DW asks emerging pathogens expert Amy Vittor about the connection between Zika and climate change. Researchers are using dengue as a reference point, as little is known about the new virus linked to a birth defect.

**DW: What is the Zika virus and what makes it dangerous?**

Amy Vittor: Zika virus is a close relative of dengue virus. It's a mosquito-borne virus that usually causes no symptoms, or only mild illness. But the reason why it's captured the public's attention is because it's been associated with the birth defect called microcephaly, leading to small heads in babies.

**How is Zika being spread?**

Zika is spread by very common mosquitoes of two types: *Aedes aegypti* and *Aedes albopictus*. From [forests in] Africa and Asia it's really expanded and become mostly urban, affecting mosquitoes [and therefore] humans.

**What conditions are making the Zika virus thrive, and specifically in the case of Brazil?**
The conditions that seem to allow Zika to thrive are the presence of very good vector mosquitoes - namely *Aedes aegypti* probably mostly in Brazil at the moment - and a lot of human and mosquito contact.

The Zika virus usually has few symptoms, but if pregnant women are infected, their children may be at risk of microcephaly.

I think we see that in many areas of Brazil and elsewhere too, where people don't often have screens [on their windows and doors], they don't have air-conditioning, they have a very outdoorsy-type lifestyle usually by necessity, they may store water near their property because they may not have access to running water.

We have lessons that we take from the dengue virus because we know so much more about dengue than we do about Zika. Environmentally speaking, warm temperatures allow the dengue virus to propagate within the mosquito. That's probably also the case with Zika - but we don't know. Humidity also allows the mosquito to thrive much more.

*The WHO cited the strong El Nino year in spread of the Aedes aegypti mosquito. How strong is this connection?*

I haven't seen any recent data from Brazil to specifically demonstrate that there's been a rise in the absolute abundance of *Aedes aegypti* in these
affected areas - however, anecdotally that's certainly been the case, also in other Latin American countries. We've also seen uptakes in dengue that seem to be consistent.

The virus has expanded from forests into urban areas, putting humans at risk

El Nino, as climate change also does, behaves differently in different regions. So in one area you might see more rain, more humidity - and in another you might see less, and that would then presumably affect the mosquito population, in one direction or the other. From we have seen anecdotally, perhaps these things do go together.

**What do we already know about the link between climate change and mosquito-borne diseases?**

Taking into account [different climate change projections], it looks like the range of these dengue vectors - and Zika therefore also - will increase in the northeastern United States. They’ll go further south in South America, and they'll expand northward in southern Europe - they'll increase in terms of range in central Africa and east Asia. And perhaps there'll be an increase in the particular mosquito *Aedes albopictus* in northern/northeastern Australia. The changes are not vast, but they seem to be consistently there.

**Can a link be made between the Zika virus and climate change?**
The expanding range of *Aedes aegypti* and *Aedes albopictus* may be a result of climate change of the past decades. There are other factors, like air travel no doubt, but you could possibly say that climate change has led to more fertile areas for disease to take hold. Especially the invasion of *Aedes aegypti* has been very, very impressive throughout the world. That is the clearest link.

Scientists are working to find out more about the new virus

*Looking to the future, could climate change affect the spread of Zika and other mosquito-borne illnesses? And in which parts of the world will people be most vulnerable?*

Particular regions where we might see increases in disease in the future include areas such as the northeast United States, certain areas of Europe, the southern areas of South America, and east Asia.

*Does climate change also impair our ability to protect ourselves from mosquitoes?*

If we actually work in concert with highest-risk periods, then we might be able to reverse a great deal of risk. Socioeconomics also plays a part in this very much, because in the United States what we would do as the temperature rises, is we would be inside more and we’d turn the AC higher,
and therefore have much less exposure to the mosquito, overall reducing our risk dramatically. In other areas, that might not be a possibility. So it requires quite a discussion about how we humans are going to adapt to changes as well.

*Interview: Charlotta Lomas*

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