NIEHS WTP
Pathogen Safety Data Guide Training Module

NOTE: This module should not be used as a comprehensive stand alone safety & health training module on infectious diseases. Rather, users are encouraged to adapt and incorporate this module into new and existing programs. Also, the Trainer notes below each slide contain important information that should be reviewed prior to using this module.
“Guidance issued by federal authorities was inconsistent and left out key items that adversely affected worker safety and health.”

“Resources on infectious diseases from trusted sources is sometimes conflicting or lacking in enough specificity to be immediately helpful.”
NIEHS grantees and the safety and health community are encouraged to make use of NIEHS educational resources to strengthen their infectious disease training programs. The Guide can be integrated, adapted, and modified into existing training programs.
What Are typical problems with existing pathogen safety data?

<table>
<thead>
<tr>
<th>Technical jargon</th>
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<tbody>
<tr>
<td>Not specific to worker protection</td>
</tr>
<tr>
<td>Inconsistent guidance</td>
</tr>
<tr>
<td>Info on control measures lacks detail and specificity</td>
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Objectives

Upon taking this module, participants will:

1. Be able to access and use existing resources for pathogen safety data.
2. Explain or look up key terminology used in pathogen safety data resources.
3. Use existing pathogen safety data resources for development of infectious disease occupational exposure control plans.
Section I: Background

Section II: Introduction to Pathogen Safety Data and Occupational Hazards

Section III: Existing Sources of Pathogen Safety Data

Section IV: Occupational Exposure Risk Assessment

Section V: Infection Prevention & Control: Best Practice Example & Resources

Section VI: Selection of Control Measures
Activity 1: Introductions

Objective: Get to know one another, identify key infectious disease hazards in workplaces, and get oriented to the experience and needs of participants.

Task: Small group activity with worksheet question 1. Discuss the 3 questions and report back.

Breakout Time: 15 minutes

Reporting Time: 10 minutes

Total Time: 25 minutes
Activity 2: Terms & Definitions

Objective: To become familiar with key terms and definitions used in pathogen safety data resources and become comfortable using the glossary.

Task: Individual activity with worksheet question 2.

Breakout Time: 10 minutes

Reporting Time: 10 minutes

Total Time: 20 minutes
Activity 3: Characterizing Infectious Disease Hazards

Objective: Familiarize participants with existing pathogen safety data resources to identify an infectious agent’s properties.

Task: Small group activity with worksheet question 3.

Breakout Time: 20 minutes

Reporting Time: 10 minutes

Total Time: 30 minutes
Activity 4: Occupational Risk Exposure Assessment & Selection of Controls

**Objective:** Participants will become familiar with using Pathogen Safety Data for assessing occupational exposure and selection of control measures for infectious agents.

**Task:** Small group activity with worksheet question 4. Discuss the questions and report back.

**Breakout Time:** 15 minutes

**Reporting Time:** 10 minutes

**Total Time:** 25 minutes
Activity 5: Brainstorm, Action Planning & Realistic Implementation Approach

Objective: Participants will begin planning for use of the Guide and Training Module in their infection prevention activities.

Task: Class activity

Total Time: 25 minutes
Pathogen Safety Data

- May include:
  - Classification
  - Epidemiology
  - Pathogen Reservoirs
  - Transmission Route
  - Pathogenesis
  - Laboratory Hazards

- Exposure Controls
- Personal Protection
- Handling and Storage
- Regulatory Information
- Data of information update
- References
PSDS data is used to develop:

- Industry and site specific infectious disease prevention and control plans
- The complexity of these plans will depend on the type of work that is being done and whether or not the job tasks involve potential exposure to infectious agents
Existing Pathogen Safety Databases

- Public Health Agency of Canada
- Agence de la santé publique du Canada
- CDC (Centers for Disease Control and Prevention)
- OSHA (Occupational Safety and Health Administration)
- NIH (National Institute of Health)
- World Health Organization
- National Institute for Occupational Safety and Health

• Download the app to your iPhone, Smart phone, or blackberry

• Audience: Clinical Laboratory Workers

• Review Strengths & Weakness: Go to page 9 & 10 in the Guidebook
## Comparison of Elements in a Safety Data Sheet to a Pathogen Safety Data Sheet

<table>
<thead>
<tr>
<th>Element (Examples)</th>
<th>SDS</th>
<th>PSDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Identification</td>
<td>Chemical or Product</td>
<td>Infectious Agent</td>
</tr>
<tr>
<td>Composition</td>
<td>Name, components, CAS#, concentration</td>
<td>Name, Taxonomy</td>
</tr>
<tr>
<td>Hazard Characterization</td>
<td>Toxicological information (e.g., LD50,</td>
<td>Pathogenicity, infectious dose, communicability,</td>
</tr>
<tr>
<td></td>
<td>carcinogenicity)</td>
<td>etc</td>
</tr>
<tr>
<td>Stability</td>
<td>Chemical stability, reactivity,</td>
<td>Drug susceptibility/resistance, survival</td>
</tr>
<tr>
<td></td>
<td>incompatible materials</td>
<td>outside the host</td>
</tr>
<tr>
<td>First aid</td>
<td>First aid measures</td>
<td>First aid measures, prophylaxis, immunization</td>
</tr>
<tr>
<td>Exposure controls</td>
<td>Exposure limits, protective equipment,</td>
<td>Containment requirements (physical and</td>
</tr>
<tr>
<td></td>
<td>engineering controls</td>
<td>operational controls), protective</td>
</tr>
<tr>
<td>Physical and chemical properties</td>
<td>Odour, pH, flash point, etc.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
U.S. Centers for Disease Control and Prevention (CDC) Divisions

National Center for Immunization and Respiratory Diseases (NCIRD)
• OSHA website: www.osha.gov
• OSHA enforces S&H standards and is authorized to issues new ones.
• OSHA does NOT have an infectious disease standard or a database of PSDSs.
• OSHA relies on CDC as the source of pathogen safety data.
• OSHA has important standards that are relevant.
• Target Audience: Industry Workers
• Review Strengths & Weakness: Go to page 16 & 17 in the Guidebook
Aerosol Transmissible Disease (ATD) Standard

Aerosol Transmissible Disease Standard, §5199.
Website:
http://www.dir.ca.gov/title8/5199.HTML
Occupational Exposure Assessment for Infectious Diseases

Some key considerations

- Occupational Exposure Limits
- Toxicity
- Airborne or surface concentration
- Infectious dose

Not available

SELECT Pathogen Safety and Risk Assessment data source: PHAC, CDC, NIOSH, etc. REVIEW: Last Updated Date of source

RESEARCH INFORMATION
WHAT: Is the pathogen bacterial, virus, fungi, parasite or prion?
WHERE: Reservoir or geographic location for pathogen? WHEN: Incubation period and; HOW infection is disseminated, transmitted, or acquired?

WHAT: Select exposure control measures that will provide required protections. Use hierarchy of controls.
WHERE: Reservoir or geographic location for pathogen? WHEN: Incubation period and; HOW infection is disseminated, transmitted, or acquired?

CLASSIFY RISK: Likelihood x Severity
Low, Intermediate, or High-Risk? Assess level of contact with hazardous material during work?

WHAT: Site specific exposure control plan; WHEN: Implementation plan; HOW: Hazard communication and post-exposure procedures.

CONTINUED TRAINING: Awareness, operations, and/or hands-on training.

HOW: How are workers at risk? Identify at-risk objects, equipment, tasks, environments in your workplace and ascertain HOW often risk occurs?
Pathogen Safety Data: Understanding Exposure Risk Levels

**Occupational Exposure**
- Conducting normal work activities
- Causal interaction
- Physical contact
- Providing direct medical/supportive care
- Conducting clinical laboratory or research
- Handling dead bodies
- Cleaning and disinfecting environments
- Performing maintenance work
- Handling, transporting, treating and disposing of waste

*Reference: OSHA PPE Matrix*

**Exposure Risk**

**Target Populations At-Risk**
- Determine level of risk
- Determine minimum engineering and administrative controls required
- Determine if exposure has occurred
- Determine if symptoms are present
- Understand available post-exposure treatment options

**First Aid/Medical Surveillance:**
- Become fluent with personal protective equipment (PPE) options
- Understand hazard communication plan; know when to appropriately escalate
- Become familiar with site-specific standard operating procedures, if available

**Low Risk**

**Intermediate Risk**

**High Risk**

**PPE**

**Hazard Communication Plan**

**Site-Specific Plan**
Selection of Controls, Consider:

- What is the likelihood of Exposure?
- What are the consequences?
- Have exposures occurred?
- Does exposure result from specific job duties?
- Hierarchy of controls?
The Hierarchy of Control Measures

- Engineering
- Administrative Work Practices
- PPE

More reliance on workers
Conclusion

• We will now use the worksheet at each table to do the group activity to consider the use of the PSD Guide and Training Module in our work

• Instructions