

Responding to Outbreaks

[Dr. Ali S. Khan] If there's a mystery disease out there anywhere in the world people generally send those samples to the Special Pathogens Branch to help them figure out what it is.

[Announcer] The fear of Ebola is spreading in Uganda.

[Dr. Emmanuel Otaala] We have one-hundred-and-one cases. Out of this, twenty-two have died.

[Announcer] The virus is transmitted through bodily fluids. It has so far been found mostly in western Uganda's Bundibugyo district.

[Dr. Eileen Farnon] Well, when CDC responds to an outbreak, typically, we'll meet with the Ministry of Health and with other non-governmental organizations to figure out where we fit into the puzzle and we really take our lead from the Ministries of Health.

[Tara Sealy] In an outbreak situation you kind of have to quickly pack up. You have to really know what you're gonna need and that's why we kinda have established, okay, how much are we going to need to run five-hundred samples, say.

[Dr. Tom Ksiazek] We're involved in setting up a laboratory diagnostics on site, or at least in the near proximity to the outbreak itself.

[Dr. Jonathan Towner] And so on a day-to-day basis we would get specimens, take them into a make-shift hot lab.

[Zachary Reed] Being the laboratorian, you're the first person to actually see the results and you know firsthand if it's positive or not.

[Dr. Eileen Farnon] To characterize an outbreak, we typically want to know the total number of confirmed cases and that involves really going to do community surveillance if it's a wide area, to have town meetings and tell people what Ebola looks like so that they can report any suspected cases to the village health worker.

[Dr. Tom Ksiazek] Controlling these outbreaks is really a matter of identifying active cases, segregating them in health care facilities where the individuals taking care of them are protected from being infected themselves.

[Dr. Pierre Rollin] Now, unfortunately in most of the place where these outbreak occur healthcare worker don't have glove, don't have gown, so they getting infected and the first response during an outbreak is to train, to provide the equipment and to train the people how to use it properly.

[Dr. Eileen Farnon] One of the most important places where people can be infected by patients, other than the hospital, is through burials. So when people are buried in a lot of countries in

Africa there's a ritual sort of cleansing of the body and preparation for the funeral and that can really transmit disease to a lot of people.

[Dr. Brian Amman] If you have an outbreak situation it's - obviously it's very important to make sure the human aspect of it is taken care of, you want to stop - you want to stop the spread of the disease in the human population and that's what we're here to do.

If you left it right there, that really doesn't solve the problem. You don't know what happened to start that outbreak initially, what kind of behavior that the human was doing that made him sick to begin with.

[Dr. Ali S. Khan] Seventy-five to eighty-five percent of emerging infections are zoonotic or vector-borne in nature, which means transmitted from animals to people or vector-borne, transmitted from things like mosquitoes or ticks. The Special Pathogens Branch is responsible for all aspects of responding to these high-hazard viruses.

[Dr. James Mills] I'm in charge of a small ecology unit within the Branch and the purpose of that unit is to investigate the circumstances surrounding the spillover of zoonotic disease pathogens into human populations.

[Dr. Jonathan Towner] Finding the natural reservoir host for Ebola/Marburg viruses, I mean ever since they came onto the scene in the late-sixties and the mid-seventies, I mean, the question has been out there. Where do these viruses circulate in nature?

[Dr. Brian Amman] So we started doing sampling of, of the immediate environment, and if we don't have any idea of, you know, a particular animal to focus on, we'll kinda do a broad sampling scheme. We'll set rodent traps, we'll set insect traps, we'll do, try to net bats, anything we can get our hands on.

[Dr. Jonathan Towner] We had good data from previous ecological investigations that this species of bat, *Rousettus aegyptiacus*, is likely, you know a reservoir host.

[Tara Sealy] We're getting closer to this, this huge discovery on the reservoir host but yet there's still so much more work to be done. It's kind of a never-ending process and that's one thing I love about science, is that you're constantly learning something new.

[Dr. Ali S. Khan] We cannot just look at what's going on with people. We need to look at people, animals, and the environment, and look at where those intersect and this is where we need to work to protect the population.