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Expert interview on NTDs – part 1

Neglected tropical diseases – Carsten Köhler: impulses from Baden-Württemberg

More than one billion people worldwide suffer from neglected tropical diseases (NTDs). NTDs are mostly poverty-related infectious diseases that prevail in tropical countries due to lack of research and measures to detect, prevent and control them. Dr. Dr. Carsten Köhler reports on the political, economic and scientific contributions Germany and Baden-Württemberg can make to successfully change this situation.

Why is research into and control of NTDs neglected?

NTDs usually affect people who are among the poorest in the world. Many people suffer from more than one NTD. These people and these diseases are neglected on our planet - mainly because they do not have a strong voice to represent them domestically and internationally. The diseases therefore often occur where the population has no access to clean drinking water, sufficient food and healthcare, especially in rural tropical and subtropical regions. These regions and the people who live there are rarely heard about, especially since NTDs are mostly chronic diseases that receive less global attention than acute epidemics such as Ebola. But all so-called "low-income" countries are simultaneously affected by at least five NTDs, with 149 countries and territories affected by at least one NTD.

What role does Germany play in researching and combating NTDs compared to other countries?

Dr. Dr. Carsten Köhler, Director of the Tropical Medicine Competence Centre at the University Hospital and University of Tübingen.
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The prevention of pandemics has become a political issue, not least due to the multiple outbreaks of Ebola in West Africa and Zika virus infections in Latin America, as has the fight against infectious diseases, including neglected and poverty-related tropical diseases.

Global health and reinforcing health systems in middle and low-income countries, as well as enhancing research and development in the fight against NTDs, have become more important in Germany's current coalition agreement. Germany is committed to implementing the Sustainable Development Goals (SDGs) and actively supports the reform process at the WHO. NTDs are a key issue in the SDGs and the WHO.

In a study undertaken by the Bernhard Nocht Institute for Tropical Medicine (BNITM) called "Assessment of the contribution of German institutions in research on neglected tropical diseases", which I and 34 other colleagues from Germany were involved in between 2017 and 2018, the contribution of German institutions to research on NTDs is described in detail.

What role does Baden-Württemberg play in terms of researching and combating NTDs in comparison to other German states?

Baden-Württemberg is an important science and business location in Germany. According to the aforementioned study, academic and non-university institutions in the following Baden-Württemberg cities are active in the field of research on neglected diseases (in alphabetical order): Bad Mergentheim, Baden-Baden, Freiburg, Frickenhausen, Heidelberg, Karlsruhe, Konstanz, Ludwigsburg, Mannheim, Pforzheim, Rohrdorf, Stuttgart, Tübingen, Ulm, Villingen-Schwenningen and Wangen.

The analysis of the publication performance on NTDs of all German research institutions within the last five years (2013-2017)

showed that institutions from Baden-Württemberg were among those that had published the largest number of papers. Here in Baden-Württemberg, the University and the University Hospital of Tübingen, along with the University of Heidelberg and Heidelberg University Hospital, are the best in terms of scientific publications, followed by Ulm, Freiburg, Stuttgart and Karlsruhe. Thematically, these universities and university hospitals cover the full range of NTDs.

Where do you see positive developments in Germany and Baden-Württemberg with regard to the research and control of NTDs and where is there still development potential?

The research carried out by the ITM in Tübingen focuses on developing vaccines and drugs against NTDs and malaria.
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The study on Germany's research institutions that are involved in the fight against NTDs shows that the urgent need for research and development as an essential element of the fight against NTDs has been recognised by the German Federal Government. In contrast to basic research, translational research as well as research into the control and treatment of NTDs has been underrepresented. This concerns in particular the development of active ingredients, vaccines and diagnostics as well as the investigation of better application possibilities for medicines and innovative technologies. Moreover, there should be greater focus on scientific networking and coordination. Integrative and interdisciplinary approaches are also needed to develop innovative one-health research approaches, i.e. close interaction between human and veterinary research as well as biomedical basic research in the field of infectious diseases.

It is also important that theoretically available intervention measures reach patients, which is a major organizational and logistical challenge in many poor countries.

There is still insufficient prioritization and funding opportunities at the political level. Political leadership in the fight against NTD can only happen if there is a comprehensive national strategy to promote NTD research. This strategy would have to build on existing national structures that integrate research activities in Germany and promote international cooperation.

An important step towards drawing public attention to the fight against NTDs is to demonstrate the central importance of NTDs within the SDGs. The fight against NTDs is explicitly mentioned in the third SDG, "Good health and Well-being". It already shows that if we fail to eliminate NTDs, none of the SDGs can actually be achieved.

What role does the Tropical Medicine Baden-Württemberg competence centre have with regard to the research and control of NTDs and what are the focal points of the competence centre?

In 2007, the Institute for Tropical Medicine, Travel Medicine and Human Parasitology (ITM) at the University and the University Hospital of Tübingen became a Centre of Competence for Tropical Medicine on the recommendation of the Baden-Württemberg government's Medical Structure Commission. The ITM has therefore taken on the challenging task of ensuring that vital impulses from within the disciplines of tropical medicine, human parasitology and travel medicine in research, teaching and healthcare reach Baden-Württemberg, the rest of Germany and other countries around the world.

The close integration of basic medical research and applied clinical research distinguishes ITM from other German institutes and also from institutions in other countries. Our institute maintains research and teaching collaborations in the field of NTDs, in particular with partners in Gabon, as well as in the Congo, Togo, Benin, Nigeria, India, Vietnam and Brazil.

The focus of our research and that of our main partner institute, the Centre de Recherches Médicales de Lambaréné (CERMEL) in Gabon, is developing antimalarials and malaria vaccines as well as diagnostic products, vaccines and medicines for NTDs. In total, we have performed over 100 clinical drug and vaccine trials on malaria, tuberculosis and neglected tropical diseases such as schistosomiasis, hookworm infections and other helminth diseases.

For example, we are investigating the effect infections with helminths have on vaccination at the time of vaccination or how helminth infections that occur during pregnancy can affect the child's immune system. In this regard, developing and improving diagnostic products for tropical infectious diseases is important. It is quite common for people to be infected by several parasites at the same time. A test to detect as many parasites as possible in a single blood sample would be very helpful.

For around 40 years, we have been present in Togo as partners in the onchocerciasis control (river blindness) programme. In addition, we are investigating human alveolar echinococcosis (AE), one of the most difficult-to-diagnose zoonotic helminth disorders caused by infection with the fox tapeworm Echinococcus multilocularis.

The ITM conducts basic biomedical research in the field of NTDs, leprosy, Dengue fever and leishmaniasis. Work on Chagas disease is done in cooperation with partners from India, Vietnam, Ethiopia and Brazil.

What recommendations would you give Germany and Baden-Württemberg regarding the fight against NTDs?

The problem has to be driven forward at the political level and the research level - not only at federal level, but with all federal states working together. This is vital.

In the political context, the former German president, Prof. Dr. Horst Köhler, touched on the heart of the issue with his call to combat poverty and improve health and education in a talk he gave at the University of Tübingen in 2013 on "Global partnership – thoughts on a new leitmotif of international politics".

In the fight against NTDs, the German government must set itself measurable targets in close consultation with the individual federal states and make concrete multi-year funding commitments. All departments – preferably within a common strategy – have to contribute to achieving these targets. I believe that research on NTDs should be reliably anchored and specifically promoted at all German research institutions that come under the auspices of the German government.

I believe that the individual research ministries in the federal German states should join this common strategy. The largest research expertise in Germany is still found in all of Germany's universities, with the states being responsible for the basic funding of the universities. I also believe that by creating new networks both in basic research and clinically-applied research on NTDs, this will lead to increased financial and structural support. In addition, the few remaining chairs in the field of tropical medicine and parasitology need to be maintained at all costs and expanded in order to provide adequate research capacities at German universities in the subject area.

Development policy is not only pursued at the national level, but is above all firmly anchored at the federal state level. This is precisely where many partnerships have been established with countries where NTDs occur: at the national and local levels and specifically through cooperation between different institutions. Making use of these existing connections in the fight against NTD and thus serving the neglected people in these regions is a potential that has only just been identified in Germany.

We have to avoid uncoordinated activities, and rather work together for a common goal. This is the challenge we are currently facing.

This interview with Dr. Dr. Carsten Köhler is the first of a series of four. The interviews were conducted with experts from the fields of health, science and economy who participated in the "Neglected tropical diseases – impulses from Baden-Württemberg" conference held in Stuttgart on 7 February 2019. More interviews to follow.

Article

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- NTD Expertise in Germany
- WHO NTD summary

The article is part of the following dossiers



Human infectious diseases: new threats

Neglected tropical diseases - Gisela Schneider: the burden of disease

The fight against NTDs is defined as a major aim of the 2030 Agenda's sustainable development goals. The World Health Organisation (WHO) regards twenty poverty-related infectious diseases as NTDs. Dr. Gisela Schneider, Director of the German Institute for Medical Mission e. V., was interviewed by Sarah Triller from BIOPRO and explained why NTDs affect mainly the poorest people in the world, and the kind of diseases these people suffer from.

Expert interview on NTDs – part 3

Neglected tropical diseases – Franz-Werner Haas: the role of technology and pharmaceutical companies

Neglected tropical diseases (NTDs) are poverty-related infectious diseases that suffer from scant attention in terms of research or control. NTDs exist in the shadow of the "big three": malaria, tuberculosis and HIV/AIDS. They affect many people living in poverty in the emerging and developing countries of the tropics and subtropics. Active control can only be achieved when people with NTDs are treated effectively and given information on what to do to reduce the risk of reinfection.

infectious diseases | prevention | parasitism | rare diseases | vaccine | basic research | malaria