

Biorisk Mitigation Strategies

Student Guide – Draft – October 2011





Introductions

- Instructors
- Students
 - Your name?
 - Where are you from?
 - Name one thing you did today to protect yourself from changing temperatures (e.g., keep yourself warm or cool).

Slide 2





Biorisk Mitigation Strategies

Welcome & Introductions

Lesson Objectives, 1

- Understand the role of mitigation in the AMP model for biorisk management
- Define mitigation
- Appreciate that mitigation must be based on a thorough risk assessment

Page 4



Lesson Objectives, 2

- List the categories of control measures and describe the hierarchy of controls
- Understand the advantages and limitations of each type of biorisk mitigation measure
- Be prepared to learn more details about specific mitigation strategies

Page 5





Action Plan

By the end of this lesson, I would like to:

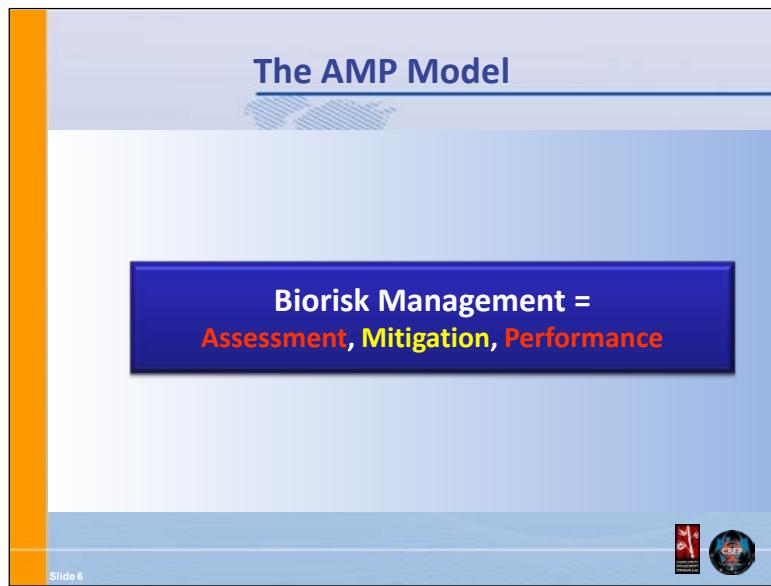
KNOW	FEEL	BE ABLE TO DO

Your learning doesn't stop with this lesson. Use this space to think about what else you need to do or learn to put the information from this lesson into practice.

What more do I need to know or do?	How will I acquire the knowledge or skills?	How will I know that I've succeeded?	How will I use this new learning in my job?



Biorisk Mitigation Strategies



Review of Biorisk Management

Describe or define the following and how it relates to the AMP model:

- Assessment
- Mitigation
- Performance



Biorisk Mitigation Strategies

Risk Mitigation

- **In your groups**, discuss the following:
 - What is Biorisk Mitigation?
 - Based on your discussion, develop a definition for “biorisk mitigation” and write it on your flip-chart.
 - You have **5 minutes** for this activity

Slide 7

What is biorisk mitigation?

Please answer the following question(s):
What is Biorisk Mitigation?

If possible, please provide an example of applied biorisk mitigation strategy and the AMP model from your experience.



Biorisk Mitigation Strategies

What is biorisk mitigation?

Why Risk Assessment?

- Continue working in your groups. Discuss these questions and write down the answers in your workbooks:
 - Why is it important to conduct a **Risk Assessment** prior to implementing mitigation controls?*
 - What outcomes would you expect when mitigation is based on a thorough risk assessment? What would you expect if mitigation is implemented without conducting a risk assessment?*

Take about **5 to 10 minutes** and be prepared to share your answers with the class.

Slide 8

Please answer the following questions:

Why is it important to conduct a risk assessment prior to implementing mitigation controls?

What outcomes would you expect when mitigation is based on a thorough risk assessment?

What possible results might you expect if mitigation is implemented uninformed by a risk assessment? Why?



Biorisk Mitigation Strategies

What is biorisk mitigation?

Group Exercise Step 1

- Using your risk assessment scenario, identify at least ten different risk mitigation measures. Measures should address both safety and security.
- Use a post-it note for each mitigation measure you identify
- Report your answers to the class

Slide 10



Write at least ten different risk mitigation measures, each on a separate sticky note. Try to be specific, writing “wear two pairs of gloves” instead of the more general “PPE”.

Please remember that your proposed measures should cover both safety *and* security.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Biorisk Mitigation Strategies

Biorisk Control Measures

Categories of Control Measures

- **Engineering Controls:** Physical changes to work stations, equipment, materials, production facilities, or any other relevant aspect of the work environment that reduce or prevent exposure to hazards
- **Administrative Controls:** Policies, standards and guidelines used to control risks
- **Practices and Procedures:** Processes and activities that have been shown in practice to be effective in reducing risks
- **Personal Protective Equipment:** Devices worn by the worker to protect against hazards in the laboratory

Slide 11



Group Exercise, Step 2

Place your **sticky notes** under the appropriate columns on the flip chart:

Engineering Controls	Administrative Controls	Practices and Procedures	Personal Protective Equipment (PPE)

Report your results to the class

Slide 12





Biorisk Mitigation Strategies

Biorisk Control Measures

What are other examples of substitution?

Elimination or Substitution

- Removing the hazard, not working with the agent or replacing the hazard with something less dangerous



Cigarettes without the smoke
Several companies are selling electronic cigarettes that vaporize nicotine rather than burn tobacco, claiming they are safer than traditional cigarettes.



Rechargeable lithium ion battery
lasts 1-3 days

LED light
illuminates when inhaled

Atomization chamber
heats the solution, vaporizing it

Nicotine cartridge
holds a liquid nicotine and propylene glycol (solvent used in food coloring) solution
Available in a variety of flavors and nicotine levels

Vapor
inhaled to simulate smoke

SOURCES: NJOY; Smoking Everywhere AP

Slide 13



Biorisk Mitigation Strategies

Biorisk Control Measures

Group Exercise Step 3

- Considering these categories of **mitigation control measures**:
- **Elimination/Substitution Administrative Controls PPE**
- **Engineering Controls Practices & Procedures**
- Identify their advantages and limitations or disadvantages
- Report your findings to the class

Slide 14



Please discuss the advantages and limitations of for each category of mitigation control measures. Advantages could be recorded on one color of post-it, disadvantages on another, written here for your own recollection.

Advantages

Elimination/Substitution:

Administrative Controls:

PPE:

Engineering Controls:

Practices & Procedures:

Disadvantages:

Elimination/Substitution:

Administrative Controls:

PPE:

Engineering Controls:

Practices & Procedures:

Advantages and Limitations

Control Measure	Advantages	Disadvantages
Elimination or Substitution	Immediate reduction of risk	Not always available or possible
Engineering	Efficient, eliminates hazard	Cost, complexity
Administrative	Authority approach	Indirect approach, primarily addresses the human factor
Practices & Procedures	SOP based (standardized approach)	Training and supervision requirements
PPE	Ease of use, relative cost	Does not eliminate hazard, PPE fails, exposure happens, uncomfortable, limits ability, only protects the user



Biorisk Mitigation Strategies

Biorisk Control Measures

Group Exercise Step 4

- Considering these categories of **mitigation control measures**:

*Elimination/Substitution Administrative Controls
PPE*

Engineering Controls Practices & Procedures

- Prioritize the four types of controls from the perspective of effectiveness

Most Effective 1 2 3 4 5 Least Effective

- Report your findings to the class



Slide 16

- Number five post-it notes 1, 2, 3, 4, 5. Consider the general effectiveness of each category of control measure.
- Discuss and rank the categories as a group, then place the appropriate number on the chart/column associated with their chosen rank.



Biorisk Mitigation Strategies

Hierarchy of Controls

- Elimination or Substitution
- Engineering Controls
- Administrative Controls
- Practices and Procedures
- Personal Protective Equipment
- *Control methods at the top of the list are, in general, more effective and protective than those at the bottom.*



Slide 17



Biorisk Control Measures

Car Safety vs. Motorcycle Safety



⚠ Car safety is all about engineering systems



⚠ Motorcycle safety is all about PPE

Slide 18





Biorisk Mitigation Strategies

Identifying controls

- Watch the following video of an incident/emergency response scenario
- Identify and write down as many different mitigation measures as you can
- Organize these measures under one of the five categories of controls
- *[link to videoclip – make sure it is included in the folder so it will play] – working on reconfirmation of permission to use!*

Slide 19

Identifying Mitigation Strategies

Identify and write down as many different mitigation measures as possible:

Organize these measures under each of the five categories.

Biorisk Mitigation Strategies

Wrap-Up & Summary

Review of Risk Mitigation

Please reflect:

What are the categories of risk mitigation strategies? How does risk assessment inform your choice of which categories to use?

Why is it important to know the advantages and disadvantages of each category?

What is one thing you will add or do differently in your work, based on this information on risk mitigation strategies.



Biorisk Mitigation Strategies

Wrap-Up & Summary

Action Plan

Thank you! Please remember to complete your action plan. It is helpful to write down a date that you hope to complete your actions.

Also, please complete the evaluation form.