

THE worst-ever Ebola epidemic continues to unfold in West Africa, with no sign that it will be under control anytime soon.

As of Saturday, there have been 397 deaths among the 706 confirmed cases (a 56 percent fatality rate) since reports of Ebola cases in West Africa began to emerge in March.

The first cases of the epidemic were reported in Guinea, but additional cases were later reported in neighboring Liberia and then Sierra Leone.

All three countries have poor health infrastructure and are struggling alongside international actors to stop Ebola's spread. Recent Washington Post editorial was pretty

damning for the West African governments responding to the Ebola epidemic, but if we think about the constraints these governments face in their response, we shouldn't be surprised.

The editorial remarked that, "Ebola is not new... medical teams have always effectively segregated infected areas and stopped the virus's spread. The method is understood: treat the patients, trace their contacts and isolate those people." If only it were that simple.

Like other public health epidemics, local government response is often shaped by the actions of international actors and success is constrained by the public whose health

they're trying to secure. In my research, I refer to this as the "global supply chain" of a public health intervention.

There are a lot of links in the chain — each link representing an opportunity for something to go wrong. In this post, I apply my framework to the current Ebola epidemic to identify potential explanations about why the response has yet to be effective in stopping the disease's spread.

But first, what is Ebola, how does it spread and where is it now?

Ebola is an infectious virus that often results in death. Anywhere between 2 and 21 days after infection, patients' early symptoms will include fever, weakness, muscle pain, headaches and a sore throat.

The disease progresses to vomiting, diarrhea, impaired organ function and bleeding. There is no vaccine to protect against Ebola, and there are no specific treatments beyond

managing symptoms of those infected. The primary goal in responding to Ebola, then, is to stop its spread by isolating those suspected of infection and raising awareness in affected communities on how to protect against infection.

Ebola is a zoonotic disease, meaning it is transmitted to people from animals; in the case of Ebola, the most likely reservoir is fruit bats. Then Ebola spreads between people as a result of coming into contact with the blood or bodily fluids of an infected person or through exposure to instruments contaminated with infected bodily fluids. The most at-risk populations are family members and/or health-care workers caring for those infected with Ebola because they come into close contact with infectious secretions.

Ebola infection is difficult to confirm, often requiring multiple blood tests. In some rural areas in Africa, strong

beliefs about protecting one's blood (our "life force") only makes more difficult the necessary collection of blood specimens to confirm Ebola cases.

The blood tests often used to confirm Ebola require a technologically advanced laboratory. Early in the epidemic, samples had to be sent to France, Germany and Senegal for testing. In Sierra Leone, there is only one laboratory capable of testing for Ebola. The limited availability of laboratory testing slows response.

The current epidemic is the first outbreak of Ebola in West Africa, and its geographic spread has been wide, with cases reported in more than 60 locations across three countries. This outbreak marks the first time that Ebola has been reported in a capital city — in this case, all three capitals of the affected countries: Freetown, Sierra

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