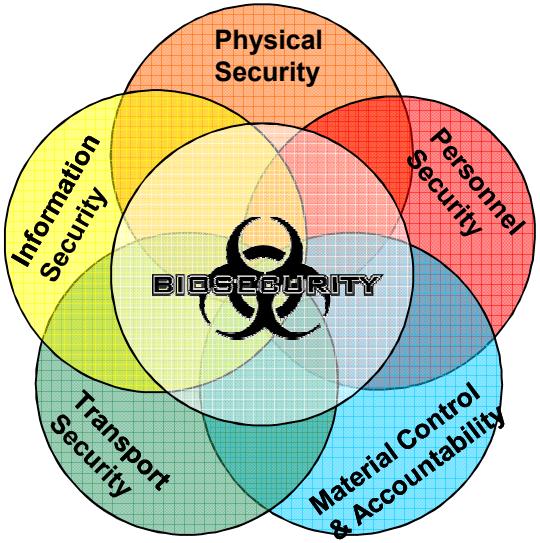
Advanced Biosafety Officer Training
Pilot Certificate Program

SAND2011-0752P



Laboratory Biosecurity

University of the Philippines Manila
Philippine Biosafety and Biosecurity Association
Biological Engagement Program

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Objectives/Topics

At the conclusion of this module, participants will be able to:

- Discuss integration of biosafety and biosecurity
- Define the goals of biosecurity
- Discuss the components of a security management and operations plan
- Define biosecurity countermeasures
- Define physical security approaches

Development of a Biosecurity Program

- Primary Goal of a Biosecurity Program
  - To prevent loss, theft, or misuse of microorganisms, biological materials, and research-related information.
  - A *vital* factor in the development of an appropriate, applicable Biosecurity Program is ***Risk Assessment***

- Biosecurity Risk Assessment

  - Develop a system to identify and analyze threats
  - Develop a Management program to document biosecurity risks for different scenarios
    - Including mitigation planning and resource allocation
  - Regularly reevaluates *Risk Position* and Protection Objectives

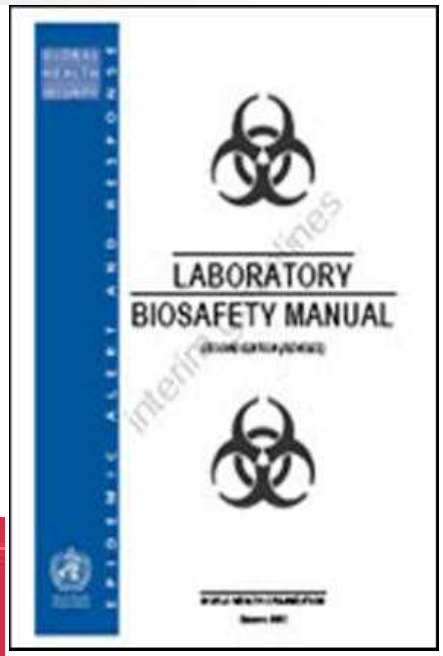
Biosafety and Biosecurity

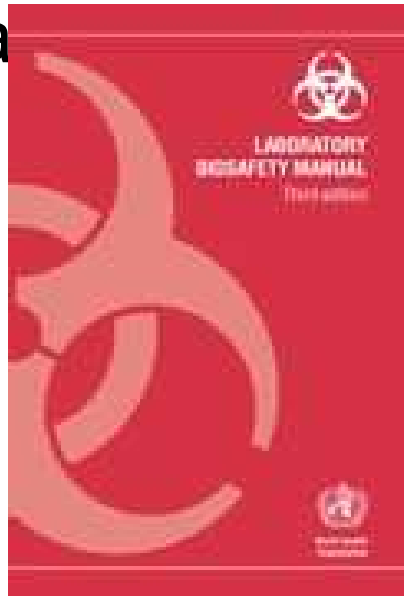
- Both biosafety and biosecurity keep pathogens from escaping into the environment or community.
  - Biosafety prevents accidental exposure.
  - Biosecurity prevents deliberate exposure.

Laboratory Biosecurity Supports Laboratory Biosafety

- **Laboratory biosecurity**

  institutional and personal security measures designed to prevent the loss, theft, misuse, diversion, or intentional relea of pathogens and toxins





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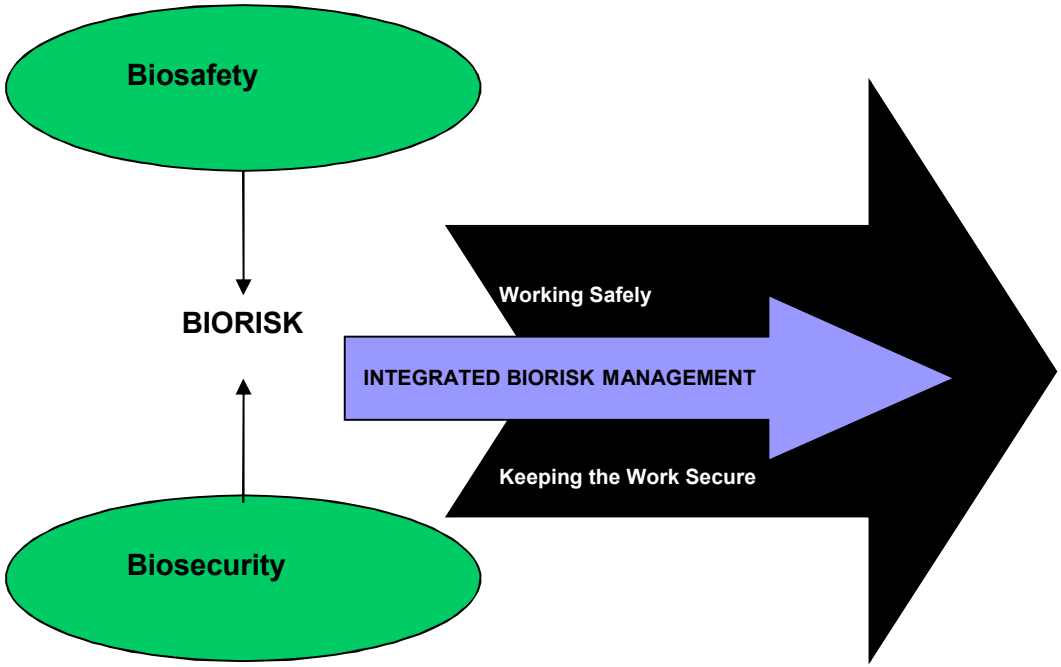
Strengthening Biological Risk Management



Vision for Integrated BioRisk Management:

- Increased focus on “awareness” to change current culture
- Clarify terminology
- Development of targeted “training “strategies”
- Securing “commitment” from key stakeholders, including Government officials, who must be on board
- Continue increasing “capacity” based on Regional/Country needs and establish accountability through development of Country “report cards”

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Similar Physical Aspects of Biosafety and Biosecurity

Biosafety

- Physical protection
  - Increasing levels of physical containment to prevent the accidental release of dangerous biological agents
    - BSL-1
    - BSL-2
    - BSL-3
    - BSL-4
- Examples: negative air pressure, cabinets and hoods

Biosecurity

- Physical protection
  - Graded protection designed to secure dangerous biological agents from adversaries
    - Property protection area
    - Limited area
    - Exclusion area
- Examples: access controls, delay, intrusion detection

Similar Procedural Aspects of Biosafety and Biosecurity

Biosafety

- Material control and accountability
  - Handling procedures to prevent accidental infection
  - Use of personal protective equipment

Biosecurity

- Material control and accountability
  - Basic inventory procedures to limit opportunities for illicit acquisition
  - Designation of laboratory workers responsible for specific material

Similar Procedural Aspects of Biosafety and Biosecurity

Biosafety

- Personnel reliability
  - Background checks to ensure proper credentials to handle dangerous organisms
  - Policies to prevent untrained individuals from working with materials that pose a biosafety risk

Biosecurity

- Personnel reliability
  - Background checks to ensure personnel are reliable and trustworthy
  - Procedures to remove unauthorized personnel from secure areas

Similar Procedural Aspects of Biosafety and Biosecurity

Biosafety

- Transport
  - Requirements to ensure the safe transport of materials within a lab
  - Federal and international regulations governing the transport of infectious substances outside the lab

Biosecurity

- Transport
  - Best practices to ensure the secure transport of materials both inter-facility and intra-facility
  - Chain of custody where appropriate

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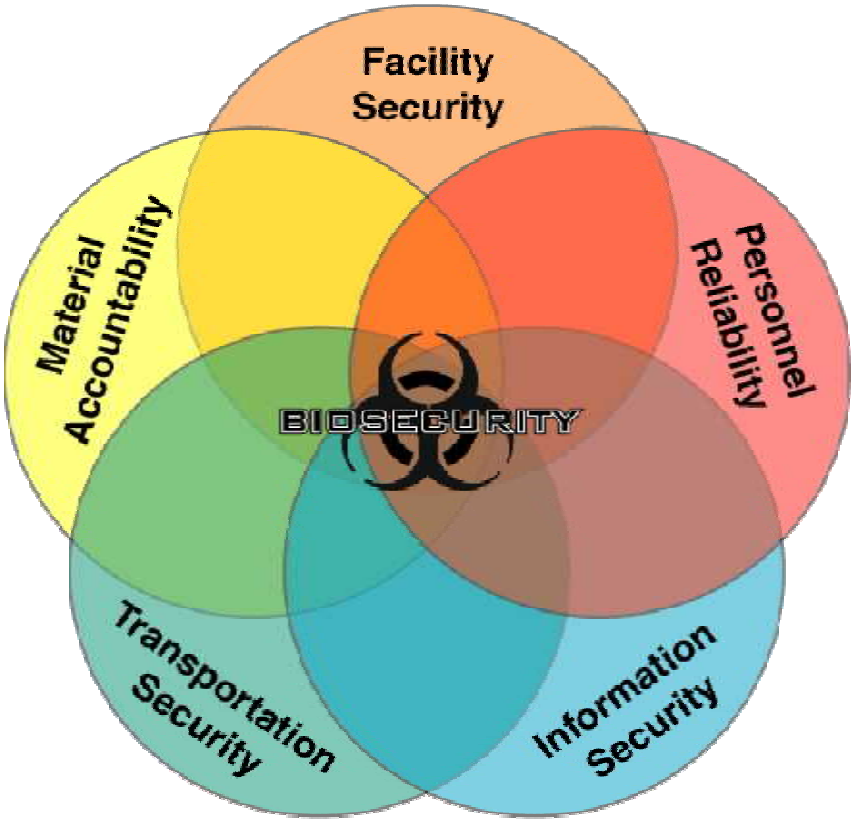
Laboratory Biosecurity Supports Laboratory Biosafety

- **Safe and secure laboratories help**
  - Ensure the containment of hazardous infectious substances in laboratories
  - Maintain citizens' confidence in the activities of the bioscience research community
  - Increase transparency to investors in the biomedical and biotechnology industries
  - Protect valuable research and commercial assets
  - Reduce the risks of crime and bioterrorism

Fundamental Approach

Protect :

- Biological agents
- Information



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Security Management/Operation Plan

- Biosecurity system components
  - Physical security
  - Personnel security
  - Material handling and control measures
  - Transport security
  - Information security
  - Program management practices
- Each component is implemented based on results of risk assessment
- Biosecurity must mitigate risk for both
  - The insider
  - The outsider

Biological Laboratory Program

- Biological laboratory program includes:
  - Security
  - Safety
  - Personnel reliability program (PRP)
  - Biological agent inventory control/accountability system

Security

- Security
  - Limited access
  - Internal and external monitoring and responses
  - Intrusion alert and monitoring
  - Random searches and inspections

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Safety

- Safety
  - Training and mentorship
  - Risk management
  - Environmental surveillance
  - Occupational health screening
  - Biological incident response and reporting

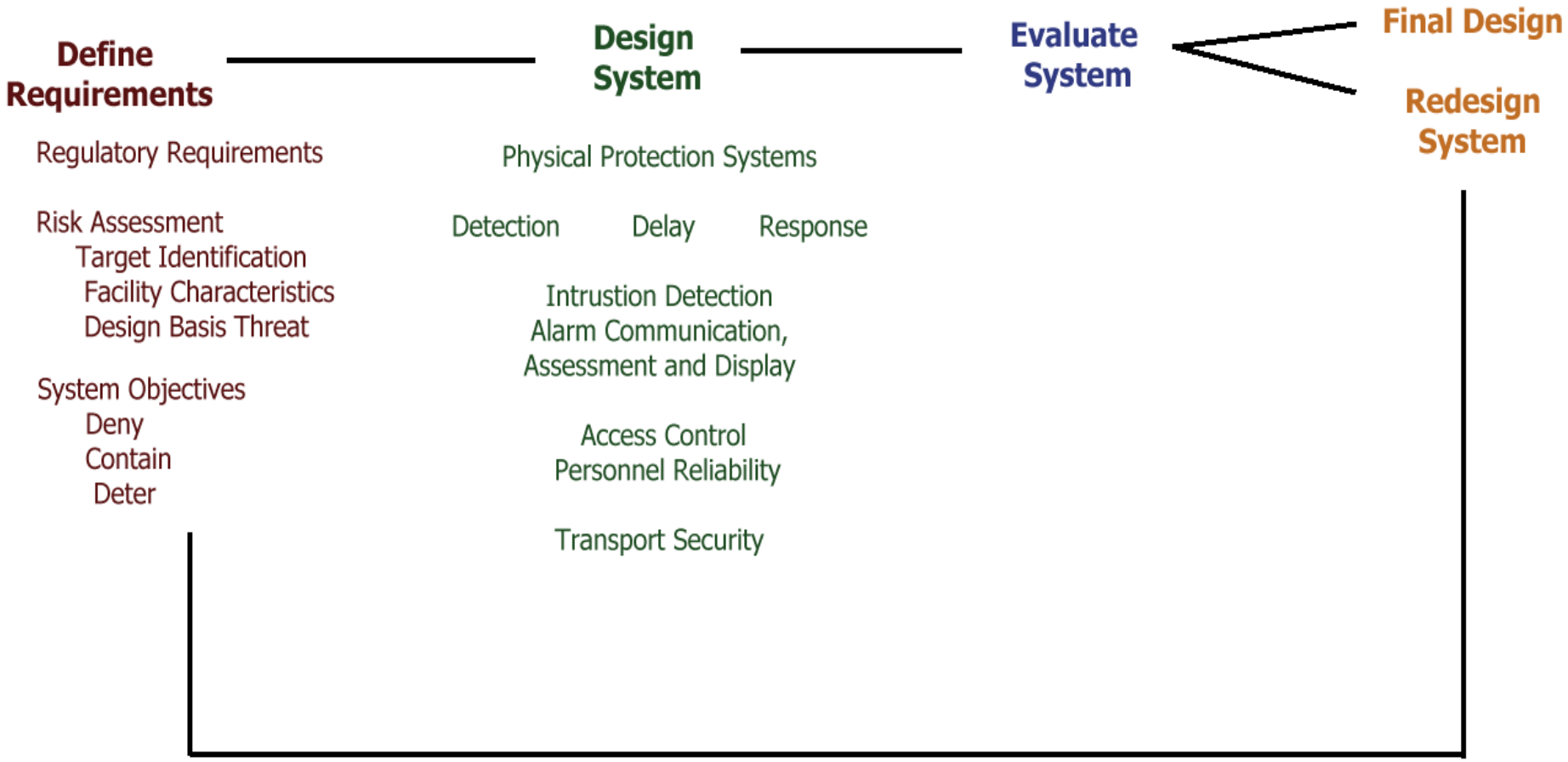
Personnel Reliability Program

- Personnel Reliability Program (PRP)
  - Comprehensive background investigation
  - Medical screening
  - Constant behavior surveillance
  - Random alcohol/drug screening
  - Periodic re-investigation

Accountability

- Biological Agent Accountability
  - Pinpoint location of of biological agents and registration process
  - Limited access
  - Traceable audit records, electronic and/or paper

Laboratory Biosecurity Systems



Insider Threat

- Insider threat is most common but underrated
- #1 threat on most organization's list of formidable threats

Physical Security Approaches

- Security should to be reasonable, effective and tailored to the research needs of the facility
- Badge access with personal identification number
- Limit access
  - to persons in PRP with need-to-know and with appropriate training
  - to cleared personnel only (unless with approved escort)
- Alarms on exit doors and within restricted laboratories after hours
- Security force response to alarms

Physical Security Approaches

- CCTV surveillance
- Random searches and inspections
- Audit/inventory controls system
- Informed outside response force
- Armed internal security force if warranted
- Continually train and practice
- Identify and adopt response procedures
- Integrate procedures with technology

Security is everyone's job!

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Laboratory Biosecurity

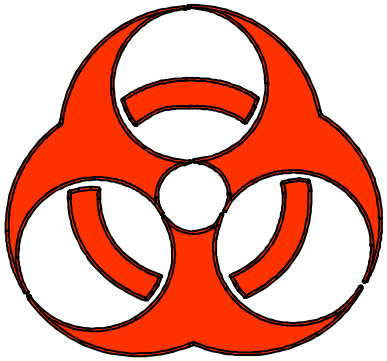
- **Laboratory biosecurity**: institutional and personal security measures designed to prevent the loss, theft, misuse, diversion, or intentional release of pathogens and toxins

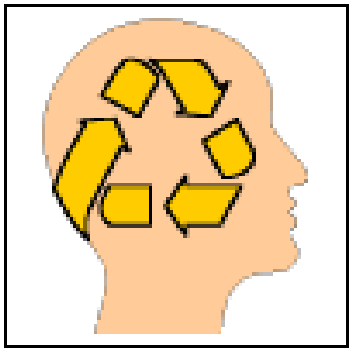
Summary

- Biosafety and biosecurity mitigate different risks, but they share a common goal-keeping dangerous pathogens safe and secure.
- The goals of biosecurity are achievable.
- Effective physical security should be reasonable and tailored to the facility.
- Security management should include a physical security plan, use of local resources.

Biosecurity

Questions





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