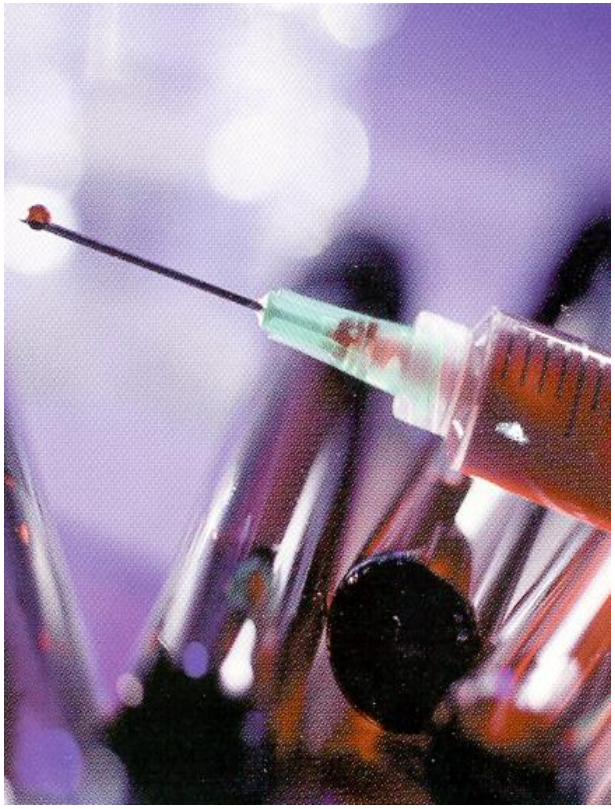
Bloodborne Infectious Diseases Training



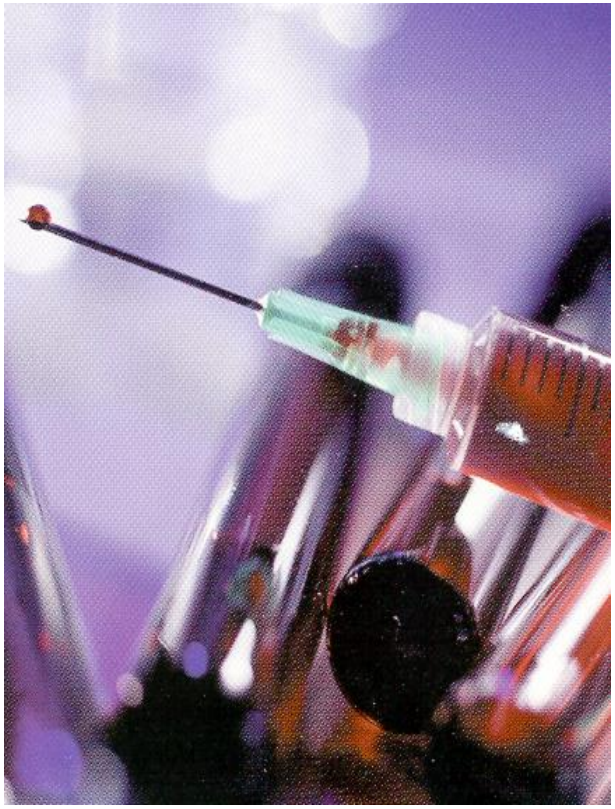
Overview

- MIOSHA Part 554
- Epidemiology of bloodborne diseases
  - HIV
  - HBV
  - HCV
  - HDV
- Modes of transmission of bloodborne diseases
- Methods for recognizing tasks that may involve exposure to blood or OPIM
- Use and limitations of practices that will prevent or reduce exposure
- Selection, use, maintenance, disposal, and storage of PPE

Overview – continued

- Information on the hepatitis B vaccine and post-exposure prophylaxis
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious material
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident, and the medical follow-up and counseling that will be made available
- An explanation of the signs and labels or color coding required

Definitions



“Blood”

“Blood” means human blood, human blood components, and products made from human blood.

Other Potentially Infectious Material (OPIM)

Other potentially infectious materials (OPIM) includes:

- Semen
- Vaginal secretions
- Amniotic fluid
- Cerebrospinal fluid
- Saliva in dental procedures
- All human fluids:
  - contaminated with visible blood
  - difficult to distinguish whether or not the fluid is contaminated with blood or OPIM
- Peritoneal fluid
- Pleural fluid
- Pericardial fluid
- Synovial fluid

Other Potentially Infectious Material (OPIM)

OPIM does not include:

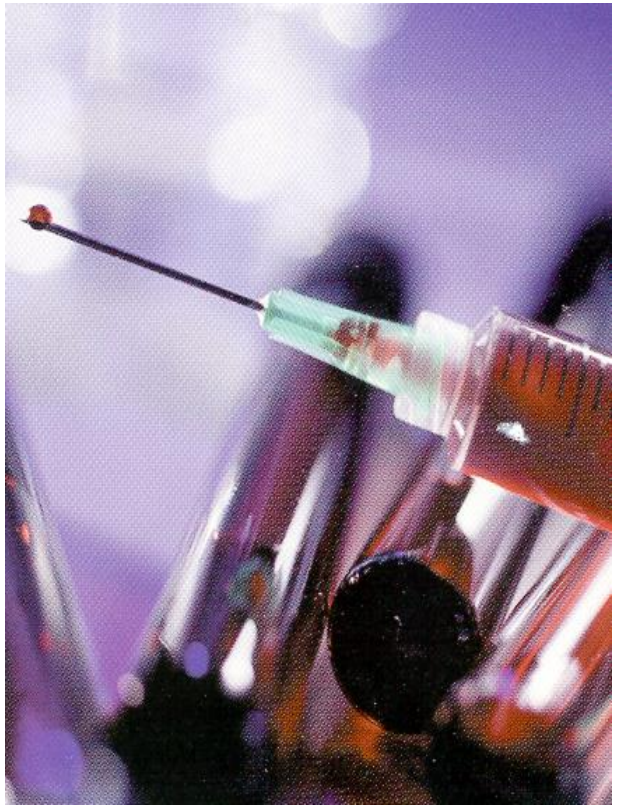
- Sweat,
- Tears,
- Saliva (in non-dental settings),
- Vomitus, and
- Urine ...

… unless these fluids contain <u>visible</u> blood or OPIM or it is difficult to distinguish if they contain visible blood or OPIM.

“Universal Precautions”

“Universal precautions” means a method of infection control that treats all human blood and other potentially infectious material as capable of transmitting HIV, HBV, and other bloodborne pathogens.

MIOSHA Part 554



Bloodborne Infectious Diseases

Access to MIOSHA Part 554

Employees may access a copy of MIOSHA Part 554, Bloodborne Infectious Diseases, for their review at any of the following locations:

- Internet (www.michigan.gov/miosha)
- MIOSHA Standards Division, P.O. Box 30643, Lansing, Michigan 48909-8143, 517-322-1845
- Health and safety program coordinator

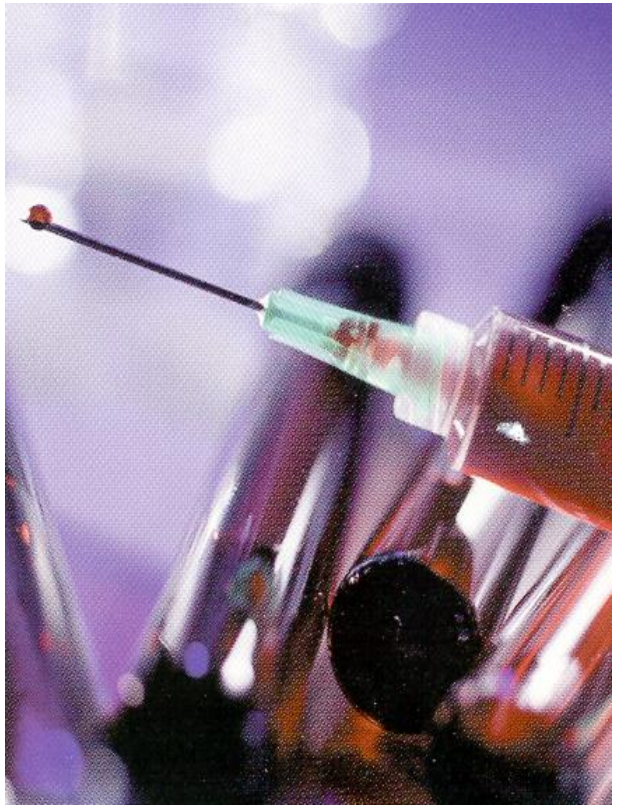
Who is covered by MIOSHA Part 554?

- All employees who could be "reasonably anticipated" and as the result of performing their job duties to face contact with blood and other potentially infectious materials.
- "Good Samaritan" acts (e.g., performing first aid when not a company-designated first aid provider), such as assisting a co-worker with a nosebleed, are not considered to be occupational exposure.

MIOSHA Part 554 Table of Contents

- Scope
- Definitions
- Exposure determination
- Exposure control plan
- Universal precautions
- Engineering controls
- Work practices
- Protective work clothing and equipment (i.e., PPE)
- Housekeeping
- Regulated waste disposal
- Laundry
- HIV/HBV Research Labs & Productions Facilities
- Vaccinations and post-exposure follow-up
- Communication of hazards to employees
- Recordkeeping
- Information and training
- Appendices and availability of rules information
- Appendices

Bloodborne Infectious Diseases Program



Epidemiology and Modes of Transmission of Bloodborne Infectious Diseases

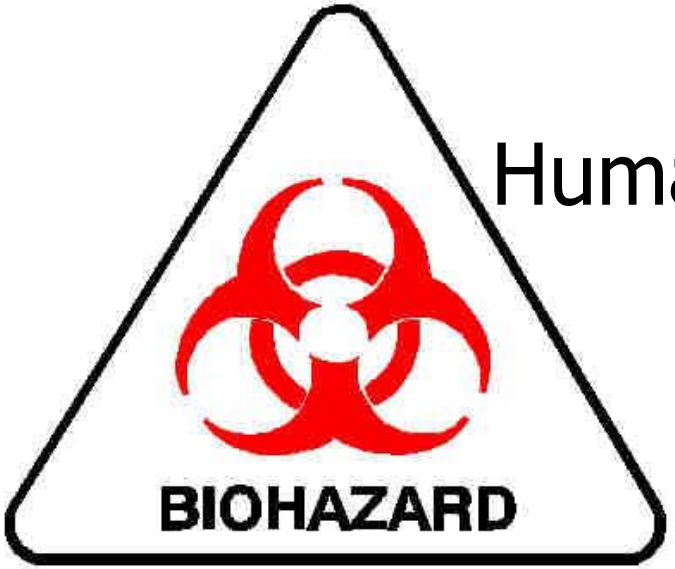
Bloodborne Infectious Diseases

Bloodborne infectious diseases are transmitted by contact with the blood or other body fluids of another person who has the virus. They can also be contracted from infected animals, such as those in a research facility.

Examples of Bloodborne Infectious Diseases

- HIV
  - AIDS
- Hepatitis:
  - HBV
  - HCV
  - HDV
- Syphilis
- Malaria
- Lyme Disease
- Ebola Virus
- Leptospirosis
- Brucellosis
- Creutzfeldt-Jakob's Disease
- T-Lymphomtrophic Virus

HIV



Human Immunodeficiency Virus

Human Immunodeficiency Virus (HIV)

- Kills your body's "CD4" or "T-helper" cells – help body fight infection and disease
- Does not survive well outside the body
- End of 2003 – estimated 1,039,000 to 1,185,000 persons in the US with HIV/AIDS
- Symptoms of infection:
  - Frequently not experienced for years
  - Vary by individual, but may include
- Progresses to AIDS
- No vaccine
- Treatment for HIV/AIDS infection has improved

Additional HIV Information

Additional information regarding HIV can be found on the Internet at:

- Centers for Disease Control (CDC): http://www.cdc.gov/hiv/
- National Institute for Occupational Safety and Health (NIOSH): http://www.cdc.gov/niosh/topics/bbp/
- National Institutes of Health (NIH):
  - http://aidsinfo.nih.gov/
  - http://health.nih.gov/result.asp?disease_id=15

HBV

Hepatitis B Virus

Hepatitis B Virus (HBV)

- A virus that attacks the liver
- Most commonly results in an acute infection for adults (~95%) and a chronic infection for infants (~90% at birth)
- Infection usually shows within 2 months of exposure
- Infection may cause cirrhosis of the liver or liver cancer

Hepatitis B Virus (HBV) – cont.

- May be passed to others by those with:
  - Acute infection (i.e., infectious period normally ~ 6-8 weeks long)
  - Chronic infection (i.e., infectious for life!)
- Can survive outside the body at least 7 days
- HBV vaccination:
  - 3 doses given: initially; 1-2 months after the initial: & 2-4 months after the second (time periods may be longer
  - If miss receiving a vaccine in the series during the required time period, do not restart series – though no harm in doing so
  - No booster currently recommended

Additional HBV Information

Additional information regarding HIV can be found on the Internet at:

- Centers for Disease Control (CDC): http://www.cdc.gov/hepatitis/index.htm
- National Institute for Occupational Safety and Health (NIOSH): http://www.cdc.gov/niosh/topics/bbp/
- National Institutes of Health (NIH): http://www.nlm.nih.gov/medlineplus/hepatitisb.html

HCV

Hepatitis C Virus

Hepatitis C Virus (HCV)

- 2006: CDC estimates approximately 19,000 new HCV infections
- Approximately 3.2 million persons in US have chronic HCV infection
- Approximately 15%–25% clear HCV from body without treatment
- Chronic HCV – leading indication for liver transplants in US
- Survives approximately 4 days outside body
- No vaccine is available – research being done
- Transmitted primarily by large or repeated percutaneous exposures to infectious blood

Additional HCV Information

Additional information regarding HIV can be found on the Internet at:

- Centers for Disease Control (CDC): http://www.cdc.gov/hepatitis/index.htm
- National Institute for Occupational Safety and Health (NIOSH): http://www.cdc.gov/niosh/topics/bbp/
- National Institutes of Health (NIH): http://www.nlm.nih.gov/medlineplus/hepatitisc.html

Exposure Control Plan

- The plan identifies jobs and tasks where occupational exposure to blood or other potentially infectious material occurs.
- The plan describes how the employer will:
  - Use engineering and work practice controls.
  - Ensure use of personal protective equipment.
  - Provide training.
  - Provide medical surveillance.
  - Provide hepatitis B vaccinations.
  - Use signs and labels.

Exposure Control Plan

- The exposure control plan is a written plan that is required by MIOSHA Part 554.
- The plan must be reviewed at least annually to reflect changes in:
  - tasks, procedures, or assignments which affect exposure, and
  - technology that will eliminate or reduce exposure.
- The annual review must document employer's consideration and implementation of safer medical devices.
- The employer must solicit input from potentially exposed employees in the identification, evaluation and selection of engineering and work practice controls.
- The plan must be accessible to exposed employees.

Exposure Control Program

Take the time to review the content of your facility's exposure control program.

Universal Precautions

- Universal Precautions requires personnel to treat all blood and certain body fluids as if they are infectious
- Must be observed in all situations where there is a potential for contact with blood or other potentially infectious materials

Engineering Controls and Work Practice Controls

- Primary methods used to control the transmission of hepatitis and HIV
- Must use personal protective equipment (PPE) if engineering controls and work practice controls not enough to control adequately exposures

Engineering Controls

- Reduce employee exposure by either removing the hazard or isolating the worker from the hazard
- Examples include:
  - Sharps disposal containers,
  - Self-sheathing needles,
  - Safer medical devices, and
    - Needleless systems
    - Sharps with engineered sharps injury protections

Work Practice Controls

- Reduce the likelihood of exposure by altering how a task is performed.
- Examples include:
  - Washing of hands after removing gloves and as soon as possible after exposure.
  - Do not shear, bend, or break contaminated needles; do not recap or resheath unless no alternative available.
  - No mouth pipetting.

Other Work Practice Controls

- Remove PPE prior to leaving work area.
- Immediately, or as soon as feasible, remove contaminated garments.
- Do not eat, drink, apply cosmetics or lip balm, or handle contact lenses in potential areas of exposure.
- No not store food and drink in areas of potential exposure.
- Minimize spraying, splashing, and aerosolization of blood and OPIM.
- Do not pick up potentially contaminated glassware by hand – use mechanical means (e.g., a brush and dust pan, tongs, cotton swabs, or forceps).

Site-Specific Work Practices

Take the time to familiarize yourself with site-specific work practices applicable to your workplace.

Personal Protective Equipment (PPE)

- Specialized clothing or equipment worn by an employee for protection against infectious materials.
- Must be properly cleaned, laundered, repaired, and disposed of at no cost to employees.
- Must be removed when leaving area or upon contamination.
- Includes gloves; nose/mouth, and eye protection (e.g., safety glasses and mask or face shields); gowns, aprons, or suits; gauntlets; head and shoe covers

Site-Specific PPE

Take the time to familiarize yourself with the types and location of personal protective equipment used in your workplace for protection against bloodborne pathogens. Also, address how PPE is to be maintained, stored, and/or disposed of, as appropriate.

Housekeeping

Employer must develop a written schedule for cleaning and decontamination at the work site based on the:

- Location within the facility,
- Type of surface to be cleaned,
- Type of soil present, and
- Tasks or procedures being performed.

Cleaning and Disinfection of Work Surfaces

Work surfaces must be decontaminated with an appropriate disinfectant*:

- After completion of procedures or tasks,
- When surfaces are overtly contaminated,
- Immediately when blood or OPIM is spilled, and
- At the end of the work shift if the surface may have become contaminated since the last cleaning.

Housekeeping – Helpful Tips

- Clean up bulk blood contamination prior to disinfection
- Blood stained items can be disposed of as trash; blood-soaked or –caked items are biohazard waste
- Items can be flushed down the toilet
- Do not contaminate the exterior of a biohazard waste bag; roll the top edges to prevent exterior contamination at the opening

Site-Specific Housekeeping Procedures

Take the time to learn the housekeeping procedures applicable to your workplace for disinfecting items and/or surfaces potentially contaminated with blood or OPIM.

Waste Disposal

- Closable, leakproof containers or bags
  - Labeled or
  - Color-coded
- Sharps:
  - Closable
  - Leakproof
  - Puncture-resistant
  - Labeled or color-coded
  - Accessible and conveniently located
  - Not allowed to overfill
- Medical waste regulatory act

Laundry

- Handle contaminated laundry as little as possible and use appropriate PPE
- Must be bagged or containerized at location where used
- No sorting or rinsing at location where used
- Must be placed and transported in labeled or color-coded containers

Hepatitis B Vaccine

- Hepatitis B vaccine is usually given as a series of 3 or 4 shots. This vaccine series gives long-term protection from HBV infection, possibly lifelong.
- Routine vaccination of school children began in 1991 (completed by 18 months).
- Since 1991, reported incidence of acute hepatitis B among children and adolescents has dropped by more than 95% – and by 75% in all age groups.
- Is an inactivated (killed) vaccine that is made from a small, non-infectious part of the hepatitis B virus, called hepatitis B surface antigen.
- 98%–100% of children who get vaccine develop immunity.

Who should not receive the Hepatitis B vaccine?

- Anyone with a life-threatening allergy to **baker's yeast**, or to **any other component of the vaccine,** should not get hepatitis B vaccine. Tell your provider if you have any severe allergies.
- Anyone who has had a life-threatening allergic reaction to a **previous dose of hepatitis B vaccine** should not get another dose.
- Anyone who is **moderately or severely ill** when a dose of vaccine is scheduled should probably wait until they recover before getting the vaccine.
- Your provider can give you more information about these precautions.
- Pregnant women who need protection from HBV infection may be vaccinated.

Hepatitis B Vaccine Risks

- Hepatitis B is a very safe vaccine. Most people do not have any problems with it.
- The following **mild problems** have been reported:
  - Soreness where the shot was given (up to about 1 person in 4).
  - Temperature of 99.9°F or higher (up to about 1 person in 15).
- **Severe problems** are extremely rare. Severe allergic reactions are believed to occur about once in 1.1 million doses.
  - Report any unusual condition, such as a high fever or behavior changes.
  - Signs of a serious allergic reaction can include difficulty breathing, hoarseness or wheezing, hives, paleness, weakness, a fast heart beat or dizziness.
- More than 100 million people have received the hepatitis B vaccine in the United States.

Hepatitis B Vaccination Requirements

- HBV vaccination must be made available, free of charge and at a reasonable time and place, to all employees at risk of exposure to blood or OPIM. It must be provided within 10 working days of initial assignment unless:
  - The employee has had the vaccination or
  - Antibody testing reveals immunity.
- The vaccination must be performed by or under the supervision of a licensed physician or other licensed healthcare professional.

Hepatitis B Vaccinations – continued

- Must be provided even if the employee initially declines it but later decides to accept the vaccination.
- Employees who decline the vaccination must sign a declination form.
- Employees are not required to participate in antibody prescreening program to receive vaccination series.
- Vaccination booster doses must be provided if recommended by the U.S. Public Health Service. No such recommendation has been issued thus far (i.e., 10/08/2006) regarding the provision of such booster doses.

HBV Antibody Testing

- Indicates whether or not a person has been exposed to HBV and, if so, provides a measure of immunity to HBV.
- Must be provided prior to HBV vaccination (i.e., pre-vaccination testing) if requested by the employee.
- Not required upon completion of the HBV vaccination series (i.e., post-vaccination testing).
- If provided post-vaccination, it should be completed 1-2 months after the third HBV vaccine dose for results to be meaningful.

If an exposure incident to blood or OPIM occurs ...

1. Wash exposed area with soap and water.
2. Flush splashes to nose, mouth, or skin with water.
3. Irrigate eyes with water or saline.
4. Report the exposure to your supervisor.
5. Direct exposed employee to healthcare professional for proper follow-up.

Site-Specific Exposure Incident Procedures

Take the time to learn about the exposure incident procedures applicable to your workplace.

Post-Exposure Follow-Up

- Document routes of exposure and how exposure occurred.
- Record injuries from contaminated sharps in a sharps injury log, if required.
- Obtain consent from the source individual and the exposed employee and test blood as soon as possible after the exposure incident.
- Provide risk counseling and offer post-exposure protective treatment for disease when medically indicated in accordance with current U.S. Public Health Service guidelines.
- Provide written opinion of findings to employer and copy to employee within 15 days of the evaluation.

Site-Specific Vaccination and Post Exposure Procedures

Take the time to learn about your sites HBV vaccination and exposure incident/post exposure procedures applicable to your workplace.

Biohazard Signs and Labels

- Warning labels are required on:
  - Containers of regulated waste,
  - Refrigerators and freezers containing blood and other potentially infectious materials.
  - Other containers used to store, and transport, or ship blood or other potentially infectious materials.
- Red bags or containers may be substituted for warning labels.

Training Requirements

- Must provide at no cost to employees during work hours.
- Must provide at the time of initial assignment to a job with occupational exposure to blood or OPIM.
- Additional training needed when existing tasks are modified or new tasks are required which affect the worker's occupational exposure.
- Refresher training every year.
- Maintain training records for 3 years.

Recordkeeping

- Medical records:
  - Maintain duration of employment plus 30 years.
  - Contains:
    - Name and SSN of employee,
    - Vaccination status,
    - Medical history/results of examinations (as permitted by the standard),
    - Physician's written opinions, an
    - Copy of info provided to physician.
  - Maintained confidential
- Training records: date, contents/summary, name(s)/qualification(s) of trainer, and name/job title of attendees

Sharps Injury Log

- Employers required to maintain an injury and illness log (i.e., MIOSHA Form 300) must maintain a sharps injury log for the recording of injuries from contaminated sharps.
- The log must be maintained in a way that ensures employee privacy and must contain, at a minimum:
  - Type and brand of device involved in the incident,
  - Location of the incident, and
  - Description of the incident.
- See MIOSHA Administrative Part 11, Recording and Reporting of Injuries and Illnesses for a list of employers not required to maintain the Form 300 as well as a sharps injury log.

Task-Specific Standard Operating Procedures

Discuss your facilities task-specific standard operating procedures developed for the procedures performed at your worksite that may result in exposure to blood or OPIM.

Conclusion

- MIOSHA Part 554
- Epidemiology of bloodborne diseases
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  - HBV
  - HCV
  - HDV
- Modes of transmission of bloodborne diseases
- Methods for recognizing tasks that may involve exposure to blood or OPIM
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Conclusion – continued

- Information on the hepatitis B vaccine and post-exposure prophylaxis
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious material
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident, and the medical follow-up and counseling that will be made available
- An explanation of the signs and labels or color coding required

Any Questions?

- Contact your employer, OR
- Contact MIOSHA's Consultation, Education and Training Division at 517-322-1809.