



EMORY
MEDICINE

**Serious Communicable
Diseases Unit**



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Diseases Unit



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Diseases Unit

Emory's Experience with Ebola

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Background of the Unit

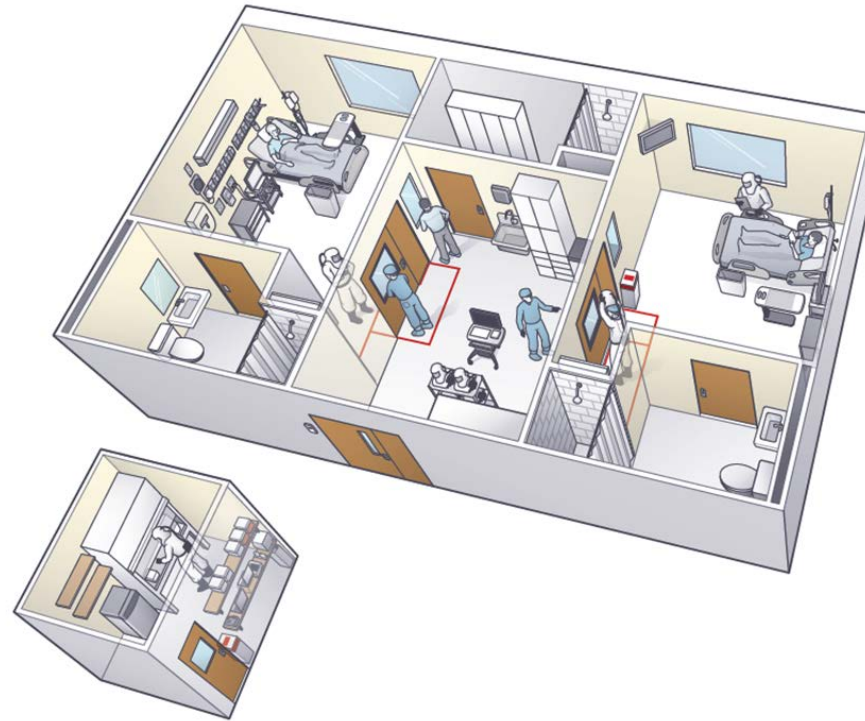
- Located at Emory University Hospital
- Serious Communicable Disease Unit was developed in 2002
- Activated once prior to July 2014
- Specialty trained physicians, nurses, and lab personnel through didactic and scenario – based learning



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Serious Communicable Disease Unit





Culture of Safety

- Shared accountability for safety
- Effective and assertive communication is central to the safety of the team
- Communication is so important that the team uses rules to govern
 - Direct patient care communication
 - Daily team huddles



Family Rules

- Follow all standard operating procedures to the best of our ability
- Ensure that others follow the standard operating procedures.
- Report all accidents and near misses.
- Report any symptoms which match the pathogen.
- Report any new medical conditions



Assumptions

- Only direct care providers in patient room
- No person enters room without mandatory training and demonstrated competence
- Autonomous practice (supported by experts)
 - Ventilator management
 - Continuous renal replacement therapy (CRRT)
 - Physical and occupational therapy
 - Environmental decontamination



SCDU Team Readiness

- Designated SCDU personnel receive orientation, ongoing annual education, and refresher training upon activation
- Includes education on:
 - Infection control practices and serious communicable diseases/pathogens
 - SCDU policies, procedures, and protocols
- Specific emphasis and competency verification is placed on PPE donning and doffing protocols



Standard Operating Procedures

- Provide consistency in how procedures are performed in the unit
- Allows staff to identify possible deviations when performing the procedure
- Give staff confidence knowing they were performing procedures consistently
- Train staff on SOPs



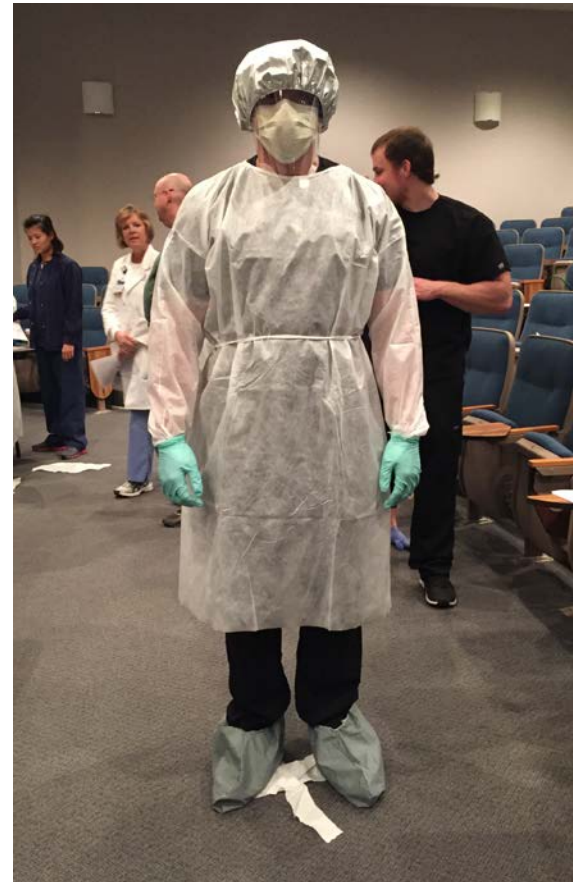
PPE Risk Assessment –PPE Matrix

	Staff outside patient room (nurse station/ resource nurse)	Staff assisting with waste management (SCDU Only)	EVS staff managing waste	Anteroom staff/Buddy	Patient room staff (RN/MD/NT/ Phlebotomist)	EVD Diagnostic Lab Staff (SCDU Only)
Suspected— asymptomatic	Standard precautions	Standard precautions	Standard precautions	Standard precautions	<ul style="list-style-type: none"> • Impervious gown • Booties • Surgical mask • Double gloves 	<ul style="list-style-type: none"> • Coverall • Double gloves • Booties • PAPR Hood
Suspected— symptomatic (SCDU staff will handle the waste stream and room decontamination)	Standard precautions	<ul style="list-style-type: none"> • Impervious gown • Booties • Surgical mask • Face shield (goggles if face shield is not available) • Double gloves 	<ul style="list-style-type: none"> • Coverall • Apron • Surgical mask • Face shield (goggles if face shield is not available) • Double gloves 	n/a	<ul style="list-style-type: none"> • Impervious gown • Impervious hair cover • Booties • Surgical mask • Face shield (goggles if face shield is not available) • Double gloves *See Reference below	<ul style="list-style-type: none"> • Coverall • Double gloves • Booties • PAPR Hood
Positive— asymptomatic (SCDU staff will handle the waste stream and room decontamination)	Standard precautions	<ul style="list-style-type: none"> • Coverall • Apron • Surgical mask • Face shield (goggles if face shield is not available) • Double gloves 	<ul style="list-style-type: none"> • Coverall • Apron • Surgical mask • Face shield (goggles if face shield is not available) • Double gloves 	<ul style="list-style-type: none"> • Coverall • Apron • Booties • Double gloves • Face shield (goggles if face shield is not available) 	<ul style="list-style-type: none"> • Coverall • Apron • Booties • Double gloves • Face shield (goggles if face shield is not available) • Surgical mask 	<ul style="list-style-type: none"> • Coverall • Double gloves • Booties • PAPR Hood
Positive— symptomatic (SCDU staff will handle the waste stream and room decontamination)	Standard precautions	<ul style="list-style-type: none"> • Coverall • Apron • Surgical mask • Face shield (goggles if face shield is not available) • Double gloves 	<ul style="list-style-type: none"> • Coverall • Apron • Surgical mask • Face shield (goggles if face shield is not available) • Double gloves 	<ul style="list-style-type: none"> • Coverall • Double gloves • Booties • For waste management— apron and PAPR Hood 	<ul style="list-style-type: none"> • Coverall • Double gloves • Booties • Apron • PAPR Hood 	<ul style="list-style-type: none"> • Coverall • Double gloves • Booties • Apron • PAPR Hood



High Level PPE

- Impervious hair cover
- Impervious gown
- Double gloves
- Impervious booties
- Surgical mask
- Face shield





PAPR Level PPE

- PAPR
- Impervious coverall
- Impervious apron
- Double gloves
- Booties
- Disposable scrubs and socks
- Dedicated shoes





Training and Ongoing Competency

- Develop one standard way of donning and doffing PPE
- Utilize checklists to validate competency
- Maintain competency with frequent, ongoing validation
- All staff undergo training and refresher training from qualified instructors, including all levels of possible PPE needed
- Use drills and practice as you play!



Considerations for PPE

- ALL SOPs are reviewed and approved by Biosafety, Infection Control, Nursing, and Infectious Disease Physicians
- Removing PPE properly are key to preventing contamination
- All donning and doffing of PPE should be monitored by another team member
 - Place visual clues to remind staff of proper protocols
 - Look for some complacency after several days
- Staff must be comfortable and assured with these procedures to ensure adequate patient care



Occupational Health

- Foster a safe and healthy work environment for employees



Occupational Health in EVD Management

- Conduct an inventory of EVD providers wearing PAPRs.
- EVD provider symptom monitoring
- West Africa travel guidance for staff and faculty
- Manage staff with potential EVD exposure



EVD Provider Symptom Monitoring

- All direct care providers (Lab, MD, RN, EVS)
 - Temperature and symptom monitoring twice daily for 21 days from the last shift worked on SCDU
 - Notify Occupational Health for
 - $T > 37.8$ (100 F)
 - Chills
 - Malaise
 - Headache
 - Joint/muscle weakness
 - Diarrhea
 - Nausea/vomiting
 - Stomach pain
 - Lack of appetite



Symptom Monitoring Tracking

- Symptom monitoring data entered into People Soft
- Daily review by assigned RN case manager
- Algorithm for management of positive symptoms
- Noncompliance reported to executive leadership



Infection Prevention

- Precautions levels
- Regulatory compliance with EU EH&SO
- Facilitates and coordinates interface with State Department of Health



Infection Prevention

- Precaution levels
 - Personal protective equipment (PPE) matrix in response to bioterrorism preparedness
 - Adapted for SCDU operations

Infection Prevention

Guidelines for Inpatient Management																			
Patient Management	BACTERIAL	Anthrax	Brucellosis	Cholera	Glanders	Bubonic Plague	Pneumonic Plague	Typhemia	Q Fever	VIRUSES	Smallpox	Venez Equine	Viral Encephalitis	Viral Hemorrhagic Fever	BIOLOGICAL	Bordetella	Legion	T-2 Mycetozoon	Staphylococcus
Isolation Precautions																			
Standard Precautions		X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X
Contact Precautions			X								X			X					
Airborne Precautions (negative pressure and N95 masks for all individuals entering the room)					X						X		X						
Droplet Precautions							X				X	X	X						
Patient Placement																			
No Restrictions		X						X								X	X	X	X
Cohort "like" patients when private room unavailable				X		X	X		X		X		X	X					
Private Room			X	X	X	X	X				X	X	X	X					
Airborne Infection Isolation					X						X		X	X					
Door Closed at all times					X						X		X	X					
Patient Transport																			
No Restrictions		X						X	X				X			X	X	X	X
Limit movement to essential medical purposes only			X	X	X	X	X				X	X	X	X					
Place mask on patient to minimize dispersal of droplets					X		X				X	X	X	X					
Cleaning, Disinfection of Equipment																			
Routine terminal cleaning of room with hospital approval. Disinfectant up on discharge		X		X	X	X	X	X	X		X	X	X			X	X	X	X
Disinfects surfaces with bleach/water sol 1:9 (10%)			X											X					
Dedicated equipment (disinfect prior to leaving room)			X								X			X					
Linen mgmt as with all other patients		X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X
Discharge Management																			
No special discharge instruction necessary		X		X	X			X	X			X	X			X	X	X	X
Not discharged from hospital until determined no longer infectious (under normal circumstances)							X				X		X						
Post-Mortem Care																			
Follow principles of Standard Precautions		X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X
Droplet Precautions							X				X	X		X					
Airborne Precautions (neg. pressure room & N95 masks for all individuals entering room)											X			X					
Contact Precautions											X			X					
Routine terminal cleaning of room with hospital approval. Disinfectant		X	X	X	X	X	X	X	X		X	X	X			X	X	X	X
Disinfects surfaces with bleach/water sol 1:9 (10%)														X					

Standard Precautions: Standard Precautions prevent direct contact with all body fluids (including blood, secretions, excretions, non-intact skin (including rashes), and mucous membranes. Standard Precautions routinely practiced by healthcare providers include: **Hand washing, gloves** when contact with above, **mask/eye protection/face shield** while performing procedures that cause splash/spray, and impervious gowns to protect skin and clothing during procedures that may involve splashing/spraying.



Infection Prevention

- Regular SCDU rounds
- Troubleshoot daily activities
- Ongoing education
- External and internal inquiries
 - Phone
 - E:mail
 - Media



Infection Prevention

- Emory Healthcare
 - 7 hospitals
 - ± 88 outpatient clinics



Infection Prevention

- Emergency Department
- Labor and Delivery
- Outpatient Clinics
 - Travel Well
 - Delta (airport)
 - Family Medicine
 - Coke



Infection Prevention

Regulatory Compliance

The Joint Commission

Standard IC.01.06.01

- The hospital prepares to respond to an influx of potentially infectious patients
 - Resources for information
 - Clinical and epidemiological info about new infections
 - Communicating critical information
 - Describes how it will respond
 - Methods for managing patients over time
 - Activate its response



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Waste management

08/01/2014



Environmental Services collaboration
Autoclave load duration 1.5 hours (gravity displacement)
Passed biological challenge
Monitoring program in place



Infection Prevention

Waste management

08/02/2014

- EMS – 5 bags
- SCDU – 12 bags by 4PM

- Supplies (biohazard bags, autoclave tape, rubberbands, barrels)



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Infection Prevention

Waste management

08/03/2014

All barrels full

Expand holding area

SCDU – 6 bags/4 hours

2nd patient coming





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Infection Prevention

Waste management

08/04/2014



YEAH!



Be Prepared



Minimum Supplies:

1. 50 Stericycle Boxes
2. 3 cases of red bags
3. 1 case autoclave bags
4. 1 bag of autoclave bag rubber bands
5. 1 Incubator
6. 1 Cases Spore testing pack
7. 2 Cart covers
8. 1 Spill kit
9. 1 Pair Heat resistant gloves
10. Policies and Procedures
11. 2 binders (1) autoclave (1) Waste Packaging
12. 12 Rubber maid barrels with lids and casters

After patient has been discharged, clean supplies are shrink wrapped and Sent to our off site distribution center.



Decontamination of Unit after patient is released

- Certified vendor – SafetyPlus
- Use of Hydrogen Peroxide Vapor generators
- Unit was divided in four zones
- Biological and chemical indicators

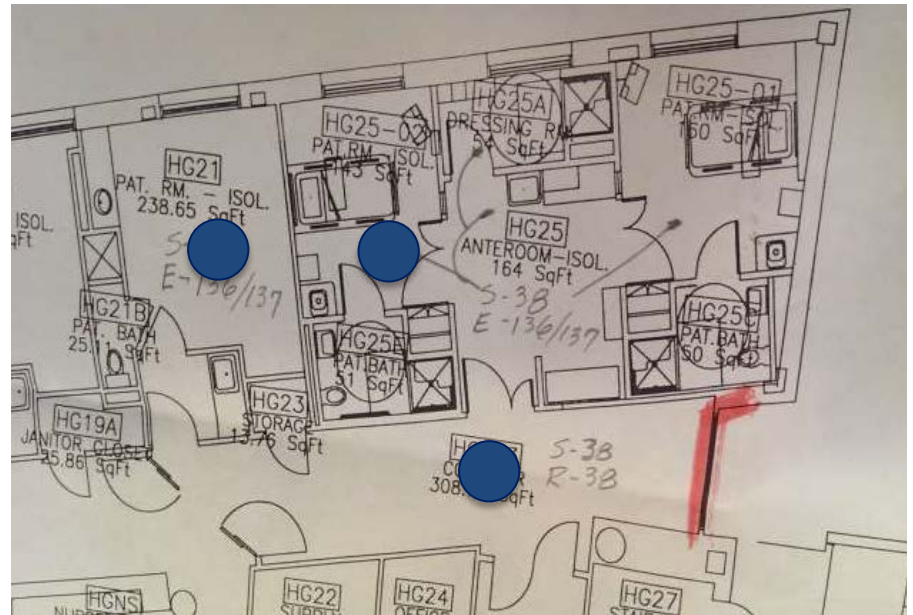




Hydrogen Peroxide Vapor - HPV - Decontamination



Clarus™ R
Hydrogen peroxide vapor
generator



● Gas generator





Biological and chemical indicators

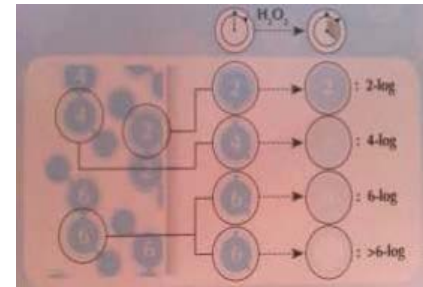


7 day incubation



Biological

Geobacillus stearothermophilus



Following decontamination

Chemical
Color-changing
reactant





Infection Prevention

Public Health Collaboration

Initial notification

Regular updates

Discharge planning

Ebola Active Monitoring System

State Electronic Notifiable Disease Surveillance System (SENDSS)



Lessons Learned

- Patients with Ebola can be safely cared for in our healthcare system with good preparation and protocols
- Communication is absolutely necessary
- Critical and advanced care can be delivered when planned appropriately
- Comprehensive, multidisciplinary patient- and family-centered models of care can be delivered even in extreme circumstances



Summary

- Mastery of infection control practices requires consistency and accountability
- Safety in the unit requires both individual effort and exceptional teamwork
- Accountability helps the team adhere to infection control policies
- Consistency builds confidence



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Questions



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Environmental Health
and Safety Office