Ebola's Dangerous Cousins: Beware the Neglected Filoviruses

By Alex Berezow — August 15, 2016

Military conventional wisdom, in addition to ACSH President (and former Army officer) Hank Campbell, likes to remind us, "Generals are always fighting the last war."

They have a good point. Fifteen years after 9/11, we still ban non-ticketed passengers from entering airport terminals. Ten years after a failed attack in 2006, we cannot bring more than 3.4 oz of liquids onto an airplane, a policy that has resulted in TSA confiscating gigantic piles of 4-oz cups of applesauce. We continue to remove our shoes 15 years after the Shoe Bomber, but thankfully the Underwear Bomber didn't provoke a similar "remove your skivvies" policy.

Similar to military strategy and national security, our public health system tends to fixate on the "last war." Our approach, particularly when it comes to infectious disease, is too often reactionary rather than proactive. Thus, instead of focusing most of our efforts on what could be coming next, we are dumping limited resources on battles already fought.

Consider Ebola. This disease received very little attention from researchers, politicians, and the American public for most of its history because it killed poor people in Africa. But, when it crept its way into Europe and the U.S. in 2014, an anxious society mobilized for war. All of a sudden, a relatively obscure disease was making front page news, and government dollars soon followed.

The biomedical community has a rather myopic focus on just three of eight filoviruses: Ebola, Sudan, and Marburg. But, as the authors of a new paper in *FEMS Microbiology Reviews* argue, this could literally be a fatal mistake. Of the remaining five "neglected" filoviruses, three occasionally cause human disease and two are harmless to humans. However, there is no reason to assume that these five viruses will remain relatively docile. Viruses can and do mutate, after all. The Reston virus, a species of Ebola that does not infect humans, was featured in the real-life thriller *The Hot Zone*. (See chart. The viruses currently not known to cause human disease are highlighted in yellow.)
The authors lament that because so very little is known about the ecology and geographical distribution of filoviruses, it is impossible to predict when and where outbreaks might occur. Even worse, only a handful of laboratories in the entire world are properly equipped to study filoviruses, and even those that can are hampered by limited resources. Scientists don’t have much material to work with, including animal models.
A map of filoviral outbreak index cases. (Source: Burk et al., FEMS Microbiol Rev 2016. DOI: 10.1093/femsre/fuw010)

As an obvious consequence, there are few candidate drugs and vaccines. Let us hope that the government and public health officials take notice before we have a repeat of the global Ebola epidemic.

Links

[2] http://femsre.oxfordjournals.org/content/early/2016/06/05/femsre.fuw010