

Deep South Biosafety



Worker Training Program

**USING PROCEDURAL
SIMULATION FOR
INFECTIOUS DISEASE
RESPONSE TRAINING
FOR HEALTHCARE
WORKERS**

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EBOLA

HIV

SARS

HBV

MERS

MALARIA

PRESENTATION OBJECTIVES:

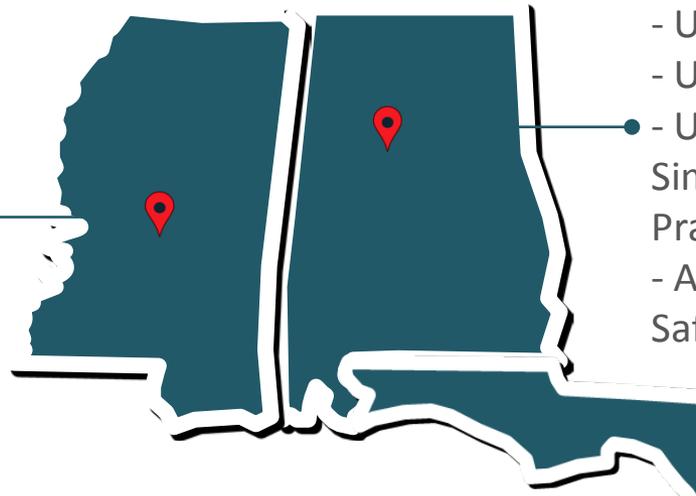
- Review the course outline for the Deep South Biosafety WTP Operations course
- Describe how procedural simulations is used in the operations course
- Identify benefits of procedural simulation for learners
- Demonstrate UAB's process for donning/doffing PPE

The Deep South Biosafety Worker Training Program (WTP)

ABOUT:

One of eight institutions funded in 2016 by the **National Institute of Environmental Health Sciences (NIEHS)** to provide infectious disease safety training for a range of high risk occupations.

Mississippi
University of Mississippi
Medical Center



Alabama

- UAB School of Medicine
- UAB School of Public Health
- UAB Office of Interprofessional Simulation for Innovative Clinical Practice
- Alabama Fire College Workplace Safety Training Program

WHAT WE DO:

- **Four (4) levels of trainings** (awareness, operations, train-the-trainer, and refresher/simulation)
 - Chain of infection and routes of exposure
 - Infection control measures
 - Exposure risk assessment and categorization
 - Relevant government standards, regulations and guidelines
 - Hand-on training using PPE
 - Review of infectious disease resources
- Develop a cadre of workers equipped with the skills and knowledge needed to protect themselves in an ID response.



DEEP SOUTH BIOSAFETY WTP

BIOSAFETY AND INFECTIOUS DISEASE OPERATIONS COURSE

CDC Guidelines for Healthcare Workers (HCW)

- Updated guidance from October 2014
- Three principles:
 - Rigorous and repeated training
 - No skin exposure
 - Trained monitor who watches each worker don (put on) and doff (take off) PPE



For more information, visit:

<http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html>

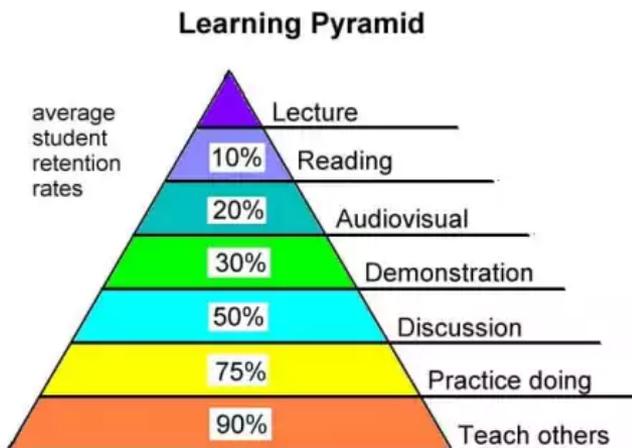
Why is this Training Important?

- Isn't PPE something HCWs use every day?
- Yes!
- Except:
 - NOT PAPR Level
 - NOT consistently
 - NOT correctly
 - NOT with confidence

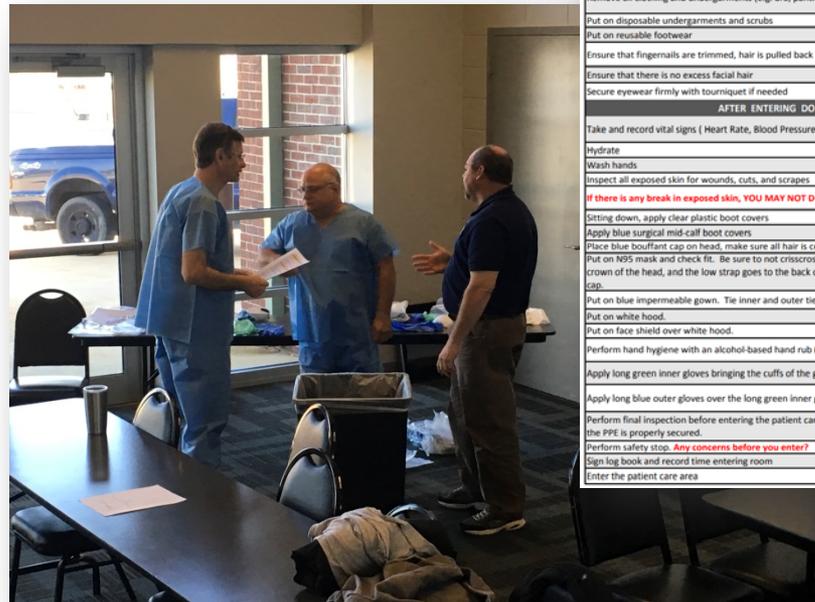


Operations Course

- 4 hour, instructor-led classroom course
- Builds on information in the Awareness-level course
- Utilizes procedural-based simulation (don/doff PPE using checklist)



Source: National Training Laboratories, Bethel, Maine



FOR DE TO PROVIDE FEEDBACK TO Healthcare Worker	DE
PPE Donning Checklist for Low Output Ebola Patient	
PRIOR TO ENTERING DONNING AREA	
Use restroom if needed	completed
Remove all jewelry	
Remove all clothing and undergarments (e.g. bra, panties, boxers, briefs)	
Put on disposable undergarments and scrubs	
Put on reusable footwear	
Ensure that fingernails are trimmed, hair is pulled back and secured in a low ponytail or bun	
Ensure that there is no excess facial hair	
Secure eyewear firmly with tourniquet if needed	
AFTER ENTERING DONNING AREA	
Take and record vital signs (Heart Rate, Blood Pressure, and Temperature)	
Hydrate	
Wash hands	
Inspect all exposed skin for wounds, cuts, and scrapes	
If there is any break in exposed skin, YOU MAY NOT DON OR CARE FOR THE PATIENT	
Sitting down, apply clear plastic boot covers	
Apply blue surgical mid-calf boot covers	
Place blue bouffant cap on head, make sure all hair is covered under the cap	
Put on N95 mask and check fit. Be sure to not cross the straps. The top strap goes high on the crown of the head, and the low strap goes to the back of the head. Ensure both are on the bouffant cap.	
Put on blue impermeable gown. Tie inner and outer tie loosely.	
Put on white hood.	
Put on face shield over white hood.	
Perform hand hygiene with an alcohol-based hand rub (ABHR) and let dry.	
Apply long green inner gloves bringing the cuffs of the gown over the inner glove.	
Apply long blue outer gloves over the long green inner gloves ensuring gown cuffs are covered.	
Perform final inspection before entering the patient care area. Move around in the suit to ensure the PPE is properly secured.	
Perform safety stop. Any concerns before you enter?	
Sign log book and record time entering room	
Enter the patient care area	



What is simulation?

“Simulation is a technique – not a technology– to replace or amplify real experiences with guided experiences that evoke or replicate substantial aspects of the real world in a fully interactive manner.”

Qual. Saf. Health Care, 2004
-David Gaba. Qual. Saf.



Why simulate?

- Puts patient and learner safety first
- Optimizes learning conditions
- Provides valuable feedback
- Integrates multiple skills



(Agency for Healthcare Research and Quality, AHRQ Issue Brief: Health Care Simulation To Advance Safety: Responding to Ebola and Other Threats, February 2015.)



Immersive



Procedural

Simulation is a Spectrum

**Role
Play**

Task
Trainer

Standardized
Patient

High Fidelity
Manikin

Hybrid
Simulation

Virtual
Simulation



Course Agenda

- Course Introduction
- Awareness Review
- Infectious Disease Resource Review
- Instructor demonstration/modeling of DE role
- Donning and doffing practice session & Performance Evaluation
- Group Discussion

Instructor Demonstration of DE Role

Gives participants an opportunity to visualize the tasks they are about to perform. Instructor can share “best practices”.



Donning/Doffing Practice Sessions

1. Participants divide into groups of 3.
2. Inventory and arrange PPE so it is easily accessible.
3. One person acts as Donning Expert (DE) and reads directions while partner dons PPE for low output EVD. Observers watches and monitors.
4. After completely donned, DE checks for coverage.



Donning/Doffing Practice Sessions



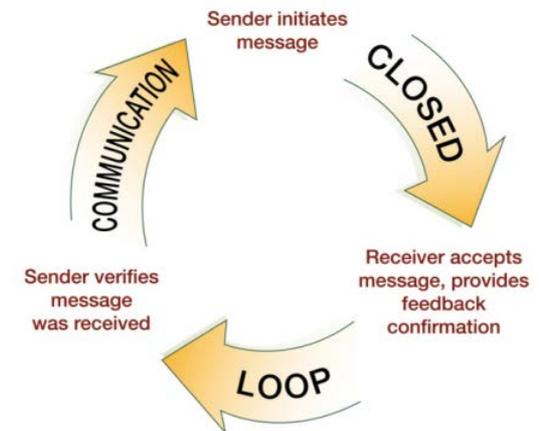
5. *Instructor checks for any potential breaches and applies GloGerm.*
6. DE reads doffing instructions and helps partner remove PPE according to guidelines for low output PPE. Observers watches and guides as DE inspects HCW for any signs of contamination.
7. Once fully doffed, *an instructor uses a UV flashlight to check HCW for contamination.*



8. Switch roles!

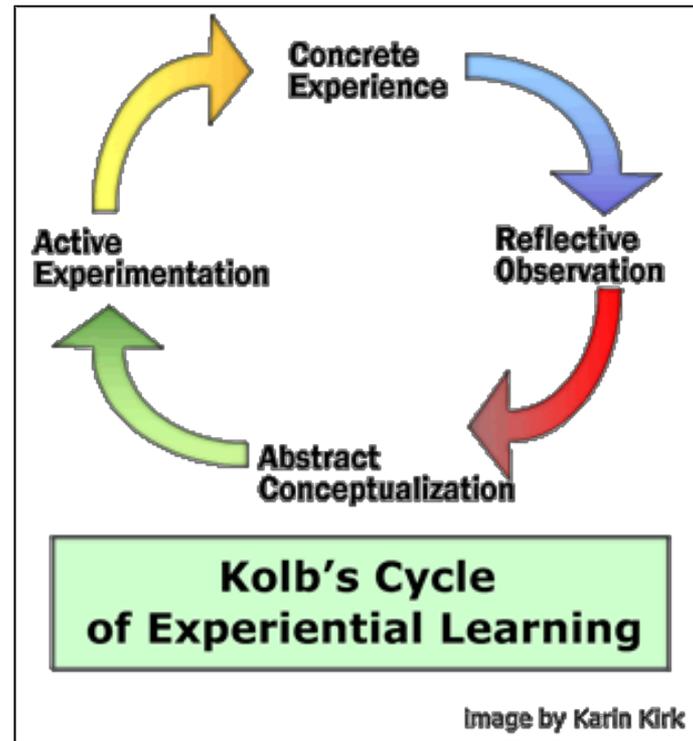
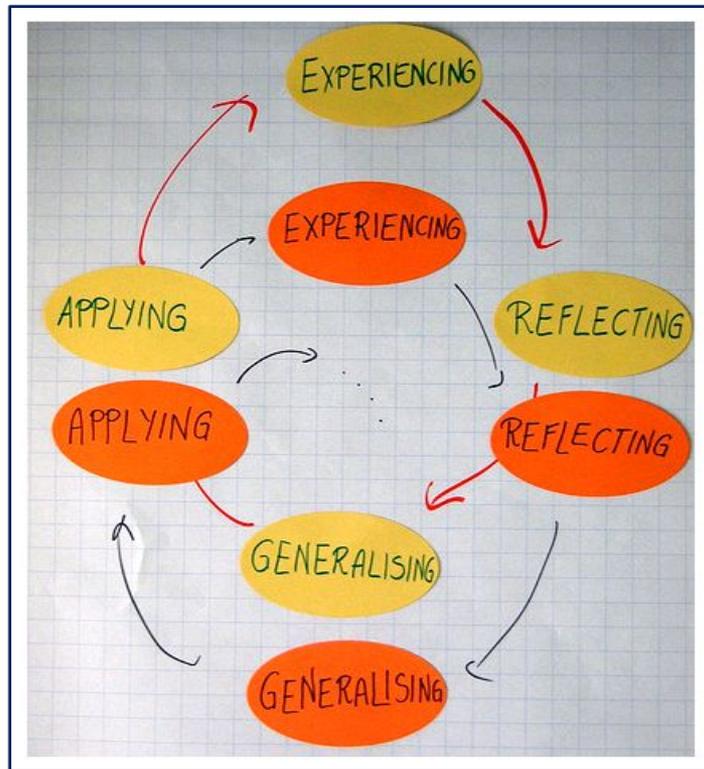
Other Techniques Practiced

- Inventory supplies before starting
- DE assist healthcare workers only when needed (minimal contact)
- Slow, deliberate movements
- Closed loop communication
- Red flag words
- Continuously scan PPE and the environment for any risks or hazards
- Doffing expert should always be in the same level of PPE as person doffing



Debrief

Allows students to reflect on experiences and generalize what they learned to other settings.



EVD/ID Resources

- Canada's Pathogen Safety Data Sheet
- CDC
- NETCH (National Ebola Training and Education Center)
- National Institute of Environmental Health Sciences
- Deep South Biosafety WTP Website
 - Infectious Disease Resources
 - Course Material (checklists)

Ebola Low Output PPE Kit Contents

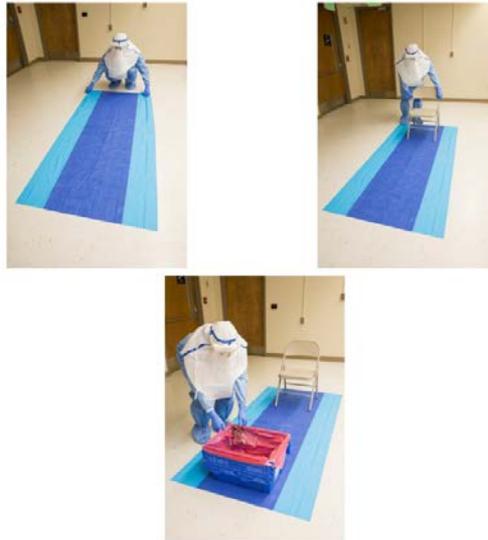
Item Description

- 1 pair large nitrile extended cuff inner gloves (Green):
- 1 pair large nitrile 12 "outer gloves (Blue)
- 2 pair large regular nitrile gloves (Purple)
- 1 pair clear plastic boot covers
- 1 pair blue mid-calf boot covers
- 1 blue bouffant cap
- 1 N-95 mask, size regular
- 1 white hood
- 1 blue impermeable gown
- 1 face/splash shield
- 1 bottle liquid hand sanitizer
- 10 packets disinfection wipes
- 1 doffing pad
- 1 donning checklist
- 1 doffing checklist

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Steps 1-2 Doffing Expert: PREPARE DOFFING AREA

Doffing Expert (DE): Lay out doffing pad, waste disposal bag, open disinfectant wipes container, position one chair on doffing pad, and obtain extra gloves. DE donned in complete PPE with doffing checklist.



Deep South Biosafety WTP - Instructor Rubric



Your Name: _____

Doffing Expert: _____

Dimension	Excellent –above level of expected performance (3)	Good –level of expected performance (2)	Unsatisfactory – does not meet performance requirements. Needs much attention to detail (1).
Adherence to Checklist	Performed all the required steps in donning and doffing with 100% accuracy.	Adequately performed all the required steps of donning and doffing with above 85% accuracy. Completed a few steps out-of-order; needed assistance on one or two steps.	Failed to accurately perform the required steps of the donning and doffing process. Performed with less than 50% accuracy. Needed assistance with most steps.
	Comments:		
Communication	Excellent closed loop communication observed. Each step was communicated to the HCW clearly. DE expert demonstrated steps and answered questions appropriately.	Some instances where DE could have been more clear when giving instructions on steps for donning and doffing.	DE did not use checklist to read/communicate donning and doffing instructions to the HCW.
	Comments:		
Pace/Control	DE closely observed HCW while donning and doffing PPE, ensuring steps were completed with slow and deliberate movements.	DE did an adequate job of watching the HCW to ensure steps were completed without any potential for a breach in the PPE.	DE often became distracted and did not closely observe HCW while donning and doffing. DE did not control the pace of donning/doffing.
	Comments:		
Doffing - Initial Instructions	DE reminded HCW to avoid reflexive actions and to wait to perform any task until after the DE was done reading instructions and were instructed to begin.	Instructions given initially before donning and doffing, but were not reinforced during the doffing process.	Instructions were not read at the beginning of the doffing process (or had to be reminded) and not reinforced during the doffing process without reminders.
	Comments:		
Doffing - Safety/Work Habits	DE had minimal contact with HCW; Disinfected outer-gloved hand immediately after handling any healthcare worker's PPE. Proactive in addressing potential breaches; immediately corrected any breaches.	Several instances when DE touched the PPE of the HCW unnecessarily during doffing. Took several minutes to disinfect gloved hands after touching HCW (or needed reminder to disinfect gloved hands). Slow to address breaches/potential breaches.	DE frequently touched the PPE of the HCW unnecessarily during doffing. Forgot to disinfect gloved hands immediately after touching HCW (or needed constant reminders to wash gloved hands). Did not address breaches/potential breaches.
	Comments:		

Overall Score: _____ (15 max. to 5 min.)

<https://www.soph.uab.edu/dsb/materials>

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ADDITIONAL INFORMATION

Additional information about our consortium and the trainings offered can be found on our website:

<https://www.soph.uab.edu/dsb>.