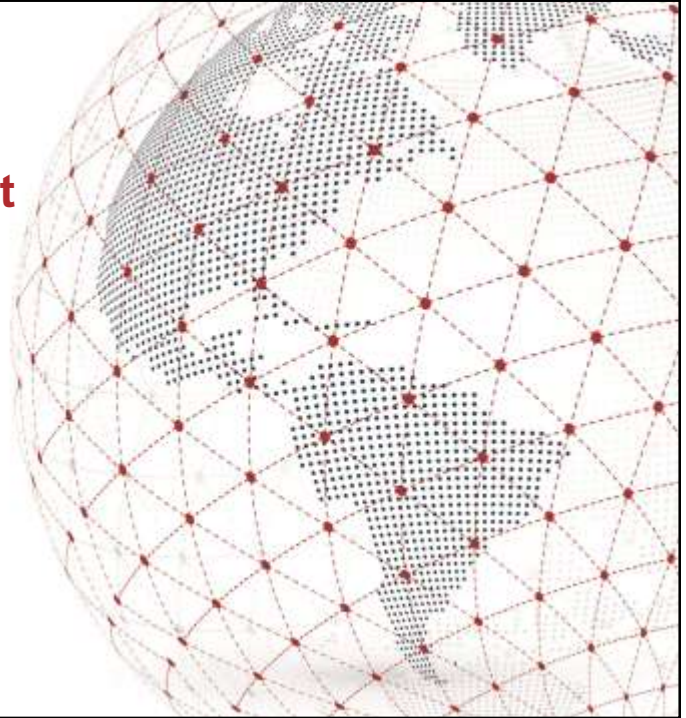


# Holistic Risk Management in Bio-Safety Environments



Glenn Sandford, CPP  
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## Answering WSIC or WIIFM

### Fort Detrick biocontainment lab breached

<https://taskandpurpose.com/news/army-fort-detrick-containment-breaches/>

### FSAP report discloses 291 incidents in high-containment labs

[www.cidrap.umn.edu/news-perspective/2016/07/federal-report-discloses-incidents-high-containment-labs](http://www.cidrap.umn.edu/news-perspective/2016/07/federal-report-discloses-incidents-high-containment-labs)

### USA Today exposé: “CDC failures like a screenplay for a disaster movie.”

<https://www.usatoday.com/story/news/2016/06/02/newly-disclosed-cdc-lab-incidents-fuel-concerns-safety-transparency/84978860/>

# Holistic Risk Management

- Layering containment practices to address risks and threats from a 360-degree perspective
- Containment – A combination of primary and secondary barriers, people, practices and procedures, and equipment for managing risks.

AT RISK

## Key Definitions

- Risk is the possibility that a certain event will occur, creating a negative impact to the entity.
- A Threat is a Risk that crosses a threshold, qualitative or quantitative, where there is a predictable impact or loss based on the likelihood of occurrence the predicted.
- Risk Tolerance is a willingness to accept a certain probability that a Threat event will occur and produce loss.

AT RISK

## Loss Reduction

- No matter what the risk, (security, safety, quality) the goal of managing risks is to protect people and businesses from loss.
- Holistic risk management protects across the spectrum of risks, incorporating traditionally used principles and practices across disciplines as part of a toolkit to assess and mitigate the risk of loss to people, property or reputation.

## BASIC RISK MATRIX

		SEVERITY OF CONSEQUENCE		
		LOW (1)	MEDIUM (2)	HIGH (3)
PROBABILITY OF CONSEQUENCE	HIGH (3)	3	6	9
	MEDIUM (2)	2	4	6
	LOW (1)	1	2	3

## MODIFIED RISK MATRIX FOR BIO-SAFETY ENVIRONMENTS

		SEVERITY OF CONSEQUENCE		
		LOW (1)	MEDIUM (2)	HIGH (3)
PROBABILITY OF CONSEQUENCE	HIGH (3)	3	6	9
	MEDIUM (2)	2	4	6
	LOW (1)	1	2	3

AT RISK

## RISK TYPES

### NATURAL

- FLOODING
- TORNADO
- EARTHQUAKE
- FIRE
- METEOR/SPACE DEBRIS

### MAN-MADE

- ACCIDENTS
- EQUIPMENT FAILURE
- POLITICAL
- CRIME

AT RISK

## MAN-MADE EVENTS

### EVENT

Threat  
 Intrusion  
 Neglect/Accident  
 Sabatoge  
 Theft  
 Bomb  
 Property Damage  
 Infrastructure/Equipment  
 Network Damage  
 Attack/Homicide

### CONSEQUENCES

Death  
 Injury  
 Reputational Damage  
     Internal  
     External  
 Regulatory Consequences  
 Financial Loss/Liability Exposure  
 Materials Loss  
 Loss of Productivity

## SOLVING FOR X....

...if X equals prevention or mitigation of the consequences of an event

1. Identify the risks
2. Identify the threats
3. Prioritize the threats
4. Conduct a Gap Analysis

## ELEMENTS OF A GAP ANALYSIS

### LAYERED CONTAINMENT OPTIONS:

- PEOPLE
- TECHNOLOGY
- TOOLS
- STRUCTURE
- TERRAIN

### AS ADDRESSED BY:

- POLICY
- PROCEDURE
- TRAINING

## LAYERS OF CONTAINMENT

### PROACTIVE

People (Employees & Guards)  
 Employee Screening  
     Background checks  
     Suitability evaluations  
 Access Control  
 Intrusion and Motion Detection  
 CCTV  
 Drills/Training  
 Support from 3rd parties  
 Terrain and Signage  
 Stakeholder involvement

### REACTIVE

People (Investigators)  
 CCTV  
 Access Audits  
 CCTV  
 Drills/Training  
 Alarms  
 Reporting  
 Support from 3rd parties

## Insider Threats...Why all the fuss? Highest Vulnerability/Lowest Visibility

### An individual with:

- Permission or access to an environment
- Experience within the environment
- Knowledge/Insight of containment methodologies
- Observation of/familiarity with adherence to policy and procedure related to containment methods
- Opportunity to avoid detection

### While at the same time:

- Vetted
- Known
- Trusted
- Liked
- Valued or Appreciated

## ANALYSIS TRIANGLE



## Insider Threats

- **1st triangle:** The problem or grievance
- **2nd triangle:** The components
  - The Person, Target and Place
  - Target or Victim - Could be a person, place or thing.
  - Place - Relating to the area that the intended target or victim is located
- **3rd Triangle:** People who have influence over the parts of the second triangle. If they are strong/highly influential then they are effective in exercising influence or control. If they are weak, or absent, their intervention will be less effective.
  - **Handlers:** Relatives-peers-coaches-counselors, people who hold a positive influence over the person of concern.
  - **Guardians:** Those tasked to protect the target or victims.
  - **Manager:** Every location has some form of ownership someone has control over it. In the workplace, managers hold that responsibility.

## Pathway to Aberrant Behavior

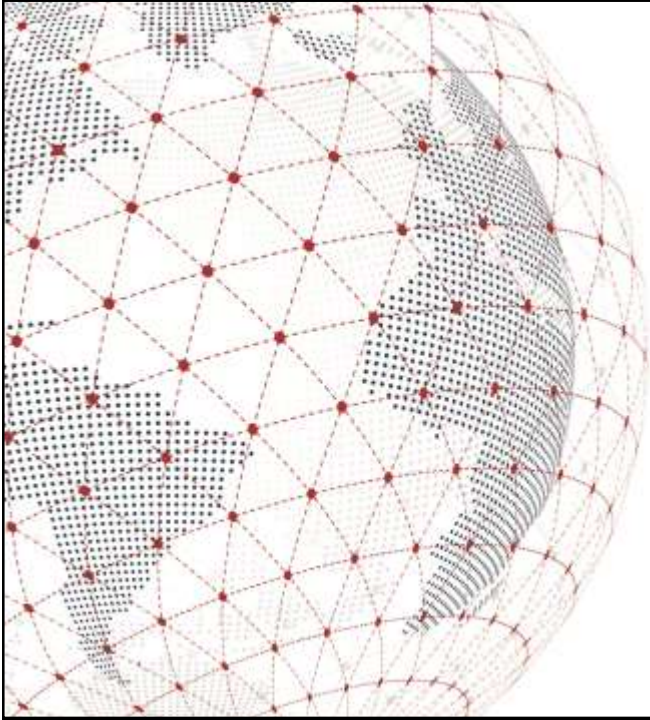


## Continuing Assessment Cycle



**PARTING ADVICE...**

**...START THE CONVERSATION!**



# QUESTIONS?



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