One Health to tackle NTD

Mittwoch, 08.02.2023

How holistic approaches can contribute to the fight against Neglected Tropical Diseases (NTDs)

On occasion of the World NTD Day 2023 the German Research Platform for Zoonoses, together with GIZ, hosted an online workshop that dealt with One Health approaches to tackle NTDs with an emphasis on vector-borne NTDs. The event highlighted the complexity of the ecology of NTDs, as well as the importance of their environmental components for control and monitoring measures.

Neglected Tropical Diseases (NTDs) are a major global health burden. They include a list of 20 different diseases that are mainly prevalent in tropical areas and that often affect disadvantaged communities (definition of the WHO). Many NTDs have complex life-circles that connect humans, animals and the environment.

In her welcome note the German Federal Minister for Economic Cooperation and Development, Svenja Schulze, emphasised the need to increase efforts to combat NTDs. The German government committed to this goal and signed the Kigali Declaration on NTDs in 2022. Minister Schulze stated that a holistic, multisectoral approach like One Health is needed to sustainably fight NTDs. Also, it is crucial to address the structural root causes and contributors of NTDs, such as poverty or social issues, as well as empowerment of women and girls, global climate action and environmental protection. She made clear that a joined effort of all partners is needed and that no one should be left behind. (Watch the whole welcome note on Twitter.)

One mosquito-transmitted NTD of global concern is Dengue fever. Since it is a vector-borne disease, the control of the vector, *Aedes aegypti* mosquitos, plays a crucial role in intervention concepts as Dr Anne Wilson from the LSTM explained in her talk at the workshop. According to the WHO Global Vector Control Response these should include strengthening multisectoral collaborations and engagement of communities. An example of the successful implementation of such a concept is the *Singapore dengue control programme*. Singapore, where Dengue is endemic, puts a strong emphasis on environmental management of the disease with only limited use of insecticides, Dr Wilson outlined in her talk. Consequently, the programme is coordinated by the National Environmental Agency (NEA) and intersectoral collaboration for example with the housing development board or construction sites are established. It also includes entomological surveillance and tries to engage and mobilize communities via already existing structures to achieve behavioural changes. With the programme in place, Singapore manages to keep Dengue cases at a relatively low number. However, climate change, population movement and low immunity rates mean that further efforts will have to be made in the future to ensure that the programme remains a success story.

Like Dengue fever, many NTDs have a substantial environmental component, which should be considered in prevention and control strategies. Singapore is a high-resource country with a well-designed health care system. However, their Dengue control programme demonstrates that efficient methods don't need to be costly, which is why the programme can also be taken as an example for low-resource settings.

One option to cope with diseases in low-resource settings and remote areas is syndromic surveillance. This concept was introduced at the workshop by Dr Bernard Bett from the International Livestock Research Institute (ILRI) in Kenya. Syndromic Surveillance uses data from different sources for the early detection of a disease before confirmed diagnoses are made. Using the example of the zoonotic Rift Valley fever (RVF), Dr Bett discussed the possibilities of such a surveillance system. Even though RVF is not a NTD, it shares some similarities with vector-borne NTDs because it is transmitted by mosquitos and is highly influenced by climate and environmental factors. For more targeted syndromic surveillance, One Health approaches might be a good way to better understand transmission processes and to forecast disease outbreaks. In the case of RVF collaborations between meteorologists, entomologists, ecologists, veterinarians and public health workers could make it possible to predict vector population and thus outbreak events.

In the discussion round with the participants of the workshop both speakers, Dr Wilson and Dr Bett, agreed on the fact, that One Health approaches open up new opportunities in disease prevention and control. They also shared the opinion that One Health networks should be built upon existing structures instead of setting up new networks in parallel. This makes it necessary to adapt One Health interventions specifically to regional and local requirements. Different pathogens also necessitate the involvement of different sectors. For vector-transmitted diseases the environmental sector should not be neglected. A major challenge for One Health interventions remains the fair distribution of costs. Especially when it comes to NTDs and low-resource settings. Climate change will put further pressure on existing efforts to sustainably combat NTDs in the future.

The first joined workshop of the Zoonoses Platform and GIZ's Sector Initative One Health was able to provide a small glimpse on global efforts in the fight against NTDs and the opportunities and challenges of One Health measures. We thank the speakers and all participants for their active contributions to the discussion.

Text: Dr. Dana A. Thal, German Research Platform for Zoonoses