NETEC

NETEC Town Hall:

Preparing Frontline Health Care Workers for Ebola

EMORY MEDICINE | UNMC Nebraska Medicine | NYC HEALTH+ HOSPITALS | Bellevue

Overview

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Welcome: Trish Tennill, RN, BSN

- **Current Sudan Ebolavirus Outbreak Overview:** Aneesh Mehta, MD
- **Infection Prevention & Control Considerations:** Trish Tennill, RN, BSN
- **Personal Protective Equipment Considerations:** Jill Morgan, RN, BSN
- **Laboratory Considerations for Frontline Hospitals:** Vicki Herrera, MS
- **EMS and Patient Transport Considerations:** Alex Isakov, MD, MPH

Questions and Answers with NETEC

NETEC Resources: Trish Tennill, RN, BSN

NETEC Mission

NETEC sets and advances the gold standard for special pathogen preparedness and response across health care delivery systems with the goals of driving best practices, closing knowledge gaps, and developing innovative resources.

For more information

Please visit us at www.netec.org
or email us at info@netec.org

Areas of Focus

NETEC

Consultation

Empower hospitals to gauge their readiness using **Self-Assessment**

Measure facility and healthcare worker readiness using **Metrics**

Provide direct feedback to hospitals via **On-Site Assessment**

Provide **On-Site and Remote Guidance**

Provide **Emergency On-Call Mobilization**

Education

Deliver didactic and hands-on simulation training via **In-Person Courses**

Provide self-paced education through **Online Trainings**

Compile **Online Repository** of tools and resources

Develop customizable **Exercise Templates** based on the HSEEP model

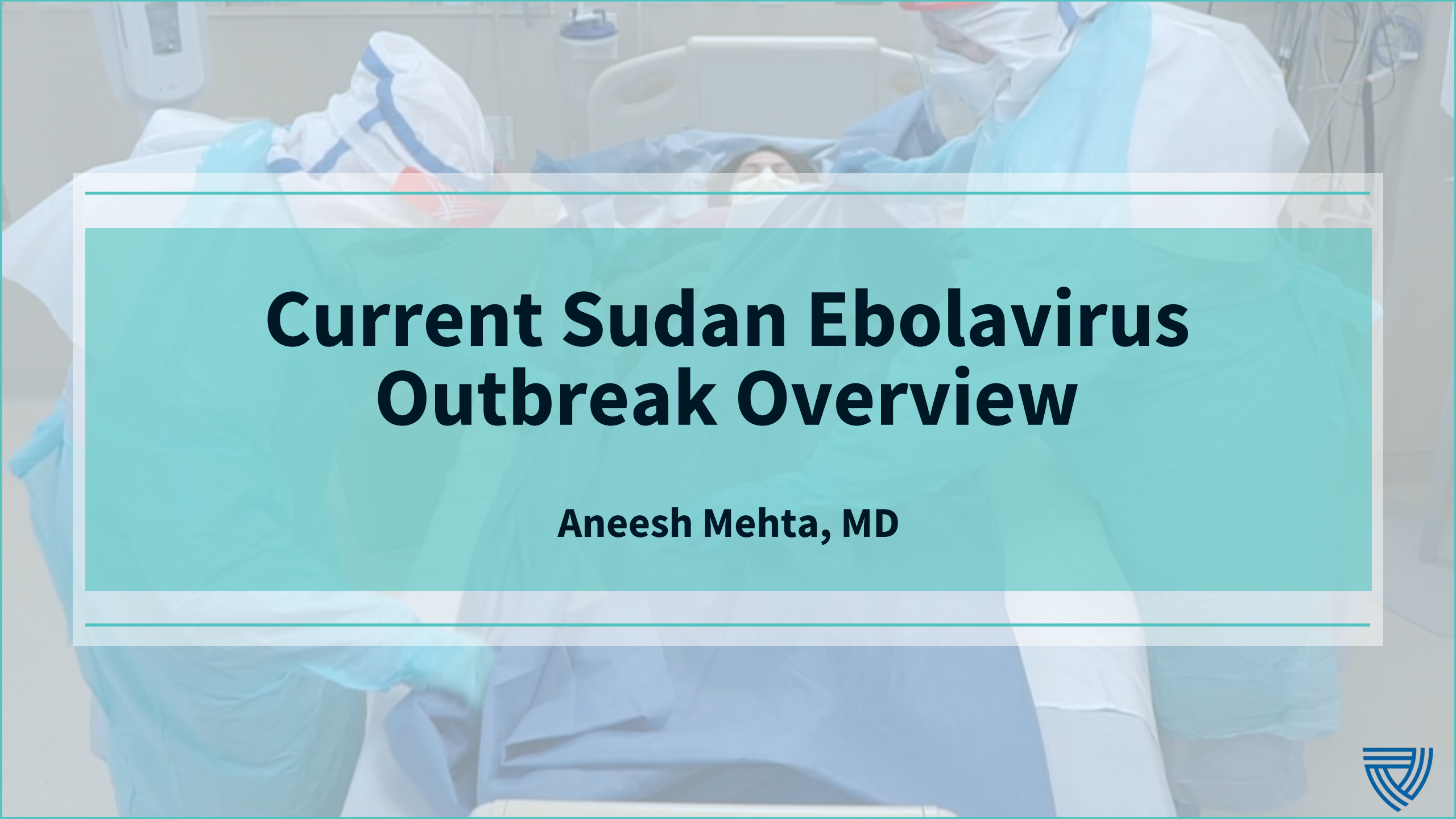
Research Network

Build **Central IRB Process** for rapid implementation of clinical research protocols

Develop Policies, Procedures and Data Capture Tools to facilitate research

Create infrastructure for a **Specimen Biorepository**

Cross-Cutting, Supportive Activities



Current Sudan Ebolavirus Outbreak Overview

Aneesh Mehta, MD

Current Sudan Ebolavirus Outbreak Overview

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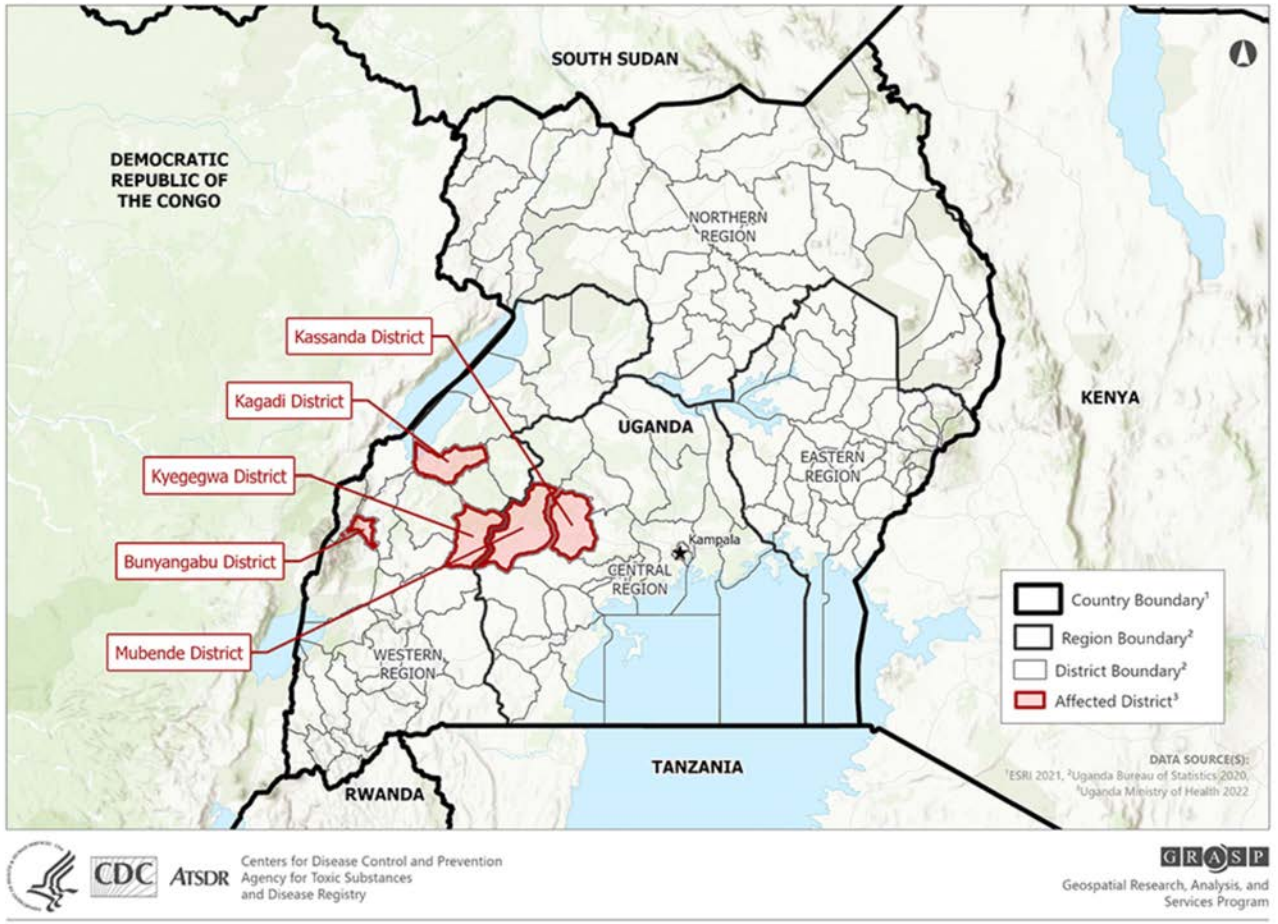
Uganda Ebola Virus Disease Outbreak Update as of 10/14/2022

- **September 20, confirmed Ebola virus disease outbreak caused by the Sudan virus in the Mubende district, western Region of Uganda.**
- **October 14, outbreak has spread to five districts.**

64 confirmed cases

25 confirmed deaths



https://www.cdc.gov/vhf/ebola/outbreaks/uganda/2022-sep.html

Current Sudan Ebolavirus Outbreak Overview

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Travel and Spread

- **CDC has issued a level 2 travel alert for the area.**

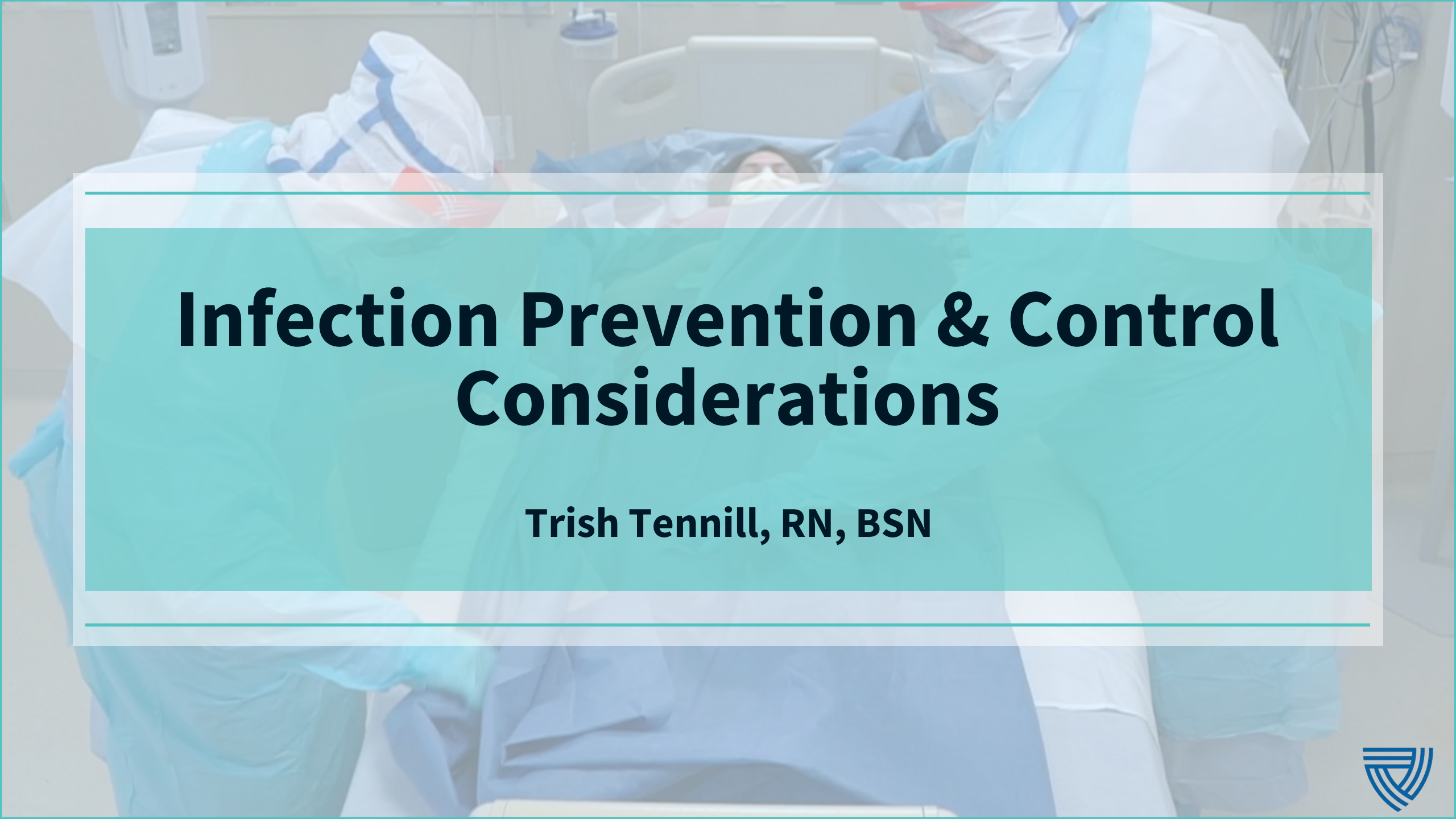
International spread is currently low

U.S. health care workers should remain vigilant and screen patients with compatible symptoms, exposures, and recent travel history.

Health care facilities should implement identify, isolate, and inform process for early and rapid patient identification.

Health care facilities should review their special pathogens preparedness plans.

NETEC is here to help



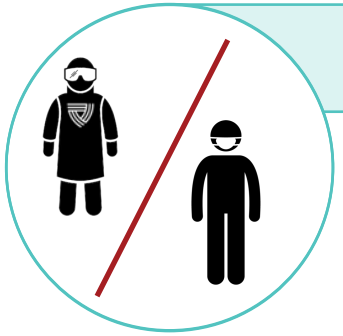
Infection Prevention & Control Considerations

Trish Tennill, RN, BSN

Should we be screening all patients?

Identify

- Know your points of entry.
- Post signage for self-identification.
- Screen all patients .
- Ask about symptoms then travel history.



Isolate

- If screened positive, ask individual to don a mask.
- Place in private room, or a private area if a room is not available.
- Limit contact with other patients, visitors, and healthcare workers.
- Don appropriate PPE to care for the patient.

Inform

- Inform the patient of the process.
- Notify appropriate leadership in the unit and organization.
- Inform Public Health Officials through the appropriate channels.

https://www.cdc.gov/vhf/ebola/pdf/ed-algorithm-management-patients-possible-ebola.PDF

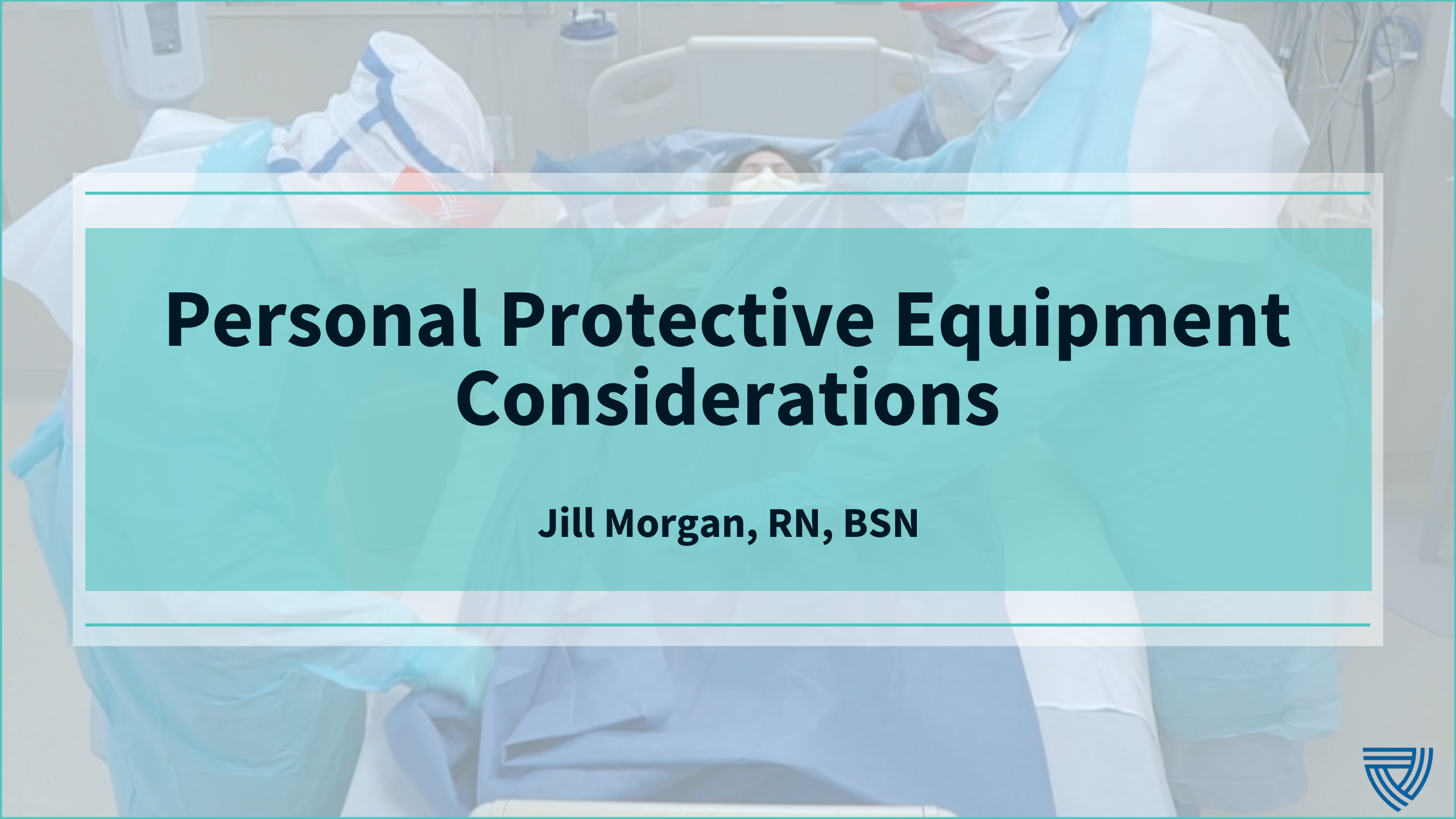
What makes waste from an Ebola PUI different from regular medical waste?

Resource: Managing Solid Waste Contaminated with a Category A Infectious Substance

https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-06/Cat%20A%20Waste%20Planning%20Guidance%20-%20Final%20-%202022-06.pdf

- How is Category A defined?
- How is Category A waste handled?
- Do you have a place to sequester the waste?
- Phone a friend
- DOT resource

Do NOT overfill waste containers

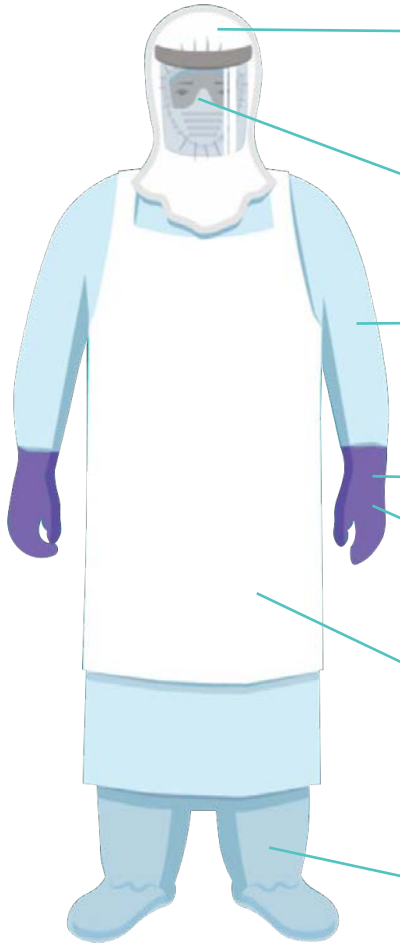


Personal Protective Equipment Considerations

Jill Morgan, RN, BSN

What PPE Should be Used for Ebola?

PPE for potential body fluid exposure



- Surgical hood extending to shoulders. Respirator or PAPR with full-face shield, helmet, and shroud
- Single-use full-face shield
- Single-use impermeable gown or coverall
- Outer gloves with extended cuffs
- Two pairs of single-use disposable gloves
- Single-use fluid-resistant apron covers torso to mid-calf
- Single-use shoe or boot covers

http://www.cdcmuseum.org/exhibits/show/ebola/item/828

Minimum PPE for a stable PUI, or those without vomiting, bleeding, or diarrhea

Fluid-resistant gown or fluid-resistant coveralls

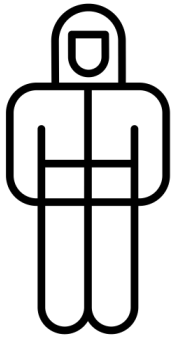
Single-use full-face shield

Facemask

Two pairs of gloves should be worn. At a minimum, outer gloves should have extended cuffs

Fluid resistant sleeved aprons can provide added protection to less-protective isolation gowns

Staff must be aware of PPE protective qualities and limitations.



Full body coverage:

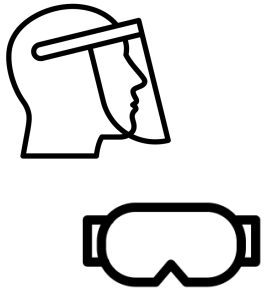
- Coverall or Gown
- Shoe or boot covers
- Head cover, hood, or shroud

Blood and viral penetration resistance:
Gown = ANSI/AAMI PB70 Level 4
Coverall = ASTM F1671 or EN14126

Isolation gown:

- Choose level of gown based on risk.

AAMI PB70 Level 1-3 have increasing levels of resistance to fluids, Level 4 tested for viral transfer

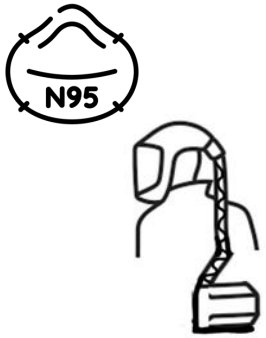


Eye protection:

- Full face shield or goggles with circumferential protection

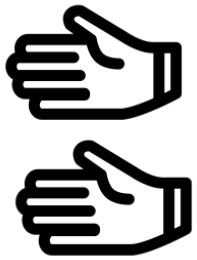
Medical or surgical mask:

- For droplet or source protection only. Does not provide respiratory protection.



Respiratory protection:

- N95 or higher filtering face piece respirator (FFR) or Powered Air Purifying Respirator (PAPR)



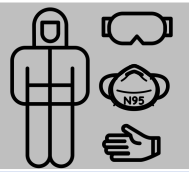
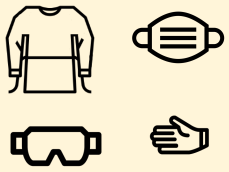
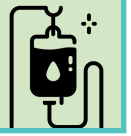
Gloves:

- Non-sterile medical exam gloves. Double gloving and the use of extended cuff gloves may be advised.

What is Different about VHF PPE and Why?

Because the infectious dose for Ebola and some other Viral Hemorrhagic Fevers is very small, and the amount of virus present in many body fluids is very large, Full Body Coverage PPE is recommended.

- PPE selection should consider tasks to be performed. How close or prolonged contact will be, potential exposures to blood or any body fluids, and contaminated items and surfaces.
- Patient condition may change rapidly. The sudden presence of body fluid risk should be anticipated.
- Patients may present at any point of illness. Screening for symptoms and travel at all points of entry, including EMS, can reduce HCW exposure.
- The use of a Trained Observer should be considered. Tasks include verifying correct donning, observation of staff during patient care, specimen collection, waste handling procedures, and close observation and verification of safe doffing.
- Donning complex ensembles takes time
- Once appropriately donned, take care to avoid contamination of PPE and the patient care environment.
- Not all PPE is amenable to being cleaned while in use.
- Contamination of PPE, skin, or clothing may not be visible. Trained observers should monitor for inadvertent contamination during use and doffing of PPE.
- Regardless of task, consider PPE contaminated and doff with care.

Virus Family	Illness Caused	Common Geography	Vector or Source	Person-to-person spread	Precautions	PPE	Comments
Filoviridae	Ebola Virus Disease	Central, sub-Saharan Africa	Presumed bat	YES	Contact, Droplet/Airborne, Eye		Full body coverage for acute (wet) phase
	Marburg virus		Fruit bat				
Arenaviridae	Lassa fever	West Africa	Rodents	YES	Contact, Droplet/Airborne, Eye		Full body coverage for acute (wet) phase
	Junín Machupo (Bolivian HF) Guanarito (Venezuelan HF) Sabia (Brazilian HF)	South America					
Bunyaviridae	CCHF – Crimean Congo Hemorrhagic Fever	Europe, Mediterranean, Middle East, Africa, India, China	Tick, infected livestock	YES	Contact, Droplet*, Eye		*Add respiratory protection (N95 or ↑) for centrifugation 
	Hantaviruses (HPS/HFRS*) (Sin Nombre, Andes virus)	Worldwide	Rodent	Possible	Standard Precautions unless Andes virus suspected		Contact, Droplet/Airborne, Eye for potential Andes virus or contact/clean-up of rodent droppings
	Rift Valley Fever	All of sub-Saharan Africa	Mosquito	No	Standard Precautions		
Flaviviridae	Yellow Fever	Tropics	Mosquito	Blood*	Standard Precautions		*Potential risk of Yellow Fever transmission in blood transfusion, immediately post vaccination 
	Dengue	Tropics	Mosquito	No			
	Kyanasur	India	Tick	No			
	Omsk	Siberia					

Resources for PPE

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

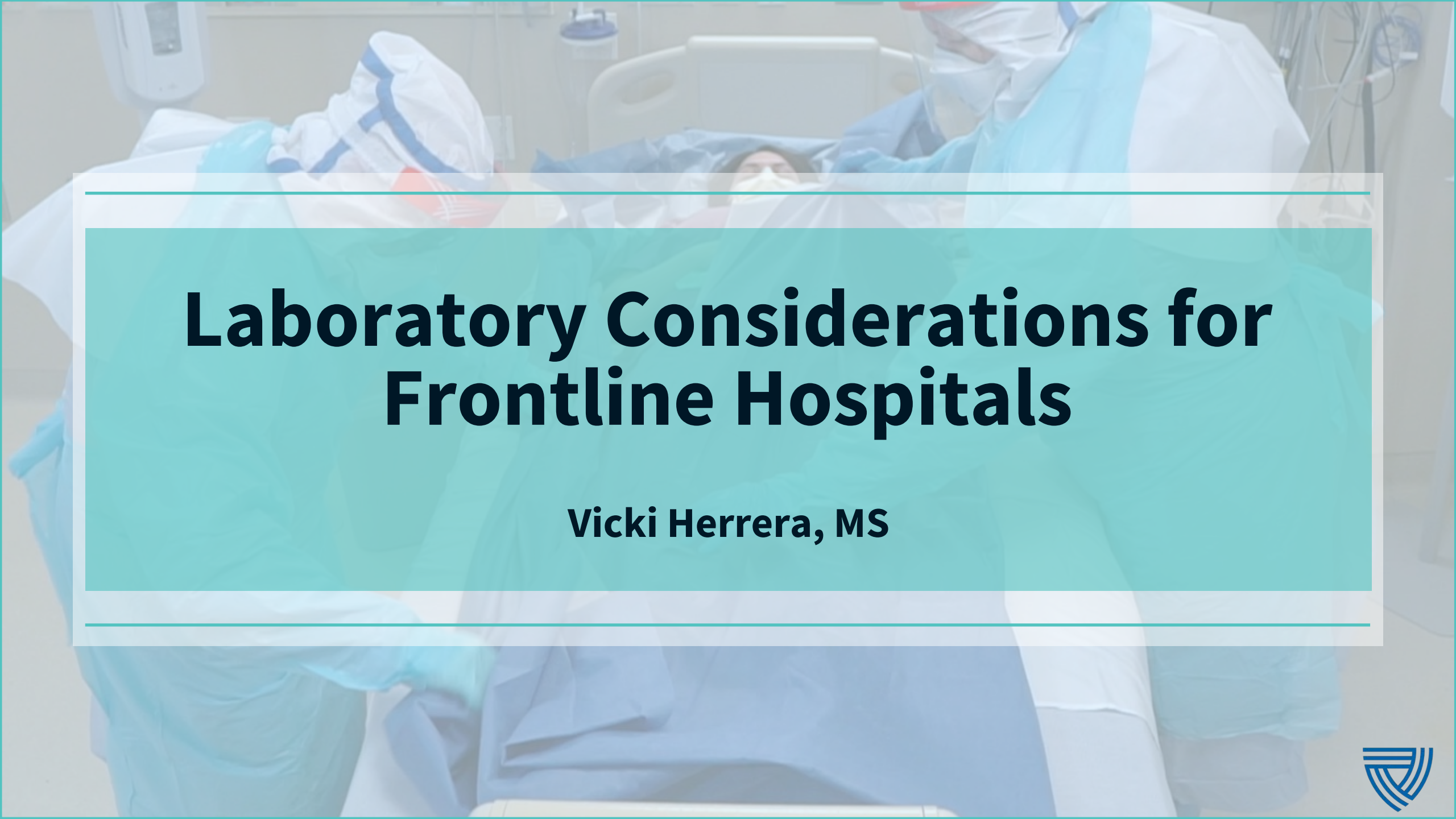
https://www.cdc.gov/vhf/ebola/healthcare-us/ppe/guidance.html

DISASTER AVAILABLE SUPPLIES IN HOSPITALS

Personal Protective Equipment Module
Estimates minimum personal protective equipment (PPE) needed by hospital personnel managing patients suspected or known to be infected with a special pathogen. https://dashtool.org/

NETEC

PPE Guidance for Viral Hemorrhagic Fevers: https://repository.netecweb.org/items/show/1693
Space Recommendations for PPE Donning/Doffing: https://repository.netecweb.org/items/show/1708



Laboratory Considerations for Frontline Hospitals

Vicki Herrera, MS

What diagnostic tests are available?

- *Sudan ebolavirus* vs *Zaire ebolavirus*
  - Limited testing available to detect *Sudan ebolavirus*
    - CDC – Laboratory Response Network (LRN)
    - Regional Emerging Special Pathogen Treatment Centers (RESPTCs)
    - Other?

Contact your local Public Health Department

Specimen types may vary depending on the laboratory:

- EDTA Whole Blood
- Other?

What are some specimen collection considerations?

Risk Assessment:	Risk Mitigation:
Do you have appropriate PPE?	• Staff should be familiar with PPE. • Use of N95 requires fit testing.
Do you have a PPE donning plan?	• Designate a donning area. • Familiarize staff with the protocol. Train!

Do you have all the supplies needed?	• Gather supplies prior to entering the room.
	  • For example, tubes, phlebotomy supplies, sharps container, specimen bags.
	  • Note, always use plastic tubes, butterfly needles are not recommended, do not take shipping boxes into the patient room.

Do you have trained personnel?	• Recommend an experienced person.
Do you need a partner (i.e., Trained Observer)?	• Assess the situation: acuity, pediatric patient, agitated, etc.
Do you have a PPE doffing plan?	• Designate a doffing area • Familiarize staff with the protocol. Train!
What do you do with laboratory waste?	• Follow facility plan for Category A waste.

What are the shipping considerations?

- **Category A**
  - ***Category A infectious substance affecting humans (UN 2814)***
- **Personnel must be trained & certified to ship Category A specimens**
  - **Online trainings available**
  - **Check with your facility or State Public Health Department**
- **Identify couriers**
  - **Courier's may have different requirements**
  - **Ground courier vs air courier**
- **Do you have the correct shipping supplies?**
  - **Category A box for required shipping condition & appropriate labels**
  - **Appropriate packaging material**
- **What days can you ship?**
  - **Is your courier available 7 days a week?**
  - **Is your testing facility available 7 days a week?**

What are some considerations in routine testing?

Routine laboratory testing can and has been done successfully and safely on patients with special pathogens.

Communication is key!

1st - Risk assessment

2nd - Risk mitigation

3rd - Implementation

4th - Ongoing assessments

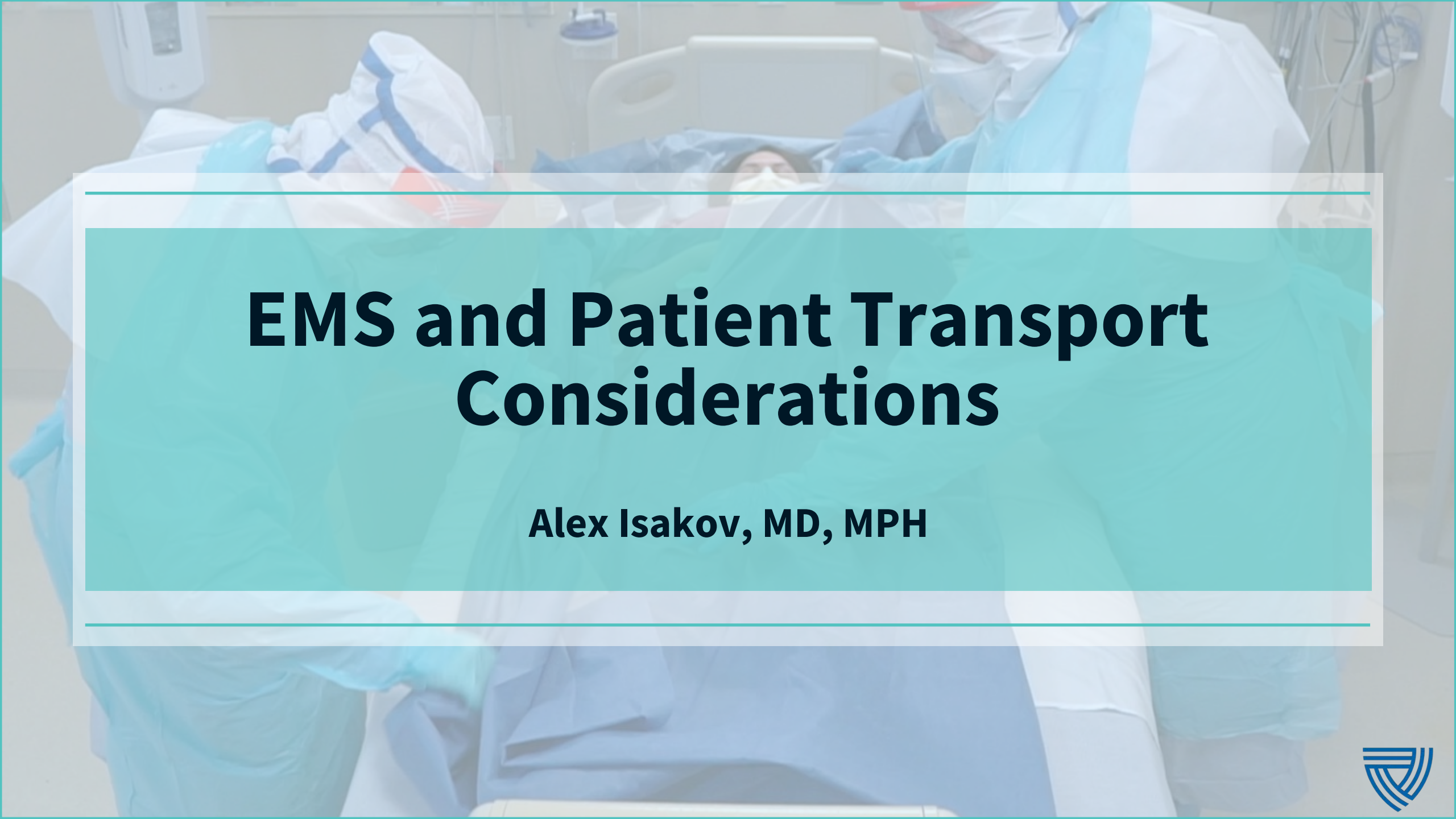
What routine testing can you do?

What testing can you do?

- What POC testing is available at your facility?
- What risks are involved with using this instrument?
- How many instruments do you have? Can one be dedicated to a patient for a period of time?
- Where will you do the testing?
- Do you have trained staff? Laboratory, Nursing, Other, etc.
- How will you clean and disinfect your instrument?

NETEC is here to help

Reach out to one of our NETEC laboratory experts if you have additional questions or need help.



EMS and Patient Transport Considerations

Alex Isakov, MD, MPH

How should EMS implement Identify, Isolate, and Inform for Ebola Virus Disease?

- **Identify:**
  - Travel history/exposure history
  - Signs and symptoms of disease
  - Emergency medical dispatch and field personnel
- **Isolate:**
  - Implement a hierarchy of controls
    - Engineering controls
    - Administrative policies and work practices
    - Personal protective ensembles
- **Inform:**
  - Other responders, local and state public health, receiving facility

How can EMS apply a hierarchy of control for Ebola Virus Disease?

Engineering controls

- Separate driver compartment from patient compartment
- Consider draping interior of ambulance to protect environmental surfaces for confirmed or “wet” cases
- Adjust air handling to introduce fresh air in both compartments
- Turn exhaust fan on high in-patient compartment

How can EMS apply a hierarchy of control for Ebola Virus Disease?

Work practices – Patient prep

- Apply surgical mask to patient
- Consider applying impervious suit or impervious sheet
- Consider undergarment to collect diarrhea
- Leak proof container for emesis
- Treat nausea to prevent emesis

How can EMS apply a hierarchy of control for Ebola Virus Disease?

Work practices – Personnel

- Avoid unprotected exposure
- Limit exposure to minimum number of personnel
- Apply the 6-foot rule as appropriate
- Driver should not make patient contact

How can EMS apply a hierarchy of control for Ebola Virus Disease?

Work practices - Clinical care

- Limit use of sharps
- Limit aerosol generating procedures if possible
- Be prepared to resuscitate the patient
- Review plans for patient deterioration

Photos/CDC

How can EMS apply a hierarchy of control for Ebola Virus Disease?

Personal Protective Ensembles
Standard + contact + droplet (+ airborne)

Stable PUI

- Fluid resistant gown or coverall
- Full face shield
- Facemask
- Double gloves with extended cuffs

Unstable PUI and confirmed EVD

- Impermeable gown or coverall
- Full face shield and N-95 respirator or PAPR
- Double gloves with extended cuffs
- Boot covers
- Apron

Photo/Wade Miles

USE PROVEN CHECKLISTS and TRAINED OBSERVER

Consider comms, also thermal stress

Photo/Alex Isakov

What about cleaning, disinfection and waste management?

- **Cleaning and disinfection with an EPA-registered hospital grade disinfectant**

- **Category A waste is highly regulated**
  - Hazardous Materials Regulations (HMR, 49 C.F.R., Parts 171-180)
  - Best practice may be to leave waste with receiving facility

Photo/Alex Isakov

Anything special after patient transport?

Post-mission Medical Surveillance

- Observe personnel for signs and symptoms of disease for one incubation cycle or until the disease of concern is ruled out

- Coordinate with public health

- Asymptomatic people are not contagious

Resources for EMS

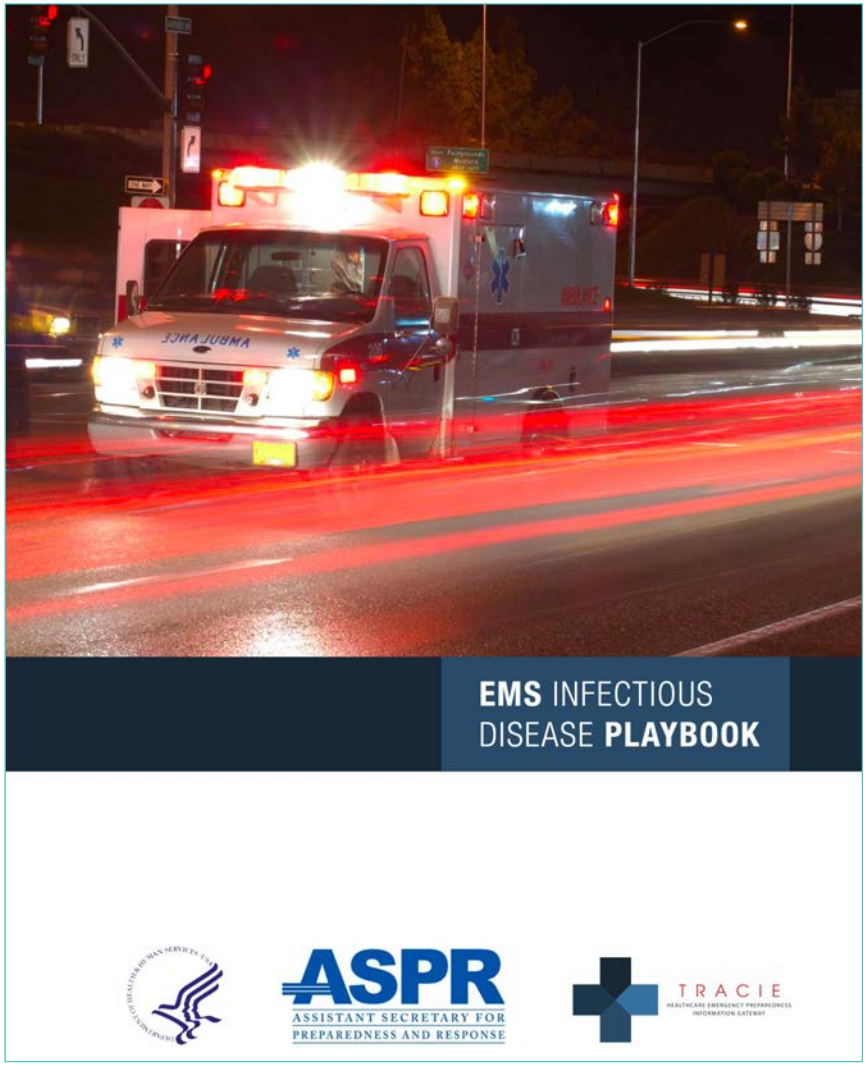
Centers for Disease Control and Prevention

CDC 24/7: Saving Lives, Protecting People™

Interim Guidance for Emergency Medical Services (EMS) Systems and 9-1-1 Emergency Communications Centers/Public Safety Answering Points (ECC/PSAPs) for Management of Patients Under Investigation (PUIs) for Ebola Virus Disease (EVD) in the United States

Guidance for Developing a Plan for Interfacility Transport of Persons Under Investigation or Confirmed Patients with Ebola Virus Disease in the United States

Resources for EMS



Contents

EMS INFECTIOUS DISEASE PLAYBOOK TRACIE

Resources for EMS

NETEC Resources

Trish Tennill, RN, BSN

NETEC Resources

NETEC is Here to Help

NETEC will continue to build resources, develop online education, and deliver technical training to meet the needs of our partners

Ask for help!

- Send questions to **info@netec.org** - they will be answered by NETEC SMEs
- Submit a Technical Assistance request at **NETEC.org**

Contact

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courses.netec.org	“Transmission Interrupted” (On all major podcast players)	youtube.com/thenetec

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