

### Profile

I grew up in Boulder, Colorado with an interest in medicine from a young age. I attended Washington University in St. Louis majoring in Political Science while on the Pre-med track and spent the summer of my junior year working with the Red Cross. I completed my MD at the University of Southern California Medical School with a background in Emergency Medicine. After a residency at Duke University Hospital I joined a non-profit medical group that works in rural medical facilities overseas. I have spent the last year working in hospitals and clinics throughout the Philippines.

### How did I get involved?

I became part of the outbreak investigation when the first patients came to my clinic. When more patients began to arrive in Angeles City and San Fernando, I helped coordinate care between the different hospital and worked with the doctors onsite to try different therapies, with varying degrees of success.

### Transcripts from voice recorded notes

- “...the first patients to fall ill from this outbreak came to my clinic. They worked on a pig farm between Olongapo City and Angeles City. He came in with a high fever, chills, chest pain and a few other nonspecific, flu-like symptoms. The worker said that he took some antibiotics that they normally gave the pigs, and that it did not make him better. Based on the symptoms and his story, I believe that this is viral in origin. It’s going to take a while for any clear lab results though...”
- “...I spoke with a doctor in San Fernando that had 10 patients with similar symptoms. Some of them were loggers that appeared to be illegally harvesting trees in the Roosevelt Preserve and Bataan National Park...but they ended up in the hospital in San Fernando for some reason...Anyway, we worked out a rough timeline of the patients’ activities and deduced that the whatever was causing this had an incubation period of about 16 days, but as early as 12 days in two cases and as long as 20 days in another...”
- “Patients first present with flu like symptoms, malaise, fever, chest pains and chills. A few have experienced vomiting and diarrhea. Within a week, severe central nervous system affects are seen. Severe headaches, encephalitis, agitation and confusion were common. Two patients seized. One fell into a coma. By the end of the second week, patients either recovered or died due to multiple organ failure as a result of possible septicemia, severe lowering of the blood pressure and intravascular coagulation...”
- “The hospital in Olongapo City that I work at is not setup to handle outbreak cases like this. Antivirals are hard to come by and we have had to resort to palliative care to reduce symptoms caused by the viral infection. I have tried HAART normally given to HIV patients, with limited success. Acyclovir given orally or intravenously doesn’t appear to work either. I recently had some Ribavirin shipped by courier through Manila. When given to patients upon presentation with flu-like symptoms, Ribavirin appears to work well. At that point, whether they recover depends on their age and how strong their immune system is...”

- "...I have found that if you wait to give Ribavirin, especially when neurological symptoms manifest, prognosis for recovery is grim. It is important to administer antivirals as soon as possible. However, some people are waiting to go to the hospital for fear of getting sick or for cost of hospital care. It is to their disadvantage to do so. I recently spoke with a science journalist covering the outbreak, and they are working with members of the Philippine government to make sure that people know that they need to find themselves to a hospital when symptoms first show, before it is too late..."
- "Our hospitals don't have the technical facilities to assess what type of virus is causing this. I've given samples to an EIS officer for testing back in the States. In the mean time, I've been doing some reading. There are plenty of endemic viral infections in this part of the world. Yellow Fever, Nipah, SARS all come to mind. But from the symptoms displayed, I don't think that any of these are the origin of the outbreak.... Many folks around here are vaccinated for yellow fever. SARS presents with sudden onset fever followed by respiratory distress and pneumonia in some cases. Not all of the patients have manifested respiratory symptoms, just those at the pig farm. Nipah is very much neurological in nature, with headaches lasting for days, leading to encephalitis and death is often from the inability to maintain breathing. Some patients have shown mental confusion and seizure, but it is only in a small subset of patients present with this. Also Nipah doesn't lead to the full organ shutdown we are seeing with most of the patients that succumb. Four patients that I saw had maculopapular rashes on parts of their body, with conjunctivitis and petechiae (pron. "pee-teek-k-ya") in three of those cases. I am hesitant to suggest a hemorrhagic fever, but I read that some viruses, being called hemorrhagic are a misnomer. As with the case of Ebola virus, usually 10 percent of patients with Ebola present with cutaneous hemorrhages..."

**Points to Ponder prior to discussion:**

From your profile, what are some important facts you know about the outbreak?

What do you need to know about the outbreak?

What do you believe is the cause and source of outbreak? Why?

How do you think the virus is being transmitted?

Are there any terms on the previous pages that are unfamiliar to you? If so define them