





# **Ebola and Rhode Island: Calm, Thoughtful, Vigilant**

**Michael Fine, MD**

Rhode Island Department of Health

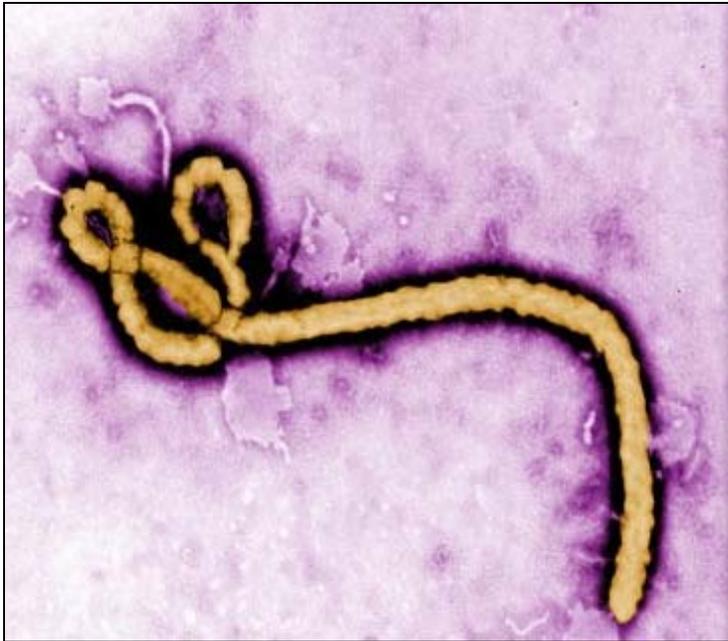
Last updated: October 15, 2014

# Overview



- 2014 West Africa Ebola outbreak is the worst in history
- Case fatality rate 50-70%
- Only people who have been in West Africa in prior 21 days are at risk
- People are not contagious until they show symptoms
- No vaccine or treatment besides supportive care
- The outbreak can be stopped by good public health practice
- While we may see a few imported cases in RI, good public health collaboration will likely prevent any spread

# Ebola Virus Disease



- Filovirus
- Is a severe, often fatal disease in humans and animals (bats, monkeys, gorillas, and chimpanzees in Africa)

# Ebolavirus Ecology



- Bats appear to be reservoir hosts
- Following initial human infection through contact with infected bat or other animal, human-to-human transmission often occurs

# Ebola: Symptoms



Symptoms usually begin **2 to 21 days** after exposure:

- Fever
- Severe headache
- Muscle pain
- Weakness
- Diarrhea
- Vomiting
- Abdominal pain
- Lack of appetite
- Unexplained bleeding or bruising



**If you aren't sick after 21 days since exposure, you will not become sick with Ebola.**

# How Ebola Spreads



**The virus is spread through body fluids.**

**A person becomes infected by touching or handling:**

- A person who is sick with Ebola
- Objects contaminated with body fluids
- The body of a deceased Ebola victim

**The virus enters the body through:**

- Hand to mouth contact
- Hand to eye, nose, mouth contact
- An open cut, wound, abrasion (incl. needle sticks)
- Sexual contact

## **Body Fluids:**

- Blood
- Vomit
- Feces
- Urine
- Saliva
- Breast milk
- Sweat
- Semen

# Life of Ebola Virus



Ebola lives in wet body fluids outside the body for several days.

The virus lives on a dry surface for several hours.

The Ebola virus lives in the body of a deceased patient for weeks.

Ebola lives in the semen of people who have recovered for 2-3 months.

# Transmission Scenarios



- A hunter or cook handles, cleans, or eats “**bush meat**” from an infected animal from West Africa.
- A family member or caregiver cleans up after a sick Ebola patient and removes their **soiled sheets** to do laundry, without wearing PPE.
- At a **funeral in West Africa**, many mourners unknowingly touch a loved one who died from Ebola, wipe tears, cover their mouths, rub their eyes, etc.
- A healthcare worker treats an Ebola patient without wearing **Personal Protective Equipment (PPE)**, or improperly reuses PPE, or removes PPE in the wrong order.



# How Ebola is Treated

- No vaccine
- No proven treatment--care is supportive (fluids, oxygen, etc.)
- Ebola transmission can be stopped by classic public health management:
  - contact tracing
  - identification of all cases
  - isolation

# Ebola is NOT Spread by:

- Air
- Water
- Food (except bushmeat)
- Mosquitoes
- People without Ebola symptoms



# How is an Outbreak Stopped?



- **Find:**
  - Find and diagnose patients.
- **Respond:**
  - Isolate patients, find and monitor patient contacts.
- **Prevent:**
  - Healthcare infection control, avoid risk factors.

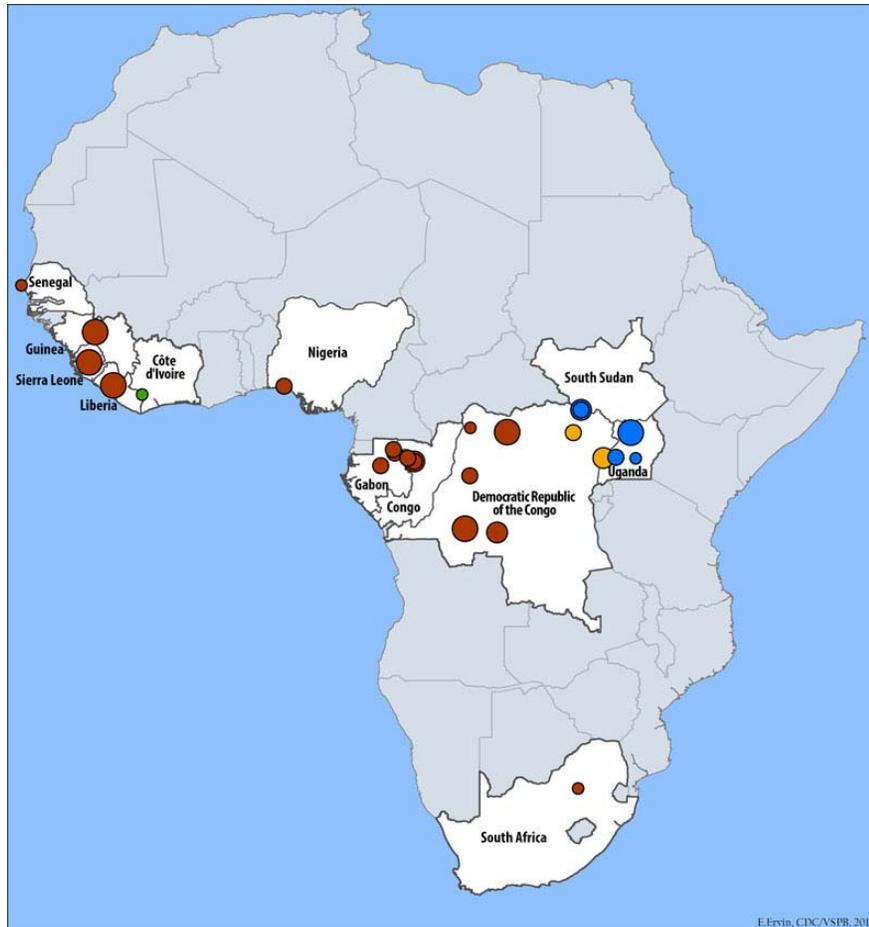


# Contact Tracing: Identifying Exposure and Risk

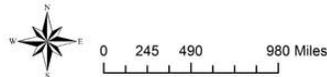
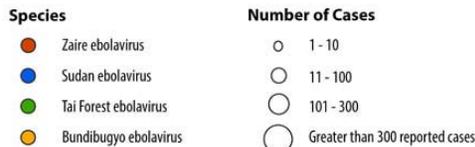


- Find everyone who comes in direct contact with a sick Ebola patient and evaluate exposure
- Those exposed are monitored twice a day for temperature and watched for symptoms for 21 days from exposure
- If fever or other symptoms develop, contact is **immediately isolated**, tested, and given care
- Cycle starts again with new patient's contacts

# Ebola Outbreaks In Africa 1976 - 2014

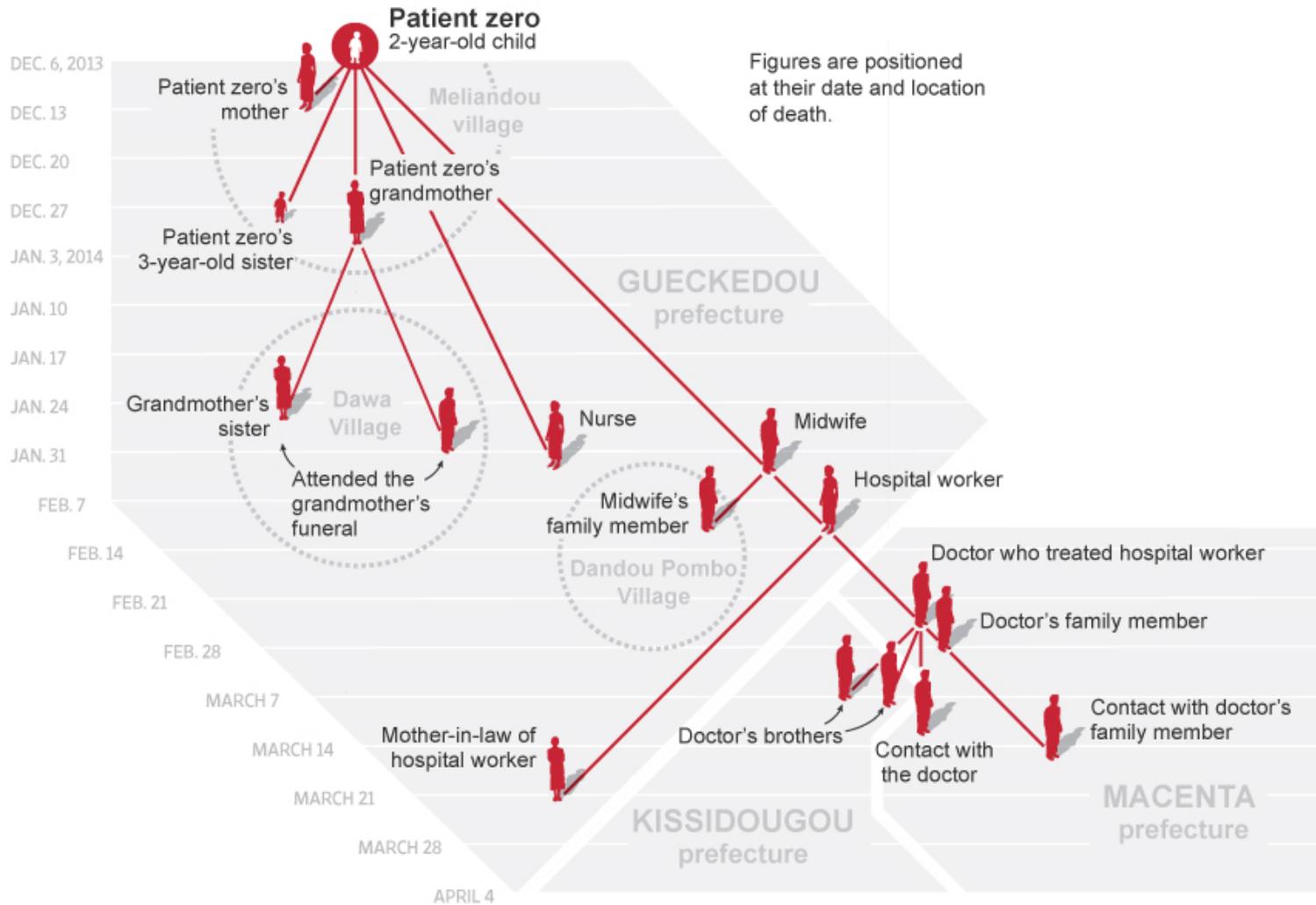


EBOLAVIRUS OUTBREAKS BY SPECIES AND SIZE, 1976 - 2014



- **First outbreak:** 1976 in Zaire (now Democratic Republic of the Congo)
- 318 cases with a fatality rate of 88%
- Spread by close personal contact and use of contaminated needles and syringes in hospitals and clinics
- Ten other outbreaks of the *Zaire ebolavirus* since 1976 with a range of 2 to 315 people infected and fatality rates of 57% to 89%

# How the 2014 West Africa Outbreak Began

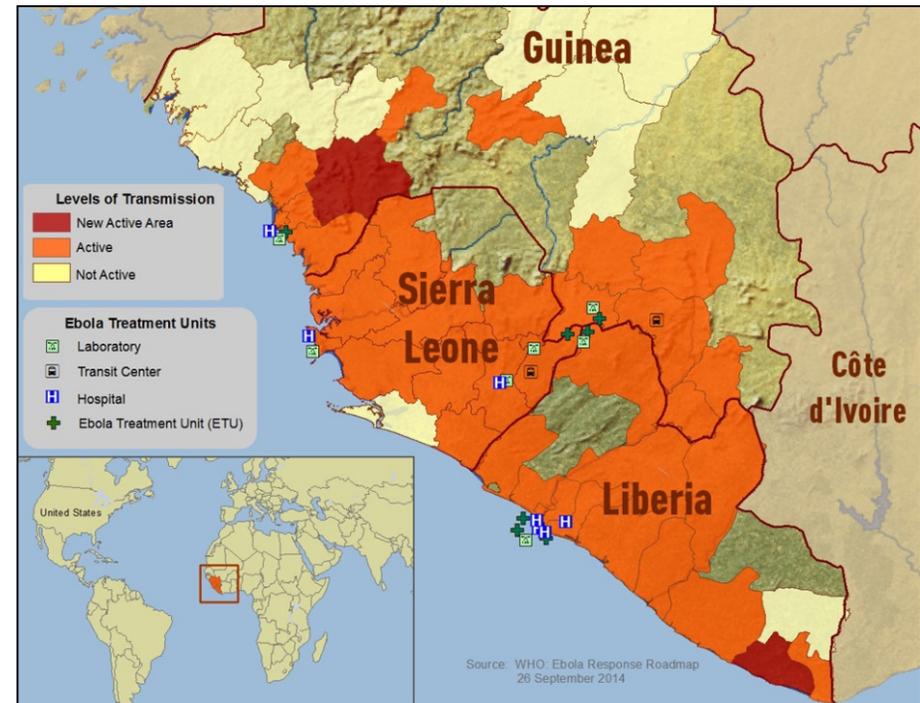


Figures are positioned at their date and location of death.

# 2014 West Africa Outbreak



- Largest, deadliest Ebola outbreak in history
- First in West Africa
- Six countries have been affected:
  - Outbreak control now focused primarily in **Guinea, Liberia, and Sierra Leone.**
  - After 20 cases, **Nigeria** has had no new cases since September 5, 2014.
  - 1 case in Senegal
  - 1 case in Spain
  - 1 case in Dallas, Texas



# Current Situation: Liberia, Guinea, Sierra Leone



- As of October 8 - **3865** deaths, per World Health Organization
- **8033** confirmed, probable and suspected cases (WHO)
- CDC estimates underreporting by rate of 2.5

# Predicted Case Numbers — Liberia and Sierra Leone



- Without scale-up of interventions, CDC models project Ebola cases in Liberia to double approximately every 15-20 days, and every 30-40 days in Sierra Leone.
- By January 20, 2015, Liberia and Sierra Leone projected to have 550,000 Ebola cases **(1.4 million when corrected for underreporting)** without additional interventions or changes in community behavior (e.g., unsafe burial practices).
- CDC models suggest that epidemic will end when 70% of infected people are in medical care facilities or Ebola treatment units.

Source: Morbidity and Mortality Weekly Report, Sept. 26. 2014

[http://www.cdc.gov/mmwr/preview/mmwrhtml/su6303a1.htm?s\\_cid=su6303a1\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/su6303a1.htm?s_cid=su6303a1_w)

# U.S. Imported Cases



As of Oct. 8, 2014, **six** Ebola patients treated in U.S. hospitals:

- **Four** were U.S. healthcare workers were infected in West Africa and flown back to U.S. for treatment.
- **One** case involved a Liberian man who was admitted to a hospital in Dallas, Texas with symptoms 4 days **AFTER** arriving in Dallas. He died on October 8, 2014.
- **One** patient is originally from Rhode Island. He became ill in Liberia, was initially treated there, then flown to a Nebraska hospital on Oct. 5, 2014.



# RI Preparedness Scenarios

A person who recently traveled from West Africa within the last 21 days AND has symptoms of Ebola.





# RI Preparedness Scenarios

Sick person enters Hospital Emergency Department





# RI Preparedness Scenarios

Sick person goes to primary care doctor's office





# RI Preparedness Scenarios

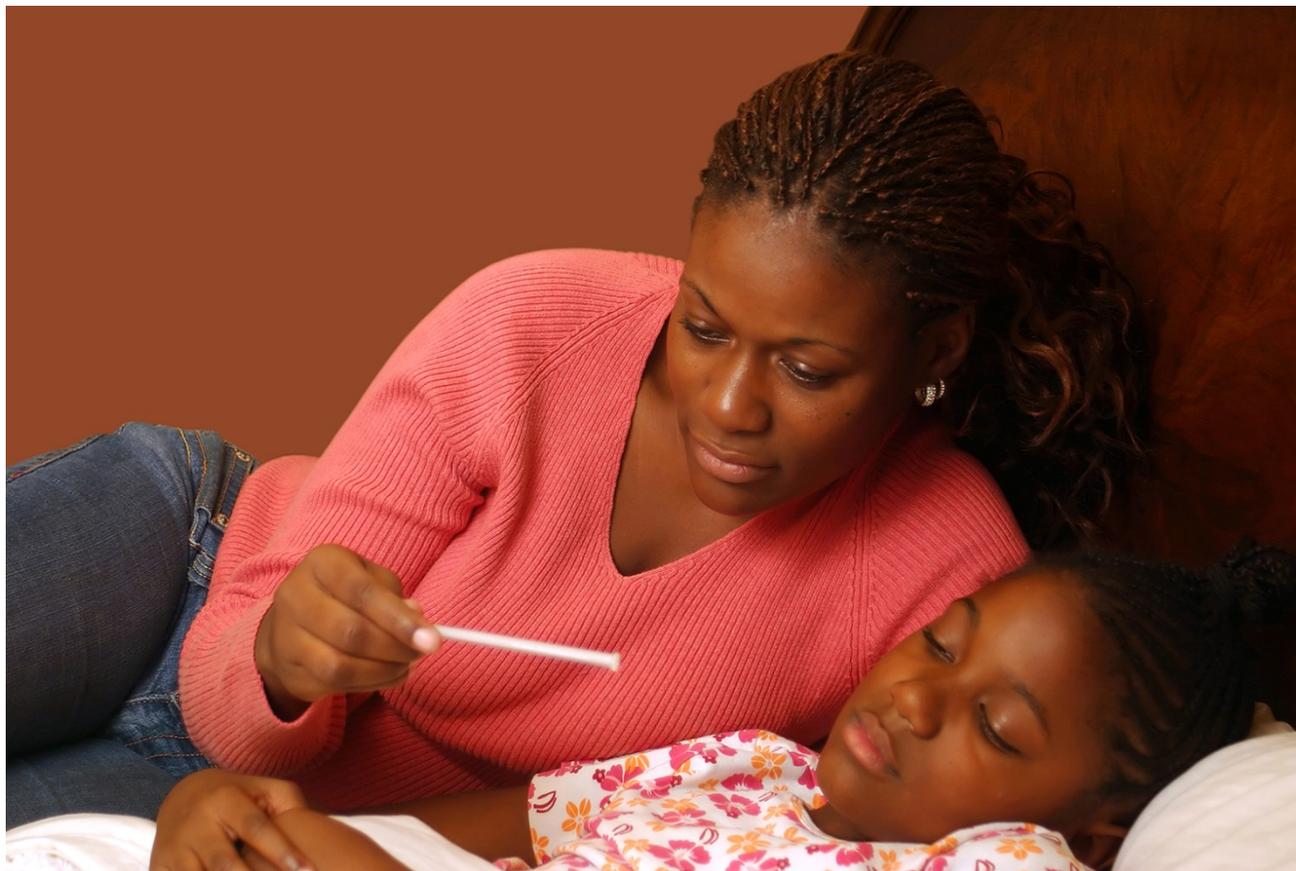
Sick person enters a nursing home as a healthcare worker





# RI Preparedness Scenarios

Person stays home while sick and exposes others who themselves have contact with others.



# RI's West African Community Mobilizes



- Nearly 15,000 with ties to West Africa
- HEALTH working with the Liberian community
  - Statehouse Rally, August 2014
  - *Ebola Be Gone* Call 5 campaign with United Way & Cox Communications
  - Weekly meetings
  - Church and other community meetings
  - Flyer distribution
  - Supplies drive
  - Three relief funds



# Public Health Response In Rhode Island



## Health System Preparedness

- Guidance
- Conference Calls
- Face-to-face meetings
- Consultation
- Planning
- Gaps assessment and solutions

# Public Health Response In Rhode Island



## Public Information

- Website ([health.ri.gov/ebola](http://health.ri.gov/ebola))
- Guidance
- Community meetings
- Speaker's bureau
- HEALTH Information Line
- Consultation

# Summary



- Only people who have been in West Africa in prior 21 days are at risk
- People with no symptoms are not contagious
- The outbreak can be stopped by good public health practice
- While we may see a few imported cases in RI, good public health collaboration will likely prevent any spread



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Director of Health

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