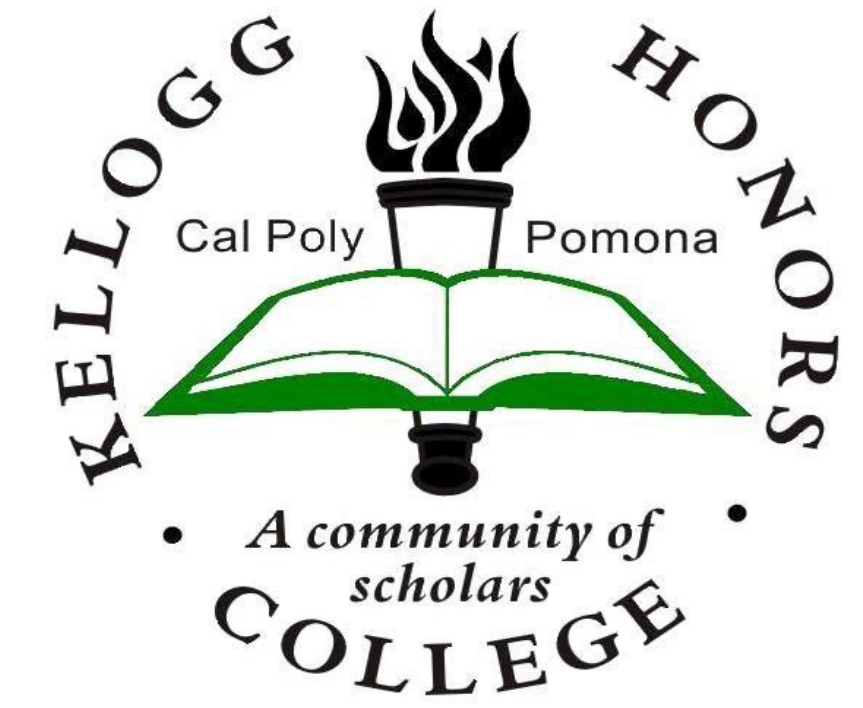


# Ebola Virus: A Comprehensive Overview of One of Nature's Deadliest Threats to Mankind



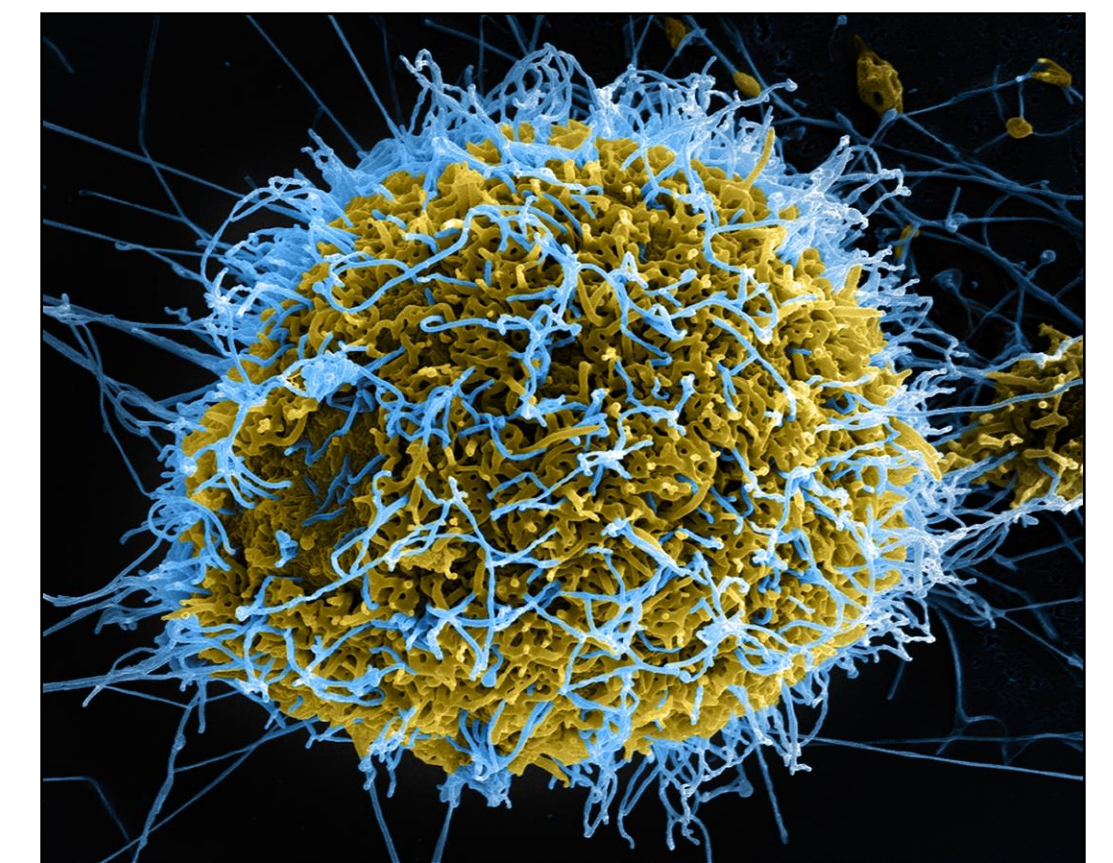
**Eden Meiers, Animal Health Science**  
 Mentor: Dr. Melody Wallace  
 Kellogg Honors College Capstone Project



“The single biggest threat to man’s continued dominance on this planet is the virus.” – Joshua Lederberg, molecular biologist

## Abstract

In 1918, the Spanish flu killed at least 20 million people worldwide, while in 2003, SARS infected over 8,000 people in North and South America, Europe, and Asia, killing 750. In 2014, Ebola was the latest virus to take center stage, causing hemorrhaging under the skin, spontaneous bleeding from the eyes, nose, and mouth, spontaneous abortions in pregnant women, and failure of all major organs resulting in death in just a matter of days. Since its discovery in 1976, Ebola has ravaged villages in Africa and caused hundreds of deaths, while still having the ability to seemingly disappear for decades at a time. It was not until mid-2014 that the virus received global attention when it gained a stronghold in three neighboring West African countries – Guinea, Liberia, and Sierra Leone. The outbreak was unprecedented, the threat of new cases was underestimated, and the global response to the situation was inadequate. It is now nearly 40 years since the virus was first discovered and we still do not have an approved vaccine to prevent transmission of the virus or an effective treatment for those who have been diagnosed with the virus. The current outbreak is the worst in history, with nearly 25,000 cases and more than 10,000 deaths, evidence that there is an immediate need for drugs to combat the fatal effects of the virus. This project delves into the origins of the Ebola virus, its mode of transmission, its effects in people, and the potential for a future vaccine or specific treatment. The 2014 West Africa outbreak is the main focus, with added components of media hysteria, the effect of the Ebola crisis on malaria, and the role of veterinarians during an outbreak in which animals are the original source of transmission.



## Ebola Facts

**Likely host = bats**

**1 in 2** people who get Ebola in this outbreak have died.

The 2014 Ebola epidemic is the largest in history and is affecting multiple countries.

### How do you get the Ebola virus?

Direct contact with

- Body fluids of a person who is sick with or has died from Ebola.** (blood, vomit, pee, poop, sweat, semen, spit, other fluids)
- Objects contaminated with the virus** (needles, medical equipment)
- Infected fruit bats or primates** (apes and monkeys)

### Early Symptoms

Ebola can only be spread to others after symptoms begin. Symptoms can appear from 2 to 21 days after exposure.

- Fever**
- Headache**
- Fatigue**
- Diarrhea**
- Vomiting**
- Stomach pain**
- Unexplained bleeding or bruising**
- Muscle pain**

### When is someone able to spread the disease to others?

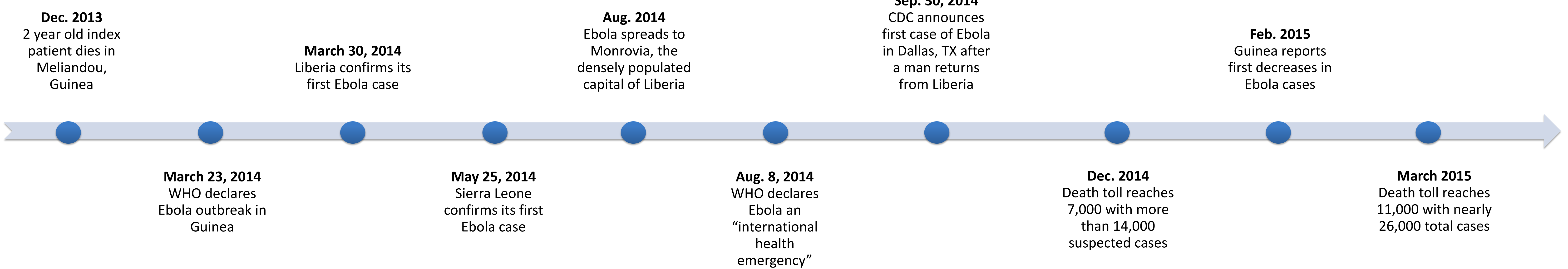
**Ebola only spreads when people are sick.** A patient must have symptoms to spread the disease to others.

**After 21 days**, if an exposed person does not develop symptoms, they will not become sick with Ebola.

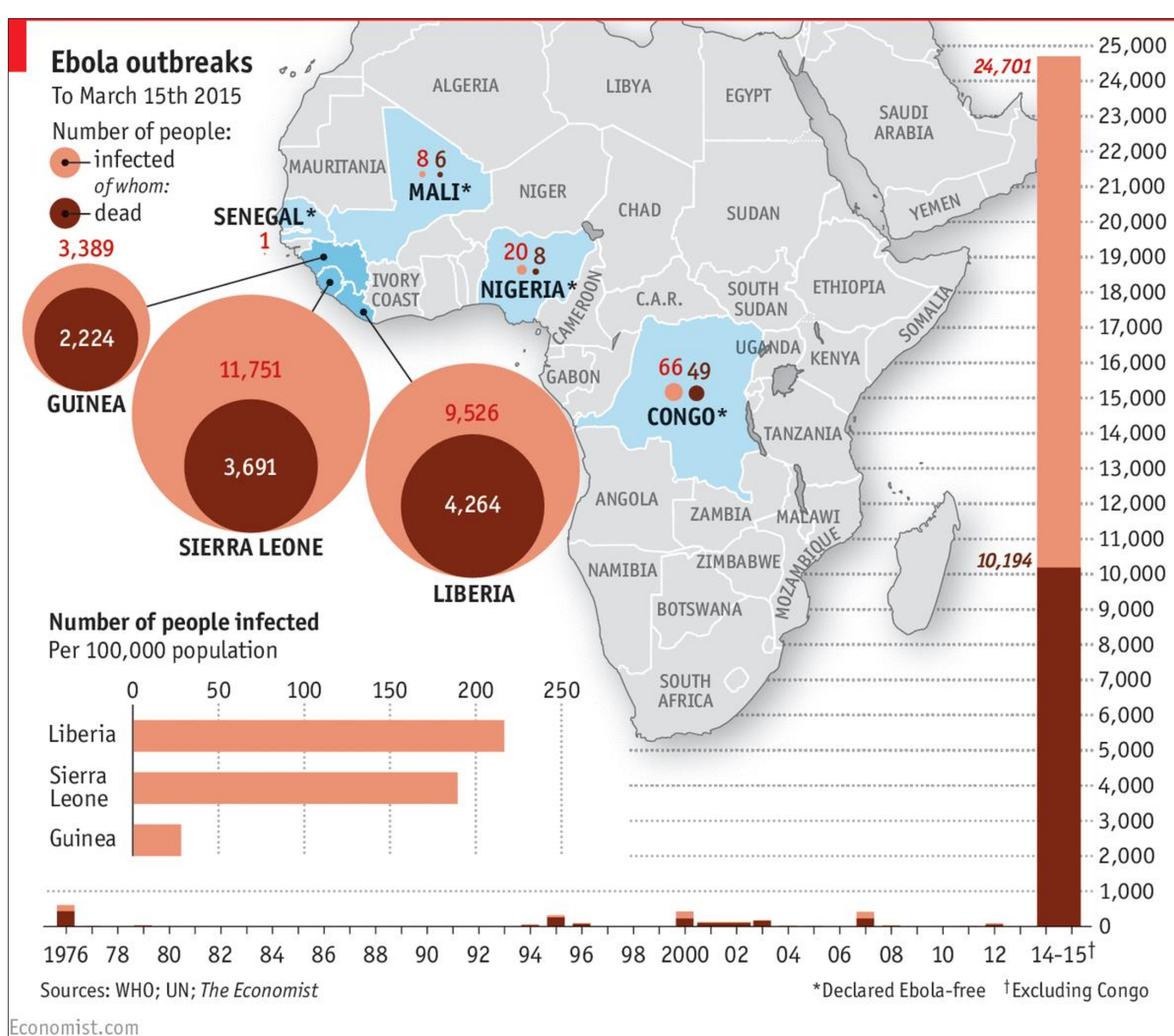
MONTH						
S	M	T	W	T	F	S
1	2	3	4	5		
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



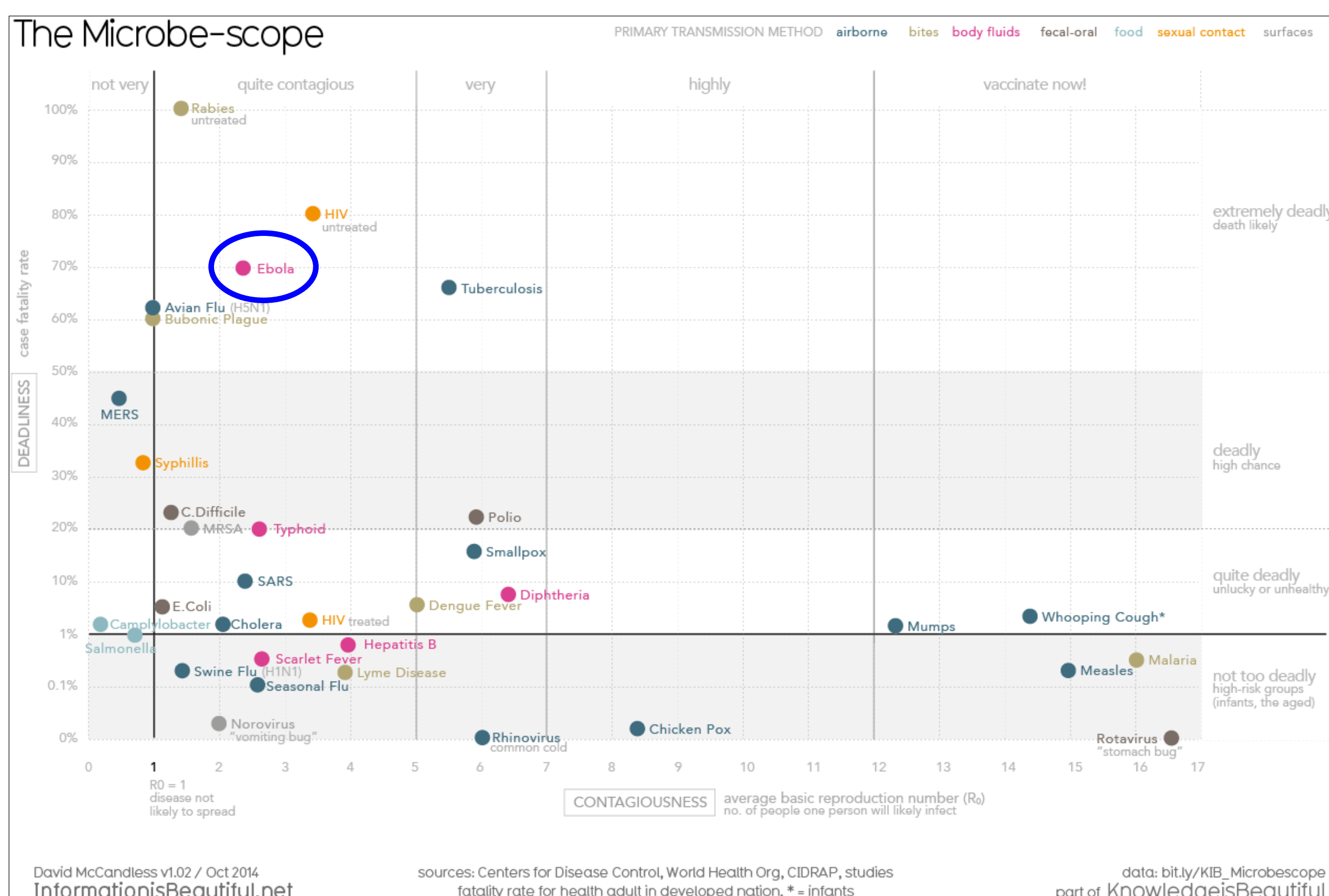
## 2014 West Africa Outbreak Timeline



## Map of 2014 Ebola Outbreaks



## Ebola Compared to Other Diseases



## Ebola in Perspective

