

A Conversation on Risk Management in Environmental Monitoring and Public Health Labs

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Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA-0003525

Innovative Solutions for Countering Biological and Chemical Threats Globally



Our Mission: Strengthen capacities to safely, securely, and responsibly detect, handle, and control dangerous biological and chemical agents







IBCTR's Global Experience





IBCTR Core Capabilities



Human Capacity Development Ris

Analysis





IBCTR



IBCTR Core Capabilities



Human Capacity Development

Analysis



Health Security





Jordan University of Science & Technology



Biorisk Management Training Center

Objective: Create an internationally recognized training center

- Develop Business Plan with JUST
- Develop JUST trainers and a sustainable trainer development plan
- Renovate an existing building to illustrate best practices and serve as a training facility





Global Biorisk Management Curriculum (GBRMC)

Biosafety and Biosecurity training materials

- Strategic, sustainable
- Customizable

Network of trainers

- In over 61 countries
- 861 trainers in the network











Chemical Safety and Security Training

What do we train?

Chemical Safety and Security

Who do we train?

- Academic chemists
- Chemical engineers
- Chemical industries professionals







Types of Chemical Security Training

- Chemical Safety and Security Officers
- Policy and Legislation Workshops
- Chemical Supply Chain Security
- Risk Assessment
- Emergency preparedness
- Chemical Material Control and Accountability
- Tailored training for Visiting Scholars









First Responder Training and Field Biosecurity

Provide BRM Training to First Responders and Field Biosecurity Workers

Who Do We Train?

- First Responders
- Law Enforcement
- Military
- Field epidemiologists and clinicians

What Do We Train?

- Field Biosecurity and Operations
- Site Safety to include PPE selection and use
- Field sampling and sample transport
- Decontamination and waste management
- Site and event management







IBCTR Core Capabilities



Human Capacity Development

Analysis







Advancing Biological Risk Management Standards

Help develop global standards for laboratory biorisk management

- CWA 15793: Laboratory Biorisk Management
 - ISO standard (ISO/WD 35001)
- CWA 16393: Guidelines for the implementation of CWA 15793
- CWA 16335: Competence of a Biosafety Professional







IBCTR's Risk Assessment Methodologies

Vision

- Create standardized approaches to safety and security risk assessment
- Create a tool for risk prioritization and communication





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The Tools

- Biosafety RAM
- Biosecurity RAN
- Chem SAM



Tools for Risk Management

Library of Core Documents for Risk Management

- Biorisk Management Manual template
- Operations and Maintenance Manual template
- SOP templates





Tools for Risk Management

Chemical Inventory Management Software

- Promote chemical management in the laboratory
- Enhance safety and security
- Hands-on training
- Sandia developed CMS inventory tool

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Reduce the theft risk of valuable/dangerous biological or chemical materials



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Laboratory and Facility Design

Laboratory Best Practices for Intrinsic Safety and Security







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Authoring Key Risk Management Texts

LABORATORY BIORISK LABORATORY BIOSECURITY (2007, 2nd ED. IN MANAGEMENT (2015) **PREPARATION**) Edited by Reynolds M. Salerno Jennifer Gaudioso LABORATORY Laboratory BI@RISK Biosecurity Handbook MANAGEMENT Biosafety *** Biosecurity Reynolds M. Salerno Jennifer Gaudioso CRC Press CRC CRC Press Both books focus on Rigorous risk assessment Deciding how to mitigate those risks deemed to be • unacceptable Establishing mechanisms to constantly evaluate the ٠ effectiveness of the control measures





IBCTR Core Capabilities



Human Capacity Development

Analysis Health Security







Lab Network Analysis

Tanzania - Arusha Estimated Travel Time with No Impedances









Objective:

- Connect laboratories
- Reduce sample transport time
- Inform lab network strategies

Activities:

- Identify and develop transportation networks
- Develop laboratory network plans
- Sample transportation network analysis
 - Ebola response



Development of Biological and Chemical Analyses and Tools

Unmanned Aircraft Systems (UAS) Sample Transport

- Objective: determine feasibility of UAS to transport biological specimens
- Considerations:
 - Technical capabilities of UAS
 - Advantages and disadvantages of various sample transport modes
- Case analysis:
 - Ebola samples in Lofa, Liberia









IBCTR Core Capabilities



Human Capacity Development Risk Management

Analysis





Sandia National Laboratories

Veterinary Capacity Building

Veterinary professionals are on the forefront of infectious disease outbreaks

Therefore, we focus on:

- Developing policies to control infectious diseases
- Creating a stronger clinical sector
- Building local capacity to confirm infectious disease outbreaks







Mekong Delta Exercise (TTX Example)

Objective: Evaluate Cross-Sector, Cross-Border One Health Preparedness

- Strategic / Policy Level based on existing preparedness plans
- Emerging, unknown zoonotic outbreak scenario

Participants

- Cambodia, Lao PDR, Vietnam, Thailand and Myanmar
 - Ministries of Health, Agriculture, Environment and Foreign Affairs
- External evaluators: AFRIMS, NAMRU-2, US Embassy, CDC

Results

- Participant-driven After Action Report
- Participant-created local working groups





Fighting Ebola

Improve biosafety and biosecurity

 Technical assistance for labs with suspected Ebola samples

Model national infrastructure

- Reduce sample transport time
- inform lab placement









SNL Conclusions

Sandia is a US Government National Security Laboratory

- Federally Funded Research and Development Center (FFRDC) status
- Mission to provide technical advice and support on national security issues to USG

Sponsors can tap into the entirety of Sandia, such as:

- Security specialists
- Systems analysis
- Chem and bio detection, bioinformatics, bioforensics, environmental restoration
- International nuclear nonproliferation experience
- IBCTR has 12+ years of global collaborative bio and chem threat reduction experience
 - Multi-disciplinary team
 - OIE Collaborating Centre for Laboratory Biorisk Management
- SNL has infrastructure for international engagement
 - International business services
 - International programs building, including training, technology, and demonstrations area
 - Demonstrated ability to work in diverse business environments
 - Host visiting scholars at Sandia and/or meet in 3rd party countries to advance projects
 - Extensive global travel experience



Key Partners in Addressing the Biosecurity Threat









How can we work together? Let's continue to discuss:

<u>Email: awnelso@sandia.gov</u> 505-220-8507 (mobile)