Development and Implementation of an Customized BSL-3 Safety Training Program

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Centers for Disease Control and Prevention (CDC)

OCTOBER 2017
ORGANIZATIONAL OVERVIEWS

BSL-3 TRAINING NEED IN NCIRD

TRAINING DEVELOPMENT

TRAINING IMPLEMENTATION

IMPACT & SUMMARY
ORGANIZATIONAL OVERVIEWS
BOOZ ALLEN HAMILTON OVERVIEW

- Consulting firm for the Federal government
  - Cybersecurity
  - Biodefense
  - IT
  - Health

- Atlanta, Georgia office contracts include:
  - Centers for Disease Control and Prevention (CDC)
  - Internal Revenue Service (IRS)
  - Veterans Affairs (VA)
  - Federal Aviation Administration (FAA)
  - National Park Service
BOOZ ALLEN’S ROLE AT CDC

- **The ask:** Assist with the development, implementations, and maintenance of an effective laboratory quality management system (QMS) within the National Center for Immunization and Respiratory Diseases (NCIRD)
- 2015: NCIRD extended the contract to include Biosafety
- Both QMS and Safety are integral parts of the Culture of Safety at the CDC and BAH has been instrumental in assisting the growth of both fields in several laboratory programs across the CDC.
BSL-3 SAFETY TRAINING
NATIONAL CENTER FOR IMMUNIZATION AND RESPIRATORY DISEASES (NCIRD)
The Task: 30+ personnel needing BSL-3 safety training
The Deadline: July 2016 (7 months away)
IDENTIFYING THE NEED

Influx of laboratory personnel rapidly needing training

NCIRD has limited funds and short timeline for training

Booz Allen tasked with finding a solution
ADDRESSING CHALLENGES

Current Options

Agency BSL-3 Safety Training
- Generic
- Limited offerings
- Limited availability

External BSL-3 Safety Trainings
- Costly
- Limited availability
- Out of state
- Application of learned material

Factors to consider:
- 30+ personnel
- Short timeline
- Limited funds
PROVIDING A SOLUTION

- Customized
- Low Cost
- NCIRD BSL-3 Safety Training
- In House
- Sustainable
- Flexible

Booz Allen Hamilton
TRAINING DEVELOPMENT
RESOURCES FOR TRAINING DEVELOPMENT

INTERNAL RESOURCES
- Subject Matter Experts (SMEs)
- Instructors
- Reviewers
- Pilot testers
- Funding
- Equipment
- Photos

EXTERNAL RESOURCES
- Adult learning
- Technical editing
- Online capability
- Graphic design
- Training lab for the hands-on training
- Laboratory Safety Training Board for review
- Reviewers from other Centers
PROPOSED TRAINING LAYOUT

NCIRD BSL-3 Safety Training Program

- Online Modules
- Hands-on Modules
Phase 1 – Online Development

- The content was developed by Booz Allen and NCIRD SMEs based on applicable regulations, competencies guidance documents, and current NCIRD practices.

- All course materials went through an extensive review period including internal and external reviewers.

- After review, all content was sent to a CDC Laboratory Training Team to convert it to an online format.
TRAINING DEVELOPMENT: PHASE 2 HANDS-ON MODULES

Phase 2 – Hands-On Development

- Each NCIRD BSL-3 laboratory provided their unique Standard Operating Procedures (SOPs) to be used for the hands-on portion of the training.

- NCIRD laboratory specific SOPs, CDC policies, procedures, guidance were used to establish baseline standards across all NCIRD BSL-3 laboratories without changing existing procedures and practices.

- NCIRD Safety and BSL-3 laboratory personnel were also trained as instructors to teach the hands-on training.
TRAINING IMPLEMENTATION
REQUIREMENTS FOR TRAINING COMPLETION

1. Complete initial program-specific requirements to work in BSL-3
2. Complete Online Modules and pass test
3. Complete Hands On Containment Session
4. Complete Hands On Emergency Response Session
5. Begin lab-specific BSL-3 training
THE ONLINE MODULE SERVES AS AN INTRODUCTORY TRAINING TO WORKING SAFELY IN A BSL-3 LABORATORY

Online Curriculum

- Biosafety and Biocontainment
- Controlling Aerosols
- Facilities and Ventilation
- Personal Protective Equipment
- Decontamination
- Waste Management
- Occupational Health
- Emergency Response
THE HANDS-ON MODULES ARE SITE-SPECIFIC AND TAILORED TO SPECIFIC NCIRD BSL-3 LABORATORY PRACTICES

NCIRD BSL-3 Safety Training Program

Online Modules

Hands-on Modules

Containment

Emergency Response

PPE

BSC

Spills

Drills

“Tell me and I’ll forget. Show me and I might remember. Involve me and I’ll understand”
- Author Unknown
(Credit: Ben Fontes, Yale)
# HANDS-ON TRAINING: CONTAINMENT SESSION

<table>
<thead>
<tr>
<th>Hands-On Training: Containment Session</th>
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</thead>
<tbody>
<tr>
<td><strong>PPE Module</strong></td>
</tr>
<tr>
<td>Learned Material</td>
</tr>
<tr>
<td>• Types and uses of PPE in BSL-3</td>
</tr>
<tr>
<td>• Integrity checks prior to donning</td>
</tr>
<tr>
<td>• Proper donning and doffing</td>
</tr>
<tr>
<td>• Proper disposal and/or decontamination</td>
</tr>
<tr>
<td>• Pressure gauge reading</td>
</tr>
<tr>
<td><strong>Instructor Demonstration</strong></td>
</tr>
<tr>
<td>• Proper donning and doffing procedures specific to trainee’s lab</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>Competency</strong></td>
</tr>
<tr>
<td>• Don/doff of exact PPE to be used in their BSL-3 laboratory</td>
</tr>
<tr>
<td>• Integrity checks</td>
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**HANDS-ON TRAINING: EMERGENCY RESPONSE SESSION**

<table>
<thead>
<tr>
<th>Hands-On Training: Emergency Response Session</th>
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</thead>
<tbody>
<tr>
<td><strong>Spills Module</strong></td>
</tr>
<tr>
<td>Learned Material</td>
</tr>
<tr>
<td>• Biological spill kit contents and purpose</td>
</tr>
<tr>
<td>• Proper clean up procedure</td>
</tr>
<tr>
<td>• Proper disposal</td>
</tr>
<tr>
<td>Instructor Demonstration</td>
</tr>
<tr>
<td>• Biological spill clean-up</td>
</tr>
<tr>
<td>Competency</td>
</tr>
<tr>
<td>• Biological spill clean-up and proper waste disposal</td>
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</tbody>
</table>
# NCIRD BSL-3 SAFETY TRAINING OVERVIEW

<table>
<thead>
<tr>
<th></th>
<th>Online Training</th>
<th>Hands-On Training</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Go Live Date</strong></td>
<td>July 1, 2016</td>
<td>July 26, 2016</td>
</tr>
<tr>
<td><strong>Module Layout</strong></td>
<td>Eight online modules; prerequisite for hands-on training</td>
<td>Four hands-on modules</td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td>2.5 Hours</td>
<td>4 Hours (1 hour per module)</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>HHS Online Learning Portal</td>
<td>CDC Training Lab</td>
</tr>
<tr>
<td><strong>Implementation Resources</strong></td>
<td>CSELS, NCIRD Workforce team, HHS Learning Portal</td>
<td>NCIRD Safety mailbox, Training room space, trainers, equipment, supplies</td>
</tr>
<tr>
<td><strong>Trainers</strong></td>
<td>N/A</td>
<td>NCIRD SME staff; 1-2 per module (10 total)</td>
</tr>
<tr>
<td><strong>Evaluation Methods</strong></td>
<td>Test (80% or greater to pass)</td>
<td>Trainees – competency assessment Trainers/course – evaluation form</td>
</tr>
</tbody>
</table>
IMPACT & SUMMARY
IMPACT

• **Successes:**
  - Implemented Center-wide, including seasoned BSL-3 lab staff
  - 65 total trainees have completed the entire program to date

• **Accolades:**
  - Well-received, trainees truly enjoyed the class
  - Other Centers looking to adopt for their needs

• **Next Steps:**
  - Trainees requested we convert the hands-on modules for BSL-2 staff
  - Converted Spills & Drills hands-on modules to BSL-2, began training BSL-2 teams
SUMMARY

• IT TAKES A VILLAGE! (an organized, coordinated one)

• The BSL-3 Training Program is highly effective for NCIRD personnel in need of basic BSL-3 training.
  - Online course
    - In-depth knowledge on BSL-3 practices and procedures
  - Hands-on training
    - Personal interaction with trainers
    - Informal and meaningful discussion
ACKNOWLEDGEMENTS

BAH Staff
- Kristy Jennings*
- Hao Vu*
- Banks Denney
- Jessica Wielgus*
- Urmil Parekh*
- Meredith Korth
- Mylissia Smith*

CDC Staff
- Brandi Limbago
- Debbie Kuehl
- James Stevens
- Lia Haynes
- Callie Ridenour*
- Adam Johnson*
- Cara Morrison*
- Nazia Kamal*
- Sharmi Thor*

*Denotes trainer
For more information about the BSL-3 Safety Training Program please contact:

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QUESTIONS?

BOOZALLEN.COM/CAPABILITY