

What's with these vector-borne neglected tropical diseases?

July 7 2016, by Peter J Hotez And Serap Aksoy

Peter Hotez and Serap Aksoy, co-Editors in Chief of PLOS Neglected Tropical Diseases, contemplate the recent rises in various vector-borne NTDs around the world.

In 2013, both chikungunya and Zika virus infection are believed to have first emerged in the Western Hemisphere where both viruses now affect much of the population of Latin America and the Caribbean region and also threaten the United States. Chikungunya made its first appearance on the Caribbean island nation of Saint Martin at the end of 2013 and has since spread throughout much of the Americas, including the [first locally acquired case in Texas reported this year](#). Similarly, molecular clock studies indicate that Zika probably first entered the Americas between May and December of 2013 before also spreading throughout Latin America and the Caribbean region, and there are fears that transmission of Zika might start by later this summer [in the continental US](#).

While the rapid dissemination of these arbovirus infections in the Western Hemisphere is impressive, this month in *PLOS Neglected Tropical Diseases*, Peter Hotez reports on an equally troubling situation emerging in Southern Europe where in recent years we have also seen the uptick of arbovirus infections such as dengue, chikungunya, West Nile virus infection, in addition to leishmaniasis, and even schistosomiasis (transmitted by a snail vector). Indeed, while great progress has been made in malaria and some [neglected tropical diseases](#) (NTDs) through mass drug administration and other approaches, overall

we have seen dramatic increases in the major vector-borne NTDs.

The basis for why we are seeing a rise in these tropical infections is unknown. In another *PLOS Neglected Tropical Diseases* article published earlier this year, Peter Hotez suggested that new forces created through human activity, including climate change, deforestation, urbanization, and poverty could be important factors.

A take-home lesson is that, to understand complicated occurrences such as the rise of vector-borne NTDs in Latin America and Europe, we'll need to consider establishing new and interdisciplinary dialogues between biomedical scientists interested in tropical infections and social scientists, including economists and anthropologists, and earth scientists interested in the environment. In an earlier piece Peter Hotez indicated that a strange "new normal" may be happening with tropical infections. To figure this out we're going to need to leave our academic silos and comfort zones and collaborate with colleagues in new areas in order to tackle these new phenomena. In that spirit, the US National Science Foundation (NSF) has now launched an innovative Ecology and Evolution of Infectious Diseases (EEID) program. That's a good beginning!

More information: Peter J. Hotez et al. Neglected Tropical Diseases in the Anthropocene: The Cases of Zika, Ebola, and Other Infections, *PLOS Neglected Tropical Diseases* (2016). [DOI: 10.1371/journal.pntd.0004648](https://doi.org/10.1371/journal.pntd.0004648)

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