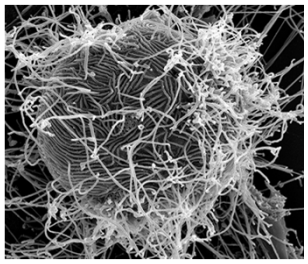


EBOLA Virus

Facts and Fiction

Michael A. Kron, MD, MSc. Clinical Tropical Medicine, FACP
Division of Infectious Diseases, Department of Medicine
Froedtert and the Medical College of Wisconsin

Topics

How I think about tropical diseases

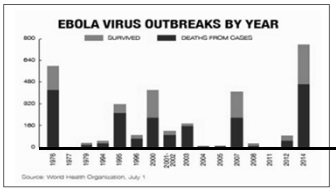
" Population-Environment Relationships"

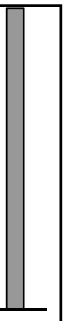
- **What Ebola virus IS (and What Ebola virus is NOT)**
  1. ***Droplet vs airborne spread***
- **What makes it so scary?**
  2. ***Minimum infective dose***
  3. ***Numbers of virus particles in body fluids***

WHAT is Ebola ?

…… A viral disease endemic to Africa

…… One of a family of hemorrhagic fever viruses





Q: Why is Ebola in Africa?

A: Many infectious diseases require special

"Population-Environment Relationships"

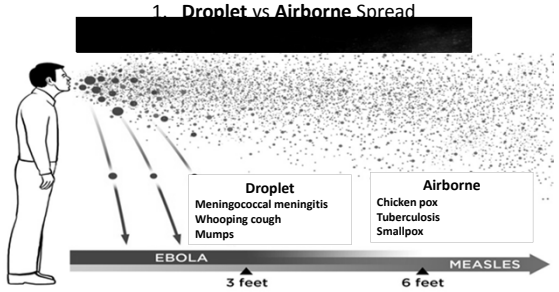
Ebola Epidemic Requires Special Training

Health Care Providers (HCP)

- High(est) **Stress**

Three Key Concepts: Infectious disease in general and Ebola

1. **Droplet** vs **Airborne** Spread



Key Concept #2

How many microbes does it need to make you sick?

"Minimum Infective Dose:"

…… Smallest number of microbes needed to make you sick

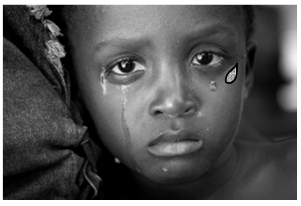
Examples

Gonorrhea: 1,000
Salmonella: 100,000
E. coli, Cholera: 1,000,000

EBOLA

1

Key Concept #3: How many Ebola viruses are present in your body when you are sick?

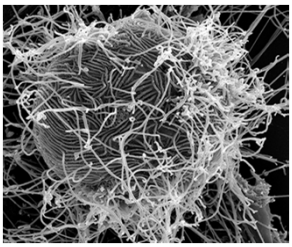


Blood
Tears
Urine
Diarrhea
Vomit

One fifth of a teaspoon blood - Early untreated HIV: 50,000 – 100,000
- Hepatitis C: 5,000,000 to 20,000,000

- EBOLA: 10,000,000,000

Unexpected lesson from Ebola outbreak: **GALLONS** of diarrhea/vomit



What is this????

Picture of a SINGLE CELL infected with EBOLA

Summary "Scariness factor" (not airborne)

- **Large number of viruses in body fluids**
- **Low Minimal Infective Dose**
- **Ebola can infect many cell types**
  ~37,000,000,000,000

  (Number of cells in a human)

Thank you

- Michael A. Kron