Building bridges for innovation across Africa

A report on the launch of ANDI at the 3rd Stakeholders Meeting | PAGE 14

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The importance of being earnest

Research does not happen in isolation from our wider environment. Neither does the provision of health care. Both occur within the context of their specific systems. TDR has sponsored and played a leadership role recently in two major conferences that promote action-oriented research within both an innovation and health systems context.

The 3rd Stakeholders Meeting of the African Network for Drugs and Diagnostics Innovation (ANDI) held in Nairobi in October marked the official launch of ANDI as a new organization, legally constituted by a memorandum of understanding between WHO and the United Nations Economic Commission for Africa (UNECA). ANDI seeks to promote pharmaceutical innovation systems in Africa and to create a culture of pharmaceutical innovation that is targeted at the needs of Africa.

The first ever Global Symposium on Health Systems Research was held in November in Montreux in collaboration with several other WHO-based programmes. This brought together scientists from the northern and southern hemispheres whose lines of inquiry are on the cutting edge of global health-policy innovation, and who challenged us to think about how we can build systems that guarantee universal coverage for health care, regardless of economic status.

Making the connection between innovation and financing requires a strong dialogue between policy-makers and researchers. Both the ANDI-led discussions on pharmaceutical innovation and the Montreux meeting on health systems highlighted the importance of interaction and partnership between the public and private sectors.

Another critical element linking both conferences was the recognition of the importance of leadership and prioritization of agendas by developing countries on issues that first and foremost affect them.

As low- and middle-income countries develop deeper governance and research capacity, the role of TDR and other international research-funding agencies is less and less to bring external research to developing countries, but rather to foster and help build on the research capacity already within them and to assist countries in addressing their own needs and priorities. The energy that can be released through this approach was evident among the 500 delegates at the ANDI conference. In supporting ANDI, TDR is following the direction that disease endemic countries have asked us to take, which is to foster and help create the boundary-spanning bridges and multisectoral, multi-country networks that will allow their research to flourish.

2010 marks a turning point for TDR to become more engaged in systems strengthening and related issues. This emphasis on systems will continue as more and more capacity, activity and resources feed their way into research on infectious diseases of poverty. Until recently, the research and international development communities had limited resources for health and could direct their efforts independently towards one disease or issue at a time. Over the last decade, unprecedented amounts of money and energy poured into efforts to combat HIV/AIDS, malaria, tuberculosis and, more recently, neglected diseases. This has been welcome, but in the face of the resulting flood of scaled-up implementation, we have learned that different initiatives may interfere both with each other and with existing national system activities, leading to less of a health impact than might otherwise be the case.

Disease-specific approaches may frequently be appropriate, indeed essential, and advances and learning from one disease intervention may have significant ramifications for other areas. However, it is no longer appropriate that...
building bridges through networks within systems, not only between academia, business and government, but also across different scientific disciplines, between research communities in different nations, and even between multilateral institutions, is at the core of TDR’s mission.

A major item on the agenda of the health systems research symposium was sustainable financing, an issue that taxes the minds of finance and health ministers. It is highly significant that ANDI is located within UNECA, which reports to the continent’s ministers of finance, and counts the African Development Bank among its main partners. Linking research for health, whether on health systems or on biomedical innovation, to economic development and poverty alleviation will guarantee better access to sustainable financing.

This dialogue moves TDR beyond the scope of a traditional medical research organization, but TDR has never been traditional. TDR was set up to be an organization that helps countries to help themselves, through creating networks and building capacity. In October and November of this year I had the honour of representing TDR at the launch of ANDI in Nairobi; the launch of the new Mutilateral Initiative on Malaria (MIM) secretariat in Yaoundé, Cameroon; an initial meeting of an expert group convened with the WHO Regional Office for the Americas in Washington, DC to support the development of a pharmaceutical innovation network in Latin America; the first ever health systems research symposium in Montreux; and the 10th anniversary of the Forum for Ethical Review Committees in the Asian and Western Pacific Region (FERCAP), that has done so much to support the development of ethical review capabilities in that region.

By building bridges and networks across borders, be they academic, sectoral or geographic, and by doing this in a manner that seeks to support and develop the systems in which we operate, TDR is helping like-minded organizations prepare the way for innovation in health and development.

Dr Robert Ridley
TDR Director
**TDR briefly**

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### Congo lab opens doors for African medical researchers

The Congolese Foundation for Medical Research (Fondation Congolaise pour la Recherche Medicale – FCRM) has opened a new molecular biology laboratory at the Faculty of Health Sciences, Université Marien Ngouabi, Brazzaville. At the September 7 opening ceremony, the new laboratory was commissioned by the Minister of Higher Education, Professor Ange-Antoine Abena and the Minister of Health and Population, Professor Georges Moyen.

The foundation receives support from TDR and the European & Developing Countries Clinical Trials Partnership (EDCTP).

The foundation supports capacity building for health research in the Republic of the Congo by training researchers in diverse areas including project management, promoting information and knowledge exchange between research institutions within and outside the Congo, and improving the environment to support biomedical and public health research in the Congo. The foundation was established in November 2008 by a consortium of Congolese scientists, including many TDR past grantees and alumni, to promote the development of high-level Congolese researchers in biomedical sciences and public health.

In a speech given during the ceremony, Professor Francine Ntoumi, President and Director-General of the foundation, acknowledged the contribution of the EDCTP and TDR in developing research capacity in the Congo. She said the foundation will also help to facilitate the exchange of knowledge with institutions in other countries.

Professor Ntoumi is a former TDR grantee and past coordinator of the Secretariat of the Multilateral Initiative on Malaria. The foundation is a collaborator in the EDCTP funded Central African Network on Tuberculosis, AIDS and Malaria (CANTAM).

The establishment of the FCRM by the Congolese scientists will enable African health researchers to “gain more control over the resources and decisions that influence their research efforts,” said Glenn Laverack, TDR’s Coordinator for Empowerment.

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### New WHO/TDR guidelines on dengue hold promise for improved treatment, research and control of fast-growing epidemic

The new edition of the dengue guidelines developed by WHO and TDR to diagnose and treat dengue fever could be a crucial tool for combating one of the globe’s fastest growing diseases. Since the last edition of the guidelines over a decade ago, the magnitude of the dengue problem has increased significantly and has spread to many previously unaffected regions of the world.

Dengue is a viral infection transmitted by mosquitoes that can cause shock, bleeding, organ impairment and ultimately death. There are an estimated 50–100 million new cases of dengue fever a year, according to WHO. There is no medicine to treat the disease, although death can be prevented by supportive treatment of severe cases. Efforts to control its spread have proven largely ineffective and it is now endemic in over 100 countries. Particularly worrisome is the more than four-fold increase since the 1970s in the severe forms of the disease.

The new edition of *Dengue: Guidelines for Diagnosis, Treatment, Prevention and Control* encompasses a decade of research, with contributions from 80 international experts, and provides health practitioners and
officials with the latest information on epidemiology, clinical management and delivery, vector control, laboratory diagnosis, surveillance and response. A revised dengue disease classification was introduced with the guidelines, in order to distinguish between the different levels of severity of the disease. Many endemic countries are already using the revised disease classification in their reporting to public health authorities.

The revised classification appears to perform well in operational conditions. A study across 18 countries coordinated by TDR compared the revised case classification with the previous classification (dengue fever, dengue haemorrhagic fever, dengue shock syndrome). The test sites ranged from primary to tertiary care levels. The investigators using the previous case classification could not classify dengue in 13.7% of cases, as compared to only 1.6% using the revised classification. The investigators said that the revised case classification and treatment algorithms developed from the case classification worked well in both triage and case management.

“The new guidelines are clear, easy to follow and make clinical sense,” wrote Professor Tom Solomon, the head of the Brain Infections Group at the University of Liverpool, England, and director of the Liverpool Institute of Infection & Global Health, who reviewed the book in this year’s BMA Medical Book Competition. Although the dengue handbook did not win the prize, Professor Solomon wrote, “I doubt that many books written this year will have such a major impact on global public health, save countless lives and facilitate major vaccine development programmes.”

**Unlocking the tsetse genome**

In October, researchers at the Wellcome Trust Sanger Institute announced they had completed a preliminary assembly of the genome of *Glossina m. morsitans*, the tsetse fly species that is a vector of human African trypanosomiasis (HAT), in collaboration with several other IGGI members, including the Japanese RIKEN Genomics Sciences centre and the French Genome sequencing centre (Genoscope).

Human African trypanosomiasis (sleeping sickness) is one of the most complex endemic tropical diseases. It can be hard to detect, because symptoms are often mild. If it is not detected and treated early on, it results in an agonizing death. It is endemic in 36 countries in sub-Saharan Africa, according to the WHO, which estimates the number of cases at a minimum of 50,000 per year.

“The genome assembly represents another big step forward,” said Dr Yeya Touré, leader of TDR’s innovative vector control interventions team. “We’re progressing. We’re getting close to finishing the project and now we’re going to start annotating.”

The team hopes to complete the annotation phase by April 2011.

In annotating a genome, researchers identify the precise location and role of specific genes, generating data that can be used for a variety of applications. In the case of the *Glossina* genome, the data will be used to develop DNA-based diagnostic tests and well-defined control tools.

“They can be used to develop genetic control methods that, for example, interfere with the blood-feeding habits of the tsetse fly or alter its immune response,” said Touré. “Or you can go further and devise an insecticide that would act on a particular place in the vector genome. There are many things that could be done with the information.”

Even before the genome assembly was complete, TDR had partnered with the South African Bioinformatics Institute to train more than 75 young investigators in data-mining techniques. Several of the investigators have also been selected for fellowships in IGGI-member laboratories.

“This is the first time that it has been possible to get developing countries, including many from Africa, involved in a genomic project at its inception,” said Touré. “Since 2004, we have met with them regularly to discuss progress and plan the next steps. This is quite special.”

**Recognizing good clinical laboratory practice**

All clinical trials involve some level of laboratory testing and in many cases this component is critical to the outcome of the study. Examples include the enrolment of suitable subjects based on laboratory-confirmed disease status, the efficacy of an antimalarial treatment measured by the clearance of parasites in a peripheral blood slide, or the laboratory assessment of liver enzymes to determine the safety of a new molecule.

However, despite general acknowledgement of the importance of laboratory testing, there has been little harmonization of laboratory standards in clinical trials conducted in developing countries; rather, quality has been left up to the individual site or investigator.

In 2009, WHO/TDR developed Good Clinical Laboratory Practice (GCLP) guidelines based on those drawn up by the British Association of Research Quality Assurance. By setting a standard of good practices, the guidelines help to ensure the generation of valid and reliable data by all laboratories involved in the analysis of samples from TDR-supported clinical trials.

In an effort to monitor laboratories’ compliance with the guidelines, TDR’s Strategic Quality Management (SQM) unit has also developed a GCLP recognition programme.

Under the programme, experienced TDR surveyors – all of whom are laboratory managers from disease endemic countries (DECs) – visit selected laboratories to assess their systems and processes, benchmark progress and identify areas where improvement is needed.

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laboratories that meet GCLP quality standards will be recognized for their compliance.

Dr Michael Mihut, technical officer in TDR’s SQM unit, said the GCLP recognition programme will serve as a framework for a future network of DEC laboratories. “We hope that by organizing the training of laboratory staff in GCLP, auditing and the continuous improvement process, this network will allow DEC laboratories to assist one another in achieving credible results in an efficient manner.”

Earlier this year Thammasat University in Bangkok, Thailand, became the first laboratory to be surveyed under the new programme. Although Thammasat is supported by TDR – the university is a TDR coordinating centre – Mihut stresses that the recognition programme is open to any DEC laboratory, not only those supported by TDR.

“Laboratories that have implemented quality systems adequately are more likely to encounter less sample rework, detect problems early in the process and avoid other problems related to data quality, leading to savings and cost reduction,” he said. “And for those labs that want to get an ISO or similar standards accreditation, this is a good preparatory step.”

According to Mihut, the value of the network will depend in large part on participation and support from DECs. In the hope of gaining that support, TDR intends to assist DECs in developing their own accreditation programmes for medical research laboratories. “This is an important area that currently lacks quality standards,” he said. ■

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Artesunate: a life-saving drug gains ground

Delays in therapy are one of the most important reasons for an adverse outcome of malaria infection. Because patients with severe malaria are typically unable to tolerate oral therapy, treatment with an injectable is often necessary, but this may only be available in clinics or hospitals located hours away. By the time patients reach the hospital, they may be in an acute stage of the disease, with organ complications making it harder for the antimalarials to save lives.

To address this problem, TDR developed an inexpensive generic artesunate rectal suppository that can be administered as an initial treatment for severe malaria while the patient is in transit to a distant hospital. This treatment has proved effective in field trials in rural communities. In its 2003 review of the study protocols, the US Food and Drug Administration (FDA) noted that, “time elapsed from insertion of the capsule to arrival at the hospital may be important in evaluating efficacy.”

For adults who reach a health facility with severe malaria, artesunate has already been shown to save one-third more lives than quinine, and WHO treatment guidelines now recommend injectable artesunate instead of quinine in adults. The main advantage of artesunate is that, unlike quinine, it kills young malaria parasites before they mature and cause the organ damage often associated with severe malaria.

The life-saving benefit of rectal artesunate when administered by trained community members was established by the largest ever individually-randomized clinical trial on severe malaria, known as Study 13. The TDR-led study of 17,826 patients in Bangladesh, Ghana, and the United Republic of Tanzania found that a single dose of rectal artesunate can halve the risk of death or permanent disability for patients delayed in getting to a clinic or hospital. Although a single artesunate suppository does not cure severe malaria, it can temporarily halt disease progression, offering a critical opportunity to transport a patient to a health facility for diagnosis and intravenous treatment.

In 2010, the results of Study 13 were presented to the FDA’s Anti-Infective Drugs Advisory Committee, which voted overwhelmingly (13-2) in favor of the 100 mg suppository for treatment of patients six years or younger. However, the committee voted 14-1 against approval of the 400 mg formulation, citing concerns about insufficient evidence of efficacy and safety for patients over six years old. The FDA has requested further clinical data before approval of the drug and this is currently under appeal by WHO/TDR.

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As this issue was going to press, an economic analysis of the cost-effectiveness of rectal artesunate by Tozan et al. was accepted for publication by The Lancet.

In November 2010, artesunate was also proven to be life-saving in African children, in whom the disease progresses far more rapidly than it does in adults. In a robust randomized trial conducted over five years in nine African countries, injectable artesunate reduced mortality in children admitted for severe malaria by 22.5% compared with injectable quinine. The study, led by the Wellcome Trust-Mahidol University-Oxford Tropical
Medicine Research Programme in Bangkok, Thailand, was the largest ever clinical trial among patients hospitalized with severe malaria.

The study’s findings could prompt broad changes in WHO policy for hospital treatment of children with severe malaria, making injectable artesunate the drug of choice. Until now, the injectable version of the drug had not been approved for international use. A recent decision by the WHO prequalification programme removes this barrier, allowing countries to obtain the drug with financing from the Global Fund to Fight AIDS, Tuberculosis and Malaria.

The research and training exchange was sponsored by TDR, after scientists from both regions had separately contacted the agency seeking support for research into schistosomiasis, a snail-borne parasitic disease that can be picked up by people and animals in infested rivers, lakes and soil. With Chinese technical expertise and African experience with controlling the disease, it was natural to try to form a marriage of the two, said Empowerment unit coordinator Glenn Laverack.

“This is an excellent model of South-South collaboration, in which two networks can learn from one another to build their capacity and expertise,” said Laverack.

Research collaborations between TDR and China go back 30 years, but this took a step forward in June, when a Memorandum of Understanding was signed by the Chinese Center for Disease Control and Prevention (China CDC) and TDR to increase this cooperation and to promote Chinese support and training in developing countries, especially in Africa.

Out of that came a connection between two TDR-supported networks in schistosomiasis for more joint planning and training — the Regional Network for Schistosomiasis in Asia (RNSA) and other Zoonotic Helminths (RNAS+) that includes five Asian countries working on schistosomiasis japonica, and the Regional Network for Schistosomiasis in Africa (RNSA).

TDR and China to collaborate on schistosomiasis control: African scientists journey to Shanghai

On November 15, scientists from Niger, Nigeria, and Uganda travelled to the National Institute of Parasitic Diseases, Chinese Center for Disease Control and Prevention in Shanghai, to learn about Chinese activities in schistosomiasis control, and to share their own expertise.

Taking on climate change

In China, the disease has already been eradicated in five of the 12 provinces, thanks to mass chemotherapy treatment, sanitation, replacement of water buffalo by machines, cleaning up the waterways and farmlands, and extremely sensitive diagnostic tools that can identify outbreaks so they can be brought under control quickly.

A TDR grant helped Professor Zhou Xiaonong go to the United States of America in the 1990s to learn how to monitor the movement of snails by using maps and a geographic information system (GIS) and predict “hotspots” that could cause outbreaks.

“Through this project, I introduced the GIS technology into China,” said Professor Xiaonong, now Director of the National Institute of Parasitic Diseases in Shanghai. “But in the initial stage, we had to understand how to use and apply these tools. After the mapping we also needed to understand where the risk area was. For example, in the big flooding in 1998. I used the remote sensing and I figured out where the hot spots were.”

Now, the disease may have taken a new turn in China, and perhaps the world over, because of climate change. Dr Yang Guojing, another TDR grant recipient from the Jiangsu Institute of Parasitic Diseases, combines her data with models to predict the potential risk area affected by new weather patterns. She has provided maps to local government units along the Yangtze River, and also set up TDR-supported training on GIS. “We are now able to quantify the intensity affected by climate change, and translate the results in the monitoring system,” she told TDR’s Joint Coordinating Board members during their annual meeting in Shanghai.

About 12 million people are at risk for schistosomiasis because of the changing weather, particularly in the northern part of Jiangsu province. When the temperature rises just a degree or two overall, flooding of the Yangtze River can increase, enabling the disease-carrying snails to migrate from one infected area to another.

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Dr Guojing of the Jiangsu Institute of Parasitic Diseases checking snail living conditions at a breeding site in Zhangjiagang, China.
Shaping the agenda

Global health experts chart a new course for research on infectious diseases

*The Global Report for Research on Infectious Diseases of Poverty*, due to be published in June 2011, will be the culmination of three years intensive investigation, discussion and debate by over 130 experts from around the globe, many of them from countries heavily burdened by disease.

Nestled between two lakes framed by palazzo-dotted hills and snow-capped Alps, the Rockefeller Center at Bellagio is truly one of the world’s most inspirational places. It was an appropriate setting for the recent meeting of the leadership of the think tank which is preparing the *TDR Global Report for Research on Infectious Diseases of Poverty*.

“Being at Bellagio should stimulate unorthodox, radical thinking and searches for solutions and push the boundaries of collective knowledge to translate theory into action,” Dr Ayoade MJ Oduola, coordinator of the stewardship function for TDR, told the group. “The Bellagio Center was created to have leaders think, debate, argue and look at issues they believe can make a change,” he said.

Prior to the meeting, from 2008 to 2010, the assembled experts worked within 10 different groups divided into two broad categories. One set of experts focused on diseases affecting impoverished and marginalized people, in what are known as disease reference groups. The other set of experts, working in thematic reference groups, examined the social, economic and geographical issues facing communities with high burdens of disease.

The diseases being scrutinized – for research effort opportunities and for ways to enhance their control – are malaria, tuberculosis, leprosy, Buruli ulcer, Chagas disease, human African trypanosomiasis, leishmaniasis, helminth infections, dengue and other emerging viral infections and zoonoses, and marginalized infectious diseases. The groups debating the cross-cutting issues affecting infec-
Leading infectious diseases experts from around the globe met for four days at the Rockefeller Center in Bellagio to develop the Global Report for Research on Infectious Diseases of Poverty.

Shaping the agenda
Global health experts chart a new course for research on infectious diseases of poverty have focused on: social sciences and gender, innovation and technology platforms for health interventions, health systems and implementation research, and the interfaces of environment, agriculture and infectious diseases.

While each of the disease and theme groups is known as a reference group, they all work together as a think tank. Chairs and co-chairs from each group attend annual meetings where they present reports of their group’s findings, review each other’s reports, debate the big issues coming out of their deliberations and work together to recommend the agenda for effective research on infectious diseases of poverty as a foundation of the global report.

After extensive consultation with stakeholders and research leaders, it was decided that the first Global Report for Research on Infectious Diseases of Poverty would be organized into six chapters. Three chapters explore specific themes: implications of the environment, including climate change, for infectious diseases of poverty; health delivery systems for universal coverage; and, innovation and new technologies to meet the challenges.

The other three chapters include: an overview chapter, setting the scene and defining the challenges; a chapter examining the current research funding landscape; and, finally, a chapter discussing the ‘best buys,’ a menu of the best options for research in the battle against infectious diseases of poverty.

“When we are talking about research – what exactly do we mean? We need to look at the span – from the bedside to the community, from the bench to clinical and implementation research. Research into how to do things in the community is missing,” said Professor Sian Griffiths of the Chinese University of Hong Kong, who is one of the authors writing the overview chapter.

Professor Griffiths is part of a team of 14 international experts who have been assembled not only to write specific chapters, but also to work together as a team to ensure the global report effectively identifies the research choices that can accelerate efforts to overcome infectious diseases of poverty.

Not only do many of these experts work in disease endemic countries, their expertise comes from a wide range of disciplines, so the ideas they bring to deliberations in Bellagio and other venues are challenging and innovative.

“Being with people with such a depth of experience, range of disciplines and level of thinking helped us to clarify and sharpen the content in the chapter and think laterally about infectious diseases of poverty as being applicable beyond the poor,” said Dr Bianca Brijnath, the research fellow working with the thematic team writing about the implications of the environment, including climate change, on infectious diseases of poverty.

This approach will continue beyond the publication of the Global Report, Dr Robert Ridley, Director of TDR, told the group on the final day of the meeting. “These reports and ideas can develop and build on each other as they go along. This exercise is not just meant to provide a snapshot of research needs, but to give a sense of continuity, allowing ideas to develop and mature through future reports.”
Empowerment | Strengthening capacity

TDR: empowering researchers

An African voice for health research capacity building

The Initiative to Strengthen Health Research Capacity in Africa (ISHReCA) is looking for a new home, and only one continent will do. Based at TDR since its founding in March 2009, the initiative’s secretariat is currently evaluating applications from seven would-be host countries, including Burkina Faso, Cameroon, Côte d’Ivoire, Kenya, Nigeria, South Africa and Uganda.

While relocating to Africa will surely facilitate the networking among African researchers that is central to the group’s mission – “to promote the creation of self-sustaining pools of excellence capable of initiating and carrying out high quality health research in Africa” – the move has symbolic significance as well.

Indeed, only by establishing itself on the ground can ISHReCA truly serve as a, “voice for health researchers” across the continent, said Dr Palmer Netongo, ISHReCA coordinator. “You can’t just say that you speak for a group of people,” explained Netongo, a current TDR fellow from Cameroon. “First, you have to be recognized as their voice, you have to have their support.”

Last July, at ISHReCA’s Forum 2010 in Burkina Faso, 100 delegates from 26 countries (16 of them in Africa) affirmed that support. Moderated by ISHReCA Chair Dr Nelson Sewankambo and sponsored by the Ministry of Health of Burkina Faso, the Swedish International Development Cooperation Agency (Sida), the Netherlands Foundation for Scientific Research (WOTRO), the Medical Research Council of South Africa, TDR and the Wellcome Trust, the meeting provided researchers, policymakers and funders with a clear overview of ISHReCA’s strategy and an opportunity to contribute to the development of a road map for health research on the continent.

According to Netongo, by rallying behind ISHReCA African health researchers can strengthen their negotiating position vis-à-vis funders and governments while also shedding light on important issues that might otherwise go unnoticed. As proof, he points to one of the key outcomes of the recent forum: a formal link between ISHReCA and ESSENCE (Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts, see page 30), allowing for “a more focused dialogue between researchers and funders.”

Also announced at the forum, which will take place in an African country every two years, was the Wellcome Trust’s award of more than US$ 100,000 to ISHReCA for operating costs. “The Wellcome Trust has been involved in ISHReCA since its inception and is a supporter of the spirit of the initiative,” said Dr Val Snewin, Wellcome Trust international activities manager. “We hope that ISHReCA can be a voice for African health researchers who have an active interest in capacity strengthening in their institutions and countries.”

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Malaria programme finds a new home in Cameroon

The Multilateral Initiative on Malaria (MIM) has found a new home in Yaoundé, Cameroon. Since it was formed in 1998, MIM has rotated among research institutions with significant interest in malaria research, beginning with the Wellcome Trust in the UK. Since then, the secretariat has been located in the Fogarty International Center at the US National Institutes of Health, Stockholm University, the Karolinska Institute in Sweden, and most recently in the United Republic of Tanzania at the African Malaria Network Trust.

The move to Cameroon represents a new opportunity to deepen MIM’s involvement with African researchers, said Dr Olumide Ogundahunsi, who manages research capacity strengthening in the Empowerment unit of TDR.

“Cameroon boasts of several malaria researchers of international repute and their collective input will be critical to the success of the evolving strategy for the next stage
in the evolution of the initiative,” said Dr Ogundahunsi.

The central African country hosted the 4th MIM Pan-

So far, one of the key roles of MIM has been to facili-
tate collaborative scientific research on malaria between
researchers across Africa and throughout the world. The
strategic plan, launched by the Yaoundé secretariat on
October 15, outlines a plan to develop an official mem-
bership roster and partnerships with outside funders.

The move to Yaoundé, “allows for the build-up of a new
vision that reflects MIM's strategic position within
the global context of a malaria elimination and eradica-
tion agenda,” said the new chair of the MIM secretariat,
Professor Rose Gana Fomban Leke, who is head of the
Department of Microbiology, Immunology and Haema-
tology at the University of Yaoundé I, Cameroon.

It is also significant that Cameroon has both French and
English as its national languages. “This means that we
shall be able to work with all research scientists in Africa
and together move towards the vision of a malaria-free
Africa,” said Leke.

### Regional training centres strengthen research capacity

A core element of TDR's agenda is to strengthen the re-
search capacity of disease endemic countries (DECs). To
this end TDR has so far set up a network of three regional
training centres, with additional ones expected soon in
the WHO Western Pacific and African Regions.

The regional training centre network includes the Centro
Internacional de Entrenamiento e Investigaciones Médi-
cas (CIDEIM) in Cali, Colombia; the Faculty of Medicine,
Gadjah Mada University, Jogyakarta, Indonesia; and the
Astana Medical School, Astana, Kazakhstan.

The purpose of the centres is to help decentralize con-
tinuing professional development through short training
programmes. The topics covered include: effective project
planning and evaluation, good research practices, bioeth-
ics and social sciences. The training method is tailored to
fit the needs of working researchers using a learning-by-
doing approach and can be customized according to the
requirements of DEC institutions.

A key component of the TDR programme is to train-the-
trainers, so that research-skill building can be dissemi-
nated to others outside the course. Participants work
on their own project and go through the various steps
of project management to establish a complete project
development plan. The train-the-trainer course provides
participants with practical tips to help them pass on their
new skills to colleagues. To further this objective, a new
curriculum is being developed to promote key concepts
including: the protection of human subjects, the qual-
ity and validity of data generated, and the capacity to
weigh the goals of the project against any risk that may
be involved.

### Empowering health research in smaller, low-income
countries in Africa

Every year funding agencies award grants for health re-
search, and every year the lion's share of that funding
goes to the same countries and institutions as the year be-
fore. Now, with TDR's commitment to the empowerment
of health researchers in smaller, lower-income disease
endemic countries (DECs), that trend may soon change.

Last October as part of its comprehensive approach to
empowerment, TDR collaborated with the WHO Re-

gional Office for Africa (AFRO) and the WHO country
office and Ministry of Health and Social Welfare of the
Gambia, to sponsor a four-day workshop on research
capacity-strengthening and proposal and protocol de-
velopment — in the Gambia's capital city, Banjul.

Attending the workshop were twelve principal investi-
gators from six smaller, low-income DECs: Benin, the
Central African Republic, the Gambia, Guinea, Liberia
and Togo. These countries were all selected to receive
funding to develop their letters of intent into full grant
proposals by the TDR Research Capacity Strengthening
(RCS) group.
“It was a great success,” said Dr Thomas Sukwa, WHO country representative in the Gambia and a long-time TDR affiliate. Sukwa noted participants’ satisfaction at being equipped with the skills to develop their proposals and protocols for submission to TDR for review and funding in 2011.

The workshops are just one example of TDR’s expanded focus on empowerment. “Whereas in the past most RCS grants focused on individuals with PhDs and principal investigators, TDR now supports research that promotes national health research systems strengthening,” said Dr Glenn Laverack, Empowerment Coordinator. “TDR’s clinical R&D career development fellowship scales up

Ten years after its launch, TDR’s Clinical R&D Career Development Fellowship Programme (CDF) is scaling up its activities with funding from the Bill & Melinda Gates Foundation. Designed to promote high quality clinical research in disease endemic countries (DECs), the programme places qualified developing-country researchers with selected pharmaceutical companies for 12 months of training in specialized skills.

“Past fellows are now making significant contributions to clinical research on infectious diseases in their countries,” said Dr Glenn Laverack, coordinator of TDR’s empowerment unit. The Gates Foundation has awarded TDR a US$ 2.9 million grant to support the further training of up to 40 fellows over a three-year period. As of September 2010, 13 Gates-funded fellows had already started their training and another six will start in early 2011.

In an effort to facilitate fellows’ return to their home institutions, TDR is also working to forge a network of CDF alumni. An online platform has been established to provide fellows with a forum for discussion as well as access to educational and training resources. TDR will host an annual meeting of alumni in Geneva.

In November, the first of those meetings brought together 19 current and former fellows to review progress and lessons learnt, and to identify needs and opportunities for the best use of programme resources in assisting fellows on their return home.

Among the participants was former fellow Dr Brenda Okech, a Ugandan immunologist at the African Malaria Network Trust (AMANET) in the United Republic of Tanzania, where she is currently project manager of the GMZ2 malaria vaccine consortium. Prior to joining AMANET, Okech received training in the management of malaria vaccine clinical R&D at GlaxoSmithKline (GSK) laboratories in Belgium.

“It was difficult to leave my husband and two children for a year, but I am eternally grateful for the close mentorship and hands-on training in various aspects of malaria vaccine clinical trials management,” she said. “What I learned at GSK is crucial to my daily work at AMANET, which is coordinating a consortium poised to start a multi-centre phase IIb malaria vaccine trial in four countries.”

Also in attendance was current fellow Dr Julius Atashili, a medical doctor and epidemiologist from Cameroon now working with Pfizer Inc’s malaria development team in Connecticut, USA. “I joined the team just as it was initiating a multi-site malaria treatment study of intermittent preventive treatment in pregnancy,” he said. “It’s been outstanding. I’ve received intensive training in clinical trial design and implementation, and I’ve gotten hands-on experience in designing and reviewing a variety of study documents.”

In the remaining six months of his fellowship, Atashili plans to learn more about the drug production process and to develop a protocol for a clinical trial on malaria treatment in HIV-positive patients that he intends to implement in Cameroon after his fellowship ends. “The team at Pfizer has been excellent,” he said. “They’ve made sure I learn as much as possible by enabling me to interact with many different investigators both inside and outside the company.”

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A new framework guides TDR’s performance assessment

For more than 35 years TDR has funded research, training and infrastructure development in disease endemic countries (DECs). Over the past year alone, 11 TDR units worked on 10 poverty-related diseases in 68 countries with a total of US$20 million in research contracts and training grants. Measuring the impact of those investments is a major challenge.

This coming year, TDR will publish new guidelines that measure results by focusing on the outcomes of projects and their impact on improving global health. The guidelines provide a tool for assessing whether projects are being conducted in accordance with TDR’s core values of country engagement, promotion of equity, working through effective partnerships, and ensuring sustainability. Both quantitative and qualitative indicators have been developed and will be measured, with the contribution of stakeholders, to reflect these various areas of performance.

Following a process of thorough consultation with TDR staff, cosponsors, external advisors and individual researchers from disease endemic countries (DECs), the new TDR Performance Assessment Framework was endorsed by the Joint Coordinating Board (JCB) at a meeting in Shanghai, China, in June 2010. The framework is now being used to guide the systematic measurement of TDR’s strategic and technical performance in order to promote continuous improvement, enhance stakeholder accountability and ensure the harmonization and consistency of TDR’s performance assessment with international practices.

While the framework builds on several ongoing review processes in TDR – including the internal and external reviews – it marks a certain break with the past, as TDR managers begin to embrace a more results-oriented approach to health-research investments. Under the new framework, managers focus not only on the completion of TDR-supported projects but also on how project findings are used to improve global public health (see box Assessing outcomes).

According to Dr Jorge Motta, Associate Investigator at Gorgas Memorial Institute for Health Studies in Panama and chairman of TDR’s JCB, the framework represents a logical approach to evaluating the outcomes and impact of TDR-supported research. “It is an important tool for reaching institutional goals, especially when resources are limited,” he said, adding the framework could perhaps also be useful for DECs, which could adapt it to their own needs.

“The performance framework puts TDR at the cutting edge of measuring research programme outcomes,” said Mary Ann Lansang, chair of the External Advisory Group for the performance framework. Lansang, a professor at the University of the Philippines and currently director of Knowledge Management at the Global Fund to Fight AIDS, Tuberculosis and Malaria, said, “We will be pleased to follow the testing and implementation of this framework and learn from TDR’s experience.”

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Assessing outcomes

The importance of assessing the use of research findings to achieve a positive impact on health programmes is highlighted by a recent TDR-funded study analysing malaria-vector control strategies in Cameroon, Kenya and Mali. After careful review, local investigators identified gaps in some of the ongoing interventions, including insufficient baseline data to be able to chart the effectiveness of the programme and the need for insecticides that would work effectively throughout the disease-transmission season. To ensure that these findings are taken into account, researchers worked with national malaria control programme staff to develop site-specific recommendations for each country. These are being taken up at a national policy level with the support of international donors.

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The African Network for Drugs and Diagnostics Innovation

New pan-African biomedical network will seek home-grown solutions

The ANDI initiative seeks to develop a collaborative, pan-African research and development infrastructure that incorporates training, financing, manufacturing and political support. It aims to take a lead role in setting the research agenda for combating diseases that disproportionately affect African populations and in the development of medicines and diagnostics that are both inexpensive and practical.
NAIROBI, KENYA – For decades Africa has been hobbled by disease. Now a new initiative is creating a continent-wide network of African health researchers, institutions and manufacturers to help address the region’s crushing disease burden. It seeks both to enhance Africa’s scientific capacity and to position biomedical R&D as an economic driver. The network is being launched with the support of several African research institutions, the United Nations Economic Commission for Africa (UNECA), WHO – through TDR and its African and Eastern Mediterranean regional offices – the African Development Bank, and the European Commission.

The African Network for Drugs and Diagnostics Innovation (ANDI) held its 3rd Stakeholders Meeting from 11-13 October 2010 in Nairobi, Kenya. An estimated 500 leading government officials, researchers and funders attended the event, where the organization was officially launched. Meeting highlights included the official incorporation of the organization, an invitation for African scientists to submit project proposals for funding, the roll-out of a networking and R&D database, an update on a call for research institutions to be designated centres of excellence, the announcement of a governing board, and the establishment of a fund to support research projects and institutional networks.

“Andi represents a powerful mechanism for mobilizing African health research capability, unleashing African health innovation potential and expanding global partnerships and regional collaborations to accelerate the delivery of quality health care in Africa,” said Mr Abdouli Janneh, the United Nations Under-Secretary-General and Executive Secretary of the United Nations Economic Commission for Africa, which is co-sponsoring the new research network with WHO. The new entity will be housed initially at UNECA in Addis Ababa, Ethiopia, until it finds a more permanent home on the African continent.

The keynote address was given by the Deputy Prime Minister and Minister for Local Government of Kenya, the Honorable W. Musalia Mudavadi. Also attending were the Minister for Public Health and Sanitation of Kenya, the Honorable Beth Mugo, and Egypt’s Assistant Minister of Science and Technology, Professor Maged Al Sherbiny.

“This marks an important milestone in our ongoing efforts to support African-led science to generate innovation for health and produce health products that address the important health problems in the region,” said Dr Luis Sambo, WHO Regional Director for Africa.

The need is overwhelming: infectious diseases alone are responsible for more than half of Africa’s disability-adjusted life years and over six million deaths a year. African countries only account for 15% of the world’s population but carry a disproportionate share of the global disease burden ranging from an average 25% up to 90% in some cases.

Yet many of the diseases that plague tens of millions of Africans have received little attention from global pharmaceutical companies or international research efforts. Among these neglected diseases of poverty are human African trypanosomiasis (sleeping sickness), leprosy (Hansen’s disease), lymphatic filariasis (elephantiasis), onchocerciasis (river blindness) and schistosomiasis (bilharziasis).

Only limited or expensive treatments are available for many of these diseases. Many African countries lack good laboratories, diagnostic methods and affordable
treatment tools that can be deployed in the field. For instance, in the WHO African region, the 2008 case-detection rate for tuberculosis – one of the continent’s biggest killers – is less than 50%.

“The idea behind ANDI is to support African scientists who are already involved in cutting-edge work developing drugs and diagnostics that meet African needs, while also laying the groundwork to foster new talent and research institutions,” said Dr Solomon Nwaka, who is heading the ANDI effort at TDR. “In the long term this will ensure sustainability of access to health products in Africa and stop the over-reliance on external providers,” he adds. While there has been tremendous growth in health research and development in the last decade around the globe, only a small portion of it has involved African-based institutions and researchers.

Debating new directions

The Nairobi gathering was a rare chance for African scientists to engage directly with high-level policy-makers and funders. When it came to discussing new initiatives for the ANDI network there was plenty of debate among the scientists themselves.

While much of the discussion focused on the development of new products, there was also talk about improving badly-functioning health systems and international aid programmes. Dr Solomon Mpoke, director of the Kenya Medical Research Institute (KEMRI), noted some of the other key debates about ANDI’s priorities, including bringing down drug prices, improving distribution of health services, and basic water and sanitation services.

“Establishing such cross-border, cross-disciplinary collaborations is key to producing innovation in Africa,” said Professor Jhurry, because combining each institutions’ limited resources – whether it is research expertise or specialized equipment – is the only way to create the critical mass necessary for scientific breakthroughs. “Right now I am ignorant of what is going on in Africa. People are doing lots of interesting things but they are not visible,” he said.

Premack said he attended the ANDI meeting because he is seeking scientists who are themselves driving drug research, rather than the normal top-down approach that big companies tend to take. He told TDRnews that he had met about 25 researchers that he would follow up with, which is an unusually high number of connections to make at a scientific conference. Yet while Premack was impressed with the research he had seen, he was troubled there had not been more breakthroughs in treating diseases in Africa. He is hopeful that ANDI will change that dynamic.

Many of the delegates had their own suggestions for how ANDI might expand its focus. One audience member pleaded that malnutrition be included on the agenda, arguing that this noncommunicable disease accounts for more childhood deaths than AIDS, malaria and tuberculosis combined. Another participant remarked that fighting disease required not only scientific interventions but also more traditional development programmes: “Basic science is good, but don’t forget social science.” The pitfalls of past disease programmes should also be avoided, warned another delegate, noting that most funding for diseases in Africa now goes towards HIV/AIDS, while many others receive little research attention.
focus from the biomedical research community. In contrast, Brazil, China and India have all devoted significant resources to studying their own indigenous medicines and have spent years documenting them scientifically (one panelist noted that Chinese medicine has now become the rage in Nigeria).

The panel concluded that more study and regulation of African traditional medicine is needed, including the use of animal testing to establish safety and the development of rules to prevent product adulteration and so-called biopiracy. So far there has been little effort in Africa to institutionalize the scientific evaluation of traditional medicines. Ghana is the only country with a university programme in traditional medicine. Yet this subject was clearly on the research agenda for the scientists attending the ANDI meeting, as 150 out of 270 abstracts submitted to the network related to traditional medicine.

In summing up the conference debate, TDR director Dr Robert Ridley called ANDI, “potentially by far the most important organization that TDR has helped to establish over the years.” Eight innovation awards were given to African scientists by the Honourable Beth Mugo, Kenyan Minister for Public Health and Sanitation, in recognition of cutting-edge research presented to the conference.

Building bridges

The ANDI initiative began with a question: who is doing research in Africa and why isn’t there more? A recent survey commissioned by ANDI into the state of R&D in Africa found that there is significant capacity across the continent but it is fragmented, uncoordinated and does not adequately address African health problems.

While there are some 2700 research institutions doing significant work, they are highly concentrated in just a few countries. Many institutions have complained that their discoveries never make it to market. One of ANDI’s goals is to foster public-private partnerships in order to help bring these crucial health discoveries to fruition.

There have been notable research successes by African countries, according to TDR’s Solomon Nwaka. He points to the natural products-based formulation (niprisan) for the treatment of sickle-cell anaemia developed by the National Institute for Pharmaceutical Research and Development in Nigeria, and to the diagnostic kits for hepatitis B and HIV developed by the Kenya Medical Research Institute. In Egypt the Theodor Bilharz Research Institute houses a top-of-the-line antischistosomal drug-screening facility, and in South Africa the University of Cape Town is working on antimalarial research, which includes a training component for scientists.

Yet overall, current biomedical research in Africa falls short of supporting the continent’s health needs. While African institutions are producing substantial new research, the majority of it is not translated into products and is concentrated in only a few countries, according to the ANDI survey published in *Plos Medicine*. This found that the top 20 institutions producing the most research were based in only three countries – Egypt, Nigeria and South Africa. Meanwhile poorer countries, especially in parts of western and central Africa, have produced little scientific research. The authors say this underscores the need to create a pan-African R&D network.

Another key finding in the survey was the need for collaboration between African countries. While three-quarters of the published articles in the five-year period studied were collaborative, nearly 95% of all the partnerships were with institutions in the United States of America or Europe. Only about 5% of the collaborations involved more than one African country and less than 1% included more than two.

“The lack of intra-African collaboration suggests that African institutions do not have adequate leadership and ownership of the research being done in the continent,” concluded the survey. The consequences of this are

### Finding drugs, searching for dollars

One of the biggest problems faced by African researchers is a simple lack of funds. Many potential new drugs are sitting in limbo because researchers cannot afford to perform clinical trials, much less bring them to market.

One such case is that of *Carissa edulis*, a Kenyan medicinal plant with roots that are used traditionally in the preparation of soup. Festus M Tolo, a researcher at the Kenya Medical Research Institute, said his team came across the medicinal plant while collecting samples in the Gitoro forest of Meru, in Kenya’s Eastern Province. Their studies yielded a surprising result: extracts from the plant appeared to have significant antiviral properties, delaying the onset of herpes lesions. While the findings were published in the *Journal of Ethnopharmacology* in 2006, so far Tolo and his team have not been able to secure funding to perform clinical trials on the compound. His hope is that through ANDI he will be able to secure a grant or link up with an institution that might fund further research.
already being felt: “overdependence on external sources alone will continue to leave a substantial portion of African health needs unaddressed and will not resolve the leadership and ownership gap.”

A big part of the problem is the sense that research budgets are not sustainable since most of the funding is short-term, given and administered by foreign institutions. Poor communication is another issue: the survey of leading research institutions in Africa found that there was little knowledge about R&D being done in other countries, a lack of networking infrastructure and not enough funding to produce and retain researchers who often leave for better-paid jobs abroad.

Writing in The Lancet, the ANDI Task Force found that many institutions reported discoveries that are stalled due to lack of institutional mechanisms to support further testing and subsequent commercialization. Getting these initiatives underway requires a functional cross-border research network, strengthened links with manufacturers throughout the continent, and most of all, financing dedicated to addressing the African disease burden, according to the authors.

An ANDI call for centres of excellence has so far been met with over 116 applications from institutions across Africa, working in both R&D and manufacturing. The applications are now being reviewed and the results will be announced in 2011.

The search for funding

The ANDI funding plan is ambitious. The business strategy recommends a US$ 600 million endowment fund, which would provide a US$ 30 million annual budget. In a positive development, the African Union has pledged to increase its spending on scientific research and innovation to 1% of GDP. Africa spent only 0.3% of GDP on R&D in 2002 compared with a global average of 1.7%.

Such increased investment would not only result in new product development, but would also help to stem the brain drain that undermines African research by providing attractive career paths for African scientists. The founders of ANDI are also eager to draw the link between biomedical research and economic development, for instance ANDI itself could help create new markets, as African biomedical entrepreneurs seek to fill the void left by global players in addressing Africa’s disease burden.

Support from UNECA could be a key factor in gaining more African funding. “Because UNECA reports to African finance ministers, one clear advantage for hosting ANDI in UNECA would be to bring the network to the attention of key African policy-makers, and in particular finance ministers,” said Ms Aida Opoku-Mensah, Director of the ICT and Science & Technology Division at UNECA.

At this point it is an open question where the US$ 600 million for the endowment fund will come from. ANDI’s organizers have emphasized that they want African countries to fund a good part of it themselves, because if all the funding comes from wealthy countries it could undermine the whole purpose of ANDI.

“I hope a significant part comes from Africa, otherwise it won’t be African-led and African-owned,” said Opoku-Mensah.

“African governments need to understand that the economic benefits of ANDI could be significant,” said Nwaka. “There is high demand for drugs, vaccines and diagnostics in Africa, so why shouldn’t African countries produce these themselves?”

“The networking basis of ANDI is an important strategy in these tight economic times,” said Daniel Plas, head of the social and environment section of the European Union (EU) delegation to Kenya. African research budgets are small and so it is better for countries to cooperate to use them more effectively. The EU has given ANDI five million euros in seed funding.

“The continent of Africa is coming of age,” said Opoku-Mensah. “We should learn how to turn our problems into solutions. We are too often looking for outsiders to come and help us. We have to do it ourselves.”

For more information about ANDI, go to: www.andi-africa.org

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A decade of fostering good practice

Forging alliances for ethical health research

Global partnerships have made possible the development of many of the most important new drugs and diagnostics for infectious diseases, paving the way for major advances in health research. But partnerships and alliances are also key to protecting the human participants in that research, underpinning the often non-binding international declarations that guide the conduct of clinical trials.

The 10th Annual Forum for Ethical Review Committees in the Asian and Western Pacific Region (FERCAP) Conference, held in Shanghai, China in November, had the goal of creating an “international network of national ethical research systems.” The meeting provided a forum for a wide variety of stakeholders to discuss leading concepts, initiatives and models of building alliances for the conduct of ethical health research.

“After 10 years, FERCAP has established networks among ethics committees, regulatory authorities, sponsors and investigators,” said Dr Cristina Torres, FERCAP Coordinator in the WHO/TDR Clinical Coordination and Training Centre (CCTC) at Thailand’s Thammasat University, where the group is based. “We have also been successful in encouraging ethics committees (ECs) in the region to seek voluntary audits to assess their compliance with international regulations and guidelines.”

Founded on the premise that a systems approach is needed to address important health research issues in Asia and the Western Pacific, the TDR-supported initiative endeavors to strengthen capacity for ethical research through quality improvement of ECs: to improve communication among ECs, to educate health research stakeholders, and to assist with the adoption and implementation of Standard Operating Procedures (SOPs) for ethical review in the region.

As one of five regional fora comprising the Strategic Initiative for Developing Capacity in Ethical Review (SIDCER) network, FERCAP also participates in the SIDCER Recognition Programme, designed to measure the quality and effectiveness of ethical review and to ensure the accountability of ethics committees in both developed and developing countries worldwide.

“This year, we are in nine countries in Asia and we’re helping countries in Africa and the Russian Federation to improve the quality of their Institutional Review Boards (IRBs),” said Torres. “By the end of the year, we will probably have around 73 recognized ECs and IRBs in the Asia-Pacific region.”

According to Dr Juntra Karbwang, Clinical Coordinator and Manager of the Strategic Quality Management Unit, FERCAP also assists countries in developing their national accreditation systems by training auditors, designing frameworks for audit management, and establishing networks of stakeholders, including representatives of funding and regulatory agencies and the national research council. “The idea is that we train and benchmark the ECs progress, and then the country accredits it,” said Karbwang. “FERCAP believes that accreditation should only come from the authority within the country.”

“Much depends on the work of our local partners,” said Torres, adding that FERCAP’s partners in China have recently formed the China Initiative for Developing Capacity in Ethical Review, the main organizer of the conference in Shanghai last November. “The Chinese do not have a national system of improving EC performance,” she said. “But we’re moving forward to organize the work in China with our partners there.”

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A new era for health

Over 1200 participants from more than 100 countries gathered in Montreux, Switzerland for the First Global Symposium on Health Systems Research, held from 16-19 November 2010. The theme of the conference was strengthening the field of health systems research as a means of increasing universal health-care coverage. The meeting concluded with a call for a new international society for health systems research, knowledge, and innovation, to help establish this important area alongside more traditional biomedical and clinical research.

“We must move quickly to bridge the divides, to build capacity and to invest in health systems research in low- and middle-income countries,” said WHO Assistant Director-General of Health Systems and Services, Dr Carissa Etienne.

Health systems research can “make the invisible, visible,” said Julio Frenk, Dean of the Harvard School of Public Health, in the opening day plenary session. Once reforms happen, it opens up whole new research opportunities – ones that ministries of health and other researchers often miss out on, said Frenk. The even more complicated – and often neglected – part of the research equation is determining how the reforms are actually working. “Research is an integral part of the efforts to improve health systems performance,” he said. “Evaluation cannot be an afterthought.”

Yet while health systems research is growing as a field, on average it still only accounts for 10% of total health research, and of that only a fraction is led by scientists in the countries with the most serious health problems, according to an analysis by the Norwegian Knowledge Centre for the Health Services.
Health systems research presents a tremendous opportunity, “to bring the last billion out of isolation,” said Tore Godal, special adviser to the Prime Minister of Norway and former director of TDR. “The bottom line is what we are doing is getting validated information that can guide our actions,” said Godal.

Yet there are many hurdles to overcome in getting research to influence health policy. One of the biggest problems is that there is a large disconnect between researchers and policy makers, said Eyitayo Lambo, the former Nigerian Minister of Health. Researchers often have a lack of understanding of the complexity of the policy-development process, he said. Too often, health systems research is carried out that is not relevant to current problems, comes too late, and is difficult to interpret. Sometimes, “the data that has been used for the evidence is not trusted by the policy-maker,” said Lambo.

One of the main themes of the discussions was how to give citizens of low- and middle-income countries a greater role in improving their own health care. High out-of-pocket expenses and lack of access to quality health care, drugs, vaccines, health-care workers and facilities, are critical barriers in most developing countries. Health systems research needs to tackle an entirely new, complex agenda if it is to help the people least served by health systems, said Professor David Molyneux, of the Centre for Neglected Tropical Diseases, Liverpool School of Tropical Medicine in England. “The populations we are seeking to serve are unable to access any services, not just health services.”

“How can we get systems working together to focus on what the research priorities are for the people most in need?” asked Molyneux.

The symposium was organized by WHO, TDR, the Alliance for Health Policy and Systems Research, the Special Programme of Research, Development and Research Training in Human Reproduction (HRP) and the Global Forum for Health Research, in partnership with more than 20 other major funders. TDR hosted the secretariat for the meeting.

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**Tim Evans**

Tim Evans is Dean at the James P Grant School of Public Health at BRAC University and Chair of the Board of Trustees at the International Centre for Diarrhoeal Disease Research (ICDDR,B) in Bangladesh. He is a former Assistant Director-General of WHO for Innovation, Information, Evidence and Research (IER).

**It was your idea to organize the first global symposium on health systems research. Why did you think it was necessary?**

There is a lack of good research on what it takes to strengthen health systems. By that I mean we lack knowledge on how proven and affordable interventions can be delivered to those who need them. This entails a much better understanding of policy and decision-making, commodity supply chains, physical infrastructure, and the health workforce and their complex interactions. I hope that people increasingly come to the view that systems research can address very important problems – in a complementary manner to biomedical and clinical sciences – through high-quality, rigorous research.

**Does lack of scientific evidence prevent the health fraternity from being able to convince governments of the best way to improve health systems?**

That is part of the problem. Health systems are full of vested interests. For example, some people would like services to be free to patients while others would like them to be charged as much as they are willing to pay. Which system is better? The answer is one that research can inform in a very clear way, so that these discussions are not settled purely by power politics.

continues on next page
How should health systems research deal with politics and policy?

Part of health systems research relates to understanding the dynamics of negotiated agreements between diverse stakeholders. There is a lot of good social science and political economy research that can inform how these decisions are made – or should be made – so that they are more transparent.

Is it hard to find funding for health systems research?

There has been tremendous difficulty in finding funding in the past. Health systems research has been the poor cousin of biomedical and clinical science research, lacking strong advocates within the mainstream establishment of medical research councils and institutions. But the situation is beginning to change as recognition grows related to its potential for improving the health sector performance and the field gains greater credibility and constituency.

What problems do countries share in terms of health systems?

Despite enormous diversity across countries, the health systems challenges they face are remarkably similar. What is the essential package of interventions? How many and what types of health worker are needed? How are health workers retained in remote and marginalized areas? Which prepayment system works best? How can information systems generate more timely and accurate data for decision-making? While answers to these questions require national or subnational evidence, there are advantages to multi-country research on these common challenges to health systems.

What do you hope the symposium might achieve?

First, the symposium is providing a watershed of evidence on a central health systems challenge – universal health coverage – and we expect a rich harvest of policy implications as well as a further agenda of research. More fundamentally, we aim to build the constituency and credibility for health systems research globally. The constituency is coming together more cohesively to define and agree on standards for health systems research that will enhance its credibility and advance the field more quickly.

Integrated Community Case Management (iCCM) – Global monitoring and evaluation panel

Community Case Management (CCM) brings a comprehensive approach to the three diseases that are the biggest killers of children in low- and middle-income countries: pneumonia, diarrhoea and malaria. A consortium of international organizations and universities has formed a task force to improve and scale-up community-case management programmes around the globe. The members include TDR, WHO Department of Child and Adolescent Health and Development (WHO/CAH), UNICEF, USAID, Save the Children, International Rescue Committee (IRC), the Malaria Consortium, Dakar University, the Karolinska Institute, Johns Hopkins University and Boston University.

The task force is developing indicators and other metrics to allow agencies to evaluate the use of CCM and to aid in its implementation and expansion. This was the subject of a panel co-chaired by TDR scientist Alexandra de Sousa and Karolinska’s Stefan Peterson.

In her research, Dr de Sousa found that by 2009, 89% of the Countdown countries trying to reach the Millennium Development Goals were implementing CCM; in practice, however, the way it is applied remains fragmented. The CCM approach was rarely introduced at a national level, in most cases it did not integrate all three diseases, nor was it integrated with health systems as a whole.

“The bottom line is we still have a lot of work to do to push implementation,” said Dr de Sousa.
Implementation research report to be launched

Implementation research (IR) remains a neglected field critical to scaling-up health interventions in disease endemic countries. This neglect is particularly pronounced when it comes to studies by researchers based in those affected countries, said Dr. Jane Kengeya-Kayondo, TDR’s coordinator of strategic alliances. She announced an upcoming report at the symposium that will focus on implementation research gaps and areas for growth. Dr. Miguel Angel Gonzalez Block, the executive director of the Center for Health Systems Research in Mexico and one of the report authors, highlighted some initial findings. He said that a review of papers on IR in peer reviewed journals had found the number had grown from just 15 in 2005 to 61 in 2009, but that this is still a very small percentage overall within the health research field. The report writers had also found that 72% of these studies were focused on reproductive diseases, malaria, HIV and tuberculosis. Other poverty-related diseases like leishmaniasis and dengue fever receive only miniscule attention. More than 40 authors from around the globe have contributed to the upcoming publication, which calls for four specific actions:

- Advocate for the use of IR
- Collaborate for production
- Strengthen capacity
- Fund IR.

The report is expected to be published in early 2011. The overview and executive summary are already available and can be found at: www.who.int/tdr/svc/news-events/news/ir-access
Many systems, many voices

The HSR symposium brought together more than 1200 researchers, policy-makers, funders, international aid officials, and students from around the globe. Here are some of their voices.

More can be found at: www.hsr-symposium.org/index.php/hsr-people
(Interviews and photos by Alice Ghent)

TSITSI GRACE MONERA
Lecturer at the School of Pharmacy at the University of Zimbabwe

“Botswana has a high HIV rate that has undermined many successes in primary-health care. HIV treatment is being done well, but other conditions have not received the same attention. I am interested in learning from other countries how to have an integrated approach that improves quality of care and the morale of health workers.”

JOSEPH AMANKWAH ATTA
Health Services Administrator, Komfo Anokye Teaching Hospital, Ghana

“We have to be serious about the data that we have and make meaning out of that. This simply means that we have a lot of data available but we are not making use of it. With the information received from this conference, I hope to return and change the way we do things, such as with health insurance administration.”

SUNANDA RAY
Acting Head of Public Health, University of Botswana School of Medicine

“Botswana has a high HIV rate that has undermined many successes in primary-health care. HIV treatment is being done well, but other conditions have not received the same attention. I am interested in learning from other countries how to have an integrated approach that improves quality of care and the morale of health workers.”

SHASHA YUAN
PhD student, Shandong University, China

“I am studying health economics, especially the financing of health care in rural areas. I learned a great deal from the symposium, such as the health-financing mechanisms in different countries, and knowledge translation. I also got some wonderful documents from the market place. In addition, the symposium is organised very well.”

TAUFIQUE JOARDER
Lecturer, BRAC University School of Public Health, Bangladesh

“Some of the presentations, especially on human resources for health, allowed me to clarify some issues such as on the retention of health workers in rural areas. I felt encouraged because people at WHO invited me to join some sessions. Many people shared their experiences of knowledge translation and it helped me to understand how to reach policy-makers.”

LEANNE IDZERDA
Research Assistant at the Centre for Global Health Research, University of Ottawa, Canada

“I came to the symposium because I won the essay competition for the Young Voices in Research for Health competition, run by The Lancet and the Global Forum for Health Research. My essay was on equity and access to services. Just because there is a universal health system in a country does not mean that everyone will be able to access services – regardless of whether it is a high- or low-income country.”

DR IBRAHIM YISA
Abt Associates, PATHS2 Programme, Nigeria

“In my own country, most people – including those in health-care delivery – have very little understanding of the concept of health systems. One of the challenges that we must address is the lack of effective governance for health. There is a disconnect between the political structure, the executive and the bureaucratic system, with the result that very little gets done.”
HSR on the ground: chickens, toilets and shady characters

Health systems research is often considered amorphous or even irrelevant. But many of the panelists at the conference – who came from over 100 nations – presented research that was anything but abstract. Two case studies in particular demonstrate that health systems research can be one of the most down-to-earth disciplines.

Ashok Dyalchand’s research gets about as close to the human experience as possible. Based at the Institute of Health Management in Pachod, India, he studied how and why rural communities started using toilets. Beginning in 2007, the Indian Government, with World Bank support, initiated a dramatic sanitation programme that increased rural toilet use from 22% to 67%. Professor Dyalchand’s research compared the nationally administered toilet-use strategy, which provided subsidies, to one that used a social-normative approach, where community pressure was brought to bear.

It turned out that shame trumped cash. Often government subsidies ended up in the hands of corrupt officials and created divisions in villages. In the community-based approach, which used peer pressure as a motivator, women would sometimes rise early in the morning and blow whistles to embarrass any recalcitrant neighbours who tried to defecate in the fields. The community strategy was more than twice as successful as the individual-based, subsidy strategy, said Professor Dyalchand. “Women, youth and children are very effective change agents.”

Poverty, disease and chickens were the focus of research by Paul Forster of the STEPS Centre from the Institute of Development Studies at the University of Sussex, England. He looked at efforts to regulate poultry production in Jakarta, Indonesia – one of the world’s recent hot spots for avian influenza – where 12 million people consume an estimated one million chickens a day.

Forster mapped the complex supply chain by which chickens are raised, processed and sold. He found that from a public health perspective the middle men who acted as brokers between producers and processors were the weak link. Because these “shady characters” act outside government control, health policy-makers have no way to regulate them. Forster said this was a demonstration of why health systems research needs to venture into the realm of political economy, in order to ensure that power-relations are taken into account.

Final recommendations and announcements from the Steering Committee

The following are annotated excerpts:

- Create an international society for health systems research, knowledge and innovation, with the aim of building greater constituency, credibility and capacity for systems research on health globally
- Electronically preserve and disseminate the intellectual products of the meetings
- Provide visibility and lend support to regional and national efforts to strengthen health systems research
- Prioritize maternal, neonatal and child health
- Utilize health systems strengthening to accelerate universal health coverage
- Act as a catalyst for contributions from the global scientific community to establish norms, standards and practices to strengthen the foundations for health systems research
- Identify opportunities for collaborative research across different disciplines, sectors, stakeholders and geographies

The committee announced that a second Global Symposium on Health Systems Research is planned for 2012 or 2013.
Community health researchers convene in Johannesburg

Ten TDR-funded African research groups from institutions across the continent convened at the University of the Witwatersrand (Wits) in October 2010, to present and analyze research on community-based interventions (CBI) in rural and urban Africa.

Jointly organized by TDR and the School of Public Health at Wits – a long time TDR partner – the workshop focused on two major research portfolios. The first consisted of six studies investigating whether community-based interventions can be scaled up to strengthen primary health care in rural areas of Africa, and the second was made up of four studies evaluating the feasibility and potential impact of implementing CBI to control infectious diseases in African cities.

CBI interventions run by affected communities themselves were initially developed to provide remote, rural populations in Africa with access to ivermectin for the treatment of onchocerciasis (river blindness), and the strategy has since proved effective in delivering a broader package of interventions including Vitamin A, insecticide-treated bednets, antimalarial medication and tuberculosis case detection. This was demonstrated in a three-year, multi-country study published in 2008 and recently summarized in the Bulletin of the World Health Organization (2010:88:509-518).

The objective of the workshop was to advance the data analysis and further develop the intervention phase of the studies, which is planned for 2011, said Dr Johannes Sommerfeld, leader of TDR’s integrated community-based interventions unit.

Concurrently, the School of Public Health at Wits also hosted the third meeting of the Scientific Advisory Committee for TDR’s CBI unit, bringing together experts from ten institutions worldwide to discuss future directions for research and the implementation of the CBI unit’s four strategic objectives. These are: (1) the development of an analytic framework for integrated CBI; (2) the conduct of research on critical factors in the scale-up of CBI and ways of efficiently introducing CBI into new areas; (3) the development and testing of alternative CBI strategies targeting underserved populations; and (4) the development of strategies that enhance the communities’ capacity to demand and implement CBI.

Following the workshop and advisory committee meeting, the groups presented their research at an international symposium, held on 4 October 2010. This showcased the two research portfolios in the context of TDR’s longstanding support for research on community-based interventions, carried out in partnership with the African Programme for Onchocerciasis Control (APoC) and the WHO Regional Office for Africa. The symposium also provided an overview of the long history of community-based research at Wits.

“Wits University aims to be a resource, not just for South Africa but for the region,” said Professor Sharon Fonn, director of the Wits School of Public Health. As examples of its contributions in the field, she cited the university’s master’s level epidemiology and biostatistics degrees (started with TDR seed funding), and its co-leadership of the Consortium for Advanced Research Training in Africa (www.cartafrica.org). “It was therefore natural for us to want to facilitate a workshop on African-led research,” she said. “It was an investment well made; the integration of health services [such as through community-based initiatives] is a real challenge, and here was a group tackling it ten hours a day for ten straight days.”

Implementation research for access and delivery

There is a growing divide in health status between the world’s rich and poor. Contributing to that problem is a gap in our knowledge of how to scale-up health programmes in low- and middle-income countries.

While global health research has traditionally been focused on basic science and epidemiology, health systems research (HSR) receives only a small fraction of the total expenditure on health in low-income countries. In times of constrained resources and growing global needs, one of the key components of HSR that is often neglected is implementation research (IR): the search for new ways to administer public health interventions more effectively on the ground.

TDR and partners in developed and developing countries are working to build up support for IR on several fronts. In addition to helping organize the First Global Symposium on Health Systems Research (see pages 20-25) TDR worked with the Ugandan Ministry of Health to convene a meeting in Kampala, Uganda last June involving researchers, funders, representatives of product-development partnerships, non-governmental organizations, ministries of health and United Nations agencies.

Organized around the chapters of a planned report titled, Implementation Research for Access and Delivery of New and Improved Tools, Strategies and Interventions for the Control of Diseases of Poverty, the meeting in Kampala featured discussions aimed at identifying gaps and priorities in IR and developing a framework for turning new interventions and strategies into effective solutions.

Dr Walter Flores, one of the authors of the new report, said that many countries do not regard IR as a genuine form of research and consequently provide little funding for this area. “There is a need to advocate for IR with ministries of health
A new standardized curriculum for IR/OR

A good curriculum can be a powerful thing – especially for an area of scientific enquiry as marginalized and misrepresented as implementation and operations research (IR/OR). Indeed, more than merely enhancing researchers’ knowledge and skills, a robust, well-designed curriculum could even transform attitudes towards the discipline and perhaps inspire in young scientists, healthcare providers, control-programme implementers and policy-makers, a passion for health systems research.

But what exactly does a standardized IR/OR curriculum look like? Last September representatives of TDR, the US Agency for International Development (USAID), UNICEF, the Norwegian Agency for Development Cooperation (NORAD), the Global Fund to Fight AIDS, Tuberculosis and Malaria, the Population Council and a number of other institutions from developed and developing countries, gathered in Geneva, Switzerland to review existing curricula, tools and learning materials in an effort to answer that question.

In a session on the identification of the key elements of an IR/OR curriculum, participants reached consensus on the most important characteristics, including the development of proposal writing and data analysis skills; the teaching of relevant research methods; recognition that IR/OR is a collaborative process; discussion of the policy implications of research and the use of practical hands-on training for multi-disciplinary country teams.

“The evidence gained from IR/OR is crucial for successful programme implementation and scaling up,” said Dr Helga Fogstad of NORAD.

The picture that emerged from this meeting is being used to devise a curriculum framework for IR/OR capacity development. Aimed at building “a culture for knowledge generation and utilization to improve the health of individuals, communities and populations,” the framework will evolve from and address community-identified needs. It will be grounded in practice, facilitate customization and adaptation of standardized learning theories and processes, and involve ongoing internal and external evaluation and improvement.

In her closing remarks, Dr Kathleen Handley of USAID noted that, “existing modules developed and used by various partners will be tested and/or piloted at IR/OR capacity building workshops organized by TDR and its partners in Africa, Asia and Latin America.” Experience collected at these workshops will help to enrich and expand existing modules, she said. TDR and its partners have agreed to develop a full IR/OR curriculum during 2011.

African countries direct funds for malaria elimination

When scientists from eight Southern African countries met for a TDR-supported subregional workshop in Harare, Zimbabwe last June, they took a first step toward a major milestone in malaria research – African ownership.

Using their own national data, participants discussed needs and identified research priorities. They classified each with regard to urgency and expected impact and drafted letters of intent (LOI) describing the scientific basis and relevance of their proposed interventions. Following submission by the Southern African Roll Back Malaria Network (SARN) for further sharpening at its general assembly in Zanzibar from the 11–18 September 2010, the LOI were endorsed as priorities for malaria elimination and earmarked for development into fully-fledged proposals in workshops to be sponsored by the Southern African Development Community (SADC).

“The SADC decision to sponsor the workshops marks the first time this group has committed to funding the development of country-owned and initiated health research,” said Dr Andrew Kitua, leader of TDR’s evidence for anti-malarial policy and access team. Kitua called the decision a “breakthrough achievement”
Meetings | ASTMH

TDR at the American Society

More than 3000 experts in infectious diseases met in Atlanta, Georgia for the 59th annual meeting of the American Society of Tropical Medicine and Hygiene (ASTMH) from 3–7 November, 2010. The key annual event for scientists and researchers working in tropical medicine, the meeting provided a forum for discussion of the latest scientific discoveries and developments in global health policy, as participants from around the world presented the results of their research.

Treating fever with antimalarials and antibiotics decreases childhood mortality

The preliminary results of four TDR-supported studies evaluating integrated community-case management of malaria and pneumonia to measure its impact on childhood morbidity and mortality were the subject of a special symposium chaired by Dr Franco Pagnoni of TDR’s evidence for antimalarial policy group. The symposium provided an overview of the four cluster randomized control trials, three of which were completed in 2010 and supported in part by contributions from USAID and ExxonMobil.

The first part of the symposium focused on research from Ghana and Uganda, where two trials aimed to establish whether there was any additional benefit in treating fever cases with both antimalarials and antibiotics – a first in clinical malaria research. Both studies had an endpoint of mortality and were similar in terms of design. In Ghana children with fever in the two intervention groups were treated in their communities by volunteers with antimalarials only, or antimalarials and antibiotics while in the control group there was no community-based drug distribution. In Uganda children in the intervention arm received both drugs, while children in the control group received antimalarials only.

“We know that by treating children who have fevers with antimalarials, we reduce mortality,” said Pagnoni. “But of course not all fevers are malaria. They may be pneumonia as well. So if we treat with antibiotics at the same time, do we provide any additional benefit in terms of mortality?”

Preliminary data from the completed study in Ghana showed that mortality was significantly reduced in both groups although to a different degree (29% with antimalarials only and 44% with antimalarials and antibiotics). However the difference in mortality reduction between the two groups was not found to be statistically significant. “What these results clearly show,” said Pagnoni, “is that childhood mortality can be significantly reduced by providing treatment for malaria and pneumonia in the communities. Further analysis is needed to clarify whether a statistically significant additional benefit can be obtained through the combined treatment.”

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Innovations in treating schistosomiasis

ASTMH attendees also learned about two systematic reviews for the treatment of urinary and intestinal schistosomiasis, addressing both the uncertainty surrounding the correct dose of the cornerstone drug praziquantel and the state of alternative therapies. The reviews, which received partial support from TDR, were conducted by the Cochrane Infectious Diseases Group with the participation of other institutions such as the Swiss Tropical and Public Health Institute.

In a symposium chaired by Dr Piero Olliaro, leader of TDR’s drug development and evaluation for helminths and other NTDs group, the WHO-recommended dose of 40 mg/kg of praziquantel was reported to be appropriate for both forms of the disease. The reviews also revealed that while effective alternative treatments do exist – oxamnique for the intestinal form and metrifonate for the urinary form – production is limited or has been halted completely. “We need continued production and also trials of combinations of these drugs should be studied,” said Olliaro.

Senegal: 14-year-study shows changes in age dependent risk of malaria

The results of a recently concluded 14-year study of the changes in malaria epidemiology in a district of southern Senegal (partly supported by TDR), were presented at another special symposium by Olliaro. “What we’ve seen is that the total number of cases has gone down, and there is a temporal association between this decline and the deployment of ACTs, but the cause of this decline is likely to have multiple explanations,” said Olliaro. “We’ve also seen that this decline is paralleled by a shift in the age-dependent risk of malaria; 15 years ago, children were at a higher risk for the disease, now the risk of malaria is uniformly low for all ages. That shows there is a declining rate of transmission.”

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For Tropical Medicine and Hygiene (ASTMH)
Harmonizing research funding through ESSENCE

In recent years the global health landscape has become crowded with new initiatives, leading to concerns that internationally funded research projects may not match national priorities and sometimes may even inadvertently work against them. At the same time, multiple donors often fund the same project, with each one demanding different criteria for its evaluation process. The result is mounds of paperwork and conflicting priorities.

In an effort to harmonize internationally funded research programmes and align them with the priorities of disease endemic countries, a new TDR-based initiative has been created, entitled ESSENCE for Health Research. The ESSENCE project is designed to both harmonize donor funding practices and to give disease endemic countries a stronger voice in determining the priorities of internationally-funded global health programmes.

ESSENCE, which stands for Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts, was launched in 2008 at a meeting organized by the Swedish International Development Cooperation Agency (Sida) in Stockholm. With its focus on health research, ESSENCE builds on the principles of the Paris Declaration on Aid Effectiveness and the Accra Agenda for Action, which set standards for good practice in international aid.

“As a global health research organization that both gives and receives donor funds, TDR has an operational understanding of the issues that ESSENCE is tackling,” said Dr Garry Aslanyan who coordinates the initiative for TDR.

The ESSENCE membership is composed of international health institutions, government research agencies and philanthropies. It also has an alliance with ISHReCA, a new TDR-supported African health research network.

ESSENCE made its first major step with the development of a framework document that is designed to harmonize the planning, monitoring, and evaluation of international health research programmes. The document, which was endorsed at a meeting held in November 2010, alongside the Global Symposium on Health Systems Research in Montreux, Switzerland, is designed to create a common methodology and common indicators that donors can use to assess their research capacity-building programmes. The work on designing the framework was led by the Science for Global Development division of the Netherlands Organization for Scientific Research, together with TDR.

ESSENCE is also sponsoring an ongoing review by the US National Institute of Health’s Fogarty International Center into funding practices, which aims to identify disparities, redundancies and overlaps between agencies.

The first country-based pilot project by ESSENCE occurred in 2009, in the United Republic of Tanzania, where the Tanzanian Commission for Science and Technology led a dialogue between international donors and representatives from all Tanzanian health research institutes, in which they discussed ways to harmonize international research funding to the country. “A close interaction” was formed between the two groups, which resulted in targeted funding to Tanzania from some members of ESSENCE, said the group’s current chair, Professor Hannah Akuffo of Sida.

For more information on ESSENCE:
www.who.int/tdr/svc/partnerships/initiatives/essence

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Jan Atkins, 15 September 1935 – 9 June 2010

Sue Block Tyrrell remembers her friend and colleague, Jan Atkins: Jan was a wonderful English lady who worked tirelessly in TDR’s communications section from 1979 until 1994, when she left to return to England with her husband Geoff on his retirement. Jan always joked that she came to help TDR for just a couple of weeks and ended up staying some 15 years. With her easy-going personality, kindness and sense of fun, Jan loved to help everyone and we all enjoyed working with her. It was the days before e-mails, and Jan took great pride in promptly sending documents to the many scientists in disease endemic countries to help their efforts. Many of the scientists wrote back to express their gratitude.

Jan was born on 15 September 1935 near Cambridge, England. She grew up and was educated in Sussex. Jan is survived by her husband, Geoff, her children Marcus and Claire, and five grandchildren, of whom she was particularly proud.
Research into infectious diseases of poverty produces a constant stream of new discoveries and initiatives, programmes and policies that push the boundaries of global health on a daily basis. Set up three years ago by TDR, the website TropIKA.net has been developed to keep the scientific community up-to-date and informed with a mix of in-depth profiles, research reviews, opinion-editorials and breaking news.

Thai researchers tackle malaria

In July readers learned about the first antimalarial drug entering clinical development from Thai researchers at the National Center for Genetic Engineering and Biototechnology (BIOTEC). A team led by Dr Yongyuth Yuthavong discovered the structure of an enzyme inside the malaria parasite P. falciparum that is normally targeted by a widely-used class of antimalarial drugs called anti-folates. Drugs within that class have gradually become ineffective against the parasite because of mutations in that enzyme. Armed with this knowledge, the researchers designed several anti-folate drug candidates capable of binding to the enzymes. One of these, P218, may be in human trials by the end of 2011.

Implementation research helps Bangladeshi women

The importance of implementation research was highlighted in a profile of Dr Mushtaque Chowdhury, a veteran of the Bangladesh Rural Advancement Committee (BRAC), who carried out groundbreaking research on the uptake of oral rehydration therapy (ORT) by Bangladeshi women. After discovering that women used a number of terms to describe different kinds of diarrhoea and that they only administered ORT to infants with certain types of the disease, Chowdhury urged his colleagues to change the ORT programme strategy, which resulted in dramatically increased rates of uptake. “We thought that ORT would make sense to mothers,” he told TropIKA. “But we overlooked the behavioural aspects.” With that realization, the project was transformed. Chowdhury, now an associate director at the Rockefeller Foundation, also discussed his work as co-author of a chapter in the forthcoming TDR Global Report for Research on Infectious Diseases of Poverty, due to be published in 2011.

TropIKA reviews: from maps to genes to bednets

A round-up of the latest peer-reviewed articles on infectious diseases of poverty gave TropIKA.net readers an overview of important new research, such as: the Malaria Atlas Project’s map of the worldwide distribution of P. vivax; the fate of a lymphatic filariasis preventative mass drug distribution programme and its implications for future disease control efforts in a remote island of Indonesia; new genetic clues about why tuberculosis remains latent in some 90% of the estimated two billion people infected with the disease; the strange history of drug discovery for the treatment of trypanosomiasis; and a comparison of the most effective ways to distribute bednets for the prevention of malaria.

Mapping a geneticist: a profile of Dr Enriqueta Bond

Dr Enriqueta Bond, another Global Report chapter co-author, was introduced to TropIKA.net readers in late September. A geneticist by training, Bond had a long and successful career in science policy serving as executive officer at the Institute of Medicine (IOM), the health arm of the National Academy of Sciences in the United States of America (USA), and later as president and director of the Burroughs-Wellcome Fund, before retiring in 2007. In addition to reflecting on the past, she describes her current work as chair of the African Science Academy Development Initiative, which helps academies in Africa to perform the same function offered by IOM in the USA. “They are producing a lot of good policy advice,” she told TropIKA. “If they can continue to be responsive to scientific issues in their countries, they can play a role in the infectious disease area.”

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**Malaria Rapid Diagnostic Test performance – results of WHO product testing of malaria RDTs: Round 2 (2009)**

Rapid diagnostic tests which aid case management and outbreak control are a critical public health tool in the fight against malaria. This summary presents an overview of the results of the first and second rounds of WHO product testing of malaria antigen-detecting rapid diagnostic tests (RDTs) completed in 2008 and 2009 respectively, and is published in conjunction with the release of the results of Round 2. The RDT evaluations were a collaboration between WHO, TDR, FIND (Foundation for Innovative New Diagnostics), the US Centers for Disease Control and Prevention and other partners.

*www.who.int/tdr/svc/publications/tdr-research-publications/rdt_round2*

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**Indicators for monitoring and evaluation of the kala-azar elimination programme**

40 pp., 2010 (ISBN 978 92 4 150037 1)

Web version only

This document contains the WHO Regional Office for South-East Asia and TDR recommended indicators for monitoring and evaluation of the kala-azar elimination programme. The document is presented in two parts: Part 1 covers case detection and management. Part 2 covers vector management. The indicators outlined in this document were developed by representatives from Bangladesh, India and Nepal at a WHO-TDR sponsored workshop on kala-azar in Dhaka, Bangladesh.

*www.who.int/tdr/svc/publications/tdr-research-publications/kala_azar_indicators*

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**TDR annual report 2009**

*English version: 76 pp., 2010 (ISBN 978 92 4 150037 1)*

Web version only

The TDR annual report describes key projects and achievements during 2009. The report is divided into three parts. The first introduces TDR and summarizes some of the main achievements made during the year. The second part, introduced by TDR's director, gives further details of these achievements, outlining TDR's ongoing activities: Research for delivery, policy and access; Research for discovery and development of tools and products for neglected diseases; Empowerment; and Stewardship. The final part provides information about TDR publications, governance and management, biographies of TDR's Scientific and Advisory Committee members and TDR senior management, as well as a description of how TDR works with partners. There is a financial review for the biennium 2008–2009.

*www.who.int/tdr/svc/publications/about-tdr/annual-reports/tdr-report09*

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**TDR at a glance**

*English version: 24 pp., 2010 (TDR/GEN/EN/10.1)*

Also available in French

This is a brief overview of TDR, the United Nations leading programme in research on diseases of poverty. It provides a general summary of how the programme operates and the focus on scientific collaboration that helps coordinate, support and promote global efforts to combat infectious diseases of the poor and disadvantaged. It showcases some of the research, and also explains the governance and funding structure and budget.

*www.who.int/tdr/svc/publications/about-tdr/strategy/tdr-glance*