

# TDRnews

No. 85 - May 2010



## Science to accelerate universal coverage

Global symposium on health systems research | PAGE 12

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# Science, technology, innovation

Most scientists reading this newsletter will find it self-evident that technological innovation and generic advances in science link automatically to improvements in health care. These innovations can take the form of molecular biology techniques giving rise to new vaccines and diagnostics; communications technology simplifying information flow and promoting the concept of e-health; and developments in management sciences and quality processes that affect how we manage our hospitals. Furthermore, the social sciences can help us address diseases and health issues from a societal and systems perspective, moving beyond classical biomedical perspectives. All these sources of innovation have an impact on health.

When you move from the level of laboratories, research institutions and universities to the level of ministries, government policies and international organizations, these links tend to separate into departments of health and departments of science and technology. In the United States of America, there is the National Institutes of Health and in other countries such as Brazil, India and the United Kingdom, there are medical research councils operating under the ministry of health to ensure that the fruits of science feed into health research and impact on health.

However, in many countries, such a research structure in health ministries doesn't exist. Those engaged in health may operate outside the environment of science, technology and the accompanying evidence-based thinking. Similarly, those engaged in research on health-related issues may be isolated from the realities of health problems. As a result, the relevance of their research suffers.

This has to change. Therefore the World Health Organization is increasingly taking a lead in promoting research as a key pillar to improving health and well-being.

In 2008 the World Health Assembly adopted a *Global strategy and plan of action on public health, innovation and*

*intellectual property* to promote new thinking on innovation, access to medicines and needs-driven essential health research. A WHO expert working group on financing and coordinating research for health recently suggested several new ways in which health R&D might be funded in the future.

WHO and the international health community have recognized the value of research for health through ministerial conferences, such as the Bamako ministerial forum for research for health in 2008. The 2012 *World Health Report* will have Research for Health as its title, the first time in 60 years it has focused specifically on research.

In many low-income countries there is now a big drive to promote science, technology, innovation and research as a driver of economic growth and human development. At the African Ministerial Conference on Science and Technology held in Cairo in March under the auspices of the African Union, ministers of science, technology and education talked about new technologies and new innovation across a sphere of disciplines such as agriculture, space, health and communications.

In 2006 this same conference promoted the idea that all African countries should strive to commit at least 1% of their GDP to research and development across all sectors. By comparison the European Union has set a target of 3%, which it believes is necessary to sustain economic competitiveness with the rest of the developed world.

The significance of this is that many of the resources that find their way globally into health research will not originate from within the health sector, but from the science and technology sector. A few years ago The Global Forum for Health Research produced an excellent report that tracked financial flows in health research. It indicated that research for health in many countries averaged about 20% of overall R&D expenditure. There needs to be a stronger

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#### To our readers:

We want to hear from you. Please send us your feedback, as well as letters and ideas on possible stories for **TDRnews** and on TDR-related tropical disease research issues, events, institutions, publications and personalities. Thank you!



A health care center in Tanzania.

TDR/WHO/Craggs

# and health

dialogue internationally as well as nationally between ministries of science and technology and ministries of health.

TDR has started to promote this, but needs to move further. In March 2009 a meeting was convened in Berlin to discuss research partnerships, especially between developed and developing countries. It was greatly enriched by representation from both science and technology and health ministries. In moving forward to prepare a 2011 report on research needs and priorities for infectious diseases of poverty, TDR has created a reference group involving a broad array of actors from the health, science and technology fields to address technology transfer and innovation.

The new African Network on Drugs and Diagnostics Innovation (ANDI), with which TDR is heavily involved, invited ministry of health and ministry of science and technology representatives to its stakeholder meeting in Cape Town last October and several ministers from both sectors attended. This issue of *TDRnews* reports on discussions of ANDI at the African Ministerial Conference on Science and Technology in March. It is worth highlighting in this regard that NEPAD, the implementing agency of the African Union, has a strong science and technology group that places a major emphasis on the biosciences, providing another avenue for discussion and dialogue on health research.

At the international level, the United Nations Educational Scientific and Cultural Organization, UNESCO, is responsible for science and innovation. UNESCO was a partner at the Bamako ministerial meeting on research for health and the Berlin meeting mentioned above. Stronger operational links between UNESCO and WHO, including TDR, could bring increased benefits for health research.

Linking the education, science and technology sectors with the health sector does not need to be restricted to the physical and biomedical sciences.

TDR and other partners are organizing the first Global Symposium on Health Systems Research this November 2010. It will focus on science to accelerate universal health



*“There needs to be a stronger dialogue internationally as well as nationally between ministries of science and technology and ministries of health.”*

coverage. As our cover story shows, increasing numbers of low- and middle-income countries are blazing a trail towards universal health coverage. In doing so, they are making strides towards the Millennium Development Goals of reducing child mortality, improving maternal health and combating HIV/AIDS, malaria and other diseases.

The November conference aims to share state-of-the-art research, to develop a global agenda of priority research, to facilitate greater collaboration, to strengthen the scientific rigor of the health systems research field, and to identify mechanisms for strengthening capacity in low- and middle-income countries.

We hope the symposium will be a wake-up call that health systems research and accompanying implementation research can effectively guide policy and its implementation in low resource countries. Such research can often provide significant benefit for end users at limited cost. Staggeringly, on average, less than 0.02 percent of total health funding is spent on health systems research in low and middle income countries.

In summary, a stronger linkage between a variety of sciences, technologies and academic disciplines within and outside the health sector will be essential for true advancement in all areas of research for health. Innovation and health agendas need to be more coherent at the policy level nationally and internationally. This would create an environment for research to have a major impact on health, and for health – related experiences to enrich the broader science, technology and innovation field, which is now acknowledged as a critical player in economic, social and human development.

Dr Robert Ridley  
TDR Director



# TDR**briefly**

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- WHO issues new dengue guidelines
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- Bioinformatics of infectious diseases
- Swiss Tropical and Public Health Institute
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## Call for investment in health information

Eight global health leaders have united to call for more investment in health information as essential for monitoring progress towards the Millennium Development Goals (MDGs). Sound information is lacking to monitor trends in mortality, causes of death, morbidity, coverage of interventions, risk factors, health systems and equity, said their paper published on *PLoS Medicine* in January.

The co-authors were: WHO Director-General Dr Margaret Chan; Global Fund to Fight AIDS, Malaria and TB Executive Director Dr Michel Kazatchkine; GAVI Chief Executive Officer Dr Julian Lob-Levyt; United Nations Population Fund Executive Director Thoraya Obaid; World Bank Human Development Network Director Dr Julian Schweitzer; UNAIDS Executive Director Michel Sidibe; UNICEF Executive Director Ann Veneman; and Dr Tadataka Yamada, Executive Director of the Bill & Melinda Gates Foundation's Global Health Program.

"We call for a concerted and systematic effort by global partners, including our own agencies, to provide the impetus for support to countries in strengthening their monitoring of progress and performance, building upon what countries are doing," the group's paper said. "We also call for regular well-planned evaluation of major initiatives in a way that balances independence and scientific rigor with country ownership and alignment with country processes. The current economic slowdown corroborates the need for such investments, which can greatly increase efficiency and effectiveness." ■

### For more info:

[www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.100223](http://www.plosmedicine.org/article/info:doi/10.1371/journal.pmed.100223)

## Skills-building course held in Caribbean

A skills-building course on effective project planning and evaluation in Jamaica on 3-6 November 2009 was the first such meeting in the Caribbean under WHO/TDR's *Planning for Success* initiative.

The course was organized and supported by the University of West Indies (UWI) Clinical Epidemiological Unit, and marked the first step in integrating such a course into the university. UWI has joined the International Clinical Epidemiology Network (INCLIN) and strengthening its health research capacity through this methodology is part of the INCLIN integration process.

The World Health Organization's Pan American Health Organization and TDR supported the course, as did the International Center for Medical Research and Training (CIDEIM) in Cali, Colombia, which has been a reference training centre for effective project planning and management since 2007.

The WHO/TDR *Planning for Success* initiative was established in 2003 with an initial focus on Africa. It has two main components: a skills-building course in health research project management in disease endemic countries and a train-the-trainer course to increase trainer availability in disease endemic countries.

WHO/TDR had earlier developed and tested a training programme to enable researchers to clearly define projects, complete realistic project development plans, identify and support the expertise and responsibilities of team members and create communication plans to expand projects' chances of success. The objective is to increase researchers' competitive strengths towards seeking funding and facilitating successful project implementation and monitoring.

The course at UWI was run by two recognized trainers from CIDEIM and one from PAHO, with 12 participants from UWI and observer Dr Donald Simeon, director of the Caribbean Health Research Council. Researchers from the university's clinical epidemiological unit have been selected for further training to improve project management capacity among Caribbean researchers. ■

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Participants at skills building course.

## WHO issues new dengue guidelines

WHO's new edition of dengue guidelines has been published by the Department of Neglected Tropical Diseases (NTD) and TDR. The revised guidelines incorporate over a decade of new research findings and classify cases into two different levels of severity. They also address case management algorithms, new diagnostics, improved vector control methods and recommendations for surveillance and outbreak investigations. Now the challenge is to translate the guidelines' research evidence and policy advice into practice.

Since the previous guidelines were published in 1997, the magnitude of the problem has increased dramatically as both the mosquito vectors and the viruses have spread to previously unaffected areas. Globally 2.5 billion people now live in areas where dengue viruses can be transmitted, and the disease is hyperendemic in many tropical urban centres.

In response to the growing epidemics and limited efficacy of existing interventions, TDR conducted a series of studies with its international scientific partner network to find new evidence and summarize existing research to improve health policy advice. The 2006 Scientific Working Group on dengue (SWG 2006) set a number of priorities, such as improving vector control and better case management to reduce severe disease and fatalities using revised case classification by level of severity.

TDR has since worked on a number of the questions raised by SWG 2006, from vector control recommendations to the revised case classification to improve case management. This revision is based on a sequence of TDR studies that:

- established the need for revising dengue case classification;
- provided new insights into the disease's global epidemiology with a prospective cohort study (dengue control: DENCO) in seven countries, collecting a large epidemiological and clinical data set;

WHO/TDR/Griggs



- developed a model for revising case classification to help guide case management;
- field-tested the revised classification in 16 countries, including a proposal for improved management and triage of cases.

The new classification divides the disease into dengue and severe dengue, with the latter defined by severe plasma leakage, severe haemorrhage and organ failure. This model more accurately describes the disease's existing epidemiology, gives greater emphasis to clinical management and triage, and revises the former emphasis on haemorrhage given that the pathology of severe dengue relates to plasma leakage.

TDR also conducted systematic reviews into vector control, probing how vector control services operate and how outbreak responses and peridomestic/focal spraying perform. This work highlighted that very little routine vector control is done, that the response to dengue is mostly limited to outbreaks and mostly arrives too late, and that the most commonly applied stand-alone intervention probably has no effect on transmission.

The new dengue guidelines reflect these research findings and recommend case management based on the new classification by severity. They also strongly urge integrated vector management and emergency preparedness.

New training programmes now need to be developed which focus on clinical management and health service reorganization in emergencies, on vector control especially for outbreak

situations and on surveillance, especially in outbreak investigations. ■

**For more info:** [www.who.int/neglected\\_diseases/en/](http://www.who.int/neglected_diseases/en/)

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## WHO Bulletin features TDR's dengue work

The battle against the mosquito that spreads dengue requires more than insecticides alone, according to a study co-sponsored by TDR and featured in the March issue of the monthly *Bulletin of the World Health Organization*.

The study in six cities in India, Indonesia, Myanmar, Philippines, Sri Lanka and Thailand explored breeding patterns of the *Aedes aegypti* mosquito, the species that transmits dengue. It discovered significant differences in breeding and dengue transmission between sites, affected by such factors as household habits, local environmental conditions and mosquito ecology and behaviour.

The large-scale multicountry study, supported by a research partnership between TDR and Canada's International Development Research Centre, was the first to comprehensively comb open spaces as well as public and private buildings in selected areas of six cities. It identified almost 50 000 containers holding water, and found the highest number of mosquito larvae in unused and uncovered outdoor containers on private land.

While the study found that this mosquito prefers to breed in containers filled with rainwater, when larvicides were used at the study site in Thailand the mosquitoes found alternative breeding sites indoors in covered containers filled with tap water.

“Traditionally, communities expect public health services to carry out mosquito control, normally through insecticide fogging,” said co-author Dr Johannes Sommerfeld of TDR. “Large-scale insecticide spraying, however, is not effective in reducing immature (larval) stages of the mosquito. These mosquitoes breed in various water containers in and around households, so individuals, families and communities have an equally important role to play in reducing these breeding sites in their own backyards. Communities need to work closely with public health and other services in this battle.” ■

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**For more info:**

[www.who.int/bulletin/volumes/88/3/09-067892.pdf](http://www.who.int/bulletin/volumes/88/3/09-067892.pdf)

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## South-East Asia's diseases highlighted

The *Bulletin of the World Health Organization* shone the spotlight on neglected tropical diseases in South-East Asia in its March issue. Leprosy, lymphatic filariasis, visceral leishmaniasis and yaws affect the region disproportionately, said an article by Jai P Narain et al.

Every year around 67% of all new leprosy cases and 60% of new cases of visceral leishmaniasis worldwide occur in the region. Up to 200 million people in Bangladesh, India and Nepal are at risk of contracting visceral leishmaniasis; about 500 000 new cases occur and 60 000 deaths result from it every year.

Improved conditions in the WHO South-East Asia Region make elimination of leprosy, lymphatic

filariasis, visceral leishmaniasis and yaws possible now. Ironically, success in the past has led to complacency and to the resurgence of disease, the authors wrote: “Thus, the most important challenge will be to continue good surveillance to determine whether these diseases remain in previously endemic areas, and to continue advocacy to ensure that political commitment remains strong and that these diseases continue to be granted the importance they deserve within the context of national health strategies.” ■

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**For more info:**

[www.who.int/bulletin/volumes/88/3/09-065169.pdf](http://www.who.int/bulletin/volumes/88/3/09-065169.pdf)

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## Bioinformatics of infectious diseases

More than 100 scientists gathered in Bamako, Mali, from 30 November to 2 December for a conference on the bioinformatics of infectious diseases. This was the first meeting of its kind as it brought together the African Society for Bioinformatics and Computational Biology (ASBCB) and the International Society for Computational Biology (ISCB). More than 24 countries from four continents were represented.



The conference topics included bioinformatics education and curriculum development, database and resource development for infectious disease research, host/pathogen systems biology, molecular epidemiology, evolution of pathogens and of their hosts and vectors, research on and design of vaccines and drugs, systems views of biological organisms, and functional, structural and comparative genomics of pathogens.

Proceedings are expected to be published in *Infection Genetics and Evolution*, which covered the first pan-African conference on the bioinformatics of pathogens and disease vectors in May 2007 in Nairobi.

That conference brought researchers together to form the ISCB Regional Student Group for Africa, which has been active in capacity-building in African bioinformatics as well as leading the way for formation of a pan-African bioinformatics network aimed at increasing research output in biological information translation from Africa. The latter is under discussion and seeking support for its further development.

The African Virtual Bioinformatics Conference, AFBIX'09 held 18–19 February 2009, was one result of the regional student group. Technology allowed the virtual linking of hubs in Kenya, Nigeria, the United States of America and Morocco. A description of the virtual conference has been published in the February 2010 issue accepted for publication in *PLoS Computational Biology* (Gichora et al., Volume 6 | Issue 2 | e1000650) [www.ploscompbiol.org/article/info:doi%2F10.1371%2Fjournal.pcbi.1000650](http://www.ploscompbiol.org/article/info:doi%2F10.1371%2Fjournal.pcbi.1000650).

The Bamako meeting, which received strong support from Mali's government, saw five regional ISCB student council groups inaugurated.

It was co-chaired by Dr Nicola Mulder (University of Cape Town, South Africa) and Dr Manuel Corpas (Wellcome Trust Sanger Institute, UK). Both showed extraordinary commitment, as did local chair Dr Seydou Doumbia (University of Bamako) and BJ Morrison McKay (ISCB, US).

The closing remarks were given by Professor Winston Hide via pre-recorded video. Hide founded the South African Bioinformatics Institute (SANBI) and is now based at Harvard University. Hide reported how 15 years ago the small bioinformatics community started thinking about how to raise the profile of bioinformatics education and applications in Africa. As these efforts increase across the continent, the focus must be on scientific

excellence to ensure respect for African bioinformatics, Hide said. He emphasized mentorship with a global outlook, and discussed plans for a mentorship program for African students. ■

**For more info:**

ASBCB: [www.asbcb.org](http://www.asbcb.org)

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## New Swiss institute

The Swiss Tropical Institute (STI) and the former Institute for Social and Preventive Medicine of the University of Basel (ISPM) have been integrated to form the Swiss Tropical and Public Health Institute (Swiss TPH). The merger took effect in January.

Since its founding in 1943, the Swiss Tropical Institute has been well known for the quality of its teaching, research and services as it worked for better health nationally and internationally. The Institute for Social and Preventive Medicine is famous for research in environmental epidemiology, women's health and chronic disease epidemiology.

In March 2010 the two institutes moved into the same buildings, with a staff of more than 500 from more than 40 nations.

Former STI Director Dr Marcel Tanner leads the new group, and Dr Nino Künzli, formerly head of the ISPM, and Dr Nicolaus Lorenz are vice-directors. ■

**For more info:** Swiss Tropical and Public Health Institute  
[www.swisstph.ch](http://www.swisstph.ch)



## WHO and TDR staff changes

**Dr Tim Evans,** Assistant Director-General for Information, Evidence and Research (IER) at the World Health



*Dr Tim Evans.*

Organization, will take up a new position as Dean of the James P Grant School of Public Health at Bangladesh Rural Advancement Committee's (BRAC) University. He will also be senior strategic adviser at the International Centre for Diarrhoeal Disease Research, Bangladesh, as from 1 June 2010.

As Special Programme Coordinator, Evans oversaw the work of TDR. He joined WHO in 2003. Prior to that he was Director of Health Equity at the Rockefeller Foundation.

**Dr Johannes Sommerfeld,** who has been with TDR since 2000, has been appointed leader of TDR's Business Line on Integrated Community-Based Interventions (BL 11). Until 2007, Sommerfeld was manager of TDR's Steering Committee on Strategic Social, Economic and Behavioural Research before working on various activities in the Stewardship unit. Sommerfeld continues to be project leader of the TDR/IDRC research initiatives on eco-bio-social research on dengue and Chagas disease in Latin America and Asia.

**Dr Michael 'Kent' Ranson** has been appointed as scientist in the Stewardship business line to prepare for the First Global Symposium on Health Systems Research. Originally from Canada, Ranson is a medical doctor and health economist. Since October 2007, he has been working with the Alliance for Health Policy and Systems Research, WHO. Over the preceding nine years he studied at, and then worked for, the Health Policy Unit, London School of Hygiene and Tropical Medicine, focusing on equity of access under community-based health insurance programmes in Gujarat, India.

WHO/TDR/Schwarb

**Clare Nullis Kapp,** a former journalist with *The Lancet* and *The Associated Press* news agency, has replaced Elaine Ruth Fletcher as editor of *TDRnews*. Fletcher has moved to the Public Health and Environment department at WHO. ■

## Ndumbe looks back on five years in STAC

TDR has successfully restructured its activities and priorities and its next challenge is to ensure that disease endemic countries play a more pivotal role, according to Professor Peter Ndumbe, the outgoing Scientific and Technical Advisory Committee (STAC) chair.

Ndumbe, Dean of the Faculty of Health Sciences at the University of Buea, Cameroon, became STAC chairman in 2006. At that time, TDR was introducing reforms to widen its focus from disease-specific research to broader tools such as knowledge management, stewardship and empowerment.

"The experiment has worked," he said. "We started on a completely new area with people embedded in the old tradition. Lo and behold, it works! This new car runs – and we have done it ourselves." Ndumbe also has served on WHO's African regional Task Force on Immunization since 1993 and on the WHO/UNAIDS Task Force's African HIV Vaccine Initiative since 2000.

Ndumbe said TDR is now in a better position to help improve health outcomes which depend on the interaction between health, socioeconomic and environmental factors, science, social science, medicine and the strength of health systems.

"Delivery depends on promoting health systems. You can have a wonderful gift in your hands, but no one to give it to. We aim to reach the poorest of the poor, and so need to have good delivery systems."

Ndumbe noted there is more scope to strengthen existing alliances and forge networks with new partners.

This would increase TDR's access to resources from the ever-growing

*Professor Peter Ndumbe, the outgoing Scientific and Technical Advisory Committee chair.*





number of global health initiatives and the programme's ability to share its experience and expertise.

"TDR comes from a wonderful pedigree," he said. "People are amazed that we did so much with so few resources."

STAC meets annually, most recently 22–25 February, to oversee TDR's scientific activities. The committee has

three main functions to:

- review TDR's content, scope and dimensions, including diseases covered and approaches used;
- recommend priorities within TDR, including establishment of committees;
- independently evaluate the scientific and technical aspects of all TDR activities.

During his time as STAC chair, Ndumbe promoted TDR's vision of fostering an effective research effort in which disease endemic countries play pivotal roles. This work continues, he said. Ndumbe singled out the African Network for Drugs and Diagnostics Innovation (ANDI) as an example. "My dream is that making disease endemic countries pivotal will no longer be a plan but will be reality," he said. ■

## TDR pays tribute to Ghanaian health minister Quashigah

TDR is adding its voice to the many tributes to the late Ghanaian health minister Major Courage Emmanuel Kobla Quashigah, who died 5 January at Sokora Hospital in Beersheba, Israel, where he was receiving medical treatment. His passing at age 62 came as a great shock and sorrow to many, especially those who had the opportunity to work closely with him.

Quashigah, who retired at the military rank of major, will be remembered by all Ghanaians as well as by African, South American and European ministers of health, and by WHO, the West African Health Organization (WAHO), TDR and GAVI for his thought-provoking speeches and contributions during meetings.

The minister was an important member of the GAVI Alliance Board, and his passionate advocacy for developing-country voices commanded attention and respect. As much as anyone, Quashigah articulated the challenges and opportunities Ghana and other developing countries face in improving the health and well-being of their citizens. He was a vital contributor to the discussions on the future of GAVI and particularly its new governance structure.

Quashigah became a key supporter of TDR based on his convictions about the critical roles of research and evidence for policy in health. He was devoted to achieving the health Millennium Development Goals and supported calls for countries' commitment, investment and innovative research to underpin decision-making. This commitment led to his co-hosting with Nigeria's health minister, Professor Eytayo Lambo, a high-level ministerial meeting on health research at Abuja, Nigeria, in March 2006 to develop an African

perspective on health research for achieving sustainable health MDGs in Africa.

Quashigah also hosted the June 2006 ministerial meeting on health research in developing countries attended by ministers of health and delegations from Africa, Asia, the Middle East and Latin America. His stewardship of Ghana's health ministry witnessed the country's hosting of the first Joint Coordinating Board (JCB) meeting held in Africa in TDR's 30-year history. The outcome of this Accra meeting was shared with a wider constituency in August 2006 at the 56th meeting of WHO's Regional Committee for Africa in Addis Ababa, Ethiopia. The deliberations from the Accra meeting formed a basis for an African perspective on health research presented at the WHO Ministerial Summit on Health Research in Bamako, Mali, in 2008 and also fed into the Algiers Declaration on Research for Health in the African Region.

Thanks to Quashigah, Ghana became a JCB member and resource contributor, recognizing TDR's role in training many African scientists to research infectious diseases of poverty.

"Major Quashigah always related research on diseases of poverty to fighting a war, saying that to fight an enemy, we need as much knowledge about the enemy as possible, which is why research is so important," TDR Director Dr Robert Ridley said in a tribute on behalf of the JCB. "In fighting this enemy he always reminded his audience of who we were fighting for, namely the people afflicted by disease and infirmity. We will very much miss the enthusiasm and commitment of our friend and mentor." ■





# Study wins BMJ award

A WHO/TDR study that showed rectal artesunate prevents death and disability in severe malaria has been chosen as the *British Medical Journal's* research paper of the year. The award recognizes original clinical research that contributes to health and health care.

BMJ Group Awards



Study 13 scientists win BMJ award.

"This goes beyond simply winning an award," said TDR scientist Dr Melba Gomes, the trial director. "It's about transforming simple ideas into reality. It's also about demonstrating that practical solutions can have a major impact on public health."

The outcome of Study 13 was published in *The Lancet* in February 2009. The study focused on whether trained community members in remote rural locations could give a single suppository to patients unable to take oral medication and so arrest the progress of malaria for long enough for the patient to reach proper treatment.

For patients who came too late for treatment or able to reach a clinic quickly, rectal artesunate did not help much. But for patients who could not get to a clinic within six hours (half of whom could not reach a clinic within 15 hours), pre-referral rectal artesunate halved the risk of death or permanent neurological damage.

"Time is of the essence in treating severe malaria, yet many sufferers live days away from definitive treatment. This trial provided a rigorous test of a treatment strategy adapted to such circumstances," the BMJ judges said at the 10 March award ceremony. "The researchers demonstrated that those children who received the study treatment early were less likely to die or be left with a disability," said the judges.

Malaria currently claims the life of one African child nearly every 30 seconds.

The main challenge is to ensure that effective oral treatment (artemisinin compound therapy or ACTs) is affordable, available and is used in time to prevent the disease from becoming severe. Rectal artesunate will be an important complement to ACTs if it gains regulatory ap-

proval. All efforts will be made to keep the price of each suppository under 10 US cents.

TDR Director Dr Robert Ridley said this study is a good example of TDR's focus – how to get treatments that work to people in poor, remote areas. "By working with local investigators and community members, simple, workable solutions were identified and proven. This is a critical approach that will help develop a better overall health system."

The clinical trial took nearly ten years and involved more than 17 800 malaria patients, mainly children, in remote areas of Bangladesh, Ghana and the United Republic of Tanzania.

Professor Abul M Faiz led the trial in Bangladesh. During his career, he has been professor of medicine, principal and acting dean of Dhaka Medical College, director of the new Bangladesh Institute for Tropical Diseases and director-general of the nation's Health Services.

Professor John Gyapong, director of the Health Research Unit of Ghana's Health Service, was principal investigator in that nation. Dr Marian Warsame, formerly with the United Republic of Tanzania's National Institute of Medical Research and now with the Case Management Unit of WHO's Global Malaria Programme, led the trial in the United Republic of Tanzania.

Gomes joined TDR in 1991 to build capacity in field research/epidemiology, and led a task force to improve use of antimalarials and a task force on severe disease. While working in South East Asia, the observation that locally produced artemisinin suppositories had helped reduce malaria mortality led her to persuade TDR's director and its Steering Committee on malaria chemotherapy to develop the drug for severe malaria patients who could not reach hospital. Thus began the drug development path, and eventually the field trials.

"We hope that this will soon be available for patients," said Gomes. ■

A complete briefing and link to the document are available at:  
[www.who.int/tdr/svc/research/antimalarial-policy-access/projects/artesunate-study-13](http://www.who.int/tdr/svc/research/antimalarial-policy-access/projects/artesunate-study-13)

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# New treatment guidelines and diagnostics evaluation

TDR research has contributed to new WHO malaria treatment guidelines that place stronger emphasis on home-based management and diagnosis.

The *Guidelines for the Treatment of Malaria* (second edition) were produced by WHO's Global Malaria Programme to provide countries with policy recommendations. These guidelines help ensure that patients with malaria are promptly and appropriately diagnosed and then treated with safe medicines procured from quality-assured sources.

The guidelines were released in March ahead of World Malaria Day on 25 April. This occasion was marked by calls for action to achieve the United Nations target of delivering universal protection and treatment by the end of this year. More than 860 000 people die of malaria annually, most of them African children. According to WHO's 2009 *World Malaria Report*, malaria cases have been halved since 2000 in more than a third of affected countries, but much more needs to be done.

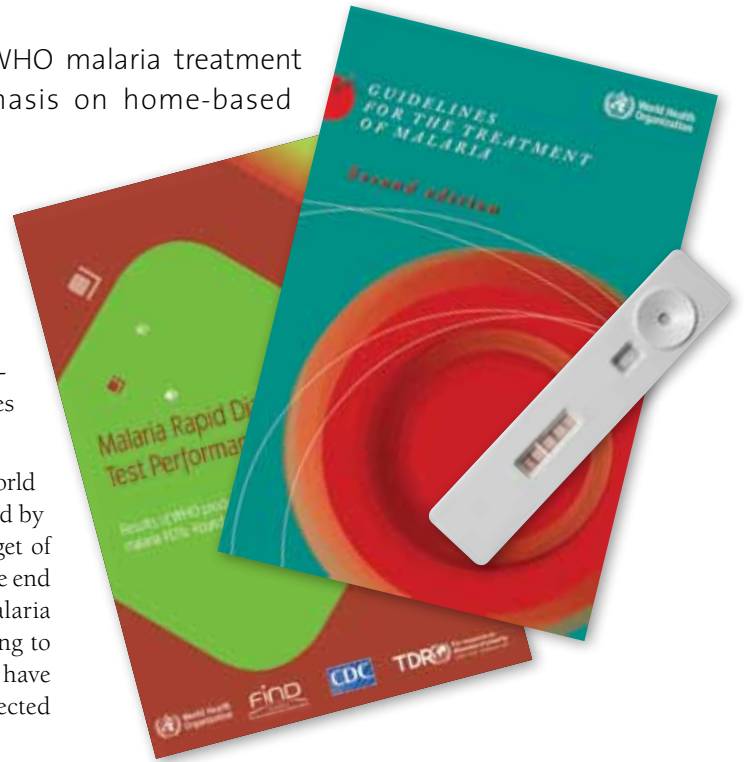
The main changes from the guidelines' 2006 first edition are the addition of a new artemisinin-based combination therapy (ACT) to four existing recommended medicines, and the emphasis on testing and parasite-based diagnosis before treatment. A body of clinical trials and recent evidence informs these recommendations.

## New methodology

The guidelines are for the first time based on the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology. This uniform approach being adopted by WHO employs explicit methods to formulate and evaluate recommendations based on the robustness of evidence relating to a specific clinical question, including Cochrane Reviews. These are systematic assessments of health care interventions by an international collaboration of scientists.

TDR contributed to a substantive Cochrane Review by the International Health Group at the Liverpool School of Tropical Medicine that was supported by the UK Department for International Development. It evaluated the four recommended ACTs head-to-head, plus the most promising new combination, dihydroartemisinin-piperaquine (DHA-P). This review contributed to WHO's recommendations on the treatment of uncomplicated malaria, including the decision to add DHA-P to the recommended list.<sup>1</sup>

Summarizing evidence from antimalarial treatment trials is challenging. To facilitate decision-making, the Co-



chrane Review incorporated two innovative approaches which emphasized the dual importance of relative and absolute effects, the GRADE system and new plots incorporating both parameters.<sup>2</sup>

## Community-based care

For the first time, the guidelines have a specific section recommending home-based management of malaria (HMM), a strategy developed by TDR, to extend malaria treatment coverage beyond health facilities.

HMM comprises three pillars: the selection and training of community members to correctly dispense antimalarial medicines; an information, education and communication campaign to sensitize caregivers to the importance of adhering to treatment schedules; and making



Community-based care in Ghana.

effective antimalarial medicines available close to home in every village.

“Home-based management of malaria is one of the strategies recommended by WHO to improve access to prompt and effective treatment of malaria episodes through trained community members living as close as possible to where the patients live,” the guidelines state. They credit the TDR-supported study thus: “Recently evidence has been produced on the feasibility, acceptability and effectiveness of ACTs used within the context of HMM, supporting HMM as a public health strategy and adding to the evidence base for scaling up implementation of HMM with ACTs.”<sup>3</sup>

The guidelines recommend that pre-referral rectal artesunate (suppositories given to patients too sick to take oral medicine) be included in home-based management where feasible. This recommendation is based on a large-scale randomized controlled clinical trial coordinated by TDR. The trial showed that a single dose of rectal artesunate reduced the risk of mortality and permanent disability among patients in remote communities, effectively buying them time to reach health facilities (see page 9).

## Rapid diagnostic tests

The guidelines stress the importance of parasitological confirmation of malaria by microscopy or rapid diagnostic tests (RDTs). In 2008, just 22% of suspected malaria cases had diagnostic testing in 18 of 35 African countries reporting. Until now, most clinics had to rely on clinical diagnosis or microscopy, but the emergence of data supporting the performance and thermal stability of many commercially available RDTs means a policy change is possible. Many of these tests can reliably demonstrate the presence or absence of malaria parasites in blood and can be performed at all health system levels, including community settings.

This policy change follows an independent laboratory-based evaluation of 41 RDTs coordinated last year by TDR, the WHO Regional Office for the Western Pacific and the Foundation for Innovative New Diagnostics (FIND) that was performed at the U.S. Centers for Disease Control and Prevention (CDC). The results revealed large variations in RDT quality and reliability. Some tests on the market performed exceptionally well in tropical temperatures and could detect even low parasite densities in blood samples, while others were only able to detect high parasite densities. ■

- 1 Sinclair D, Zani B, Donegan S, Olliaro P, Garner P. Artemisinin-based combination therapy for treating uncomplicated malaria. *Cochrane Database Syst Rev*, 2009 Jul 8;(3):CD007483.
- 2 Sinclair D, Olliaro P, Garner P. Guest editorial: Artemisinin-based combination therapy for malaria, but which one? *Clinical Evidence*, 8 February 2010.
- 3 Ajayi IO et al. Feasibility and acceptability of artemisinin-based combination therapy for the home management of malaria in four African sites. *Malaria Journal*, 2008, 7:6. doi:10.1186/1475-2875-7-6.

## New evaluation round



Laboratory evaluation of RDTs.

A report on the second round of WHO-TDR-FIND malaria RDT product testing that included 29 products was released this year for World Malaria Day. This report should assist countries as they choose from dozens of commercially available RDTs.

Reliable RDTs play a key role in improving malaria management. Africa still lags behind the rest of the world in this, relying heavily on clinical suspicion rather than laboratory-based diagnosis. This results in many cases of fever being incorrectly treated as malaria, delaying recognition and management of other diseases.

Better diagnosis would allow the targeted use of ACTs for those who need them and help children with non-malarial fevers to receive appropriate diagnosis and treatment. This in turn may reduce the emergence and spread of drug resistance.

Unpublished data from a number of national malaria control programmes reveals dramatic decreases in reported malaria cases following RDTs' widespread introduction. TDR Technical Officer Dr Jane Cunningham said this decrease is less likely to be attributable to RDTs themselves than to applied interventions such as insecticide treated nets and indoor residual spraying whose impacts otherwise would have remained unclear.

“If you don't have parasite-based diagnosis, then you really have no way of knowing the true malaria rates and impact of interventions,” she said. ■

For further info:

On the guidelines: [www.who.int/malaria/publications](http://www.who.int/malaria/publications)

On home-based management: [www.who.int/tdr/svc/research/antimalarial-policy-access/home-management-malaria](http://www.who.int/tdr/svc/research/antimalarial-policy-access/home-management-malaria)

On WHO-TDR-FIND evaluation of malaria RDT performance: [www.who.int/tdr/svc/publications/tdr-research-publications/rdt-performance](http://www.who.int/tdr/svc/publications/tdr-research-publications/rdt-performance)

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All systems go

# Science to accelerate

Success in the battle against infectious diseases of poverty such as malaria, dengue, visceral leishmaniasis and onchocerciasis depends partly on strengthening health systems. Until now, far too few resources have been spent on research into what makes these systems tick. This is now changing, and TDR is playing a role in shaping the new agenda.

“Health systems strengthening is rising on political agendas worldwide,” WHO Director-General Dr Margaret Chan wrote in a preface to a November 2009 report by the Alliance for Health Policy and Systems Research. “Precise and strong health systems are fundamental if we are to improve health outcomes and accelerate progress towards the Millennium Development Goals of reducing maternal and child mortality, and combating HIV, malaria and other diseases. Often, however, health system strengthening seems a distant, even abstract aim. This should not and need not be the case.”<sup>1</sup>

The report gave practical advice; its “ten steps to systems thinking” suggested ways to more realistically forecast

how health systems might respond to strengthening interventions, while also exploring potential synergies and dangers. It illustrated the need for systems thinking with a hypothetical case study in a low-income country that launched a pay-for-performance (P4P) programme to increase the effective coverage of the DOTS strategy, a tuberculosis treatment plan whose acronym is derived from “directly observed treatment, short course.” Although the official evaluation in this case study concluded that the programme was a success, unofficial observations revealed a different picture: health facility staff had gravitated towards providing more-lucrative TB services at the expense of other core areas. A sudden

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Brenton Geach



Patients waiting at a clinic in Cape Town, South Africa.

# universal coverage

measles epidemic brought these problems to the fore, as with fewer capable staff at most health facilities the system was less able to manage the epidemic. Many observers felt that the benefits of the P4P and TB programmes were more than offset by increased costs, morbidity and mortality elsewhere in the health system.

The hypothetical case study concluded that these problems could have been identified and mitigated at the design stage through systems thinking, including greater consideration of governance and workforce factors.

## Global symposium

TDR has long advocated health systems research as the best way to guide policy and its implementation in low-resource countries, as such research provides maximum benefit for end users at minimum cost. Staggeringly, less than 0.02% of total health funding is spent on health systems research in low- and middle-income countries.

In a bid to galvanize the international community into action, TDR is working with a broad number of co-sponsors brought together by WHO to organize the First Global Symposium on Health Systems Research in November 2010. The conference in Montreux, Switzerland, will bring together a wide range of research constituencies to share evidence, identify knowledge gaps, set research agendas that reflect the needs of low- and middle-income countries and ensure greater coordination in an increasingly crowded playing field.

“At issue is the formidable gap between innovations in health and their delivery in communities,” according to Dr Tim Evans, WHO’s outgoing assistant director-general for Information, Evidence and Research and chairman of the symposium’s steering committee.

“If we strengthen research on how to increase access to interventions that save lives, we will all be much better off in the short and longer term,” Evans said.

## TDR research

TDR research has revealed some relatively cheap options to improve health systems and delivery, especially by using community-directed interventions. A study published in 2008 covering 2.35 million people in Cameroon, Nigeria and Uganda found that trained community workers could deliver a package of health interventions – including treatment for onchocerciasis (river blindness) and malaria, insecticide-treated nets (ITNs) and vitamin A supplements – more effectively

than conventional programmes and at no extra cost to health services. Only with delivery of DOTS treatment for TB was there no noticeable difference with existing programmes. In the case of malaria, the study found that more than twice as many children with fever received treatment from trained community workers, and use of ITNs was twice as high in the study districts.<sup>2</sup>

The landmark study continued a TDR tradition of implementation research, which studies how to translate research outcomes into practice. During the 1980s and 1990s, some of TDR’s most significant breakthroughs emerged from applied field research initiatives. These included community-directed treatment for onchocerciasis, introduction of insecticide-treated bednets, development of unit-dose packaging (blister packs) for easy home use of antimalarials and field testing of new artemisinin-based combination therapies (ACTs).

“Over the last 30 years, TDR has been in the forefront of research and capacity building,” said TDR Director Dr Robert Ridley. “But in order to translate research from discovery into delivery, there needs to be a functioning health system shaped by the leadership and the priorities of individual countries and communities.”

## New priorities

Despite the importance of health systems research, it was long neglected by the donor community. This is partly because it was harder to quantify its impact in terms of lives saved than in areas such as immunization rounds or ITN provision. Instead, the focus was on vertical health programmes such as HIV/AIDS.

This is now changing. The 2008 G8 summit in Toyako, Japan, gave a strong commitment to strengthening health systems in developing countries. This was followed by the Taskforce on Innovative Financing for Health Systems, which was established with support from Prime Minister Gordon Brown of the United Kingdom. Last September this taskforce announced new financing measures worth US\$ 5.3 billion to improve access to health services for women and children.

The World Bank, United Nations agencies, the Global Fund to Fight AIDS, TB and Malaria (GFATM) and other major global health actors such as the Bill & Melinda Gates Foundation have joined donor and low-income countries in the International Health Partnership and related initiatives (IHP+) to improve health outcomes and aid effectiveness by improving coordination and giving recipient countries greater ownership. This has set up a



## First Global Symposium ON HEALTH SYSTEMS RESEARCH



Just 0.02% of health spending in low- and middle-income countries goes to health systems research. As a result, World Health Organization Director-General Dr Margaret Chan convened a High-Level Task Force on Scaling Up Research and Learning for Health Systems.

This Task Force recommended mobilizing a high-profile agenda of research and learning to improve performance, engaging policy-makers to shape that research agenda, strengthening country capacity for health systems research and increasing financing for health systems research.<sup>a</sup>

These findings were endorsed by the 2008 Global Ministerial Forum on Research in Bamako, Mali, which urged governments to allocate at least 2% of ministry of health budgets to research and development agencies, and to earmark at least 5% of health funding for research.

“No other US\$ 5 trillion economic sector would be happy with so little investment in research related to its core agenda: the reduction of health inequalities; the organization of people-centred care; and the development of better, more effective public policies,” the *2008 World Health Report* said.

The First Global Symposium on Health Systems Research will take place 16-19 November in Montreux, Switzerland, aiming to galvanize the international community into action.

TDR is one of a growing list of symposium sponsors. The event seeks to improve the scientific evidence needed by health policy-makers and practitioners to inform their decisions related to accelerating universal coverage. For instance, rigorous research into universal coverage could be instrumental in identifying how services for HIV, tuberculosis, malaria, immunization and maternal and child health can be scaled up on a sustainable basis.

Ahead of the symposium, TDR is convening a consultative meeting 28-30 June in Uganda to discuss a technical document on implementation research for access and delivery of new and improved tools, strategies and interventions for the control of diseases of poverty.

Participants from ministries of health, research institutions, product development partners, non-governmental organizations, donors, academia and UN agencies are expected to attend the meeting. This initiative will complement the symposium by focusing on the special niche of access and delivery research for new and improved tools and strategies. This niche might otherwise get minimum attention, given the multitude of health systems research issues the symposium will address. ■

For further info: [www.hsr-symposium.org/](http://www.hsr-symposium.org/)

<sup>a</sup> Scaling up research and learning for health systems: now is the time ([www.who.int/entity/alliance-hpsr/alliancehpsr\\_task\\_force\\_report\\_research.pdf](http://www.who.int/entity/alliance-hpsr/alliancehpsr_task_force_report_research.pdf))

framework for monitoring performance and evaluation of scale-ups for better health, including through Country Health Systems Surveillance (CHeSS). One of the main goals of CHeSS is to improve the availability, quality and use of data needed to inform country health sector reviews and planning processes and to monitor progress and system performance in participating countries such as Ethiopia and Zambia.<sup>3</sup>

### Missing the MDGs

These initiatives were born of the recognition that many low-income countries, especially in Africa, will miss the MDG targets of reducing child mortality, improving maternal health and combating HIV/AIDS, malaria and other diseases primarily because they don't have the necessary health infrastructures and workforces to provide life-saving interventions. A child currently dies

every three seconds and a woman dies every minute from complications of pregnancy or childbirth in developing countries.

“It's not the price and availability of drugs that matter; it's the health system that can deliver them,” according to Professor Anthony Mbewu, executive director of the Global Forum for Health Research, which is partnering TDR and others in organizing the symposium.

“It's one thing to get three million people on to antiretroviral drugs, but to build health systems in countries to make sure the drugs get to patients who are monitored and followed-up is an enormous challenge. HIV will stay with us, so to achieve sustainable treatment and care is going to require health systems that work,” said Mbewu, former president of South Africa's Medical Research Council.



Professor of medical anthropology at Australia's Monash University Lenore Manderson said a much broader view of health systems is urgently needed as part of an overall system of governance: "It's not just about training people in disease control, it's about procurement, hiring and firing and human resources management, and at the moment we are not taking a systems approach."

## Access and coverage

Rockefeller Foundation Managing Director Dr Ariel Pablos-Méndez, whose organization is co-sponsoring the symposium, said he hopes the event will provide an opportunity for policy-makers and researchers to brainstorm on how to extend universal access to appropriate health services while also providing financial risk protection – in other words, universal health coverage.

Few question the need for universal coverage. A 2008 study published in the *WHO Bulletin* investigated 116 household expenditure surveys from 89 countries, finding that up to 13% of households face financial catastrophe in any given year because of the charges associated with using health services, and up to 6% are pushed below the poverty line by these expenses.<sup>4</sup> Households are considered to suffer financial catastrophe if they spend more than 40% of their disposable income – the income remaining after meeting basic food expenditure – on health services.

Universal health coverage now exists in more than 40 countries. Europe led the way, introducing reforms over several decades. Latin American and some Asian nations have played catch-up and several African countries have made big strides.

"Many of the most ambitious efforts to achieve universal health coverage are in low-income countries. If you look at the policies in low-income countries, universal health coverage registers very centrally in virtually every country," Evans said. "Rwanda moved ahead very, very quickly, Ghana is making strong progress, Thailand has universal health coverage and is expanding the depth of that coverage annually. If you look at country experience, there is quite a bit that can be learned from countries that are at the lower income scale per capita."

Experience has shown that greater wealth doesn't automatically mean better health.

"The problem is that most of the countries have seen economic expansion accompanied by fast-paced health spending without a framework for health systems," Pablos-Méndez said. "Spending goes up but it doesn't cover everyone with equitable services. As a result, the spending goes out of pocket, which is inefficient and regressive."

## Chinese reform

Pablos-Méndez cited China as a case in point where the health system languished as the economy boomed. Low government funding meant that doctors at state-run hospitals had to generate income through prescribing ex-

pensive drugs and treatment. As a result, medical services became increasingly inaccessible and unaffordable, and private medical spending soared. Primary health care centres were neglected and disparities between health care in cities and rural areas grew.

In April 2009, authorities announced a health reform blueprint to achieve universal coverage by 2020 for China's 1.3 billion citizens. It aims to establish a basic health care system that can provide "safe, effective, convenient and affordable" health services to urban and rural residents.

The plan focuses on major structural change in five areas over the next three years: expanding the health security system; establishing the essential medicines system; strengthening the capacity of primary care facilities; reducing gaps in coverage of public health services and reforming public hospital financing mechanisms. The 2009-2011 implementation plan is backed by an investment of 850 billion yuan (US\$ 124 billion) from central and regional governments. As part of the reform, a diversified medical insurance system is planned to be in place by 2011 that would extend basic medical insurance programmes to 90% of the population.

## Success stories

Elsewhere in Asia, Viet Nam has introduced legislation to achieve universal coverage in the next five years, inspired and encouraged by Thailand. "We hold Thailand



WHO/TDR/Grump

Navrongo Hospital in Ghana. Mothers waiting for medical attention for their children with malaria.

## Thailand: a role model?



Thailand's health care system uses a mix of public- and private-sector mechanisms for financing and provision. The National Health Security Act of November 2002 established the basis for universal coverage, as prior to this 20% of the population was not covered. Users initially had to make an out-of-pocket payment of 30 baht (US\$ 0.90) per visit, with the exception of the very poor, but the fee was abolished in 2006.

The system is funded by a capitation grant, which in the 2007 fiscal year was 1900 baht (US\$ 56). The total budget for the 2007 fiscal year was 67.3 billion baht (US\$ 2 billion).

Thai officials say 75% of the population came under the universal coverage scheme in 2007, while the social security scheme for salaried staff covered 15% and civil servant medical benefit covered 8.2%.

The health service benefit package includes inpatient/outpatient treatment at registered primary care facilities and referral to secondary and tertiary care facilities (except emergency cases), dental care, health promotion/prevention services and drug prescriptions.

Given the insurance system's speedy implementation, the government says teething problems are unavoidable but it is proud that it is regarded as a role model for universal coverage.

"Thailand's Universal Health Care Coverage Policy is an example of how a middle-income country manages to pursue equity in health-care with remarkable achievements," said a 2009 report by the Bureau of Policy and Strategy at the Ministry of Public Health. "The Thai experience may be shared with other countries facing similar challenges. The lessons learned might be useful to other developing as well as developed countries in paving the way to increase investment in health care and treating public health as a core concern of development." ■

For further info: <http://bps.ops.moph.go.th/Health Policy 2009.pdf>

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as a model," Pablos-Méndez said. "In terms of evidence-based policies and universal health coverage with just 4% of GDP, Thailand has been an incredible success story."

He said six countries – Ghana, India, Indonesia, Philippines, Thailand and Viet Nam – attended a February forum in New Delhi to share experiences on implementing universal health coverage. These countries also will initiate a South-South Joint Learning Network, and it is hoped others will join (for more information, see [www.jointlearningworkshop.org](http://www.jointlearningworkshop.org)).

"Once the decision is made politically, the finances can get reorganized as countries are already spending their own money out of pocket," Pablos-Méndez said. "We need to build on the science of universal coverage, but sharing practical lessons and international support are also important in overcoming the challenges of implementation."

He said Thailand has been collaborating with Viet Nam and Ghana, which is blazing a trail in Africa with robust insurance schemes already reaching nearly 65% of the population. Ghana introduced a national health insurance scheme in 2003, financed by a 2.5% levy on goods and services, social security payments and premiums paid by beneficiaries. Its goal is "an equitable and sustainable health insurance system that becomes a model in poverty reduction." The government last year pledged to abolish annual premiums and shift to a one-time life-

time payment, with exemptions for pregnant women, children and the elderly.

In Latin America, countries such as Chile, Costa Rica and Cuba have achieved universal coverage and many others are on track to follow them, using a variety of financing tools and public-private mixes.

Brazil last year celebrated 25 years of its national health system – Sistema Único de Saúde (SUS) – which was anchored in its 1988 constitution. This enshrined health care as a right of all citizens, and required the state to provide universal and equal access to health services. Key to this strategy were primary health care and the Family Health Programme created in 1994. The system has flaws but is generally regarded as fair.

"The idea that this is just a cost which needs money is changing. It is now seen as an investment and a development tool," said Professor Tania Araujo Jorge, director of the Oswaldo Cruz Institute of the Oswaldo Cruz Foundation. She said a main challenge is to adapt universal coverage to changing health realities and to integrate health promotion. Infectious diseases have fallen from 40% to 4% of Brazil's mortality burden while chronic diseases have soared.

Mexico increased federal expenditure on health from 4.8% of GDP in 2000 to 6.5% in 2006 to provide access to care for 53 million uninsured citizens and to address the catastrophic expenditures that bankrupted an es-

## Rwanda turns the tide

A case study by the International Health Partnership and related initiatives (IHP+) in conjunction with the Partnership for Maternal, Child and Newborn Health said that Rwanda has achieved remarkable outcomes in health service delivery. Immunization rates, at 95% in 2008, are among the highest in sub-Saharan Africa. Use of insecticide-treated bed nets increased from 4% to 67% of the population between 2004 and 2007 and malaria incidence fell. The proportion of assisted-birth deliveries increased from 39% to 52% between 2005 and 2007. Use of family planning rose almost threefold, from 10 to 27% in the same period – a rate of increase unmatched in any other country. HIV prevalence stabilized at 3%, fertility fell from 6.1 to 5.5 children per woman, and child mortality decreased by more than 30% since 2005.

As a result, Rwanda is on track to reach all the health MDGs even before 2015, the report said.

“On primary health care and maternal mortality, Rwanda is probably doing better than any country in history,” said Dr Josh Ruxin, assistant clinical professor of public health at Columbia University’s Mailman School of Public Health. Ruxin, who has spent five years in Rwanda, described the results as “just amazing.”

IHP+ said Rwanda’s success was based on three innovative service delivery approaches: community-based health insurance, decentralization and autonomy for health care services and performance-based clinic financing.

Rwanda scaled up access to community-based health insurance from 7% to 85% of the population between 2002 and 2008, according to official figures, thanks to a mutual insurance scheme called Les Mutuelles. This was based on a mixture of government financing and individual payments of US\$ 2 per year.

“It is refreshing for a very poor country to teach its citizens that health is something you have to pay for and not take for granted, and Rwanda is progressive in making that happen,” Ruxin said. But he cautioned that the burden of paying US\$ 2 is too much for many Rwandans and that the fee is not based on capacity to pay.

In 2005 the Global Fund to Fight AIDS, TB and Malaria awarded a US\$ 33.4 million grant to Rwanda to improve financial accessibility to health care and improve the quality of health care delivery. It said the funds should also be used to finance or co-finance health insurance membership fees for the poor and provide technical assistance to the insurance providers. It is now paying the insurance contributions of 1.5 million Rwandans.

For further info: International Health Partnership and related initiatives:

**[www.internationalhealthpartnership.net](http://www.internationalhealthpartnership.net)**

estimated 3 million Mexicans a year. The nation hopes to achieve universal coverage by the end of this year. The Seguro Popular scheme, pioneered by former health minister Dr Julio Frenk, provides access to a package of 255 health interventions responsible for 90% of visits to public outpatient units and general hospitals, and for 18 more costly interventions.

The Seguro Popular complements two other public insurance schemes. It is voluntary and financed by the federal and state governments as well as by contributions from families. These contributions are tied to income levels and range from US\$ 60 to US\$ 950; poor families do not contribute. Mexico’s public health system still faces huge challenges, mainly because of the upsurge in noncommunicable diseases, but public resources for health have increased and are being distributed more fairly.

For most disease endemic countries in Africa, it is clear that a large injection of external funding is needed to advance universal coverage. However, it is vital for low- and middle-income countries to make their own investments

in health systems to ensure long-term sustainability, according to the Global Forum’s Mbewu. “Donor funding is time-limited. Diseases are not.” ■

– Reported and written by Clare Nullis

- 1 Systems thinking for health systems strengthening: [www.who.int/alliance-hpsr/systemsthinking/en/index.html](http://www.who.int/alliance-hpsr/systemsthinking/en/index.html)
- 2 Community-directed interventions for major health problems in Africa. [www.who.int/tdr/svc/publications/tdr-research-publications/community-directed-interventions-health-problems](http://www.who.int/tdr/svc/publications/tdr-research-publications/community-directed-interventions-health-problems)
- 3 [www.internationalhealthpartnership.net/en/taskforce](http://www.internationalhealthpartnership.net/en/taskforce)
- 4 Carrin G et al. “Universal coverage of health services: tailoring its implementation.” *Bulletin of the World Health Organization*, 2008, 86(11); 817-908. [www.who.int/bulletin/volumes/86/11/07-049387/en/index.html](http://www.who.int/bulletin/volumes/86/11/07-049387/en/index.html)

Further info: [www.hsr-symposium.org](http://www.hsr-symposium.org)

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Research think tank in action

# Global report for research on infectious diseases of poverty

Momentum is gathering towards a major TDR report on the status of research into infectious diseases of poverty that is scheduled for launch in 2011. Eminent international opinion leaders have been invited to be co-authors and a research think tank of 125 networked experts is taking shape. The Rockefeller Foundation's prestigious Bellagio Conference Centre in Italy also has agreed to host a key production meeting.

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The *Global report for research on infectious diseases of poverty* will be the first in a series setting out high-level research priorities for action. This report will draw on analyses of research gaps and opportunities, and will discuss disease control challenges as well as the current funding landscape.

As a central product of TDR's Stewardship function, the report will provide a common resource for key stakeholders internationally, especially decision-makers in countries affected by the diseases of poverty, to inform agenda-setting and new initiatives. The goal is to provide much needed evidence-based information to clarify where increased action and investments might make a difference in advancing research towards public health impacts.

Disease-specific and Thematic Reference Groups (DRGs/TRGs)	
1	<b>DRG1 Malaria:</b> WHO African Regional Office (AFRO), Republic of Congo <b>Chair:</b> Professor Pedro Alonso, Spain
2	<b>DRG2 Tuberculosis, leprosy and buruli ulcer:</b> WHO country office (WCO), Philippines <b>Chair:</b> Professor Gavin Churchyard, South Africa <b>Co-chair:</b> Dr Charles Yu, Philippines
3	<b>DRG3 Chagas disease, human African trypanosomiasis &amp; leishmaniasis:</b> WCO, Sudan and Brazil <b>Chair:</b> Professor Ken Stewart, United States of America <b>Co-chair:</b> Professor Maowia Mukthar, Sudan

4	<b>DRG4 Helminth infections, including onchocerciasis, filariasis, schistosomiasis and soil-transmitted helminths:</b> African Programme for Onchocerciasis Control (APOC), Burkina Faso <b>Chair:</b> Professor Sarah Lustigman, USA <b>Co-chair:</b> Dr Boakye Boatin, Ghana
5	<b>DRG5 Dengue and other emerging viral diseases of public health importance: WCO, Cuba</b> <b>Chair:</b> Professor Jeremy Farrar, United Kingdom <b>Co-chair:</b> Dr Maria Guadalupe Guzman, Cuba
6	<b>DRG6 Zoonoses and marginalised infectious diseases:</b> WHO Eastern Mediterranean Office (EMRO), Egypt <b>Chair:</b> Professor David Molyneux, United Kingdom <b>Co-chair:</b> Dr Zuhair Hallaj, Syria
7	<b>TRG1 Social sciences and gender:</b> WCO, Ghana <b>Chair:</b> Professor Barbara McPake, United Kingdom <b>Co-chair:</b> Dr Margaret Gyapong, Ghana
8	<b>TRG2 Innovation and biotechnology platforms for health interventions:</b> WCO, Thailand <b>Chair:</b> Professor Yongyuth Yuthavong, Thailand <b>Co-chair:</b> Professor Simon Croft, United Kingdom
9	<b>TRG3 Health systems and implementation research:</b> WCO, Nigeria <b>Chair:</b> Dr Miguel A Gonzalez-Block, Mexico <b>Co-chair:</b> Professor Olayiwola Erinosh, Nigeria <b>Co-chair:</b> Dr Charles D Collins, United Kingdom
10	<b>TRG4 Environment, agriculture and infectious diseases:</b> WCO, China <b>Chair:</b> Professor Anthony McMichael, Australia <b>Co-chair:</b> Professor Xiao-Nong Zhou, China

The *Global report* will build on the analytical framework provided by a network of ten international reference groups focusing on both disease-specific and cross-cutting issues. Collectively these represent a research think tank of 125 experts who are reviewing the current status of research and the principal disease control challenges while thinking creatively about priorities and potential ways forward.

A fundamental feature of this process is an emphasis on strong involvement in the reference groups of experts and institutes from disease endemic countries. Broad-based national and regional consultations also draw on the knowledge and perspectives of a wide network of stakeholders. The promotion of a stronger role by decision-makers in disease endemic countries in determining relevant health research agendas and overcoming current disparities in agenda-setting are important objectives of the report.

A regional consultation to gather input, share experiences and identify opportunities for further support of research and its use for policy development was held in Burkina Faso in April, and others are planned in Panama and Thailand in May and June. A national consultation also took place in Brazil in March, following consultations last year in China, Cuba, Ghana, Laos and Nigeria.

The *Global report* will have three major themes: environmental influences on infectious diseases, including climate change; health delivery systems for universal coverage; and the potential of new technologies and innovation. The thematic structure was recommended to enable a “big picture” integrative view of the research landscape and factors controlling the impact of these devastating diseases, going beyond lists of disease-specific priorities.

There also will be a chapter focused on the R&D funding landscape, with an overview of global funding trends and major initiatives to highlight gaps and opportunities as well as data on ongoing initiatives, research, initiatives and capacities in disease endemic countries. This will be the first global report to show which developing countries are funding research. This information is intended to help involve decision-makers in disease endemic countries identify priorities and commit to funding research.

The *Global report* will end with an “options for action” chapter that will spell out recommended research priorities that include international, national and regional perspectives, as well as strategies and frameworks for action.

Three meetings are planned to bring together the authors with the chairs and co-chairs of the expert reference groups to review and finalize the *Global report* and expert reference group reports. The Rockefeller Foundation has offered use of its Bellagio Center in Italy, site of many ground-breaking and innovative events, for one meeting in the autumn of 2010. ■

## Key chapters

### OVERVIEW of drivers, determinants and control challenges

- Epidemiology: life expectancy trends
- Overview of global poverty: poverty/disease interactions
- Value of research
- MDGs and other frameworks for action and targets
- Regional issues

### THEME I. Environment, climate change and implications for infectious diseases of poverty

- Environmental drivers including climate change, urbanisation, migration, conflict, agricultural, ecological and equity issues.

### THEME II. Health delivery systems for universal coverage: options for control of infectious diseases of poverty

- Research into ‘scaling up’ interventions; public & private health sectors, community directed interventions; social, economic, education, equity & access issues.

### THEME III. Innovation and new technologies to meet the challenges of infectious diseases of poverty

- Innovation of new products and strategies; product development architecture for tools relevant to resource-poor settings.

### R&D funding landscape

- Overview of global funding trends and major initiatives, highlighting gaps, duplication, inefficiencies and opportunities for synergies.
- Disease endemic countries’ data on ongoing research and initiatives, and research capacity.

### Options for action

- Key messages, research priorities (including regional) and capacity needs.
- Economic, social, development, political, regional perspectives
- Strategies for increasing funds & stimulating relevant research
- Strategic frameworks and partnerships, forums for action
- Expectations on progress and measures of success.

# The world of TropiKA.net

TropiKA.net is a knowledge platform that aims to foster innovation and knowledge application relating to the infectious diseases of poverty. An increasing number of people are reading our steadily expanding range of new content.

## Selections from recent TropiKA.net web news

**During 2009, the website received growing recognition for providing access to knowledge and dialogue among stakeholders involved in research on infectious diseases of poverty.**

Access from disease endemic countries has increased (40% of all visits) but is still lower than the number of visits from developed countries. Nevertheless, five disease endemic countries (India, Brazil, Philippines, Kenya and South Africa) were among the top ten users in 2009.

The second half of 2009 recorded a spectacular rise in the number of visitors, particularly from developing countries, and in the number of pages viewed. This coincided with the creation of special knowledge hubs for key scientific conferences around the world, offering researchers unable to attend the meetings a platform for debate.

Through research summaries, news stories and blogs, TropiKA.net seeks to put the spotlight on neglected diseases. Most recently, these have included chikungunya, trachoma and leprosy. Our goal for 2010 and beyond is to become a "one-stop shop" for researchers and policy-makers working against infectious diseases of poverty. ■

### From the journals

TropiKA.net has written summaries of and commentaries on nearly 500 academic articles of particular importance to infectious diseases of poverty. Recent examples have included a trial in Ghana that showed early diagnosis of Buruli ulcer allows it to be treated with antibiotics without the need for surgery. A trial in India found that a single infusion of the drug amphotericin B can cure visceral leishmaniasis. And a study in Tanzania concluded that the introduction of rapid diagnostic tests (RDTs) for malaria can reduce overall drug and diagnostic costs by some 10%-15%.

Not all research findings are so encouraging. Another Tanzanian study found that only a minority of pregnant women made use of insecticide-treated bednets they received in a distribution programme, and the poorest women were the least likely to use a net.

Reviews have included an article examining potential dengue vaccines now under development and another exploring why men are more likely than women to be diagnosed with tuberculosis. ■

UNDP



### Focus on climate and natural disasters

When Copenhagen hosted one of the biggest climate change meetings ever in December 2009, TropiKA.net ran a blog during the meeting. An editorial published before the conference asked "where is health on the climate change agenda?" and expressed concern that health-related adaptation to climate change is seen as a low priority. It also published a review examining the relationship between climate change and infectious diseases.

Disease control has been one of Haiti's biggest concerns since its recent devastating earthquake. An editorial discussed challenges the country will face: "It seems inevitable that efforts to control the infectious diseases of poverty in the poorest country in the Americas will suffer a severe setback." ■

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## TropiKA.net vital statistics

- 7500 visits per month, a 178% increase from 2008
- 97 482 visitors from 175 countries since its launch in November 2007, with 73 948 visitors in 2009
- Visits from disease endemic countries increased threefold
- Knowledge hubs were implemented at five 2009 scientific forums
- Over 995 new items were added to the website to keep it up-to-date with scientific advances in research
- Five disease endemic countries – India, Brazil, Philippines, Kenya and South Africa – are among the ten top users



## Interviews with experts

Each month TropIKA.net journalists interview key researchers, both leaders in their field and rising stars. Here are our latest:

- **Professor Fred Binka (1)**, dean of the School of Public Health at the University of Ghana.
- **Professor Kelly Chibale (2)**, drug discovery researcher at the University of Cape Town, South Africa
- **Professor Tony McMichael (3)**, expert on climate change and infectious disease, at the National Centre for Epidemiology and Population Health, Australia
- **Dr Justin Remais (4)**, director of the Global Environmental Health Program at Emory University's Rollins School of Public Health, USA
- **Dr Stephen Hoffman (5)**, founder and CEO of Sanaria, a US biotechnology company dedicated to producing malaria vaccine
- **Dr Christine Moe (6)**, environmental microbiologist and infectious disease epidemiologist at Emory University's Rollins School of Public Health, USA
- **Dr Laurence Slutsker (7)**, malaria branch chief at Centers for Disease Control, USA
- **Professor Roy Anderson (8)**, expert in theoretical epidemiology and mathematical modelling at Imperial College, London
- **Dr Ikram Guizani (9)**, head of the Epidemiology and Ecology of Parasitic Disease Laboratory at the Pasteur Institute of Tunisia and new international coordinator of the SouthSouth Initiative (SSI)

## Features

TropIKA.net regularly publishes news features on key topics. Since the end of 2009, these have included an in-depth look at whether the promise of mobile phones for health care delivery is likely to be fulfilled, the effect of climate change on vector-borne disease, why the battle against leprosy continues and progress on trachoma.

About 10 general news stories are published a month. Recent examples include a new report on strengthening pharmaceutical innovation in Africa, an "open-source science" project to improve synthesis of a schistosomiasis drug, US President Barack Obama's plans to increase support for global health that would double support to fight neglected diseases, and expanded support from the Gates Foundation.

### Partnerships with global health initiatives

Initiatives such as malERA (Malaria Eradication Research Agenda) are conducting their reviews of research priorities through the website. A full list can be found at <http://refgroups.tropika.net/chagas-hat-leish>

### The future

TropIKA.net is looking to develop further and to produce more original content, including infographics that combine text and graphics to give readers an overview at a glance. The first such infographics are on H1N1. It also will publish the first of its commissioned scoping reviews to identify gaps in fields of knowledge and to

pinpoint promising research areas.

There are plans to engage more junior researchers in regular journal clubs by presenting reports that can be commented on by members of other journals and by regular readers. An international editorial team of experts will provide a higher level of research content.

Readers can access more international health forums from the "knowledge hub" initiative which provides journalistic coverage by scientists. A hub is being established for the November 2010 First Global Symposium for Health Systems Research in Montreux, Switzerland. ■

<http://blog.tropika.net/>



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## Empowerment advances

# TDR broadens focus

Over the years, TDR has played a central role in building research capacity for infectious diseases of poverty. Its strategy is evolving from funding grants to individual researchers towards a wider vision of empowering them, the institutions in which they work and the health systems they serve.

There is currently no universally accepted framework for empowerment of health researchers in disease endemic countries (DECs). No framework addresses the equity of structures and systems, career development, country health research needs, synergy between and within countries, or the approaches to use to strengthen both institutions and national systems. TDR Empowerment Coordinator Dr Glenn Laverack is working to change that.

Before joining TDR in March 2009, Laverack was at Auckland University in New Zealand. Ever since, he has been laying the building blocks for TDR's vision of empowering health researchers from countries bearing the highest disease burden to take better control of health research and its governance.

To achieve this, Laverack said that TDR will broaden its focus. In the past, TDR concentrated on grants for individuals such as PhDs, fellowships and principal investigators; now it will support research that promotes national health research systems strengthening. The new approach was approved by TDR's Scientific and Technical Advisory Committee (STAC) at its 22-25 February meeting and is reflected in the strategic objectives of the new business plan for empowerment 2008-2013 to:

- support the development of health research leadership in DECs at all levels;
- strengthen the capacity of institutions in DECs to enhance the quality and relevance of health research outputs;
- strengthen the capacity of national research frameworks in DECs to provide an enabling environment for researchers on the infectious diseases of poverty;
- leverage the role of researchers, institutions and governments to gain a stronger position in health research globally.

"TDR is moving from an individualist model to a structuralist model," he said. "Empowerment in health research



*Dr Glenn Laverack joined TDR in March 2009 to lead the empowerment unit.*

WHO/TDR/Schwartz

is about structural change, essentially to address inequities between countries, within countries, in regard to gender, language, indigenous needs and the content and conduct of research. We want to facilitate the movement from individual action to research interest groups to organizational capacity, to partnerships, alliances and coalitions. At this stage health researchers have a strong enough participant and resource base to help bring about change in policy, legislation and social norms,"

he said. He cited leprosy, HIV and TB as examples of how changing societal norms can help to tackle the stigma associated with some of the infectious diseases of poverty.

"TDR's role is no longer as a perceived funder but as an enabler. We are enabling others to empower themselves. We are not going to address that easily by training individual health researchers. They get trained and they move away because they have no clear career path, resources or decision-making authority."

Laverack sees a need to tackle inequities in health research, both between countries and within countries. For instance, he said, research funding often goes to the same countries and institutions every year. And within countries, it is more likely that a strong urban institution researching HIV or TB will attract funding than a small rural unit in an area where visceral leishmaniasis is a localised but important health problem.

Most scientific and medical research is conducted in English, which puts researchers in French-, Spanish- and Portuguese-speaking countries at a disadvantage. Most grants go to biomedical rather than social science research, and more needs to be done to address that inequity.

Laverack said there are increasing opportunities for new regional and sub-regional networks and partnerships that can develop research-based mechanisms and solutions for regional needs.

## Myanmar grantee embodies TDR empowerment objective



Dr Saw Saw receives award at health research congress.

Myanmar public health professional Dr Saw Saw embodies TDR's empowerment objective of promoting health research leadership development in disease endemic countries. The TDR grantee seeks to maximize her research's usefulness and to share it as widely as possible: "I personally believe that the impact of research should not be measured by the number of articles published, but by its ability to influence policy, improve health services and ultimately lead to better health for people."

In January, Saw Saw won the Best Paper Award for Health Systems Research at Myanmar's Health Research Congress for a third consecutive year. The paper,

*Success and challenges of public-private mix (PPM) DOTS initiatives in Myanmar: a process evaluation*, was a collaborative project with Myanmar's national tuberculosis programme (NTP) and was funded by WHO.

Saw Saw first won the award in 2008 with research relating to her PhD thesis on referral of suspected tuberculosis (TB) patients from general practitioners' clinics to public TB centres. Her research examined the role of public-private partnerships in controlling TB in vulnerable low-income populations. Her PhD from the University of Melbourne, Australia, was supported by TDR funding and received the 2008 Melbourne School of Population Health's Excellence in Knowledge Transfer award for doctoral research.

In 2009 she received a TDR research capacity-strengthening grant as principal investigator in a utilization-focused evaluation project on strengthening township-level coordination for the PPM-DOTS strategy in a selected township.

As part of sharing her knowledge with junior and senior colleagues, she summarized her thesis findings into two-page flyers. As these are more user-friendly and easily distributed, they enhanced use of her research by NTP staff and private practitioners. She also supports programme managers by acting as co-investigator in operational research, assisting them in preparing manuscripts and presentations. In a country where internet access is uneven, Saw Saw built a TB library by obtaining hard copies of reports, as well as establishing a network of scientific contacts to offset constraints on attending international conferences.

Saw Saw now is a senior research scientist in the Department of Medical Research (Lower Myanmar), conducting health policy and services research and field supervision, training junior researchers and holding regular research methodology workshops. She teaches postgraduate students and provides technical assistance in social science methodology for laboratory and clinical researchers. She also is on the TB Scientific Group secretariat and initiates development of TB proposals, coordinating linkages between her Department of Medical Research and Myanmar's NTP.

"In the future, I would like to take the lead in research capacity-strengthening activities under the Ministry of Health. I would also like to focus more on equity-oriented research work at the grassroots level," she says. ■

His team is also working on leverage to help health researchers in disease endemic countries gain more control over research in their countries. Specifically, he seeks to equip institutions with the skills they need to negotiate fair legal contracts to enable more equal partnerships with research funders from higher-income countries.

"My vision is that by 2013, TDR will no longer only focus on individual researchers and institutions but will be actively involved in strengthening national health research systems," he said. TDR can only achieve this goal by developing new partnerships both within and outside the United Nations system. Steps to strengthen these partnerships have already begun.

"Many of these ideas are new in TDR. This year is the first year that TDR has a comprehensive empowerment

approach, endorsed by its STAC. This is a bold move and one that will require additional resources and a sustained commitment. But it will set TDR apart from other funding agencies who continue to focus only on capacity building and will provide a model for the future that others can emulate. Now TDR has the remit to go out there and engage in empowerment, to build capacity but to also move toward social and political changes in favour of health researchers in disease endemic countries," said Laverack. ■

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## Quality management

# Research needs quality management system

Even the most ambitious clinical trials can unravel without rigorous quality controls. Strategic quality management is central to TDR's quest to increase developing countries' capacity to produce research needed to fight the infectious diseases of poverty.

The regulatory framework for clinical trials has changed in recent years with the addition of rigorous controls to ensure patient safety and data reliability. As the disease burden increased, there has also been a geographical shift, with increasing numbers of clinical trials being conducted in populations from Asia and Africa. TDR is therefore expanding its efforts to support strategic quality management in its partner clinical research institutions and in clinical coordination and training centres in disease endemic countries (DECs).

Until now, quality management was often fragmented. For instance, there was a quality check at the start of a new research project in the grant selection process, and another at the end through peer review publications. But during the balance of the research process, quality management was frequently left to researchers and their institutions.

“There is a clear need to implement the principles of strategic quality management in health research to prevent failure, maximize the utilization of available resources and ensure consistency and credibility of results,” according to Dr Juntra Karbwang, head of TDR's new Strategic Quality Management (SQM) unit, which is accountable for the quality of TDR-supported studies. The activities include developing the necessary quality management tools and procedures, and providing training on good practices in TDR-supported research, as well as helping regional clinical coordination and training centres in disease endemic countries to develop their own quality management systems. In addition, SQM provides accountability for the quality and effectiveness of clinical laboratories and clinical monitors through GCLP and clinical monitor recognition programmes, respectively.

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### Emphasis on ethics

As part of its Strategic Quality Management efforts, TDR is seeking to strengthen the Strategic Initiative for Developing Capacity in Ethical Review (SIDCER). This programme helps build in-country human subject protection programmes and provides accountability for the quality and effectiveness of ethical reviews worldwide. It is based on a partnership model that fosters a grassroots approach and emphasizes valuing local knowledge and cultural understanding.

A three-year certificate of recognition is issued to ethics committees meeting five standards:

- The committees' structure, composition and skills must be appropriate to the amount and nature of research reviewed.
- Management and operational procedures must ensure optimal and systematic conduct of ethical review.
- Review of protocols and supporting documents must be timely and complete.
- Decisions must be effectively and adequately communicated to investigators.
- Documents and activities must be systematically archived.

In Asia, about 53 ethics committees have been recognized by the Forum for Ethical Review Committees in Asia and the Western Pacific and two in the Pan-African Bioethics Initiative. Other regional fora serving this function include the Forum for Ethics Committees in the Confederation of Independent States and the Latin American Forum of Health Committees in Ethics Research. ■



## Good Clinical Practice

To ensure compliance with international scientific and ethics guidelines at the research site level, TDR also is training Good Clinical Practice site monitors. In February, Karbwang led a monitor training session at the Armauer Hansen Research Institute in Addis Ababa, Ethiopia, to help build a quality management system there.

Even the most ambitious clinical trial can unravel if it has one weak link. The SQM unit's responsibilities thus include monitoring and quality assurance for major TDR trials to ensure the quality of every aspect of clinical trial conduct. Capacity for monitoring is usually very limited in disease endemic countries. Therefore the training and supervision of the TDR local monitors who are responsible for on-site monitoring is of critical importance.

The SQM unit's Christine Halleux seeks to improve the competence of clinical monitors to prevent, detect and correct any deviations during clinical trials' execution phase and to continuously improve their monitoring processes to ensure that quality is built into clinical trials from the start.

## Auditing trials

Auditing is another quality management system process being routinely implemented in trials involving many patients, particularly trials with potentially large impacts on patients' lives.

One such example is the trial on safety and efficacy of fixed-dose TB treatment (combining multiple drugs into a single pill) compared with loose TB drug formulations. The trial, which involves 1000 Nigerian and Ethiopian patients, has been audited to improve the quality processes of the study, and manage them properly to ensure the integrity and credibility of the data. Another example is the TB-HAART (highly active antiretroviral treatment) trial currently ongoing in four sub-Saharan African countries. This trial will involve 1800 patients and aims to elicit the survival benefit of early concomitant TB and HIV treatments compared with delayed treatment among HIV-infected TB patients. The trial has hit the halfway point for enrolment and it is hoped that by late 2010 researchers should be able to generate preliminary findings that can support policy recommendations. To do that, every aspect of the trial must conform to rigorous quality standards.

## Good Clinical Laboratory Practice

Integral to quality management is adherence to Good Clinical Practice (GCP), an international ethical and scientific quality standard for designing, conducting and reporting trials involving human subjects. More recently, Good Clinical Laboratory Practice (GCLP) standards have also been established.

WHO/TDR's Good Clinical Laboratory Practice Guidelines are based on those drawn up in 2003 by the British Association of Research Quality Assurance (BARQA). The guidelines help ensure that the laboratory has the



Participants at TDR's training course for GCLP surveyors.

WHO/TDR/Karbwang

systems in place to generate reliable and valid data in the course of a trial. They set a standard of good practices – which means that laboratories involved in analysis of samples from TDR-supported clinical trials should at least comply with these requirements, if not surpass them.

"It's a very important initiative, because in the past it was rare for laboratories in Africa to be implementing consistent quality standards," said Mihut. TDR's first GCLP training session for laboratory surveyors took place in March with four participants from Africa and three from Asia. They are now expected to implement GCLP principles and standards in their laboratories and to spread the GCLP culture as far as possible. In addition, these trainees will be asked to assist in assessing laboratories that support TDR research.

TDR is developing a GCLP recognition scheme in which TDR surveyors will visit selected laboratories and recognize those meeting quality criteria. This will benefit all parties, as TDR and its partners can be confident that recognized laboratories are reliable and fulfil quality standards, while the laboratories will effectively be given a quality benchmark that will aid them in seeking research funding.

"We need all the links in the chain to be in place. Our colleagues in the training unit have trained the laboratories on GCLP and now we are training the surveyors who can audit the laboratories," Mihut said.

"It is very important. Laboratories without quality systems have two major failings. It is more difficult to prove the validity of analytical data, and at the same time they are usually less efficient by having to redo a lot of their tests. That is called the cost of poor quality," Mihut said. ■

Further info: [www.who.int/tdr/publications/tdr-research-publications/gclp-web/pdf/gclp-web.pdf](http://www.who.int/tdr/publications/tdr-research-publications/gclp-web/pdf/gclp-web.pdf)

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# On the move with innovation

This year's theme for World TB Day on 24 March was *On the move against tuberculosis: innovate to accelerate action*. As the campaign focused on individuals who introduced innovations and inspired others, *TDRnews* profiles Dr Lovett Lawson of Nigeria's Stop TB Partnership, who also is a valued collaborator in TDR trials and chief medical director of Zankli Medical Centre in Abuja.

Lawson describes his research laboratory as a "passion" that complements his principal assignment of running a 40-bed medical centre. He established the laboratory in 2003, aiming to produce world-class research.

He has proved his point. The laboratory is now key to a number of tuberculosis (TB) studies conducted by TDR, the Centers for Disease Control and Prevention of the United States of America (CDC) and others.

"Our laboratory is now recognized," Lawson said recently. "We have requests from researchers to partner with us. I believe very much in accountability, as this evokes trust in the funding partners."

TDR is using the Zankli Research Laboratory for mycobacterial culture and drug sensitivity testing for its ongoing trial aimed at generating evidence on safety and efficacy of a four-drug fixed-dose combination therapy (4FDC) compared with the loose or single-dosed anti-TB pill. The DOTS strategy (the acronym comes from directly observed treatment, short-course) uses 4FDC



Doctor Lovett Lawson: passionate about research.

therapy, which involves one combination pill a day compared to the four pills often required in loose-dose regimes. This ensures that all four recommended TB drugs are indeed used.

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## WHO report says drug-resistant TB rising

WHO's *Multidrug and Extensively Drug-Resistant Tuberculosis: 2010 Global Report on Surveillance and Response* estimated that 440 000 people had MDR-TB worldwide in 2008 and that a third of them died. Almost 50% of MDR-TB cases worldwide are estimated to occur in China and India. No official estimates have been made on the number of XDR-TB cases, but there may be around 25 000 a year, with most of them fatal, it said.

These forms of TB do not respond to the standard six-month treatment with first-line anti-TB drugs and can take up to two years or more to treat with drugs that are less potent, more toxic and much more expensive.

The report, which coincided with World TB Day, said only an estimated 7% of all MDR-TB patients are diagnosed. There is an urgent need to improve laboratory facilities and expand and accelerate access to new, rapid technologies that can diagnose MDR-TB in two days rather than traditional methods which can take up to four months, it said.

In Africa, there is a low percentage of MDR-TB reported among new TB cases compared with regions such as Eastern Europe and Central Asia, due in part to the limited laboratory capacity to conduct drug resistance surveys. Latest estimates of WHO put the number of MDR-TB cases emerging in 2008 in Africa at 69 000.

Since 1994, only 59% of all countries globally have been able to collect high-quality representative data on drug resistance. There is an urgent need to obtain information, particularly from Africa and those high MDR-TB burden countries where data have never been reported: Bangladesh, Belarus, Kyrgyzstan, Pakistan and Nigeria. Countries need to expand the scope of their surveys to cover entire populations, repeat surveys are needed to better understand trends in drug resistance and countries need to move towards adopting systematic continuous surveillance, it said. In 2008 there were an estimated 9.4 million new TB cases. ■

**Further info:** [http://whqlibdoc.who.int/publications/2010/9789241599191\\_eng.pdf](http://whqlibdoc.who.int/publications/2010/9789241599191_eng.pdf)

## Progress against TB hampered by lack of funding

Halfway through the 2006-2015 Global Plan to Stop TB, lack of funding is thwarting the campaign against a disease which kills nearly two million people a year. The Global Plan calls for commitments of US\$ 1.1 billion for TB research in 2010, but the Stop TB Partnership says less than half of this is available.

In a March 2010 report, the Treatment Action Group said the top 71 reporting organizations invested a total of US\$ 492 million in TB R&D in 2008. This was 4% higher than the previous year, thanks to an increase in funding from the Bill & Melinda Gates Foundation and other donors.

Investment in basic science decreased from 24% of TB R&D investment in 2007 to 19% (US\$ 99 million) in 2008 as publicly funded institutions coped with global economic uncertainty. Diagnostics research continued to be underfunded, with just US\$ 50 million addressing this need in 2008.

TB drug development received the greatest investment, 35% of the total. Two innovative drugs are advancing into phase 2 studies to treat drug-resistant TB and phase 3 studies also continue on shortening treatment with first-line therapy using fluoroquinolones. "However, current infrastructure remains grossly insufficient to carry out further phase 3 and postmarketing studies of new TB drugs," the Treatment Action Group said. Emerging economies with a high TB burden such as Brazil, China, India, South Africa and South Korea made significant and growing contributions to R&D, it said. ■

**Further info:** [www.stoptb.org](http://www.stoptb.org) and [www.treatmentactiongroup.org](http://www.treatmentactiongroup.org)

Treatment with all four drugs in combination also is presumed to reduce the risk of bacterial resistance to any particular drug in patient populations. By simplifying treatment, fixed-dose combination therapies also should improve overall compliance with TB treatment, which can take six to eight months to complete. Yet there has been virtually no systematic study of these assumptions, especially in TB and HIV high-burden settings. The TDR study attempts to create an evidence base about these benefits, as well as any possible drawbacks, of 4FDC therapies.

The Zankli research laboratory also played a key role in TDR trials into low-cost light-emitting diode (LED) adaptors for microscopes to make smear diagnosis easier, and into "front-loaded" microscopy to speed diagnosis. Front-loading means that two sputum smears are collected and analysed on the same day, as opposed to the current norm of patients having to return to clinics over a two- or three-day period for successive smears. Largely as a result of the TDR trials, WHO is expected to endorse the use of LED fluorescence microscopy and front-loaded sputum specimen collection in the near future.

Lawson hopes the outcome will have a tangible and practical benefit for TB patients, who are often poor and live far from health centres and so are unable to make multiple visits for diagnosis.

"It will make a big difference," Lawson predicted. "From practical experience we know that the number of patients who drop out is very high. Anything that will allow for diagnosis to be made and treatment commenced within a day will be helpful."

Dr Andy Ramsay, a TDR scientist involved in the trials, says that the high standards of good laboratory practice and Lawson's hands-on approach as principal investigator were key to the trials' success. "We couldn't have done it without him," Ramsay said.

Although the medical centre is private, the research laboratory is non-profit. It collects sputum samples on a daily basis and provides free microscopy and culture services to government hospitals that lack such facilities. Lawson helped set up the DOTS programme in Abuja in 2003, and has since maintained a close relationship with the National TB and Leprosy Control Programme through the private-public mix DOTS programme.

The laboratory was involved in a large TB-micronutrient clinical trial that screened over 1300 suspected TB patients within a year. It has collaborated with Nigeria's National Institute for Pharmaceutical Research Development and Institute of Human Virology, and continues to collaborate closely with the Liverpool School of Tropical Medicine and Michigan State University.

The laboratory is one of three sites involved in a CDC-sponsored national survey into multidrug-resistant tuberculosis (MDR-TB) in Nigeria, which has little reliable information on the extent of the problem. As much work remains to be done on MDR-TB diagnosis and treatment, Lawson termed the country's attempts to obtain approved second-line drugs for its treatment "a welcomed development."

Lawson is passionate about improving training standards to better equip Nigeria to cope with serious diseases. To this end, he set up the Succour Foundation in 2008 to aid patients suffering from TB, HIV and malaria. ■

For further info: <http://www.zankli.com>

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# African innovation network receives EU support

Implementation of the strategic business plan for the African Network for Drugs and Diagnostics Innovation (ANDI) is closer to realization thanks to a European Union grant. The African Ministerial Conference on Science and Technology said the new network would make an important contribution to innovation on the African continent.

ANDI aims to support and promote research by African institutions for new drugs and diagnostics to address the diseases most affecting Africans. A stakeholders' meeting in Cape Town last year endorsed a business plan for the network.

The initiative has been given a major boost by an EU donation of 5 million Euros over 30 months to help set up ANDI and lay the foundations for similar regional networks in Asia and Latin America. The funds will be used to help establish a functional organization in Africa with a central office that will oversee a decentralized structure of sub-regional hubs. Work is ongoing with the African Development Bank and other partners to take the initiative forward. The process of selecting an institutional host of the secretariat and sub-regional hubs has started and the outcome will be announced at the 3<sup>rd</sup> stakeholders meeting in Nairobi in October 2010.

Funds are needed to enable a target budget of US\$ 30 million by ANDI's fifth year of operation, possibly backed by an endowment fund of US\$ 600 million.

In an important development, the 4th African Ministerial Conference on Science and Technology also threw its support behind ANDI. The biennial ministerial conference 7-10 March in Cairo welcomed ANDI and its "anticipated contribution to the science, technology and innovation sector by building on existing infrastructure and expertise within Africa."

Effective drugs, vaccines and diagnostics are fundamental to tackling the diseases that disproportionately affect the African continent.

However, they are often in short supply or out of reach for the poor in many disease endemic countries. Most of the innovation and intellectual property is generated in developed countries.

The rationale behind ANDI is therefore to scale up African-led research aimed at discovering and developing

new and improved tools to address these diseases, and to ensure sustainable access to these interventions.

An ANDI task force set up last year to develop a strategic business plan estimated that there needs to be an additional US\$ 2.4 billion investment in R&D for health products for Africa just to reach the median of global expenditures. Africa bears a disproportionate 25% of the global disease burden with only 15% of the world's population.

A TDR-supported analysis in 2008 and 2009 of African R&D efforts underlined the fragmented nature of existing initiatives. Most African-based researchers are better linked with Europe and North America than with Africa, with less than 5% of research collaborations being within Africa. ANDI will stimulate intra-African links to enhance local leadership, ownership and sustainability of African R&D. It also will facilitate networks, IT infrastructure development and intellectual property rights management.

The need for new innovation networks such as ANDI was also stressed at a 18-20 February meeting in Pretoria of the African Union's extended technical committee on the Pharmaceutical Manufacturing Plan for Africa, supported by the New Partnership for Africa's Development and the Council on Health Research for Development.

Meeting participants agreed that capacity building is vital to strengthening pharmaceutical innovation, and recommended building skills and capacities in areas such as medicines regulation, intellectual property, research collaboration and cooperation, research and business management and policy-making. |

For further info on ANDI:

[www.who.int/tdr/svc/partnerships/initiatives/andi](http://www.who.int/tdr/svc/partnerships/initiatives/andi)  
Mboya-Okeyo T, Ridley RG and Nwaka S (2009) *Lancet* 373, 1507-1508,

Nairobi meeting registration link:

[www.amiando.com/ANDI\\_registration.html](http://www.amiando.com/ANDI_registration.html)

For further info on the Pharmaceutical Manufacturing Plan for Africa: [www.nepad.org](http://www.nepad.org) and [http://www.cohred.org/African\\_Innovation](http://www.cohred.org/African_Innovation)

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# Africa-Brazil research network

A new Africa-Brazil health research network has been set up to share research and experience on neglected tropical diseases, to promote South-South collaboration and to take action towards achieving the Millennium Development Goals (MDGs).

The Ghana Health Service and the Noguchi Memorial Institute for Medical Research at the University of Ghana hosted the inaugural 11-14 February meeting in Accra. TDR supported the meeting in conjunction with Brazil's Oswaldo Cruz Institute of the Fundacio Oswaldo Cruz (FIOCRUZ) as part of its stewardship strategy to foster research networks and start research initiatives.

The network initially will link Angola, Brazil, Ghana, Nigeria and Mozambique, but aims to expand membership in line with TDR's commitment to South-South collaboration.

The new network's overall goal is to develop a framework for collaboration between researchers and institutions in Africa and Brazil, and to find ways to apply research findings to fight infectious diseases of poverty.

A joint task force has set the end of May as its deadline to develop a governance structure and to finalize the project document and a proposal on mapping health research activities in African countries. It also plans to identify postgraduate students to nominate for programmes in 2010 and to develop other funding proposals for submission to a cooperation programme run by Brazil's National Research Council, PRO-AFRICA.

## Innovative research

FIOCRUZ Vice President Professor Claude Pirmez told the meeting that Brazil's collaboration with African countries used to be based on structural cooperation in health, with an emphasis on capacity building. The focus has since changed to creating centres in Africa for local training, especially in science and information technology.

Brazil offers funding opportunities for innovative research, FIOCRUZ Belo Horizonte Director Professor Rodrigo Correa-Oliveira said. Bilateral and multilateral agreements in Brazil's portfolio include PRO-AFRICA and More Health, a programme of the health ministry and International Cooperation in Health. He cited the Mozambique-Brazil partnership as an example of what is feasible under these schemes.

Brazil has traditionally fostered research and trained students from Portuguese-speaking African countries, but it is now reaching out to other African countries. For instance, it has agreed with Ghana's health ministry to support a sickle-cell programme in the city of Kumasi.

Dr Elias Sory, director-general of Ghana's Health Service, told the meeting that the ministry of health is willing to



*First meeting of Africa-Brazil health research network.*

commit funds for research. He also stressed the importance of local training of scientists to build the critical mass necessary to achieve the Millenium Development Goals.

"Brazil placed great emphasis on science and technology to achieve rapid development, and African countries have the potential to do the same," said TDR Stewardship coordinator Dr Ayoade Oduola. "The Africa-Brazil research collaboration is an important innovative network which is potentially mutually beneficial."

## Needs and priorities

Meeting participants proposed a number of activities. In the short term, a mapping exercise to assist in identifying national expertise, priorities and challenges/needs should be carried out, and researchers should have opportunities to find partners with some match-making help from the initiative.

In the medium term, the network will establish a governance structure to direct initiatives. The activities will target small to medium-sized collaborative projects with the aim of developing large-scale projects for submission to international donors.

In the long term, the best junior scientists would be provided with facilities to enable them to conduct research targeting national needs. A career development pipeline would extend from basic science teaching to postgraduate and postdoctoral exchanges and collaboration opportunities. This pipeline is to be established as part of an over-arching effort to develop a critical mass of researchers in various fields. |

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# TDR's Shanghai agenda

The Chinese Center for Disease Control and Prevention (China CDC) and TDR are organizing a 13 June symposium in Shanghai focusing on past experiences and future action against infectious diseases of poverty. The symposium precedes the annual meeting of TDR's top governing body, the Joint Coordinating Board (JCB).

Dr Chen Zhu, China's health minister, will deliver a keynote address to the JCB. This speech is expected to set the tone for the 14-16 June meeting, which will address TDR's strategy to help disease endemic countries play bigger roles in priority-setting to ensure that research is sustainable and relevant to their needs.

This is in line with growing international commitment to support developing country governments in formulating and implementing their own national development plans according to their own priorities, as reflected in the 2005 Paris Declaration on Aid Effectiveness and the ensuing 2008 Accra Agenda for Action. The meeting will also look at TDR's role in speeding progress towards the health-related Millennium Development Goals.

Every other year, the JCB meets in a country where TDR has worked so that members see the impact of their support. TDR has a strong history of engagement with Chinese institutions and scientists.

TDR first became involved with China in 1979 and has funded 445 research projects in different institutions around the country. These projects encompass research on the main diseases affecting China such as malaria and schistosomiasis; training grants for scientists and for institutional capacity strengthening; community-directed interventions; drugs development; and diagnostics and research on other various infectious diseases of poverty including visceral leishmaniasis, leprosy and tuberculosis.

The symposium preceding the JCB will be hosted by the China CDC's National Institute of Parasitic Diseases, which is commemorating its 60th anniversary. The symposium will focus on past and current achievements and future challenges in combating infectious diseases in China, which has laid great emphasis on promoting health as a tool to reduce poverty and improve living standards.

Cooperation between China and Africa in tackling disease on the African continent will be the symposium's second major theme. China's vast health research experience and expertise could contribute enormously to empowering African research institutions.

"TDR and the Chinese government are well placed to be partners in promoting a strong and equitably based research agenda for Africa," TDR Director Dr Robert Ridley said. "TDR support for development of African research is in line with Chinese goals to assist Africa. And Chinese institutions could draw on TDR's extensive networks within Africa to identify opportunities for direct bilateral support and development of Chinese-African partnerships."

Keynote speakers invited to the symposium include Dr Wang Yu, China CDC director-general; Dr Hao Yang, deputy director-general of the Chinese health ministry's Bureau of Disease Control; Professor Tang Linhua, director of the National Institute of Parasitic Diseases; Dr Ren Minghui, director-general of the Department of International Cooperation at the Chinese health ministry; and Professor Peter Ndumbe, outgoing chairman of TDR's Scientific and Technical Advisory Committee and Dean of the Faculty of Health Sciences at the University of Buea, Cameroon.





## Pannenberg retires from World Bank



Dr Ok Pannenberg has retired from his position as senior health advisor at the World Bank. For the past decade he was a staunch advocate of TDR and made an invaluable contribution to its operations. He was a member of the Joint Coordinating Board and of the Standing Committee, which oversees the management and financing of TDR and comprises the four co-sponsors – UNICEF, UNDP, the World Bank and WHO.

TDR must strengthen its strategic alliances with a wider network of partners to ensure that it can compete in an increasingly crowded playing field and to ensure that its

research priorities remain relevant and respected, Pannenberg said in an interview ahead of the Joint Coordinating Board in Shanghai.

“Global patience has gone down. The world has become more short-term. So when you suggest a new line of research that may be very important and yield results 10 years from now, many global decision-makers frown,” he said. “In the 1980s it was accepted but now everybody wants to see results tomorrow. That puts pressure on a lot of longstanding programmes. The angle that TDR has taken to put the emphasis on innovation is very helpful because of the link between good innovation dynamics and the health of countries.”

He stressed that TDR should stick to its strategy of prioritizing research in neglected areas and filling voids left by others. He said structural reforms implemented in 2006 boosted TDR’s ability to set directions for global health research for infectious diseases of poverty. The new African Network on Drugs and Diagnostics Innovation is an example of much-needed regionalization and decentralization, Pannenberg said.

Pannenberg called his involvement with TDR one of his favourite activities while at the World Bank: “It’s wonderful to be engaged with a programme where you interact with people of the highest intellectual levels around the world.”

TDR hopes to continue benefiting from the advice of Pannenberg, who will remain a member of the Strategic Alliance Advisory Group.

Pannenberg will become chairman of a new Dutch government commission on health systems research and will continue to do advisory work on neglected tropical diseases in Africa. He also hopes this “retirement” will allow him more time to indulge his passion for the flute.

Pannenberg’s successor at the JCB is Dr Armin Fidler, an Austrian physician who was the World Bank’s health manager for eastern Europe and central Asia before he moved to a central World Bank unit overseeing research and global partnerships. “He is an excellent successor. He has experience and empathy with research,” Pannenberg said. “He knows how important it is and what it means.” ■

Chinese experiences in controlling neglected diseases such as lymphatic filariasis and snail-borne schistosomiasis also will be examined.

China was the first country declared by WHO in 2007 to have eliminated filariasis, a mosquito-borne disease leading to debilitating swelling of the limbs and endemic in sub-tropical parts of South East Asia and Africa. WHO has set a target of 2020 for global filariasis elimination.

The campaign against schistosomiasis, a fatal parasitic disease which attacks the blood and liver, has gained new urgency because of climate change. Modelling of climate change trends by Chinese scientists has led to forecasts that the transmission zone of the parasite *Schistosoma japonicum* will expand northwards because rising temperatures are expected to promote the diffusion of the snails that are hosts to the parasite.

Scientists from the National Institute of Parasitic Diseases told a TDR-sponsored October 2009 meeting in

Shanghai that climate change impacts can be mitigated through measures such as surveillance of both snail populations and of the parasite in human populations and through environmental management interventions such as snail retention tanks.

The National Institute of Parasitic Diseases is engaged with the African Schistosomiasis Network and in Shanghai is hosting TDR fellows in support of the African Network for Drugs and Diagnostics Innovation (ANDI). TDR hopes that the symposium will help strengthen and extend such collaborations. ■

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## Climate change impacts on vector-borne diseases

Environmental degradation has spurred vector-borne disease (VBD) rates in developing countries. Population growth, urbanization and migration are major factors in these illnesses' emergence and re-emergence, and global climate change adds to these challenges. A TDR-convened expert consultation examined the scientific evidence to identify research gaps and priorities for consideration by research agencies.

Environment and climate change affect all eight vector-borne diseases that fall under TDR's mandate – malaria, dengue, Chagas disease, African trypanosomiasis, visceral leishmaniasis, onchocerciasis, lymphatic filariasis and schistosomiasis. However, these effects vary; research on malaria and dengue discussed at the meeting shows rapid climate and environmental change effects on vectors, transmission and disease. In lymphatic filariasis, onchocerciasis and leishmaniasis there are rapid climate and environmental change effects on vectors and transmission but slower effects on disease burden. Slower climate and environmental change effects have been noted on vectors, transmission and disease burden

for schistosomiasis, Chagas disease and African trypanosomiasis.

The consultation was held 3-4 December 2009 in collaboration with WHO's departments of Public Health and the Environment and Neglected Tropical Diseases. This meeting followed a Scientific and Technical Advisory Committee recommendation that TDR should address scientific evidence and priority research in this area. The consultation discussed issues linking the individual diseases as well as research gaps. These gaps include social and ecological changes and their impact on vectors and reservoir hosts, cost-effectiveness and evaluation of curative and preventive interventions and of early warning systems, and the disappearance of infectious diseases from specific socio-ecological settings without control interventions.

Cross-cutting research priorities include climate-based statistical, spatial and temporal risk mapping and modelling, as well as qualitative and quantitative risk assessment of indirect effects on VBDs from land-use changes and drought.

A TDR-commissioned report urged more research on risk assessment to improve

understanding of climate-related health risks and to inform future adaptive strategies. "At a basic level, much more empirical evidence is needed to describe more fully relationships between climate, environment and health for a range of diseases and over a range of settings," said the report by Dr Jonathan Cox of the Public and Environmental Health Unit at the London School of Hygiene & Tropical Medicine. "There is also scope for substantial progress in the development and application of agreed, standardized analytical methods."

Improved disease-specific estimates of current morbidity, mortality and burden also are required to predict future climate and environmental impacts on health, Cox said. These estimates will provide an evidence base for effective decision-making for planning interventions. The meeting report will be published later this year. |

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## Malaria workshop refines implementation research proposals

Malaria-endemic countries recently identified 96 priorities for operational and implementation research, highlighting the need for support to strengthen capacity in countries with weak health systems that lack established teams to conduct evidence-based research.

Twenty-two participants from nine African countries and Cambodia gathered in Accra, Ghana, from 30 November to 4 December to develop operational and implementational research proposals. Organized by TDR and WHO's Regional Office for Africa, the meeting was specifically intended to help refine funding proposals for Phase 1 of the Affordable Medicines Facility for malaria (AMFm), but its larger aim was to contribute to

a systematic strengthening of research capacity.

The AMFm is hosted by the Global Fund and is an innovative financing mechanism designed to expand access to treatment. Implementation research can help identify what works and what doesn't.

The meeting's objectives included assisting countries in identifying priority operational/implementation research questions and common priorities which could form part of multi-country and multi-centre research programmes. Another goal was to create a platform for capacity-building and networking among countries implementing antimalarial policy and access interventions.

All ten countries elaborated or refined operational research proposals at the workshop and identified common priority issues, such as integrating access to antimalarial treatment and diagnostics.

Proposals developed in the workshop included:

- exploring the effect of programmatic deployment of rapid diagnostic tools (RDTs) on malaria case management at the primary health care level in Nigeria;
- researching feasibility and acceptability of introducing RDTs in private pharmacies in Senegal;
- evaluating the effects of financial incentives to wholesalers in improving distribution (stocking and dispensing)





Delegates at the TDR workshop on implementation research.

- of subsidized artemisinin-combination therapies (ACTs) to retailers in hard-to-reach areas of mainland United Republic of Tanzania;
- evaluating private health sector practices in diagnostic, prescriptive and pharmaceutical management of malaria cases in Zanzibar, United Republic of Tanzania;
- developing a pilot model and mechanism for introducing RDTs in the private sector (pharmacies) to support rational use of ACTs in Uganda;
- evaluating access to malaria parasitological diagnosis and treatment before and after AMFm in Cambodia;
- assessing the feasibility of expanding use of RDTs within the private sector in Ghana;
- studying availability of antimalarials and quality of dispensing practices in Kenya's retail sector;

- introducing RDTs at community agents in Madagascar;
- researching the impact of cell phones and training on medication stocking at peripheral health centres with regard to availability of ACT in Niger.

The 96 research areas identified during the workshop focus on rational use of diagnostics and ACT (23); reaching poor and vulnerable groups (9); ACT delivery model (8); public and private sector interactions (6); drug quality (3); pricing (8) and others (12).

The workshop was praised for bringing researchers and programme implementers together as a team to define research questions, develop proposals and execute them. The countries all urged TDR to continue bolstering national capacity by establishing subregional training hubs and centres of excellence. The workshop received generous financial support from the ExxonMobil Foundation.

A working group is being created to give countries support and technical advice; this effort includes TDR, AMFm, WHO's Global Malaria Programme and Department of Reproductive Health Research, the Department for International Development of the United Kingdom of Great Britain and Northern Ireland and the William J. Clinton Foundation's HIV/AIDS Initiative.

The planned working group will identify facilitators to visit countries regularly to monitor implementation of the operational research and to identify areas where further support is needed, according to Dr Andrew Kitua, head of TDR's Evidence for antimalarial policy and access unit. |

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## TDR boosts links with Western Pacific regional office

TDR is strengthening its partnership with WHO regional offices to synchronise research priorities, identify gaps and help with capacity building in the fight against neglected infectious diseases. A new approach with the Regional Office for the Western Pacific is the first test.

TDR has always enjoyed close relationships with all WHO regional offices and has worked with them to link research efforts to policy and programme needs. In line with Joint Coordinating Board

recommendations, it is elevating that relationship to a new and strategic level.

At a recent meeting in Manila, the WHO Regional Office for the Western Pacific (WPRO) and TDR laid the building blocks for a new partnership framework to maximize the potential from more joint planning and coordination.

The timing is fortuitous. WPRO is developing a plan of action for research in neglected tropical diseases (NTDs), malaria

and tuberculosis for 2011-2015 in order to strengthen the capacity of disease endemic countries to undertake research on communicable and neglected diseases and to link the research with disease control activities.

TDR is working closely with the regional office to ensure that the plan draws on the comparative advantages of TDR and the regional office and that the expected results and activities are in line with the needs of each partner.

The planned approach will balance capacity building goals with research priority identification in such areas as malaria, dengue, TB and schistosomiasis, all of which are of high importance to the Western Pacific regional office.

TDR has invested US\$ 1.7 million in the Western Pacific region in the 2008-2009 biennium, most of it in research projects in institutions in China, Philippines, Japan, Australia, Malaysia and Viet Nam. The new partnership will maximize returns on this investment and help TDR work with priority countries. This partnership has been developed in close consultation with WPRO and has been strongly supported by the Regional Director.

For the first time, the JCB will take place this year in a WPRO member, China.

TDR and WHO regional offices have strong links. The regional offices are engaged in the selection of TDR advisors. TDR is increasing the strategic engagement of regional office staff and

management on both the JCB and its Scientific and Technical Advisory Committee. The regional offices and some WHO country offices are also linked to TDR by hosting disease and thematic specific reference groups which play a key role in the development of the *Global report for research into infectious diseases of poverty*.

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TDR staff Dr Fabio Zicker and Dr Garry Aslanyan with WPRO staff Dr John Erhenberg, Dr Jun Nakagawa and TDR Fellow based at WPRO Ms Glenda Gonzalez.

## South-South Initiative loses a founding member

The international scientific community has lost a highly respected and committed member with the 28 February death of Professor Mariano Levin.

Born 29 May 1951 in Argentina, Levin belonged to a generation of researchers who changed their country's scientific system and contributed significantly to fighting infectious diseases of poverty.

Levin served as an expert on several steering committees, including TDR's Basic Research on Chagas Disease panel and its Pathogenesis and Applied Genomics committee. He also was a founding and active member of the South-South Initiative for Tropical Diseases Research (SSI).

Levin was a professor of molecular genetics and biotechnology at the University of Buenos Aires' Faculty of Natural and Exact Sciences and headed the molecular biology laboratory for Chagas disease at the Research Institute of Genetic Engineering and Molecular Biology. At the time of his death, he was in charge of shaping Argentina's new National Genetic Data Bank.

Levin's scientific achievements included the pioneering application of genomics to diagnosis and better understanding of Chagas disease pathogenesis. He was



part of the international consortium responsible for sequencing the genome of *Trypanosoma cruzi*. His landmark projects provided significant information on chronic Chagas disease and his recent studies on *T. cruzi* protein-protein interactions contributed to understanding the basic biology of the parasite.

Levin devoted significant amounts of his time to developing networks such as SSI and to training researchers beyond the boundaries of Argentina. His most recent activities included

metabolomic screening and validation of drug targets for Chagas disease and human African trypanosomiasis. He initiated this collaborative project with a group of investigators in Kenya and expanded it to include southern and northern partners as well as industry. The resulting training and capacity building opened new opportunities for African investigators.

Levin will be remembered for his big heart and his commitment to fighting the infectious diseases of poverty. TDR joins the scientific community and his family in mourning this great scientist. ■

See also: [www.ssi-tdr.net/](http://www.ssi-tdr.net/)

## African research initiative

# ISHReCA strengthens African research

How can sub-Saharan African countries develop their capacity to conduct health research while improving fragile health systems at the same time? A new African-led, TDR-supported Initiative to Strengthen Health Research Capacity in Africa (ISHReCA) aims to tackle this challenge.

With its mission to “promote the creation of self-sustaining pools of excellence capable of initiating and carrying out high-quality health research in Africa,” ISHReCA provides a platform to discuss health research needs and advocate for government and societal support that many health research communities lack.

ISHReCA has identified nine key requirements for strengthening health research capacity in Africa. These include: legal frameworks in which research can flourish; an improved health research profile among policymakers, the media and the public; science education in secondary schools and tertiary institutions; creation of career pathways that allow for recruiting and retaining scientific talent; development of competitive grant and fellowship schemes by African institutions; and use of funding mechanisms as drivers of change at African institutions.

Initiated by health researchers and funders at meetings in Kilifi, Kenya; Cape Town, South Africa; and Nairobi, Kenya, in 2007 and 2008, ISHReCA is composed of an 11-member steering committee that meets monthly in person or via teleconference. Joining this panel are past and present Multilateral Initiative on Malaria (MIM) secretariat coordinators Dr Francine Ntoumi and Dr Wilfred Mbacham, both former TDR grantees, as well as Wellcome Trust-Kilifi programme training manager Dr Sam Kinyanjui and National Institutes of Health-supported chronic disease researcher Dr Hassen Ghanem. ISHReCA is coordinated by current TDR fellow Dr Palmer Netongo.

ISHReCA is chaired by Professor Nelson Sewankambo, Dean of medicine at Makerere University, Uganda. Its co-sponsors include the Wellcome Trust and the Swedish International Development Cooperation Agency (SIDA).

The ISHReCA secretariat is temporarily based at WHO/TDR, with plans to ultimately devolve the secretariat to Africa. Interested potential host institutions can submit applications on the ISHReCA website. The host institution will be announced at the 4th ISHReCA general funders’ and researchers’ meeting 11-13 July in Burkina Faso.

This meeting will collect ideas, initiate new partnerships, strengthen existing links and develop work plans to increase health research capacity in Africa. Researchers with ideas that relate to these goals are invited to contact the ISHReCA secretariat regarding invitations to this meeting. Funders of health research are encouraged to support this initiative to align their support to current African needs. Multinational and private companies are welcome to develop links with this African-led initiative, as one of its strategies is to foster establishment of public-private partnerships (North-South and South-South) to improve delivery of reagents and services for health research in Africa. Other goals include enhancing African researchers’ capacity to attract funding and advocating improved funding for results-oriented health research in Africa.



**ISHReCA**  
Initiative to Strengthen Health  
Research Capacity in Africa

ISHReCA encourages researchers to log on to its website and add their voices to the campaign for health research capacity strengthening at <http://ishreca.tropika.net/> and participate at the electronic forum. Researchers not on the ISHReCA list serve are urged to sign up to receive information on funding opportunities in African health research capacity strengthening. The moderated list serve can be used by researchers as well as funders to reach many African health researchers by sending an e-mail to [ISHReCA@who.int](mailto:ISHReCA@who.int).

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# Print and multimedia publications

All TDR publications may be downloaded from the TDR website:  
[www.who.int/tdr/publications](http://www.who.int/tdr/publications)

To order hard copies free of charge, please fax or mail us the attached publications order form, or e-mail your request to: [tdr@who.int](mailto:tdr@who.int).

## Use of influenza rapid diagnostic tests

32 pp., 2010 (ISBN 978 92 4 159928 3)  
 DOI: 10.2471/TDR.10.978-924-1599283



Influenza diagnostic tests which aid case management and outbreak control as well as permit monitoring of disease spread and viral evolution are critical to patient care and public health efforts. Point-of-care tests (POCT) or rapid

diagnostic tests (RDTs) for influenza can be used in remote settings and in physicians' offices or clinics without laboratory services. They can be performed and interpreted by health care providers within 5-15 minutes. This users' guide provides general information on influenza RDTs and their limitations. It aims to ensure that such tests are appropriately used and interpreted, and offers guidance on quality planning prior to test deployment to optimize case management and disease control efforts.

[www.who.int/tdr/svc/publications/tdr-research-publications/rdt\\_influenza](http://www.who.int/tdr/svc/publications/tdr-research-publications/rdt_influenza)

## Quality Practices in Basic Biomedical Research (QPBR): Training manuals

**For trainer**  
 175 pp., 2010 (ISBN 978 92 4 1599207)  
 DOI: 10.2471/TDR.10.978-924-1599207

**For trainee**  
 136 pp., 2010 (ISBN 978 92 4 1599214)  
 DOI: 10.2471/TDR.10.978-924-1599214

*Tools for training and promoting Quality Practices in Basic Biomedical Research (QPBR) concepts in disease endemic countries.*

Quality practices in basic biomedical research (QPBR) are of paramount importance when resources are limited and when the results of research are to be used to advance science, shape policies or aid decision-making. Establishing quality practices in research can only improve research and data veracity. In the absence of national or international guidelines, in 2006 TDR published a QPBR handbook to help researchers worldwide produce high-quality biomedical research. The

two new training manuals are based on the handbook and are designed around a QPBR course/workshop.

[www.who.int/tdr/svc/publications/training-guideline-publications/qpbr-trainer-manual-2010](http://www.who.int/tdr/svc/publications/training-guideline-publications/qpbr-trainer-manual-2010)

[www.who.int/tdr/svc/publications/training-guideline-publications/qpbr-trainee-manual-2010](http://www.who.int/tdr/svc/publications/training-guideline-publications/qpbr-trainee-manual-2010)

## Progress and prospects for the use of genetically modified mosquitoes to inhibit disease transmission

68 pp., 2010 (ISBN 978 92 4 159923 8)  
 DOI: 10.2471/TDR.10.978-924-1599238

The use of genetically modified mosquitoes (GMMs) for disease control has social, economic and ethical implications, so it is important that WHO and its partners provide guidance to countries on these issues. In collaboration with the Foundation for the National Institutes of Health (FNIH), TDR has developed a series of planning meetings on progress and prospects for the use of genetically modified mosquitoes to inhibit disease transmission. These technical and public consultations will focus on current status and planning for future development.

[www.who.int/tdr/svc/publications/training-guideline-publications/gmm-report](http://www.who.int/tdr/svc/publications/training-guideline-publications/gmm-report)



## Interventions sous directives communautaires pour résoudre les grands problèmes de santé en Afrique

137 pp., 2010 (ISBN 978 92 4 259660 1)  
 DOI: 10.2471/TDR.09.978-924-2596601

*TDR has released the French version of a landmark three-year multi-country study published in May 2008. This study examined to what extent community-directed interventions could be used for integrated delivery of health interventions. It was based on the successful track record of community-directed treatment with ivermectin to reach rural African populations at risk of onchocerciasis.*

*The study was remarkable for its demographic scope, covering a total of 2.35 million people with an average of 380 000-530 000 people living in each study site area. The results from seven research sites in three countries (Cameroon, Nigeria and Uganda) are reported here.*

[www.who.int/tdr/publications/tdr-research-publications/community-directed-interventions-health-problems/pdf/CDI\\_french.pdf](http://www.who.int/tdr/publications/tdr-research-publications/community-directed-interventions-health-problems/pdf/CDI_french.pdf)

