

Ebola!



Photo credit: <http://www.cdc.gov/vhf/ebola/>



Photo credit: <http://www.listal.com/list/-2037>

An otherwise healthy 12 year old boy named James is brought to the ED with complaints of fever, rash, abdominal pain, vomiting, and diarrhea. Two weeks ago, they visited family in Guinea, and now his mother is concerned because she heard on the news that Ebola can present with fever, rash, vomiting, and diarrhea. Which of the following vacation activities would be considered low-risk for transmission of Ebola virus?

- A. Helped prepare body of Ebola victim for burial.
- B. Attended funeral of someone who died from Ebola
- C. Ate bush meat (monkey, duiker)
- D. Explored bat-ridden cave
- E. Trapped in poorly ventilated room with Ebola patient for more than three hours
- F. Blood from actively hemorrhaging patient splashed into eyes, mouth.

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Patient from affected country presents with fever

- Could be ebola, could be something else
- Worry when you have both:
 - Clinical criteria: fever $> 38.6\text{C}$ plus severe HA, v/d, abdominal pain, unexplained hemorrhage
 - Epidemiologic risk factors in the three weeks prior to onset of symptoms
- Case definitions:
 - High risk exposure
 - Low risk exposure
 - No known exposure

Case Definitions

- High risk exposures: percutaneous exposure (needle stick, mucous membrane exposure) to body fluids of EVD patient, or working around patients or body fluids without appropriate PPE
- Low risk exposure: household member, or casual contact
- No known exposure: present in EVD outbreak-affected countries in the past 21 days

Ebola West Africa 2014

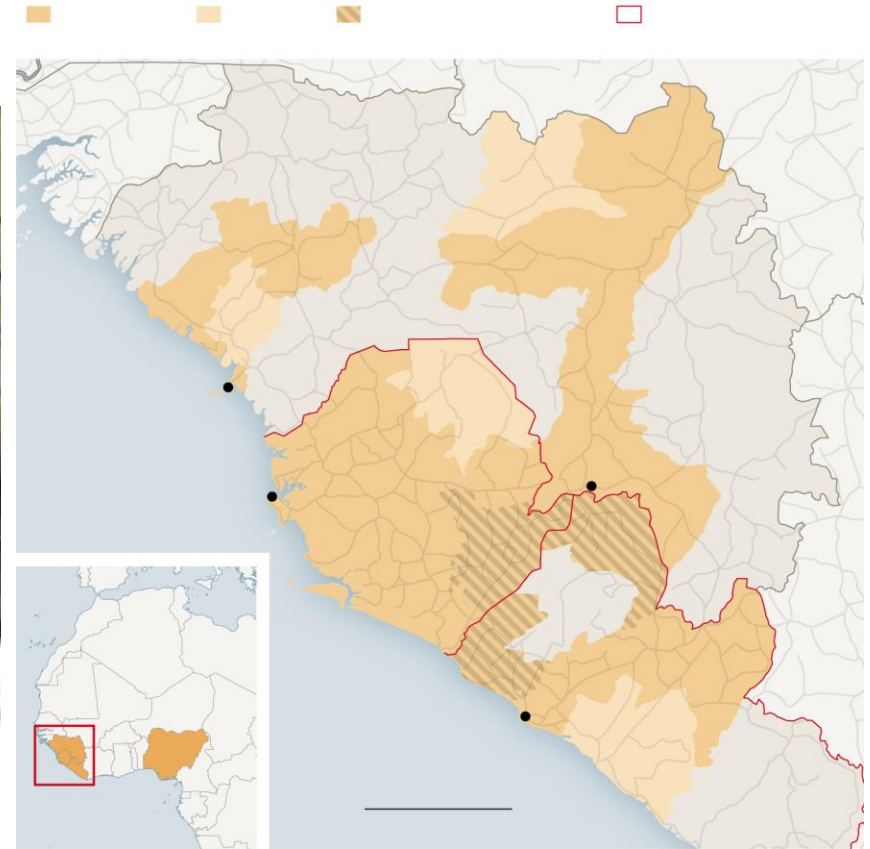
- December 2013: 2 yo patient zero (?) dies after several days of fever, black stool, vomiting
- From village in Guinea, near borders with Sierra Leone and Liberia
- March 2014: Guinean MoH, MSF, CDC notified of disease clusters; appeared to be under control
- Resurgence of cases in late May, with spread into Sierra Leone, Liberia, and Nigeria (via plane)

Cute but deadly.



Photo from:
<http://www.catholic.org/news/international/africa/story.php?id=54695>

Ebola West Africa 2014



<http://guardianlv.com/2014/03/viral-hemorrhagic-fever-erupts-in-guinea-caused-by-the-ebola-virus/>

http://www.nytimes.com/interactive/2014/07/31/world/africa/ebola-virus-outbreak-qa.html?_r=0

Clinical Course

- Incubation period: 8-10 days
- Initial symptoms: vague (fever, myalgias), +/- diffuse, erythematous, maculopapular rash
- 5-7 days later, GI symptoms develop
- Also reported: CP, SOB, HA, seizures, conjunctival injection, hiccups, confusion
- Bleeding: petechiae, bruising, oozing, mucosal hemorrhage, but: hemorrhagic symptoms seen in fewer than 50%
- Either improve around day 6-11, or die between days 6-16

Pathogenesis

- Infects many types of cells.
- Doesn't infect lymphocytes, but causes them to undergo apoptosis
- Hepatocellular necrosis → clotting dysregulation, coagulopathy
- Adrenal necrosis → impaired steroid synthesis, hypotension
- Triggers release of pro-inflammatory cytokines → vascular leak, impaired clotting, sadness

Lab Findings

- Initially leukopenia, lymphopenia, then left shift
- Platelets fall to 50-100k
- Amylase elevated
- Transaminases elevated, AST > ALT
- PT and PTT prolonged
- Fibrin degradation products elevated
- Proteinuria may be present

According to the CDC, what PPE should you wear to enter the room?

- A. Gloves
- B. Gloves, gown
- C. Gloves, gown, eye protection
- D. Gloves, gown, eye protection, facemask
- E. Gloves, gown, eye protection, N95 respirator
- F. Biohazard suit (like in the news)
- G. PPE only necessary if patient actively bleeding

If you value your life, but don't want to look overly paranoid:

- A. Gloves
- B. Gloves, gown
- C. Gloves, gown, eye protection
- D. Gloves, gown, eye protection, facemask**
- E. Gloves, gown, eye protection, N95 respirator
- F. Space suit, like in the news
- G. PPE only necessary if patient actively bleeding

References

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