40 YEARS OF FIGHTING DISEASES OF POVERTY

TDR, the World Health Organization Special Programme for Research and Training in Tropical Diseases
In this illuminating interview, Dr John Reeder, Director of TDR, explains how the World Health Organization Special Programme supports and influences efforts to combat diseases of poverty through scientific collaboration of research and training.

To begin, could you describe your background and how this has prepared you to lead the Special Programme for Research and Training in Tropical Diseases (TDR)?

I trained in medical microbiology in the UK and then volunteered with the UK-based Voluntary Service Overseas, training laboratory assistants working in remote regions of Papua New Guinea. This was a truly eye-opening experience and the start of my fascination with malaria. Working as a researcher at the Walter and Eliza Hall Institute in Melbourne, Australia, I investigated the basic questions of how the *Plasmodium* parasite evades the immune system and how it can cause malaria in otherwise immune women during pregnancy. I was then appointed Director of the Papua New Guinea Institute of Medical Research where I had a chance to work on national healthcare issues. With 400 staff, this gave me very solid management experience and direct involvement in training young local scientists. I then returned to Melbourne to work as co-Director of the Centre for Population Health at the Burnet Institute – Australia’s biggest infectious disease and public health research institute. I have been at the TDR since February 2011.

What is the ultimate vision of TDR, and what are the major disease research foci?

Research can improve people’s health and lives. The TDR method is to combine research and training – no research without learning, and no learning without a specific research project. We bring people and groups together to learn from each other, identify research priorities and conduct the research necessary to deal with real-world problems. The work covers diseases associated with poverty such as malaria, TB and the 17 diseases grouped by the term ‘neglected diseases of poverty’ which are caused by parasites transmitted by mosquitoes, worms or bugs. Some of these diseases are on their way out, due in part to TDR research that has identified the need for a new type of structure – a product development partnership (PDP). The Medicines for Malaria Venture (see p17), the Foundation for Innovative New Diagnostics and the Drugs for Neglected Diseases initiative were incubated within TDR and then spun out as independent entities. Today these PDPs are among the leading agencies managing research for new health products in those areas where typical market incentives fail because the populations are often poor. Access remains a major issue – we have good medicines, good diagnostics and good prevention strategies but they are not getting to millions of Africans living in remote areas, or to poor communities in Latin America and Asia. With these PDPs in place, TDR has now shifted its focus to support research that gets these new treatments and tools to people who need them.

What are your main research projects?

We apply a multidisciplinary systems approach – meaning we often don’t look at just one disease or one type of research at a time. For example, we are just finishing a major project that looks at how environmental and community-based approaches can reduce the vectors that carry dengue and Chagas disease. There are social scientists, entomologists, policy makers, community social mobilisers and economists all working together to develop new approaches that are showing how to reduce the use of insecticides and improve vector control.

Other projects are looking at the impact of climate change on vector-borne diseases in Africa: issues of insecticide and drug resistance in a variety of areas; management of childhood fever; community-based care systems for malaria, dengue and other diseases; elimination strategies and tools against visceral leishmaniasis; and supporting national control programmes to interrupt dengue transmission.

How important is collaboration with a network of researchers and institutions?

Collaboration is critical. No one organisation can do this alone. Only by partnering can we ensure that we are examining the problem from as many perspectives as possible. We know that health is determined by a number of factors – yes, the right medicines are necessary, but so are the diagnostic tools, and the understanding of the social and environmental factors that lead to people getting sick and staying sick. We need people who live in affected communities to be a part of these efforts, since they are the ones who truly know what life is like, as well as what works and what doesn’t.

Your other core area of activity is research capacity strengthening and knowledge management. How do you achieve this?

Our vision is that every country has the capacity to conduct research and use research evidence while setting policies and strategies. We have several approaches for helping this become a reality. These include supporting Master’s and PhD degrees and offering workshops on specific
topics. We have a Career Development Fellowship where scientists are placed with companies and PDPs for one year to learn aspects of the clinical drug trials process. We have a new, flexible ‘impact grant’ to help researchers who already have general skills but need a specific concentration of training for a month or two in order to complete a project that will make an impact. There are also regional training centres in WHO regions, and we’re developing a TDR alumni network where the thousands of scientists who have received support over the past 40 years can share and collaborate. In addition, our knowledge management team helps scientists to bring their research evidence to policy and practice. It is no longer good enough to just do the research; we expect the evidence generated to be shared with the research community, policy makers and community members who are affected.

You recently attended the Multilateral Initiative on Malaria (MIM) conference (see p6) and the World Health Summit in Berlin. Could you describe the significant outcomes of these two seminal events?

TDR was one of the founding members of MIM, which was set up in 1997. We supported many research projects that have helped African scientists learn how to conduct malaria research. That organisation is now transitioning into a scientific society that works with TDR and other groups. This is a good move – all initiatives have a limited timeframe before they need to develop into a longer-term sustainable model. This will allow the organisation to identify needs, networks and funding from within the continent.

At the World Health Summit in Berlin, a significant outcome was the call for action to strengthen health research capacity in four areas. The M8 Alliance released a joint statement on what was needed in research continue to grow and is seen for both its contribution to health, as well as to development. When communities own their research – they identify the needs and oversee the work – they take charge of their future. I want TDR to make a difference in people’s lives.

INTERVENTION AND IMPLEMENTATION RESEARCH

TDR’s success can partly be attributed to its novel approaches to tackling infectious disease. A new drug or tool is useless if it sits on a shelf. This is the basic problem that implementation research addresses.

In the 1980s work carried out by TDR demonstrated that although bed nets reduced the incidence of malaria, they were not being used in the African communities where they were supplied. Implementation research showed that their white colour was associated with the wrapping of a corpse, and once they were offered in colours, they were more attractive to users.

Some of TDR’s most significant breakthroughs emerged from this type of applied field research initiative, such as community-directed treatment for river blindness; development of unit-dose packaging (blister packs) for the easy use of antimalarials at home; and field testing of new artemisinin-based combination therapies (ACTs).

The development of a new training package aims to help researchers plan and manage implementation research projects. Furthermore, working through partnership with organisations such as the International Union Against Tuberculosis and Lung Disease, and Médecins Sans Frontières, an exciting programme called SORT IT has been developed to help public health officials learn how to identify system bottlenecks and conduct research that removes those obstacles.

More broadly, how has TDR changed the landscape of healthcare in poorer countries, and what are your hopes for the future of the programme?

TDR is celebrating its 40th anniversary since the concept for this intergovernmental research organisation was first suggested. During this time, the Programme has provided critical research evidence for five major elimination campaigns for neglected diseases and co-developed 12 new drugs that are used in public health programmes. It has identified social and gender barriers for access to treatment and care, and provided the evidence for the strength of communities to extend the healthcare system. The Programme has trained thousands of researchers, so that now, in just about every low- and middle-income country, many of the scientific leaders, policy makers and institutions can credit their start to TDR.

TDR’s endeavour to support people and research will not go away, but how we are doing this is changing. Today we can build on this strong base of skills and institutions, which were not there when TDR began, by utilising the alumni network and systems put in place. We are also taking advantage of new technologies that allow scientists to conduct exciting research with sophisticated computers and networks that work in these low-resource settings. We are working with groups to identify ways to increase access to open and shared data. WHO has been leading a major effort to look at ways to increase R&D in all countries, and we are working with them on this. My hope is that research continues to grow and is seen for both its contribution to health, as well as to development. When communities own their research – they identify the needs and oversee the work – they take charge of their future. I want TDR to make a difference in people’s lives.