Key Components in Developing a Biosurety Program for Biosafety Level 3 Laboratories

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What is Biosurety?

- Personnel reliability
- Physical Security
- Agent Accountability
- Biosafety
What is Biosurety?

Goal: Securing the laboratory area to allow entry only to authorized persons

- Card readers
- Pin numbers
- Cameras
- Padlocks
- Passwords
- Security Guards
- Fences
What is Biosurety?

Goal: Conducting research safely and preventing laboratory exposure to biological agents

- Engineering Controls
- Work Practice Controls
- Administrative Controls
- Personal Protective Equipment
What is Biosurety?

Goal: Develop a method to ensure all agents are accounted for, and ensure no theft or loss of agent had occurred

• Inventory log
• Regular inventories
• Carcass inventory
• Routine Audits
What is Biosurety?
Goal: Ensuring all persons with access to agents are trustworthy, stable

• Debated topic
• Many potential methods
  • FESAP report
  • SA regulations
• Traditionally DOD
  • recommended by NSABB
  • Required for DSAT labs with Tier 1 agents
How do you develop an effective biosurety program?
The Players

Scientists

Training Program

Public Safety

Institutional Biosafety Committee

Facility Engineering Controls

Facilities Department

Inventory Process

EH&S/Biosafety Professionals

IACUC

BSL3 Facility Manager

Administration

Deans
Risk Management

Risk = \( f(\text{threat, consequence, vulnerability}) \)

Risk assessments performed on all aspects of day to day bio-containment lab function:

- Experimental
- Security
- Emergency response
Risk Management

Risk = $f$ (threat, consequence, vulnerability)

Threat (or Hazard) – consider probability of bad things occurring

Consequence – people, operations, infrastructure, environment, reputation

Vulnerability – susceptibility to threats/hazards causing consequences
Risk Mitigation

1. Risk Identification
2. Risk Assessment
3. Risk Management
4. Risk Communication
It is important to be able to explain the risks/benefits regarding your biocontainment laboratories.

- Is there buy in from all parties?
- Do you know the right people to talk to?
- Do you have the necessary tools to implement new policies?
- What about other safety professionals at your institution?
Policy Development

Institutional Wide Policies
- Incorporate into performance standards
- Leverage for implementation

Departmental Policies
- Methods for day to day implementation

Standard Operating Procedures
- Backbone of the biosafety program
- More detailed, procedures for facilities
Other Areas for Consideration:

• Is there buy in from all parties?
• Do you know the right people to talk to?
• Do you have the necessary tools to implement new policies?
Policy Development

Elements of an effective SOPs?

- User input
- Purpose/ Objective
- Equipment needed for procedure
- Description of procedure (safety focus)
- Extra precautions
- Annual review
Who reviews/ approves SOPs?

- Users - day to day basis
- Committee - annually, as needed
  - Users
  - Facility Managers
  - Principle Investigators
  - Veterinarians
  - Biosafety Professionals
The best training program combines didactic learning, hands on learning and refresher training specific to the laboratory facility.

Mentorship is crucial to a successful training program.
Didactic training:

• Interactive training
• Scientist involvement/ input
• Embrace technology
  • Online, videos
• Unique styles
  • Games (jeopardy)
Training Programs

Four areas for competencies:
• Potential hazards
• Hazard controls
• Administrative controls
• Emergency Preparedness and response
Main types of exercises:

Tabletop
Functional
Full Scale Exercise

Determine if resources, support, time, facilities, funding and personnel needed are available to conduct an exercise
Exercise Development

Target Capabilities:

Derived from threat and mission analysis.

http://training.fema.gov/is/nims.asp
Exercise Development

Design S.M.A.R.T. objectives

Simple
Measureable
Achievable
Realistic
Task-Oriented

http://training.fema.gov/is/nims.asp
Incident Command System: standardized, onscene, all hazards incident management

Recommended Training:

- ICS-100HE
- ICS 200
- ICS 300/400
- ICS 700
What is Biosurety?

Risk Assessment/Management/Communication

Personnel reliability

Physical Security

Agent Accountability

Biosafety

Exercises

Policy Development

Training