Zika is Possibly the Scariest Virus Since HIV

By Josh Bloom — February 19, 2016

Normally, we ignore or downplay infectious disease scares. As is the case with so many other scares, the eventual outcome rarely resembles the scare, let alone being worthy of the media hysteria surrounding it.

Even though it is invoked every year at the start of the flu season, we have not had anything close to the 1918-19 flu pandemic. In 2014, Ebola did some awful damage in isolated regions of Africa but did not engulf the world. As scary as it seemed a few years ago, anthrax barely moved the needle in the U.S. (See Note 1, below)

But every once in awhile, you get something different and unexpected, like HIV decades ago and Zika today. There is nothing virologically special about HIV, except that its target is a key component of the immune system. And Zika could be just another flavivirus, like hepatitis C, yellow fever, and West Nile, except ... who knows? There is something new discovered about it almost daily. And it is all but proven to cause birth defects perhaps the scariest scare of them all.

Other viruses are known to harm neonates. For example genital herpes can be fatal to a newborn, but this can be overcome by choosing a C-section over a natural birth. Rubella (German measles) also causes birth defects, but there has been a highly effective vaccine available since 1969. But, neither is spread by mosquitos, which is why this scare is quite different, and why Zika is still a big unknown.

It is primarily being spread by the *Aedes aegypti* mosquito, which clearly prefers warm areas, as shown on the map below, but they are not the only carrier.
Distribution of areas that are infested with Aedes aegypti (blue) and areas of infestation of the mosquito and where dengue fever outbreaks occurred (2006) Source: U.S Department of Agriculture

For those of us living in cooler areas, a key, yet unanswered question is, will Culex, a family of mosquitoes that is common to the entire country, be able to transmit Zika? It is a carrier for West Nile, however fewer than 6,000 people [1] were sickened by the virus in 2012 in the U.S. If Culex (there are many subspecies) gets involved, everything changes.

And here are other reasons why it might rightfully be the scariest virus since HIV:

- It was just revealed [2] that Zika was detected in amniotic fluid of two Brazilian women who gave birth to babies with microcephaly. This suggests that the virus can cross the placenta. And a few days earlier, the first evidence was produced of Zika in the brains of babies whose mothers were (probably) infected with the virus during their first trimesters.
- The first cases were seen on Bonaire [3] this week.
- Puerto Rico is now using only imported blood [4] for transfusions, and a travel alert has been issued for Aruba [5].
- There have been 82 cases [6] reported in the U.S., all from travelers. There are no cases of infections that were contracted in the U.S.
- The virus has been detected in semen, urine, and saliva.

Even given the evidence that surfaced this week, there is still far more that it is not known about Zika than is known. Even vaccine and infectious disease expert Dr. Paul Offit, long-time trustee here at the American Council on Science and Health, can only takes an educated guess. Dr. Offit's take on Zika is as follows:

- There is very little that we know about this virus.
- It is not unreasonable that Zika could infect more common mosquito species, such as Culex,
which could then put much of the country at potential risk.

- He does not believe that humans or birds will be important vectors for the virus. Instead, a substantial number of infected mosquitoes in a given area would probably be required to cause an outbreak.
- Although there are successful vaccines for other flavivirus infections (yellow fever), it will take years at a minimum to develop a Zika vaccine.
- Dr. Offit is very concerned about the "worldwide vaccine infrastructure." At one time there were 28 drug companies doing vaccine research; there are now four.

We will keep you up to date on all developments in this area.

NOTES:

(1) As you can see in the graphic below, media coverage can wildly overstate the actual impact of a given event.

![Number of cases of anthrax 1954-2009 (CDC)](image-url)

Source URL: https://www.acsh.org/news/2016/02/19/zika-maybe-the-scariest-virus-since-hiv

Links

[1] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6225a1.htm