

Ebola Virus Disease:

Identify, Isolate, Inform, and Initiate Care

Anna Yaffee, MD, MPH

Associate Professor, Emergency Medicine

Emory School of Medicine



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What do we do if this patient presents to our facility?





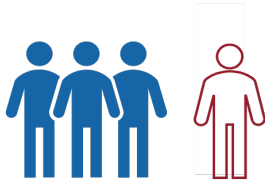
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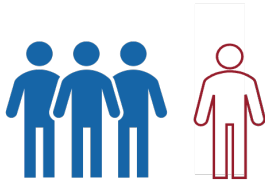
Isolate

- ✓ Promptly and effectively isolate the individual(s) suspected to have HCID from the general patient population and healthcare personnel.



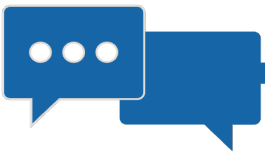
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Inform

- ✓ Utilize high consequence pathogen algorithm and notify infection prevention to advise next steps.



Identify

- Think about points of entry at your facility
 - ED
 - Ambulatory care
 - EMS
- Who/what will a patient come in contact with?
 - Registration
 - Security
 - Valet





Identify

Self-screening: signage enables patients to self-identify!

Signage needs to be:

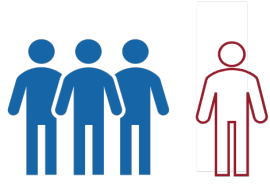
- ✓ Positioned prominently for maximum visibility
- ✓ Easily understood, with simple-to-follow directions
- ✓ Written in languages representative of the community
- ✓ Created with pictograms that are easy to follow





Identify

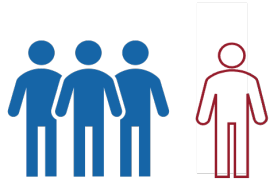
- Gather information to assess epidemiologic risk
 - Universal symptom and travel/exposure screen
 - “Do you have a new fever, cough or rash?” >> if yes, mask
 - “Any travel or new exposures in the last 21 (or 30) days?”
- Where can you go to find current outbreak information?
 - Facility IPC
 - EMR
 - Local and state health department
 - NETEC
 - CDC/WHO



Isolate

- Where will you place the patient while preparing the isolation room?
 - Who prepares the room?
 - Checklist
- What is the designated route to the isolation room?
 - How will you move the patient there?
- Universal and transmission-based PPE and isolation precautions
 - Trained observers, super users, just-in-time training options





Isolate

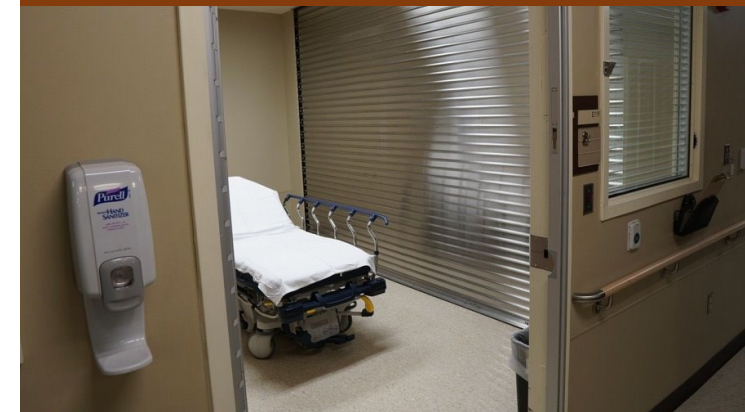
Isolation room preparation

- ✓ PPE/Isolation equipment cart in front of room
- ✓ Remove all extra supplies and equipment from the room
 - ✓ Any supplies in the room will need to be discarded afterwards
- ✓ Check hand hygiene stations to ensure they are full and operating
- ✓ Ensure there is a commode or private bathroom available
- ✓ Add additional waste bins to hold and segregate waste if needed
- ✓ Post isolation sign with appropriate precautions
- ✓ Print log sheet for personnel monitoring

BEFORE



AFTER





- Who are you informing?
 - Internally/Externally
 - ✓ Infection Prevention and Control team
 - ✓ Local and State Public Health (and your region's RESPTC?)
 - ✓ Hospital and department leadership
 - ✓ Department team members (EVS, security, radiology, lab)
- Who would initiate this process?

Now what?

Initiate care!

- Ethical, moral and legal obligation to our patient
- We have the knowledge and tools in the frontline to safely and appropriately stabilize this patient!



VHF Case Definition

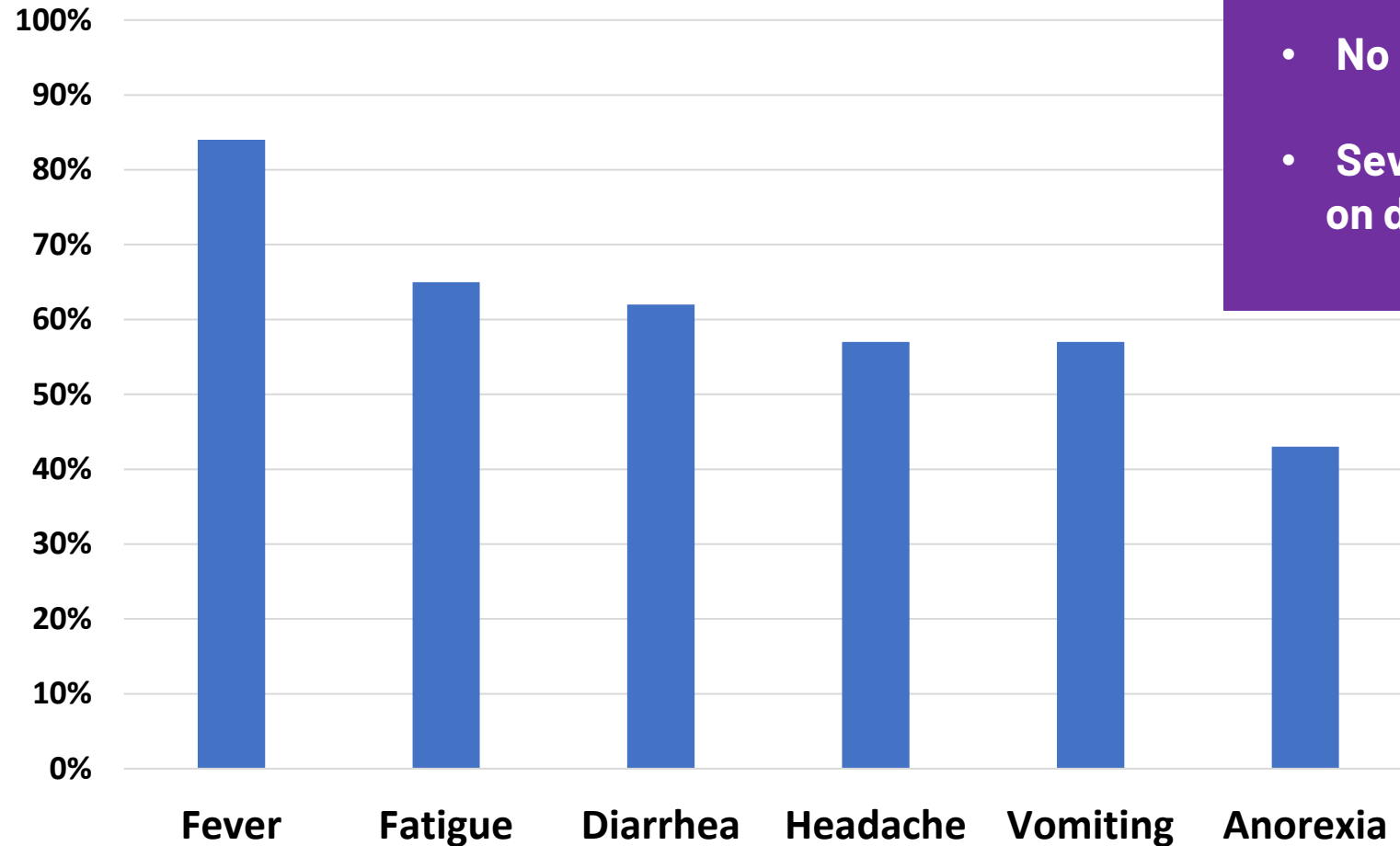
Elevated body temperature or subjective fever or symptoms, including severe headache, fatigue, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage

AND

An epidemiological risk factor within the 21 days before the onset of symptoms

To meet the criteria for testing, a patient should meet these CDC case definitions

VHF Presenting Symptoms



- **Non-specific**
- **No hemorrhage**
- **Severity depends on duration of illness**

1: Bah EI, et al Clinical presentation of patients with Ebola virus disease in Conakry, Guinea. N Engl J Med. 2015 Jan 1;372(1):40-7. doi: 10.1056/NEJMoa1411249. Epub 2014 Nov 5. PubMed PMID: 5372658

VHF Presenting Signs

Widely variable, depending on severity of disease

- Fever
- Tachycardia
- Relative hypotension
- Maculopapular rash
- Late stage:
 - Bleeding
 - Altered mental status

Other diagnoses are more common

Differential Diagnosis

Malaria:

- Most common cause of fever in returning travelers
- 10% co-infection rate
- Check thick and thin blood smears

Sepsis:

- Presents similarly to VHF:
 - Fever, fatigue, hypertension
- Initiate sepsis bundle

Influenza:

- Can present with fever, fatigue, headache
- Higher likelihood of having respiratory symptoms

Gastroenteritis:

- Can present with nausea, vomiting, diarrhea, fatigue

Pregnancy:

- Fatigue, headache, nausea and vomiting can be present
- Need to test urine on suspect patients of childbearing age

Critical History Taking

Accurate history will establish whether a patient meets the criteria for a VHF patient

Exposure history

- Travel, contacts

Nature of symptoms:

- Dry versus wet
- Early versus late disease

Pediatric consideration

Symptoms pertinent to the differential diagnosis:

- Episodic fevers, chills with rigors
- Rash
- Respiratory symptoms

Critical Physical Examination

- Markers of volume status
 - Skin turgor, mucus membranes, orthostatic hypotension
 - Markers of organ failure
 - Encephalopathy, respiratory distress, hypotension, renal failure
 - Markers of electrolyte abnormalities
 - Palpitations, arrhythmias, weakness
 - Markers of co-infection
- 
- The bottom of the slide features a decorative graphic consisting of several overlapping geometric shapes. On the left, there is a large dark blue triangle pointing downwards. In the center, there is a purple triangle pointing upwards. On the right, there is a light blue triangle pointing upwards. These shapes overlap to create a modern, abstract design at the base of the presentation.

Frontline Care: Early Care for a Suspect Patient is Essential!

Diagnosis will most likely NOT be a VHF

- ✓ Consideration of a VHF should not delay testing, diagnosis, and care for other more likely conditions
- ✓ Clinical Care needs to be provided while VHF testing is ongoing

If it is a VHF, early & aggressive management is crucial

- ✓ Case Fatality Rate is markedly lower in developed countries due to the presence of supportive care
- ✓ Patients die of hypovolemic shock and electrolyte abnormalities, not from hemorrhage

Treat Underlying Diagnoses

- Malaria
 - Initiate antimalarial medications, antipyretics
- Sepsis
 - Initiate fluid administrations, cultures, antibiotics
- Gastroenteritis
 - Initiate fluid and electrolyte repletion, consider antibiotics
- Influenza
 - Consider antimicrobials, respiratory support
- VHFs
 - Aggressive supportive care with fluids and electrolyte repletion
 - Consider early critical care interventions as needed

Ebola Virus Disease-Specific Therapeutics

- Two FDA-approved therapeutics, Inmaze and Ebanga, are available for EVD caused by *Zaire ebolavirus*
 - Inmaze (REGN-EB3) is a cocktail of three monoclonal antibodies
 - Ebanga (mAb114) is a single monoclonal antibody
 - No approved treatment for disease caused by other species, but investigational therapeutics may be available
- One FDA-approved vaccine, Ervebo, for EVD caused by *Zaire ebolavirus*

Clinical Care Challenges

- Restrict access to a core group of providers – you must be prepared to work outside your comfort zone
- Routine history and physical may be challenging
- Routine imaging and labs may not be available
- Waste Management – Category A until patient is ruled out
- What else may be a challenge at your facility?



Thank you!