Update on 2022 Ebola Outbreak in Uganda

Clinician Outreach and Communication Activity (COCA) Call

Wednesday, October 12, 2022
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- If you are a member of the media, please direct your questions to CDC Media Relations at 404-639-3286 or email media@cdc.gov.
Today’s Presenters

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Update on Ebola 2022 Outbreak in Uganda

Trevor Shoemaker, PhD, MPH
Mary Choi, MD, MPH

CDC Clinician Outreach and Communication Activity (COCA) Call
October 12, 2022, 3:00 PM
The first confirmed case of EVD was a 25-year-old man who lived in Mubende District. The case was quickly identified as a suspect VHF and a sample was sent to the Uganda Virus Research Institute (UVRI) and confirmed by rRT-PCR on Sept 19. An outbreak of EVD due to Sudan virus (species *Sudan ebolavirus*) was declared by the Uganda MOH on Sep 20, 2022 in Mubende District, Central Uganda. Investigations identified suspicious cases and clusters of deaths occurring in the Mubende district up to 1 month prior. Confirmed case had possible contact with probable EVD cases in health clinic.

**Current Outbreak Update**

**Total cases:** 74 (54 confirmed, 20 probable)

**Total deaths:** 39 (19 confirmed, 20 probable)

- Case-Fatality Proportion: **52.7%**

**Total recoveries:** 14

**Districts affected:** 5

- Bunyangabu, Kagadi, Kassanda, Kyegegwa, Mubende

**Total infections among HCWs:** 10 (4 deaths)
2022 Uganda Sudan Virus Outbreak Laboratory and Contact Tracing (Oct 11)

Laboratory:
- 407 samples received and tested by UVRI/CDC
  - 54 samples PCR positive for Sudan virus
- 100+ samples tested in Mubende field lab
- Test positivity rate: 10.7%
- 6 complete SUD genomes sequenced
- 3 samples PCR positive for CCHF (2 fatal)

Contact Tracing: 668 active, 94% followed last 24 hrs
Ebola Virus Disease: Previous Outbreaks
About Ebola Virus Disease (EVD)

Ebola virus disease in humans is caused by infection with one of 4 viruses within the genus *Ebolavirus*, family *Filoviridae*

- **Ebola virus** (species *Zaire ebolavirus*)
  - Multiple outbreaks (Zaire/DRC, Gabon, Republic of the Congo, Guinea)
  - 70-90% fatality

- **Bundibugyo virus** (species *Bundibugyo ebolavirus*)
  - 2007 Uganda and 2012 DRC outbreaks
  - 40% fatality

- **Taï Forest virus** (species *Taï Forest ebolavirus*)
  - One human case (survived)

- **Sudan virus** (species *Sudan ebolavirus*)
  - Multiple outbreaks (Sudan, Uganda)
  - ~50% fatality
Prior outbreaks of Sudan Virus

1976 Sudan: Nzara, Maridi, and surrounding areas
  • 284 cases, 151 deaths (CFR=53%)

1979 Sudan: Nzara and Yambio
  • 34 cases, 25 deaths (CFR=65%)

2000 Uganda: Gulu
  • 425 cases, 224 deaths (CFR=53%)

2004 Sudan: Yambio
  • 17 cases, 7 deaths (CFR=41%)

2011 Uganda: Nakisimata, Luwero District
  • 1 cases, 1 death (CFR=100%)

2012 Uganda: Kagadi, Kibaale
  • 24 cases, 17 deaths (CFR=70.8%)

2012 Uganda: Bombo, Luwero District
  • 7 cases, 4 deaths (CFR=54.1%)
Outbreaks of Ebola Virus Disease

- Since 1976, there have been 33 outbreaks due to Ebola virus (species *Zaire ebolavirus*)
  - >31,000 infected; >12,000 deaths

- Prior to 2022, there have been 7 outbreaks due to Sudan virus (Uganda and Sudan)
  - 792 cases, 426 deaths

- Most of our knowledge of EVD comes from outbreaks caused by the Ebola Zaire, we anticipate lessons learned from recent Ebola Zaire outbreaks to be applicable to this outbreak
Risk of Ebola Virus Disease Spread

- Currently, at regional and global levels, the risk of EVD spread has been assessed as low by the World Health Organization.

- Risk of importation into the U.S. is currently assessed as low:
  - Low number of travelers and no direct flights to the United States
  - Exit screening of air passengers is being conducted in Uganda
  - Uganda has experience in responding to Ebola virus disease including outbreaks of Sudan virus
Domestic Preparedness Activities

- CDC has activated its emergency response structure
- Stand up multi-disciplinary CDC Ebola Response Teams (CERT)
- Updating guidance on the management of patients with suspected EVD]
- Outlining a process to access experimental Sudan virus therapeutic
Domestic Preparedness Activities

- Coordinating with the 10 Regional Special Pathogens Treatment Centers
  - Specialized high-level isolation units equipped with infrastructure, laboratory capabilities, staff to care for patients with highly hazardous communicable diseases

- Expanding testing capabilities to:
  - 28 Laboratory Response Network laboratories
  - 10 Regional Emerging Special Pathogens Treatment Centers

- Outreach to public health departments, public health laboratories, healthcare workers
  - Health alert network (HAN) health advisory released October 6, 2022
Ebola Virus Disease: Clinical Manifestations
Ebola Virus Disease

- Serious illness, often fatal in humans
- Without treatment EVD has a high mortality rate
- Based on evidence and the nature of other similar viruses, we believe that Ebola is animal-borne (zoonotic) and that bats are the most likely reservoir
Person-to-Person-Transmission

- In infected individuals, the virus can be found in all body fluids:
  - Blood
  - Feces/Vomit
  - Urine
  - Tears
  - Saliva
  - Breast milk
  - Amniotic fluid
  - Vaginal secretions
  - Sweat
  - Semen

- Contact (through broken skin or mucous membranes) with the body fluids of a person that is sick or has died of EVD

- EVD is not spread through airborne transmission
Signs and Symptoms

- Signs and symptoms of EVD include:
  - Fever
  - Headache
  - Fatigue
  - Muscle pain/Joint pain
  - Anorexia
  - Sore throat
  - Abdominal pain
  - Rash
  - Diarrhea
  - Vomiting
  - Conjunctivitis
  - Unexplained bleeding/bruising*

- Fever is not universally present

- Bleeding/bruising is not universally present

* Includes bleeding from the gums, mouth, nose, bloody vomit, bloody stools, bleeding from injection sites, vaginal bleeding outside of a menstrual cycle
INFECTION

Infection occurs after exposure to a person who is sick or has died of Ebola.

EXPOSURE TO THE VIRUS

NOT CONTAGIOUS
INFECTION

Infection occurs after exposure to a person who is sick or has died of Ebola.

INCUBATION PERIOD

• It can last from 2-21 days (usually 4-17 days)
• Person feels well and has no symptoms
• The person cannot transmit the virus

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**Common signs and symptoms are**
- Diarrhea
- Nausea/vomiting
- Bleeding occurs in some cases
- Hiccups
- Eye redness

### INFECTION

Exposure to the virus

### INCUBATION PERIOD

Day 0 of the disease

### DRY PHASE

Day 4 of the disease

### WET PHASE

EVEN MORE CONTAGIOUS

NOT CONTAGIOUS

CONTAGIOUS
Infection occurs after exposure to a person who is sick or has died of Ebola.

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- The patient becomes more contagious as the disease progresses.
- In fatal cases, death occurs on average 7 to 10 days after the onset of symptoms.
- The amount of Ebola virus is highest at the time of death.
Biofire FilmArray NGDS Warrior Panel is an FDA 510(k)-cleared assay

Panel can detect the following:
  • Sudan virus
  • Ebola virus
  • Taï forest virus
  • Bundibugyo virus
  • Reston virus

Currently, 9 laboratories within the Laboratory Response Network (LRN) are able to test under CLIA using the Warrior Panel
Requests for Diagnostic Testing

- Prior consultation with CDC is required prior to shipping a specimen to CDC for Sudan virus testing
- All specimens collected from patients with suspected EVD must be shipped Category A as a non-select agent
Diagnostic Testing Considerations

- A negative RT-PCR test result from a blood specimen collected less than 72 hours after onset of symptoms does not rule out Ebola virus infection.
- A negative RT-PCR test result from a blood specimen collected from a symptomatic patient more than 72 hours after symptom onset rules out EVD.
- Positive RT-PCR results are considered preliminary until confirmatory testing at CDC.
Treatment: Sudan Virus

- There is no FDA-licensed treatment for Sudan virus
- MBP134
  - Experimental two antibody cocktail therapy
  - Demonstrated efficacy in preventing mortality due to infection with Sudan virus, Ebola virus, and Bundibugyo virus in non-human primates
- Supportive treatment can improve chances of survival when provided early
  - Intravenous fluids/electrolytes
  - Symptomatic treatment for vomiting, diarrhea
Vaccine: Sudan Virus

- There is no FDA-licensed vaccine for Sudan virus
- Two experimental vaccine candidates undergoing evaluation
- Based on available evidence, Ervebo — the FDA-licensed vaccine against the Zaire strain — will not provide cross-protection against Sudan virus infection
Recommendations for Clinicians
Recommendations for Clinicians: Travel History

- Collect travel history for ill patients presenting with a clinical picture suggestive of an infectious etiology

- For ill travelers recently arrived from Uganda:
  - Where did they travel? Were they in the districts currently affected by the outbreak?
  - Why did they travel? For work? To visit family?
  - What activities did they take part in during the 21 days before illness onset? Attend or participate in a funeral? Care for anyone who was sick or died?
  - Did they travel with others? If yes, are their travel companions ill?
  - Did they have contact with anyone who was diagnosed with Ebola? Anyone suspected of having Ebola?
Include EVD in the differential diagnosis for ill travelers recently arrived from Uganda

Malaria is the most common cause of undifferentiated fever after travel to sub-Saharan Africa

• Nearly all the signs and symptoms of EVD can also be seen in malaria
• Malaria, especially *P. falciparum* can progress rapidly; early diagnosis and treatment is key to survival — Malaria testing **should not** be delayed
• Ask about malarial prophylaxis and adherence
• History of taking malaria prophylaxis does not exclude the possibility of malaria

Test for malaria in any febrile traveler recently arrived from Uganda
Recommendations for Clinicians: Infection Control

- Place suspect EVD patients in a private room (with the door closed)
- Follow CDC guidance on PPE selection and wear, including donning/doffing
- Where possible, use dedicated (and disposable) medical equipment, limiting use of needles and other sharps
- Procedures that can increase environmental contamination with infectious material or create aerosols should be minimized
- If performing aerosol-generating procedures, follow guidance to reduce exposures (e.g., limit to essential personnel, utilize an airborne infection isolation room (AIIR) if available)
Recommendations for Clinicians: Notification

- If you are concerned your patient may have EVD, first contact your state/local, tribal, or territorial health department and follow jurisdictional protocols for patient assessment
  - Identify points of contact and contact information for your state/local health departments, including on-call information
  - CDC Emergency Operation Center (770-488-7100) can also assist in finding contact information for state and large jurisdictional health departments
- As a resource for public health departments, CDC’s Viral Special Pathogens Branch is available 24/7 for consultations by calling CDC Emergency Operations Center (770-488-7100)
Initial CDC Consultation

- Connected with SMEs at CDC
- Discuss the patient’s travel history, epidemiologic risk factors, clinical course, diagnostic tests performed, infection control measures in place
- Make a collective decision as to whether testing is recommended
- Work with the hospital/state health department to arrange for shipment and testing of the specimen
Regional Special Pathogens Treatment Centers
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Today’s COCA Call Will Be Available to View On-Demand

- **When:** A few hours after the live call ends*

- **What:** Video recording

- **Where:** On the COCA Call webpage
  [https://emergency.cdc.gov/coca/calls/2022/callinfo_101222.asp](https://emergency.cdc.gov/coca/calls/2022/callinfo_101222.asp)

* A transcript and closed-captioned video will be available shortly after the original video recording posts at the above link.
Next COCA Call

- **Topic:** Melioidosis in the United States: What Clinicians Need to Know Following Newly Discovered Endemicity

- **Date:** Thursday, October 13, 2022

- **Time:** 2:00–3:00 P.M. ET

- **Website:** [https://emergency.cdc.gov/coca/calls/2022/callinfo_101322.asp](https://emergency.cdc.gov/coca/calls/2022/callinfo_101322.asp)
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