



Considerations for Training in Biorisk Management

Student Guide

2012



GLOBAL BIORISK MANAGEMENT CURRICULUM

Considerations for Training in Biorisk Management




Welcome & Introductions

Welcome to Considerations for Training in Biorisk Management


Considerations for Training in Biorisk Management

Welcome & Introductions



Introductions

- Instructors
- Students
 - Your name?
 - Where are you from?



Slide 2

Action Plan

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

KNOW		FEEL		BE ABLE TO DO	
<i>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.</i>					
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?

Considerations for Training in Biorisk Management

Welcome & Introductions



Key Messages

- Training involves transferring knowledge, skills, and abilities to an identified person to create desired behaviors and actions in that person.
- The training design cycle provides steps for assuring that training is developed in a standardized and strategic manner.
- Analyzing the current situation and the desired outcomes are key first steps in determining necessary training.

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Key Messages, continued

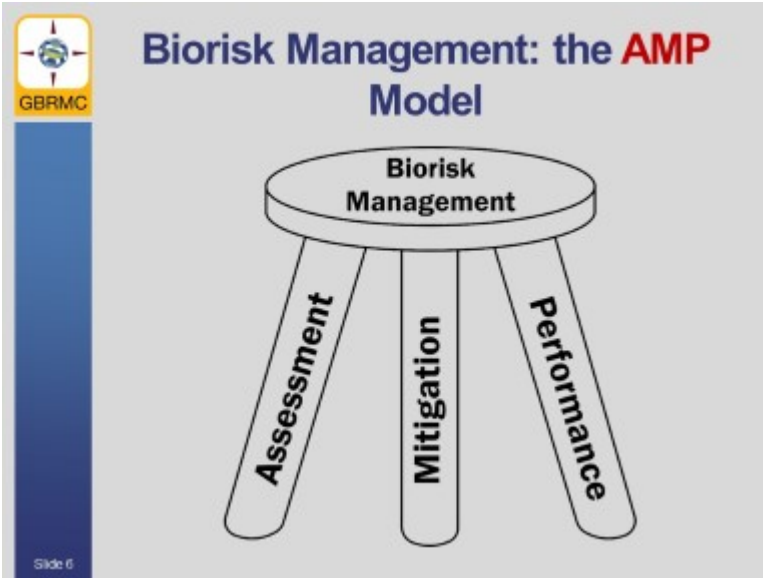
- Training is not always the best way to transfer knowledge, skills, and abilities. All options should be considered.
- Managers need to be aware of what type of delivery creates the most sustainable training environment, especially as they evaluate and assign instructors.
- Managers must be involved in evaluation of training events to assure that the desired outcome has been reached or progress has been made towards the desired outcome.

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Considerations for Training in Biorisk Management

Biorisk Management


Record refresher notes on the AMP model and biorisk management.



Considerations for Training in Biorisk Management


Biorisk Management

Define Biorisk Assessment:



Key Components of Biorisk Management

- **Biorisk Assessment**
 - Process of identifying the hazards and evaluating the risks associated with biological agents and toxins, taking into account the adequacy of any existing controls, and deciding whether or not the risks are acceptable




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Considerations for Training in Biorisk Management


Biorisk Management

Define Biorisk Mitigation:



Key Components of Biorisk Management

- **Biorisk Mitigation**
 - Actions and control measures that are put into place to reduce or eliminate the risks associated with biological agents and toxins



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Considerations for Training in Biorisk Management

Biorisk Management

Define Performance:



Key Components of Biorisk Management


- **Biorisk Performance**
 - Improving biorisk management by recording, measuring, and evaluating organizational actions and outcomes to reduce biorisk.



Considerations for Training in Biorisk Management

What is training?


What are reasons that we train?



Introduction

Question:
Why do we **train**?

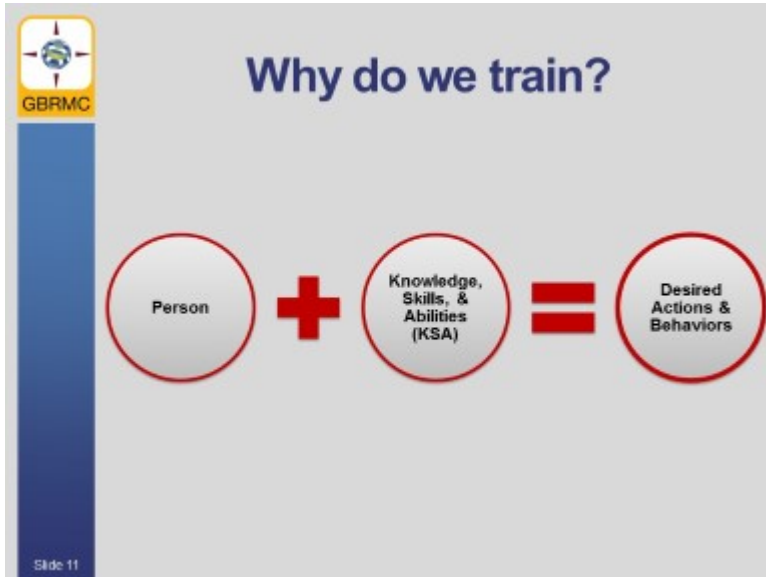
In your groups, please spend **5 minutes** to come up with as many different reasons as your group can think of, writing each on on a sticky note (one per sticky note).



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Considerations for Training in Biorisk Management

What is training?





Considerations for Training in Biorisk Management

What is training?


 **Biorisk Management Definitions**

- Laboratory **biosafety**: containment principles, technologies, and practices implemented to prevent unintentional exposure to pathogens and toxins, or their unintentional release¹
- Laboratory **biosecurity**: protection, control and accountability for valuable biological materials within laboratories, in order to prevent their unauthorized access, loss, theft, misuse, diversion or intentional release²


¹Laboratory biosafety manual, Third edition (World Health Organization, 2004)
²Biorisk management - Laboratory biosecurity guidance (World Health Organization, 2006)

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 **Definitions, continued**

The practices of laboratory **biosafety and laboratory biosecurity** are combined into an **integrated effort** known as **biorisk management** where the goals are, concurrently, to work safely and to keep the work secure.

- Biorisk management (BRM) can be further defined as the actions taken (by laboratories or facilities which handle, store, or dispose biological agents or toxins) to control or minimize biorisk to acceptable levels in relation to employees, the community and others, as well as the environment, which could be directly or indirectly exposed to biological agents or toxins (adapted from CWA 15793:2008¹).



¹Laboratory biorisk management standard (CWA 15793:2008)

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Considerations for Training in Biorisk Management



Who requires training?

Question:

What roles impact or influence biorisk management?

As a group, please spend **5 minutes** to brainstorm all the roles **within a facility** that can impact or influence **biorisk management**. Write each role on a separate sticky note.

Spend another **5 minutes** to brainstorm all the roles **outside of a facility** that can impact or influence **biorisk management**. Write each role on a separate sticky note.


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Who do we train?

What are roles **WITHIN** a facility/institution that impact or influence biorisk management?

What are roles **OUTSIDE** a facility/institution that impact or influence biorisk management?


Considerations for Training in Biorisk Management



Roles & Responsibilities

Question:
For effective biorisk management, what is required of the following roles:

- Top Management
- Biorisk Management Advisor (BSO)
- Laboratory Director (PI)
- Laboratory Worker



Each group will be assigned one of these roles.

As a group, please spend **15 minutes** to list what your assigned role needs to **KNOW, FEEL, and DO** to promote effective **biorisk management** from their position.

Write your answers in your **workbook**. Ask one member of your group to write your answers on your **flipchart**.

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Who do we train?

What should a _____

Know:

Feel:

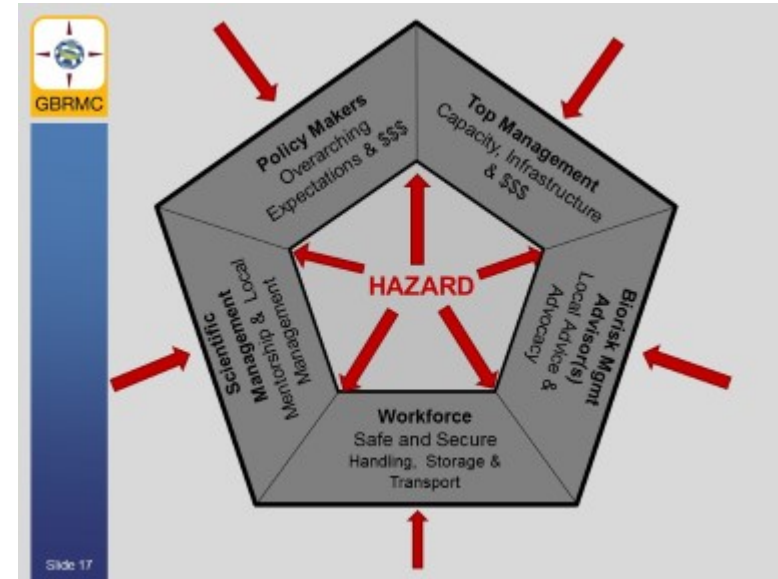
Be Able to Do:

To promote and contribute to effective biorisk management?


Considerations for Training in Biorisk Management




Who do we train?



Considerations for Training in Biorisk Management

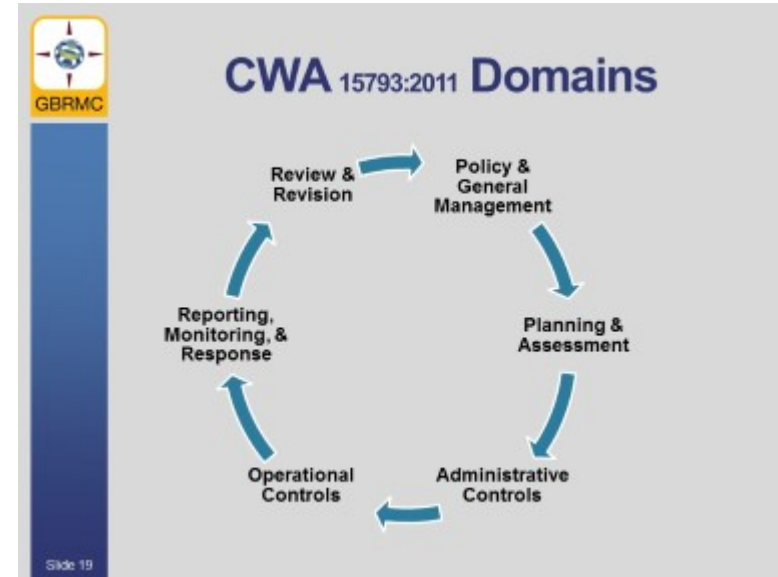
 **Biorisk Management Resources**

- CWA 15793:2008 – Laboratory biorisk management standard (+ CEN WS 55 guidance)
- CWA 16335 - BioSafety Professional (BSP) Competences
- World Health Organization Laboratory Biosafety Manual
- World Health Organization Laboratory Biosecurity Manual
- OECD Best Practice Guidelines for Biological Resource Centres
- Guidelines for Biosafety Laboratory Competency (MMWR Supplement Vol. 60)
- Local guidelines & regulations
- Current best practices
 - example: U.S. Biosafety in Microbiological and Biomedical Laboratories



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What do we train?



Considerations for Training in Biorisk Management

What do we train?



Determining Content

Group Exercise:

Your small group will be assigned a **role** from the earlier Know, Feel, Do exercise.

For the three excerpted provisions of biorisk management, taken from CWA 15793:2011, **determine the training** that would be necessary to produce the **desired action** or **behavior** for that role.

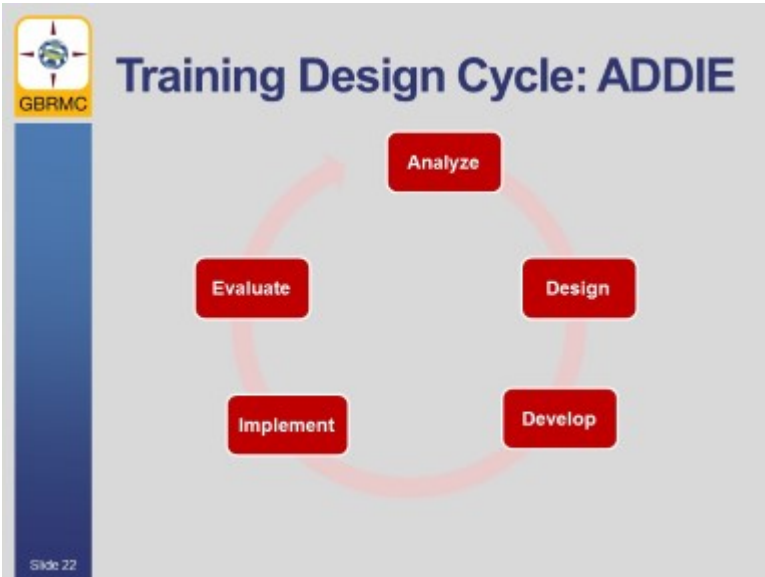
Take **15 minutes** to complete the chart in your **workbook** and also post the chart cells, provided by the instructor, on your **flipchart**.

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From CWA 15793	Top Management	Biorisk Management Advisor	Scientific/Lab Management	Lab Worker
Assure suitable methodologies for assessing and recording risk are identified, implemented, and maintained (4.3.1.4)				
Ensure that the controls for the physical security of [biological materials] are implemented and maintained [based on risk assessment]. 4.4.4.8.4				
Ensure that appropriate data are determined, collected and analysed to assess the suitability and effectiveness of biorisk management system . 4.5.1				Slide 21

Considerations for Training in Biorisk Management

Training Design



Considerations for Training in Biorisk Management

Training Design



Analyze: What do you have?

What do you have?

- What do you know about the student?
 - Pre-existing knowledge
 - Education & experience
 - Receptiveness to training
- What constraints exist for training (time, location, budget, etc.)?



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Determine “what you have”

Group Exercise:

Consider the role you've been assigned for the previous two exercises.

1. What do you know about that role?
 - **Pre-existing knowledge**
 - **Education & experience**
 - **Receptiveness to training**
2. What can you assume regarding the following?
 - **Pre-existing knowledge**
 - **Education & experience**
 - **Receptiveness to training**

Take **5 minutes** to answer these questions in the context of biorisk management.

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Considerations for Training in Biorisk Management



Analyze: Where do you want to go?

- Desired behavior or action (outcome)
 - Level of learning required
- Is training the best option?
- What other options, in addition to or instead of, training will provide the same outcome?

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Training Design

When might training not be the best option?

What other options might result in the desired outcome?


Considerations for Training in Biorisk Management

Training Design


 **Levels of Learning**

Level	Goal
Evaluate	Make judgments about the value of ideas or materials.
Analyze	Use concepts and models from training to create a new use
Apply	Applies what was learned in the classroom into novel situations in the work place
Learn (Comprehend)	Understand the meaning, translation, interpolation, and interpretation of the training. State a problem in one's own words.
Know	Remember material in the same form as it was taught

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 **Analyze – Goals & Objectives**

Bloom's Taxonomy of Cognitive Domains



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Considerations for Training in Biorisk Management


Training Design

 **Objectives**

- Organizational 
- Instructional 
- Personal 
 - Know
 - Feel
 - Do



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 **Levels of Learning**

Level	Example Verbs for Objectives
Evaluate	assess, judge, defend, predict, support
Analyze	examine, compare, critique, categorize, experiment
Apply	demonstrate, use, perform, measure, solve, build
Learn (Comprehend)	explain, describe, restate, classify, recognize
Know	list, memorize, define, recall, label

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Considerations for Training in Biorisk Management

Training Design



Example Objectives

- **Organizational**
 - Enhance **effectiveness** and **sustainability** of biorisk management training by using brain-friendly training techniques
- **Instructional**
 - Introduce validated concepts of instructional design and brain-friendly training techniques
 - Demonstrate the effectiveness of brain-friendly training techniques and training environment
 - Provide an opportunity for hands-on development of brain-friendly training activities

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Example Objectives, continued

- **Personal** – at the end of this session, students will:
 - **Know**
 - Useful models from learning science that will make developing training easier and also more effective
 - **Feel**
 - Excited about creating brain-friendly training sessions
 - **Be Able to Do**
 - Use validated instructional design processes to plan a biorisk management training session.

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Example Objectives, continued

- **Personal** – at the end of this session, students will:
 - **Know**
 - Useful models from learning science that will make developing training easier and also more effective
 - **Feel**
 - Excited about creating brain-friendly training sessions
 - **Be Able to Do**
 - Use validated instructional design processes to plan a biorisk management training session.

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ANALYZE

Biorisk Management Role:

CWA 15793 Focus: Risk Assessment Physical Security Biorisk Mgmt Effectiveness

Desired Behavior or Action:

Is training the best option?	Yes	No	If no, what are your recommendations for other strategies?		
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Learning level needed:	Know	Learn	Apply	Analyze	Evaluate
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Goals & Objectives

Organization

Instruction

Personal

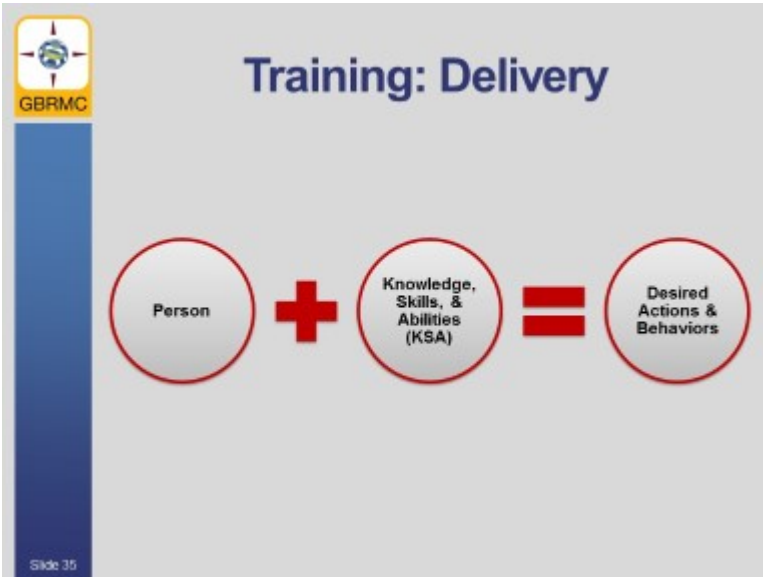
Know

Feel

Do

Considerations for Training in Biorisk Management

Training Delivery



What makes training “good”?

Exercise
Individually, think of a training you attended that you really liked.

- What did you like about the training session?
- What made the session different from other training sessions?


Please take **5 minutes** and write these notes in your **workbook**.

The GBRMC logo is in the top left corner, and 'Slide 36' is in the bottom left corner.

Considerations for Training in Biorisk Management

Training Delivery

What makes training good?



What makes training “good”?

Group Exercise

As a group, take **10 minutes** to discuss the list you made in your **workbook** and see what items you have in common. On your **flip chart**, list 7 to 10 items that are important to memorable training sessions.

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Considerations for Training in Biorisk Management

Training Delivery



Memorable Training is. . .

- Relevant
 - Enjoyable
 - Varied
 - Volition (presents choices)
 - Successful
- REVVS model (courtesy of Pamela Lupton-Bowers, *Train with the Brain in Mind*)

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Facilitate versus Teach



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Considerations for Training in Biorisk Management

Training Delivery



Learning Styles

GBRMC

Reflector Theorist

Pragmatist Activist

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The diagram illustrates four learning styles in a circular arrangement: Reflector (top-left), Theorist (top-right), Pragmatist (bottom-left), and Activist (bottom-right). Each style is accompanied by a representative image: a woman thinking, a man pointing at a whiteboard, hands working on a map, and two people in a classroom setting.



Sensory Styles

GBRMC

Auditory (hearing)

Visual (seeing)

Kinesthetic (moving)

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The diagram illustrates three sensory styles with representative images: Auditory (hearing) shown with a woman wearing headphones, Visual (seeing) shown with a child painting, and Kinesthetic (moving) shown with two people performing a physical activity on a beach.

Considerations for Training in Biorisk Management

Training Delivery

What makes a good trainer?



Trainer Qualifications

Group Exercise:

What makes a **good trainer**?

In your group, list the **qualities** of trainers that you've found most effective. Put each quality on a **sticky note**.

Take 5 minutes

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Considerations for Training in Biorisk Management

Training Delivery

What categories did you come up with?



Trainer Qualifications, continued

- Post all the **sticky notes** on a large area.
- Re-arrange the **sticky notes** into 3 to 5 categories that define a good trainer.
- List these categories in your **workbook**.


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Considerations for Training in Biorisk Management

Training Delivery

 **Next steps for training**

- Based on the analysis step, a good trainer should
 - Design
 - Develop
 - Implement
 - Evaluate
- The organization, not just the trainer, must also conduct evaluations.



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 **Training Design Cycle**



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Considerations for Training in Biorisk Management

Training Delivery



Exercise1 - Evaluate

Question:

How do you know if students have met the organizational objectives of the training session?

In your groups, discuss these questions. Put your answers on **sticky notes** – one answer per sticky note.

Take **5 minutes**.

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How do you know if students have met the goals that will promote and contribute positively to biorisk management at your institution?

Considerations for Training in Biorisk Management

Training Delivery



Evaluate – Four Levels*

- Level 1
 - Was the student **happy** with the course?
- Level 2
 - Did the student **learn**?
- Level 3
 - Over time, did the student's **behavior** change to meet the desired objective?
- Level 4
 - Over time, did the **organization see improvement** in biorisk management?

*(Donald) Kirkpatrick Learning Evaluation Model

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Considerations for Training in Biorisk Management

Review & Wrap-up



Review of Training Considerations

To wrap-up, let's discuss what we learned about **using training to help meet biorisk management objectives and goals.**

What did we learn?

What does it mean?

Where do we go from here?

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Considerations for Training in Biorisk Management

Review & Wrap-up



Key Messages

- Training involves transferring knowledge, skills, and abilities to an identified person to create desired behaviors and actions in that person.
- The training design cycle provides steps for assuring that training is developed in a standardized and strategic manner.
- Analyzing the current situation and the desired outcomes are key first steps in determining necessary training.

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Key Messages, continued

- Training is not always the best way to transfer knowledge, skills, and abilities. All options should be considered.
- Managers need to be aware of what type of delivery creates the most sustainable training environment, especially as they evaluate and assign instructors.
- Managers must be involved in evaluation of training events to assure that the desired outcome has been reached or progress has been made towards the desired outcome.

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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?

Use space on back, if needed