectious materials resulting from an employee's duties.**

- **Identify possible exposures to blood and body substances**
- **Review all processes and procedures with exposure potential**
- **Re-evaluate when new processes or procedures are used**



ECP: *Hazard Determination*

Identify all tasks in your work with potential exposure to blood:

- **Cleaning blood spills after an accident**
- **Handling an injured child**
- **Cleaning vomit, drool, feces, etc.**



ECP: *Work Practices*

*Standard Precautions**

- Combines the major features of **Universal Precautions** and **Body Substance Isolation**
- Based on the principle that **all** blood, body fluids, secretions, excretions (except sweat), non-intact skin, and mucous membranes may contain transmissible infectious agents.
- Considers **all persons to be potentially infectious** and all related work practices to treat body substances as if they were.

To be Safe.....

Treat

**ALL human blood and
other potentially infectious
materials**



as if they are infectious!

ECP: *Hazard Determination*

Reservoirs for other, non BBP infectious diseases on the bus

Clean the following items using an all purpose cleaner* as they become a “reservoir” for germs:

- **Touch points (e.g. door handle)**
- **Car seats**
- **Seat underneath car seat (remove car seat)**
- **Seat belts, particularly the female end of the latching mechanism, which tends to gather dirt and can become “gummed up”**



Select Products and Processes:

3 Levels of Microbe Control



When to Clean, Sanitize or Disinfect?

- *What is the surface to be managed:*

- porous
- non-porous



- *What is the level of skin contact (by many people) with the surface:*

- minimal – floors, walls, etc.
- frequent (high touch)– hand rails, door handles, etc.



- *Are there any regulations requiring disinfection or sanitization?*



Worker Protection:

Use Engineering Controls

Reduces employee exposure by removing, eliminating, or isolating hazard, for example:

- Personal protective equipment
- Spill clean-up kits
- Sharps containers



ECP: *Vaccinations*

Which Diseases Can I be Vaccinated Against?

Hepatitis-B Vaccine

- It is a routine vaccination of 0-18 year olds.
- Adults in high risk groups are vaccinated at all ages, e.g. employees in institutions for developmental disability (ACIP recommended)



Eligibility - Employees determined to have a reasonably anticipated high risk of occupational exposure.

ECP - Vaccination:

Employer Requirements

- **WPS will be offering a free vaccine series to employees at risk of exposure, unless they have had vaccine or have documented antibodies.**
- **If you initially refuse the vaccine, you can change your mind later and still receive it.**
- **You must sign either a *consent* or *post exposure declination* form.**
- **These guidelines and forms are located in the WPS *Exposure Control Plan* (to be finalized).**

Blood Exposure:

When do staff need follow-up?

Within 24 hours, no later than 7 days!

When an *Exposure Incident* occurs when a worker has contact with blood or other potentially infectious fluids through:

- ✓ Eye
- ✓ Mouth
- ✓ Nose
- ✓ Non-intact skin
- ✓ Skin puncture

Exposures: *What post medical tests should staff have?*

Worker exposed to blood and source patient should have their blood tested for:

- ✓ **HIV**
- ✓ **Hepatitis-B**
- ✓ **Hepatitis-C**



Exposures: *How can I determine if exposed staff got a disease?*

Blood tests for the source person can tell if the blood contained disease:

- **Rapid HIV Test (gives results in 20 minutes)**
- **Hepatitis-B**
- **Hepatitis-C**

- **Consent is required for blood tests.**
- **Test results are confidential and should go to your home, not to your school.**

Exposures: *Can staff get HIV?*

The risk for getting HIV depends on:

- 1. Amount of blood involved**
- 2. Amount of HIV virus in blood**
- 3. Type of exposure:**

Lower risk: superficial scratch

Higher risk: puncture, visible blood on device

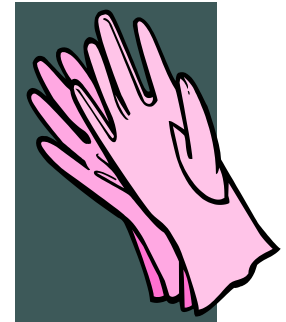
Exposures: *Post Follow-Up*

- **Document routes of exposure and how exposure occurred.**
- **Obtain consent from the source individual and the exposed employee to test blood.**
- **Test blood ASAP after incident.**
- **Provide risk counseling.**
- **Offer post-exposure treatment when indicated.**
- **Provide written opinion of findings to employer and copy to employee within 15 days of the evaluation.**

Personal Protection

Reduce Contact with Infectious Materials

Use gloves to prevent skin contact with blood or other body fluids:



- **Select gloves that will also protect from disinfectants used to clean up (e.g. Nitrile or vinyl).**
- **Do not use latex due to potential allergic reactions.**

Personal Protective Equipment

Reduce Contact with Infectious Materials

- *Gloves:*

- are removed inside out
- don't touch outside of gloves with bare hands



Personal Protective Equipment

Reduce Contact with Infectious Materials

- ***After removing gloves:***
 - **Wash hands with soap (liquid, if possible) and warm running water for at least 20 seconds.**



- **Use hand sanitizer (62% ethyl alcohol) if soap and running water not immediately available.**
- **Then, wash with soap and running water as soon as possible.**

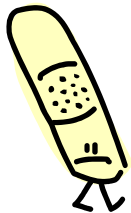
Spill Clean-Up:

Waste Definition

What is Biohazard Waste?



- Contaminated items that could release blood or other potentially infectious materials if squeezed.
- Items that are caked with dried blood or other infectious materials.



NOTE: small band aids are generally NOT considered biohazardous since they do not release blood.

Spill Clean-Up Procedures Overview

- **Spill Kits**
- **Precautions**
- **Decontamination**
- **Procedures**
- **Exposures**



Spill Clean-Up Procedures

When to Wear PPE

PPE must be worn whenever there is reasonably anticipated contact with blood or other infectious materials.



Remember to:

- ✓ Inspect PPE before use.
- ✓ Use new disposable gloves each time.

Spill Clean-Up: *When to Wear PPE*

If....	Then wear....	
You could have contact with infectious materials?	Always wear Gloves	
You could be splashed in the face?	Goggles and a Mask	
You could be splashed on the body?	An Apron	
If you could step in it and track it around?	Booties	

Spill Clean-Up

Notify Staff and Other Responders

- **Remove others located in the area of the hazard.**
- **Notify parents, supervisor and other responders of the incident.**



Spill Clean-Up

Remove Contaminated Objects From Spill



Use nonporous equipment such as dustpan or tongs (not hands or vacuum) to pick up contaminated sharp items (needles, broken glass, etc.).

Place sharp objects in a rigid container with lid and label (ideally a sharps container).



Spill Clean-Up

Remove and Dispose of Spill

- Cover the spill with the absorbent powder.
- Use the Kit Dustpan or a scraper to remove contaminated absorbent powder.
- **Dispose of the waste:**

Materials	Disposal
Blood soaked items, including disposable spill kit items, <u>if dripping</u>	Biohazard bag
Blood soaked items, <u>if not dripping</u> , and vomit and feces if there is no visible blood, including disposable spill kits items	Regular trash
Needles and other sharp objects	Sharps container

Spill Clean-Up

Remove and Dispose of Spill

- **If needed, pour coagulant on spill to gel it up.**
- **Wash the area with an all purpose cleaner**
- **Rinse the area**



Spill Clean-Up

Disinfect the Area

- *For a horizontal surface, spray or pour disinfectant on spill area.*
- *For a vertical surface, saturate a clean cloth rag with disinfectant and wipe the surface with it.*
- **Ensure the disinfectant stays wet for the appropriate contact time as recommended (10 minute).**
- **Remove the residual disinfectant with paper towels and air dry.**
- **For surfaces that come into contact with skin, rinse with water and dry.**



Spill Clean-Up

Disinfect

- **Disinfect nonporous equipment such as tongs for 10- 15 minutes.**
- **Dispose of used paper towels and cloth rags in the trash bag.**
- **Remove contaminated clothing and wash separately in laundry.**

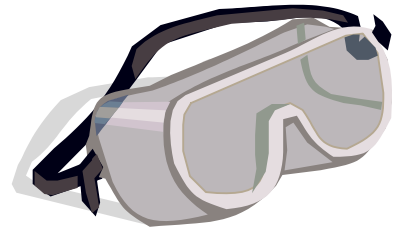


Spill Clean-Up

Remove PPE

Assume your gloves are contaminated:

- **With gloves still on, remove and dispose of all PPE, except for goggles.**
- **Clean your goggles with soap and rinse, apply disinfectant for 10 minutes, and rinse.**
- **Remove gloves and put in the trash bag for disposal.**



Spill or Blood Contaminated Clean-Up - *Waste Disposal*

Regular Trash

Small amount of blood:

- Band-aid
- Small gauze pad
- Blood cannot be squeezed out of the item.
- Sanitary napkins.

Biohazard Waste

- *Sharps Container*
 - All syringes
 - Razors
 - Broken glass
- *Biohazard Bag*
 - Blood-soaked other than sharps



Spill Clean-Up

Waste Disposal of Bags

- **If the outside of the trash or biohazard bag becomes contaminated:**
 - Close it and insert it a new bag
 - Close it and label as trash or biohazard
- **Dispose of red biohazard bag as biohazardous:**
 - Temporarily store in a secure place in designated area in the bus if incident happens in transit.
 - Bring in

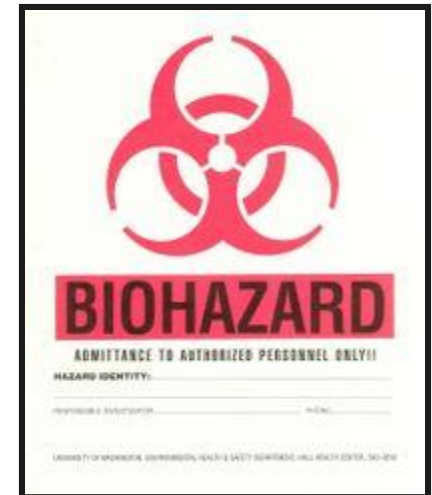


Spill Clean-Up

Labels for Waste Management

Warning labels must be either be printed on or placed on:

- ✓ Waste containers
- ✓ Sharps containers
- ✓ Storage/shipping containers



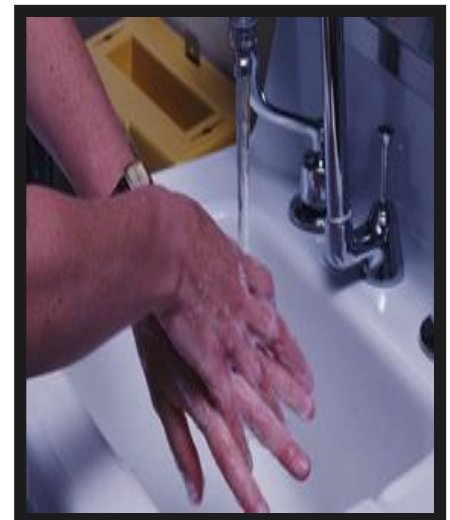
Spill Clean-Up

Follow-Up Hand Washing

Hand washing is required as you must *assume* gloves are contaminated *even if they do not look it*.

Wash your hands and other areas that came into contact with disinfectant or contaminants immediately after clean-up for:

- 20 seconds
- with liquid soap
- under running water



Spill Clean-Up:

Follow-Up



- **Allow reentry when area is clean and dry and all materials removed.**
- **Record incident on paper, including;**
 - **date and location**
 - **staff and/or students involved**
 - **any exposures**
 - **type of wastes and disposal locations**

Spill Clean-Up: *Follow-Up*

What do I do if I have had an exposure?

- **Wash cuts with soap and water for 15 to 20 seconds.**
- **Flush splashes to the nose, mouth, or skin with water.**
- **Irrigate eyes with clean water, saline, or sterile irrigants. Use an eyewash if available.**
- **Report the incident to your supervisor and the school nurse.**
- **Immediately seek medical treatment.**



Spill Clean-Up: *Follow-Up, Continued*

- Return spill kit to designated storage location on bus.
- Ensure that the spill kit is restocked.
- If you need additional supplies or more information, contact your supervisor.



RESOURCES (STATE)

Check also local Health Department

- **MA Department of Labor Safety(DLS)**
 - **Tel: (617) 969-7177**
 - **website: www.state.ma.us/dos**

- **MA Department of Public Health (DPH)**
 - **Tel: (617) 624-6000**
 - **web site: www.state.ma.us/dph**

Sources of Training Information

- **2 trainings developed by Massachusetts Department of Labor Standards and OSHA Consultation Program for School Custodians and Staff**
- **CDC Trainings on Hepatitis A, B, C, D, E**
- **OSHA 10-hour General Industry**