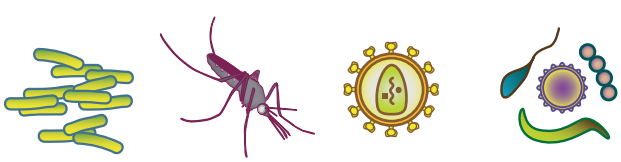
EDCTP

Eighth EDCTP Forum

Defeating poverty-related and neglected diseases in Africa: harnessing research for evidence-informed policies

HIGHLIGHTS



6 – 9 November 2016

Lusaka, Zambia

Supported by the EU

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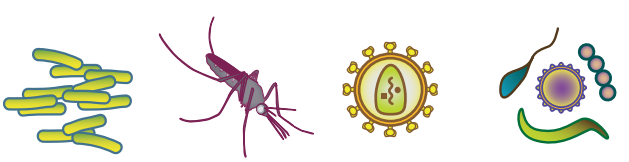

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Acknowledgements

We gratefully acknowledge the generous support of several EDCTP member states, the European Union, and our sponsors.

HOST

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TDR, the Special Programme for Research and Training

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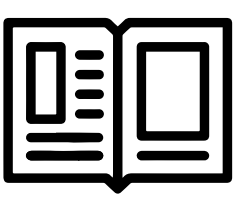
Abstract supplement



The abstracts of the presentations in the plenary and parallel sessions, as well as the posters, will be available in a supplement to *BMJ Global Health* in February 2017. For more information, please access http://gh.bmj.com/

Introduction

Esteemed stakeholders,

Our biennial Forum has grown in size and recognition. It has become one of the largest international conferences in sub-Saharan Africa for the discussion of clinical research on poverty-related infectious diseases, as well as capacity development. Scholarships were offered to many early- and mid-career researchers especially from sub-Saharan Africa. Moreover, the Forum provided opportunities for new collaborations with other actors in the field of global health.

The theme of the Eighth Forum was: 'Defeating poverty-related and neglected diseases in Africa: harnessing research for evidence-informed policies'. It reflected two specific aspects of the second EDCTP programme (EDCTP2). First, the scope of the programme was broadened. In addition to HIV, tuberculosis and malaria, the scope of EDCTP2 includes most neglected infectious diseases, diarrhoeal diseases, lower respiratory tract infections, and emerging or re-emerging infectious diseases relevant to sub-Saharan Africa. Secondly, we invest in attempting to make sure new scientific results find their way into health care policies and practice.

The Forum was officially opened by His Excellency Mr Edgar Chagwa Lungu, the President of the Republic of Zambia, who is a true advocate for health research capacity development in Africa. Several high-ranking government policy makers participated, including ministers, directors from ministries of health, higher education and science & technology from Zambia and other African countries. This is a clear demonstration of the growing interest among African governments in strengthening their collaboration with EDCTP and what it has to offer.

General themes of partnership between North and South, between Europe and Africa were taken up again by the EDCTP High Representatives, Dr Leonardo Simão and Professor Marcel Tanner, in their addresses to the conference. Partnership was also demonstrated by many stakeholders who enriched the programme with workshops, a collaborative session and satellite meetings. Moreover, our partners organised nine symposia that further enhanced the scientific programme.

At the Forum, EDCTP awarded four prizes to recognise outstanding individuals and research teams from Africa and Europe who have made significant contributions in their fields of research. In addition to their scientific excellence, the awardees have made major contributions to the EDCTP objectives of clinical research capacity development in Africa and establishing research networks between North and South as well as within sub-Saharan Africa.

We would like to express our sincere thanks to the EDCTP member states, the European Union and all our sponsors for their generous support. In particular, we extend a special thanks to the Ministry of Health of the Republic of Zambia, an EDCTP member country, for co-hosting the Eighth EDCTP Forum.

Dr Michael Makanga
EDCTP Executive Director

What participants said

The information below was provided by the participants of the Forum when they filled out our evaluation.

"THE EDCTP FORUM DOES HAVE A NICHE OF ITS OWN. IT DOES NOT REPLICATE OTHER CONFERENCES AND SO NOT ATTENDING A FORUM WOULD TRULY IMPLY MISSING SOMETHING.

ALSO, THE FORUM PROVIDES LOTS OF OPPORTUNITIES FOR NETWORKING, DISCUSSIONS, MAKING CONTACTS. THIS IS AN ENRICHING EXPERIENCE AND ONE OF MY GREATEST HIGHLIGHTS OF THIS MEETING.

FINALLY, GIVING A SPACE ON THE TABLE FOR THE CIVIL SOCIETY VOICE TO BE HEARD WAS TRULY A PLUS FOR THIS MEETING."

Researcher from Nigeria

"THE BEST PART FOR ME WAS THE SHARING OF EXPERIENCES BETWEEN DIFFERENT COUNTRIES ABOUT CLINICAL RESEARCH, AND TO KNOW WHAT TO DO IF YOU NEED ANY ASSISTANCE FROM THE EDCTP PROGRAMME."

Scholarship holder from Rwanda

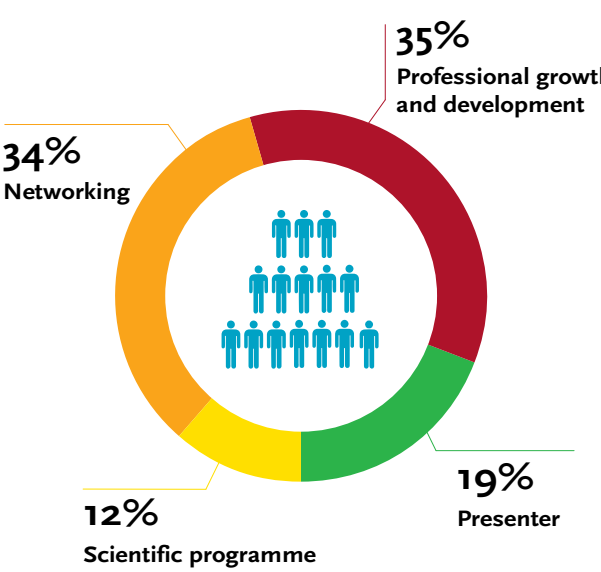
"I SINCERELY WANT TO THANK THE EIGHTH EDCTP FORUM ORGANISERS FOR PUTTING TOGETHER WHAT WAS ONE OF THE BEST MEETINGS I HAVE ATTENDED, SCIENCE AND DIVERSITY WISE, FOR A VERY LONG TIME. THE SCHOLARSHIP THAT I WAS PROVIDED WAS INVALUABLE FOR MY ATTENDANCE AND THE FORUM HAS IGNITED A NUMBER OF NEW COLLABORATIONS FROM THE PEOPLE I MET THERE."

PhD student from South Africa

"I VERY MUCH ENJOYED THE VARIOUS POSTER PRESENTATIONS ON INFECTIOUS DISEASES, AND ESPECIALLY THE ONES ON HIV AND TUBERCULOSIS. THE SCIENTIFIC SYMPOSIUM ON 'USING SYSTEMATIC REVIEWS TO INFORM POLICY AND RESEARCH DIRECTION ON NEGLECTED DISEASES' WAS ONE OF THE HIGHLIGHTS FOR ME. FURTHER, THE PRESENCE OF A LARGE NUMBER OF YOUNG STUDENTS AND RESEARCHERS LIKE ME MADE THIS FORUM SPECIAL TO ME."

Scholarship holder from Cameroon

MAIN REASON FOR ATTENDING THE EIGHTH EDCTP FORUM



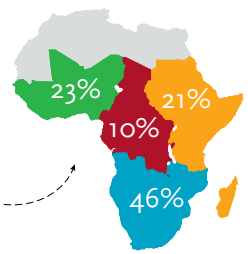
Eighth EDCTP Forum in a nutshell

PARTICIPATION

434 participants

from **48** countries

Almost **70%** from African countries



120 scholarships
to early career investigators and scientists

PROGRAMME

39 sessions

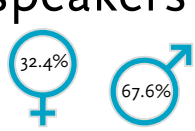
- **9** Plenary sessions
- **8** Parallel sessions
- **1** Collaborative session
- **2** Meet the experts
- **4** Satellite meetings
- **9** Scientific symposia
- **6** Workshops

165 abstract-based presentations

of which **32** were **oral presentations**

and **133** were **poster presentations**

108 speakers



4 awards
to recognise outstanding individual researchers and research teams

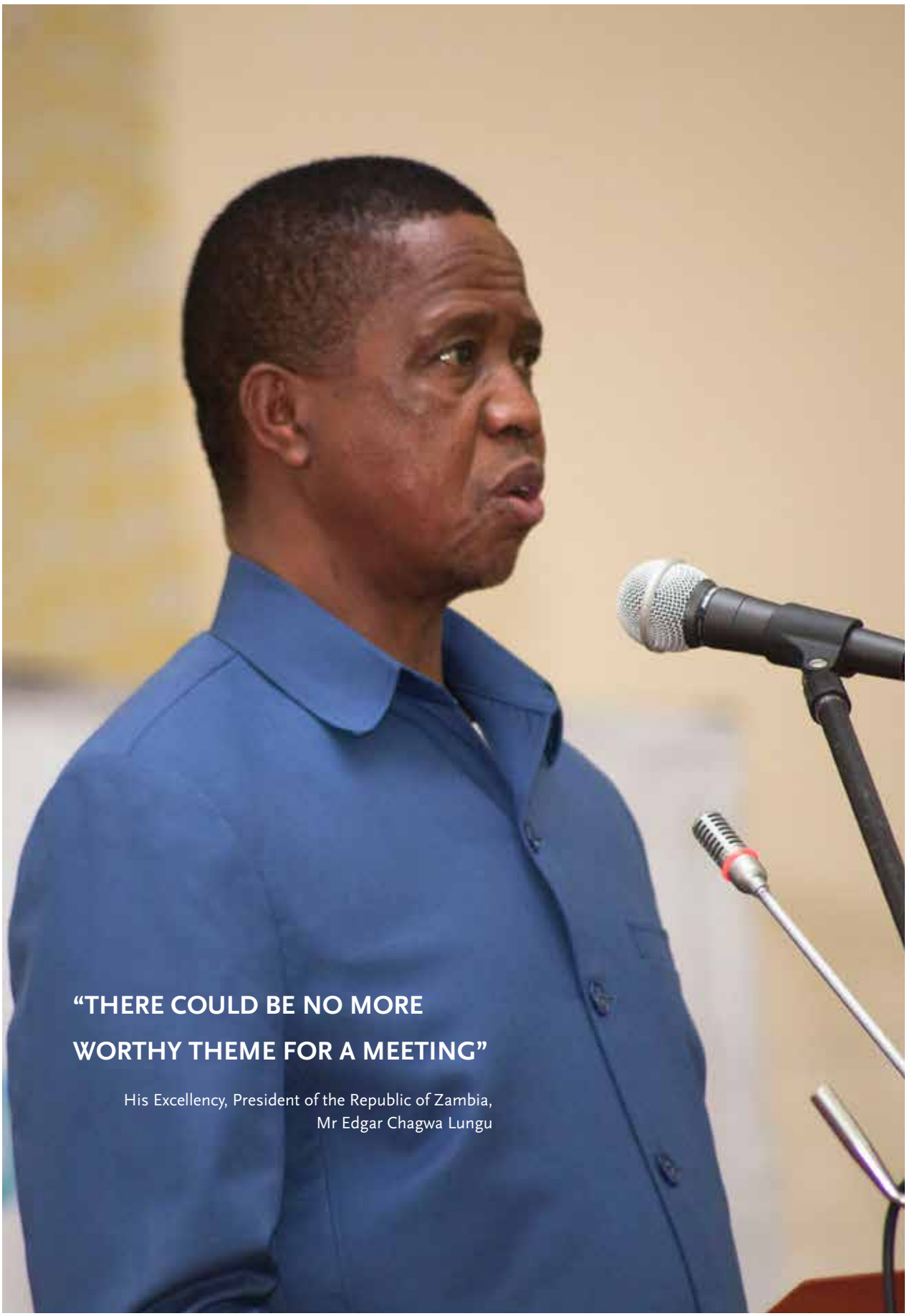
- Outstanding Research Team
- Scientific Leadership
- Outstanding Female Scientis
- Dr Pascoal Mocumbi Prize

7 exhibitors

17 hours

CME CREDITS

The Eighth EDCTP Forum was accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide CME activity for medical specialists



"THERE COULD BE NO MORE WORTHY THEME FOR A MEETING"

His Excellency, President of the Republic of Zambia,
Mr Edgar Chagwa Lungu

Day 1: The opening of the Eighth EDCTP Forum

Commitment to health research

The Eighth EDCTP Forum was opened by His Excellency The President of the Republic of Zambia, **Mr Edgar Chagwa Lungu**. The President said there could be no more worthy theme for the meeting than that which had been chosen: 'Defeating poverty-related and neglected diseases in Africa: harnessing research for evidence-informed policies'. Zambia is committed to health research to achieve exponential improvements in health, and he called on all stakeholders to work towards the creation of an evidence base for health policy. EDCTP provides countries with an opportunity to participate in defining the research agenda.

From left to right: Dr Mark Palmer, Professor Marcel Tanner, Professor Nkandu Luo, Mr Guy-Serge Bignoumba, Mr Edgar Chagwa Lungu, Dr Chitalu Chilufya, Dr Leonardo Simão, and Dr Line Matthiessen

Dr Michael Makanga, EDCTP's Executive Director, said it was a great pleasure to have the Forum opened by a President who is committed to health research. This was the first Forum since the launch of the EDCTP programme in 2014. The scope had been considerably broadened, in particular to include more diseases and more study types. The meeting itself would therefore be broader in its scope than previous Forums.

Dr Mark Palmer, Chair of the EDCTP Board and General Assembly, outlined EDCTP's structure, how it functions and its governance. He stressed the wide range of the partners now involved. **Dr Line Matthiessen**, Head of Infectious Diseases and Public Health Unit, DG Research and Innovation, European Commission, pointed out that while more attention is now being given to poverty-related neglected infectious diseases (PRNIDs), new challenges have in the meantime arisen. The landscape is indeed always changing. All of the opening speakers thanked the Government of Zambia and others whose cooperation and hard work had made the Forum possible.

Building long-term partnerships

Speaking as one of EDCTP's two High Representatives, **Dr Leonardo Santos Simão** said that Zambia had helped his country, Mozambique, in its struggle for independence. It was pleasing to see that Zambia was now making so much progress and was a serious partner in EDCTP. He urged other African nations to engage fully with the EDCTP programme. Africa faces many health challenges but has limited resources. The continent is undergoing both a democratic and an epidemiological transition. Non-communicable diseases are emerging as a new health care challenge in addition to the infectious diseases. EDCTP, which received funding for ten years, is building long-term partnerships. Dr Simão said he was honoured to be part of the programme.

Dr Leonardo Simão, EDCTP High Representative South

Mutual learning for change

A keynote address was then given by EDCTP's High Representative North, **Professor Marcel Tanner**. He reflected on the nature of partnership, which should extend beyond cooperating on individual projects and involve partnering at a strategic level. 'Mutual learning for change' is another feature of a true partnership – the North for example can learn much from the South. He urged decision makers to think strategically (portfolios rather than projects) and consider the changing environment in which research and development take place. He called for more integration of activities and programmes. It is essential that we progress from innovation to implementation.

Professor Marcel Tanner, EDCTP High Representative North

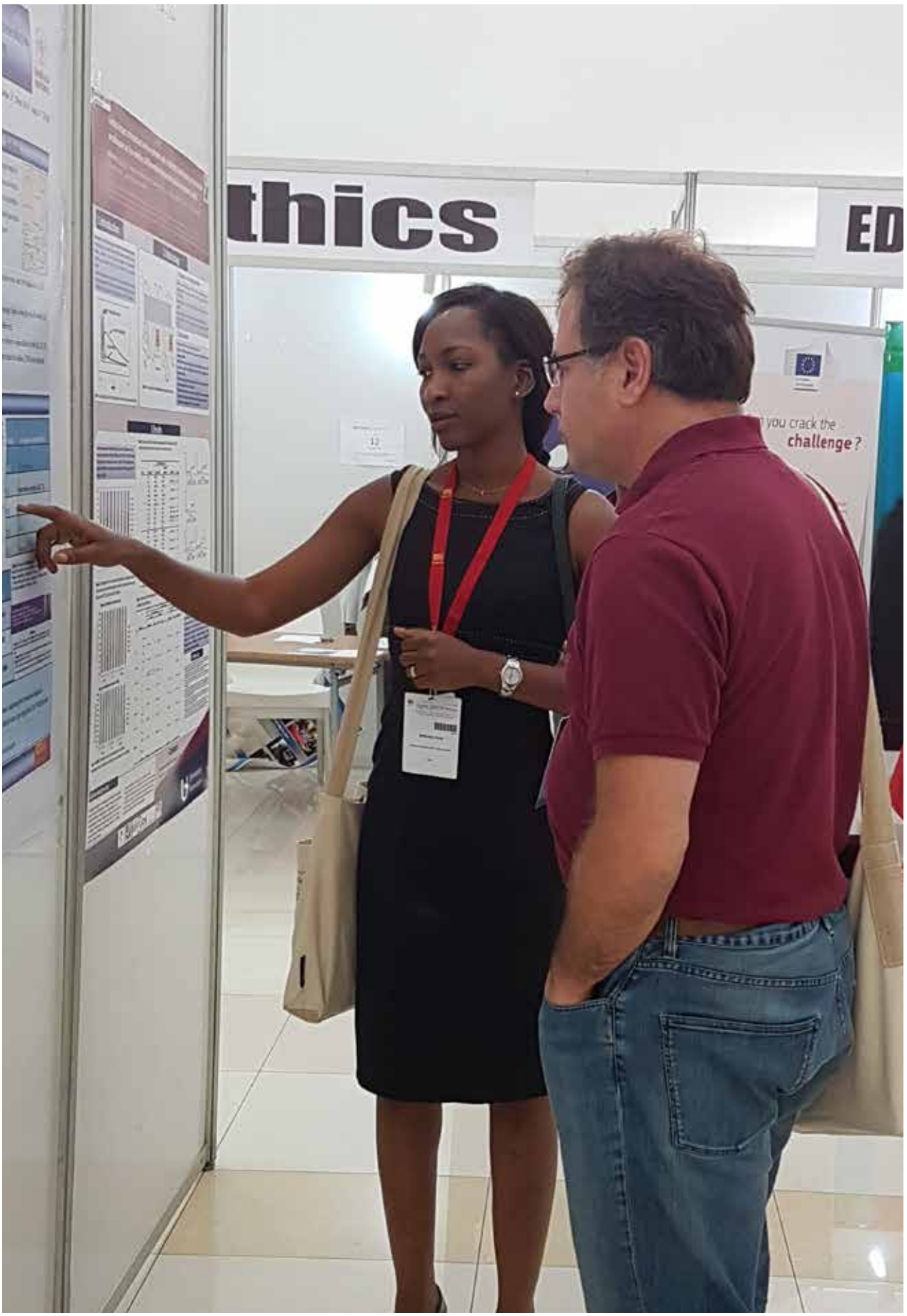
EDCTP AWARDS: OUTSTANDING RESEARCH TEAM

The EDCTP 2016 Award for Outstanding Research Team was given to the University of Zambia – University College London Medical School (UNZA-UCLMS) Research & Training Program on 6 November 2016. The award consisted of a trophy and 50,000 euro. At the opening session of the Eighth EDCTP Forum, Dr Peter Mwaba, on behalf of his team, received the award from His Excellency, the President of the Republic of Zambia, Mr Edgar Chagwa Lungu. The award is given to an outstanding research team in Africa or Europe working on poverty-related infectious diseases within the scope of the second EDCTP programme.

"ALIGNING CAPACITY DEVELOPMENT AND TRAINING TO RESEARCH PROJECTS IS ESSENTIAL AND SHOULD BE A PRE-REQUISITE FOR ANY RESEARCH ENDEAVOUR. THIS IS THE ONLY WAY OF EMPOWERING THE YOUNGER GENERATION."

Dr Matthew Bates, Director of the UNZA-UCLMS programme

His Excellency the President of the Republic of Zambia, Mr Edgar Chagwa Lungu, the Ministry of Health of the Republic of Zambia, Dr Chitalu Chilufya, and the representatives of UNZA-UCLMS Research & Training Program at the award ceremony


thics
you crack the
challenge?

Day 2: EDCTP's strategy, getting research into policy, HIV and TB status update

EDCTP2 vision and strategy

Dr Michael Makanga spoke on EDCTP's vision and strategy, and on the key features that defined the partnership. He went on to outline the many achievements of EDCTP to date. Support given during the first phase of the programme had achieved a good spread across the three diseases then included (HIV, malaria and tuberculosis). In the first phase, diagnostics had not received as much attention as drugs and vaccines. The Forum presents a platform for discussion on how these achievements may now be built upon. Dr Makanga also summarised the investments made by EDCTP since 2014. Activities in 23 African countries are now receiving support.

Evidence-informed policy making

The next speaker was **Professor Jimmy Volmink** of Stellenbosch University, who was the Founding Director of Cochrane South Africa. (The Cochrane Collaboration is one of the pillars of the evidence-based medicine movement.) Evidence-based policy is particularly important in low-resource settings but research in Africa is still limited and, even when it exists, policy makers seem reluctant to embrace it. Researchers and policy makers speak different languages and much depends on how findings are presented to policy makers. Professor Volmink described decision making in the real world as 'messy'. He shared some of his own experience in the important area of knowledge translation, going on to describe the importance of using systematic review methodology to assess the evidence available. Nevertheless, many systematic reviews are poorly conducted and they are not all relevant to policy and practice in low- and middle-income countries.

HIV and tuberculosis: status update

The plenary sessions continued with 'status updates' on two infectious diseases: HIV and tuberculosis. **Dr Catherine Hankins** of the Amsterdam Institute for Global Health & Development stressed that the HIV epidemic is not yet over. She reported on the encouraging progress that has been made, but many challenges lie ahead. The number of new cases has fallen but prevalence remains high. Several groups of people are lagging behind, in that the incidence of HIV-infection in these groups is still high and treatment success less common. They include young women, the disabled, sex workers, drug users and men who have sex with men. We need to know more about infection in these groups in order to improve preventive measures. Dr Hankins outlined some promising new initiatives; treatment as prevention was a 'game changer', combination approaches and combining HIV prevention with contraception are looking encouraging. But there are still research gaps, which EDCTP can help to fill.

Dr Catherine Hankins gives the status updates on HIV

Speaking on the subject of tuberculosis (TB), **Professor Gerhart Walzl** of Stellenbosch University summed up the most urgent areas for research. A plan is needed but also the will to implement it. He gave estimates of the funding needed for both

treatment and research; a considerable gap still exists between what is needed and what has so far been made available. Improving adherence to treatment remains a crucial issue. He outlined the priorities for vaccine research. He also discussed the potential for TB biomarkers to contribute to prevention, treatment and diagnosis. He is hopeful that one day it will become possible to predict progression from infection to active TB; South African studies will investigate this using a pair-wise gene expression model to compare progressors and non-progressors.

...Some facts about the current TB situation that require urgent attention

- Adherence to curative treatment is poor
- Vaccine development issues
- 25% of people who test positive for TB don't start treatment and remain infectious
- Treatment completion rates: 85% (78% in South Africa)
- Number of new Multiple Drug-Resistant TB (MDR-TB) cases: 250,000 in 2009; 480,000 in 2013, 9% are Extensively Drug-Resistant TB (XDR)
- 10 high-burden countries: <60% of diagnosed MDR cases are treated (South Africa 41%)
- Worldwide treatment success of MDR-TB patients in 2011 was 48%
- Treatment duration, cost, side effects

Supporting clinical research in Africa

Monday afternoon's plenary provided an opportunity for four stakeholder organisations to share with the meeting information about their work, their priorities and how they see the role of EDCTP. The UK's Medical Research Council (MRC) was represented by **Dr Morven Roberts**, Programme Manager for Global Health and Infections. She explained that the MRC receives a major proportion of the UK government's funding for medical research (£800m). Its global health portfolio is worth £50m. It has African research centres in The Gambia and Uganda. The focus has so far been on infections but this is to be expanded. MRC encourages partnerships; they enable the sharing of expertise and data, and the improvement of methodologies. The scaling up of research leads to better evidence. The right partners are needed at the right time. Partnerships should be flexible, require trust and need time to develop.

"THE RIGHT PARTNERS ARE NEEDED AT THE RIGHT TIME – PARTNERSHIPS SHOULD BE FLEXIBLE, REQUIRE TRUST, AND NEED TIME TO DEVELOP."

Dr Morven Roberts

Medical research activities in Zambia were outlined by **Dr Peter Mwaba**, Permanent Secretary of the Ministry of Health. His Ministry is responsible for all medical research in Zambia. The priorities are the diseases that cause the greatest burden, including neglected infections. Research facilities need resources, including human resources and diagnostic facilities. The Ministry also wants to strengthen ethics capabilities. The critical role of the private sector is recognised; the support of the pharmaceutical industry is needed in any medical research.

The work of the Pasteur Institute was described by **Dr Golbahar Pahlavan** of The Pasteur Centre for Global Health. The scale of the Institute is remarkable. It has 33 centres with 95,000 researchers in 26 countries on 5 continents. It undertakes research and training to tackle public health challenges, and supports a Pan-African coalition for global health. The interface between research and the provision of care is regarded as of key importance. The Institute is so large that it has tended to look inwards to seek for synergies but EDCTP's partnership of equals is now allowing it to set up new links and establish new collaborations.

Dr Wim Parys of Janssen, Belgium spoke of the role of Johnson & Johnson (J&J) as a private sector organisation. The company has three divisions: consumer products, medical devices

and pharmaceuticals. It has a well-balanced R&D portfolio on HIV and TB, and maternal, newborn and child health. Exploratory activities on Ebola vaccine and new-generation polio vaccine are also taking place. Chagas disease and other infections may be added. Prevention, diagnosis and treatment are all part of the portfolio. J&J is active in Africa but nearly all of its clinical research is within South Africa, where it is developing world-class facilities. This will help fulfil the aims of global participants in trials. Many global health challenges lie ahead but EDCTP can assist through continuing to encourage young talent and by enabling a strengthening of industry participation.

From left to right: Dr Garry Aslanyan, Prof. Christian Burri, Dr Wim Parys, Dr Golbahar Pahlavan, Dr Peter Mwaba, and Dr Morven Roberts

Monday evening also saw the conference dinner which made possible further informal networking between Forum participants.

EDCTP AWARDS: SCIENTIFIC LEADERSHIP

Professor Shabir A. Mahdi received the EDCTP 2016 Award for Scientific Leadership. The award consisted of a trophy and 10,000 euro and was presented by Dr Michael Makanga, EDCTP Executive Director. This award recognises a world-class scientist up to 50 years of age residing in Africa and working in research activities within the scope of the second EDCTP programme.

"EDCTP HAS ALWAYS EMPHASISED SOME OF MY OWN MAIN CONCERNS, INCLUDING CAPACITY BUILDING AND THE IMPORTANCE OF BRINGING COMMUNITIES TOGETHER."

Professor Shabir Mahdi

Prof. Shabir Mahdi speaks at the ceremony of the EDCTP 2016 award for Scientific Leadership

High-level meeting of African and European policy makers

A high-level meeting of African and European policy makers was held on 7 November as part of the Eighth EDCTP Forum. The meeting provided a platform to share perspectives and experiences with a view to enhancing networking and maximising investments through EDCTP-related projects.

Dr Michael Makanga welcomed participants to the EDCTP's third high-level meeting and **Dr Mark Palmer** gave a short introduction, posing the question 'How can we influence policy and what sort of research must we support in order to do that?' **Dr Line Matthiessen** of the European Commission added that supporting research is not enough – EDCTP must see that the findings are implemented. It was necessary to demonstrate the value of the work of EDCTP to ensure continued funding for its activities.

Dr Makanga set out some objectives for the high-level meeting:

1. To capture the lessons about the added value that was achieved through significant capital investment in capacity building, product development and implementation in Ebola virus disease (EVD) affected countries, and how these lessons might be applied to other poverty-related infectious diseases.
2. To present case studies of EDCTP projects that have been successful in translating results into policy.
3. To promote the added value of collaborations through EDCTP activities, and explore cross-sector approaches for accelerating translation of results into policy.
4. To discuss the role of regional agencies in policy development and how EDCTP can engage in this process.
5. To identify challenges to sustained political and financial commitment by the current Participating States (PSs) in Africa.
6. To identify and encourage new countries to become PSs in the EDCTP Association.

Professor Marcel Tanner said the Forum had so far only taken an 'academic' look at getting research into policy (R2P). In practice it is more complicated and requires researchers and policy makers to sit in a room together. A pragmatic approach is needed throughout.

The Chair of the High-Level Meeting, **Dr Mwele Malecela** of the National Institute for Medical Research (NIMR), Tanzania, spoke of the importance of timing; sometimes attempts to engage policy makers are made too soon, other times too late. There is no one-size fits all solution to R2P. Nevertheless, some broad strategies should be developed.

Dr Ole Olesen, EDCTP Director of North-North Cooperation, urged the meeting to focus on the key spirit of EDCTP – collaborative research that accelerates the development of effective interventions. The emphasis on collaboration distinguishes EDCTP from other organisations. EDCTP creates new axes; many have been created since the start of the second programme – some Africa-Africa, some Europe-Africa. He gave one example – Pyramax and its label extension by the European Medicines Agency (EMA), for multiple use in malaria treatment.

Professor Moses Bockarie, EDCTP Director of South-South Cooperation, cited a recent paper (Gehre et al, 2016, DOI: 10.1186/s12916-016-0704-5), which reported the emerging threat of pre-extensively drug-resistant tuberculosis in West Africa, thereby making the case for tuberculosis research and drug resistance surveillance on a large scale. He spoke of the need to sustain momentum for accelerated capacity building, improved clinical management and preparedness. Areas where new funding is particularly needed include capacity building for clinical management and ethics and regulatory capacities. He called for acceleration of ethical and regulatory activities, through the African Vaccine Regulatory Forum (AVAREF), an EDCTP/WHO partnership. EDCTP is creating platforms on which others can build. A few days before the Forum had begun, the US National Institutes of Health (NIH) had announced a capacity building support grant for Ebola Virus Disease (EVD)-afflicted countries following the example of EDCTP. The World Bank has announced a grant for surveillance and preparedness, again responding to an investment made by EDCTP.

One section of the meeting was devoted specifically to finding lessons that can be learned from the EVD outbreak in West Africa. **Dr Fatorma Bolay**, Director of the Liberia Institute for Biomedical Research and co-principal investigator of the PREVAIL trial said, 'We had been warned ... but we were not prepared'. Resources for research have been improved. The USA has set up a molecular biology building in Sierra Leone and it is now possible to test for EVD without dispatching samples to France. The three afflicted countries are now finalising plans to work together on surveillance and preparedness. The outbreak has shown that research can be translated into practice. The Liberian Ministry of Health has requested a consignment of the vesicular stomatitis virus (VSV) vaccine for Ebola, on compassionate grounds, for potential use in any future outbreak as, while this vaccine is not yet licensed, a study has found it to be effective.

Issues were then raised by other participants. One problem during the epidemic had been the time required to strengthen capacity to make research possible; thus for example researchers brought in from the UK had no laboratory to work in. Liberia put all routine health activities on hold so that all health workers could focus on EVD. Despite all the delays, it was important to recognise that resources *were* made available, enabling research which has now been published.

Cultural factors killed many people during the EVD epidemic. We need to invest in learning more about communities' beliefs and practices, through collaborating with them. The media can help inform the public.

As well as EVD, other disasters may be looming, e.g. the re-emergence of yellow fever in several countries and the appearance of dengue fever in Burkina Faso. Rapidly advancing the results from infectious disease research into public health policy and action is therefore critical to saving lives and improving health. But the new threats come at a time when millions are still afflicted by other infectious diseases. There had previously been no funding at all in countries such as Liberia and Sierra Leone. Research funding was said to be still skewed towards 'the usual suspects' (e.g. South Africa, Kenya and Uganda).

Dr Mwele Malecela summed up, saying that an epidemic had crystallised action against a disease within a very short period of time.

The meeting then heard of the work of other organisations concerned with getting research into policy. The roadblocks to operationalising research can be challenging, owing to several factors, including the disconnect that exists between science and policy makers. WHO can be a powerful force in overcoming those factors. EDCTP and WHO have complementary missions; partnership between WHO and EDCTP is critical to the global, regional and local research agenda, and to the translation of results into policy. WHO's knowledge transfer platform (EVIPNet) aims to get knowledge into practice quickly. But much can be lost in translation; the process of knowledge translation must be done well.

There are many links in the research-into-practice chain: drug discovery, clinical trials, regulatory approval, manufacture, procurement and distribution, prescription and use. We need to identify where there are bottlenecks and overcome the barriers. In Zambia, for example, WHO has tried to do this through TB drug resistance testing and treatment in remote clinics, the delivery of 'Mama kits'[1], and enabling the delivery of surgery by trained and supervised non-physician clinicians.

The European Union (EU) has defined a development cooperation mission with a focus on 17 countries who, between them, receive most of the 20% of funding devoted to health. Health system strengthening is a key area for the EU and there is an EU vision on health research.

The African Union (AU) is committed to R2P. It can enable the sharing, at continental level, of experience in different African countries. It has strategies on research, and urges states to spend at least 1% of GDP on research and development. Health must be a part of this. The AU also has roadmapss for development and health, particularly on pharmaceutical matters. There are other organisations also at work here, for example the African Academy of Sciences. We must find out who is doing what and bring them together to avoid duplication of efforts.

1. These kits contain items needed to help achieve a clean and safe delivery.

Parallel sessions, symposia, and collaborative session

Four scientific symposia, a collaborative session, two workshops and a satellite meeting took place on Monday.

Reviews for informing policy

In the symposium **'Using systematic reviews to inform policy and research direction on neglected diseases'**, systematic reviews came under scrutiny, with respect to their role in informing policy and research direction on neglected diseases. The focus was on evaluation-based (EB) practice rather than EB medicine or EB research. Participants began with an informal discussion in which they sought to define the concept of EB health care (EBHC).

Professor Jimmy Volmink then outlined the principles of EBHC and of systematic review, describing the importance of clearly defining the research question using the PICO approach: population, intervention (or exposure), control/comparator, and outcomes. He illustrated his remarks with reference to a Cochrane review on the treatment of soil-transmitted helminthiases (STHs).

Dr Don Mathanga highlighted the need for reviews to aid decision making in a programme setting. He described the tools now available for conducting reviews. Elizabeth Pienaar discussed in more detail the strategies and methods used by reviewers when searching for studies.

Issues receiving further attention included: the need to include studies regardless of language of publication, searching for unpublished data, and situations where rapid review is necessary. Unfortunately, reviews often have to conclude that insufficient data is yet available to enable conclusions to be reached.

Shorter TB treatment

The symposium **'Tuberculosis: shorter and better treatments on the horizon'** dealt with the shorter and better treatments for TB now under development. The focus was on the EDCTP-funded PanACEA consortium (Pan African Consortium for the Evaluation of Antituberculosis Antibiotics). Dr Norbert Heinrich began with an update on pre-clinical drug development in TB; there used to be a shortage of new drugs but now there are three candidates in the pipeline, two of which will be analysed in recently-funded EDCTP studies. Mouse models are providing information on how drugs act in lung tissue.

Professor Martin Boeree gave an overview of recent and current TB trials, including PanACEA II. It is likely that current TB drugs are not being used at the right dose. He stressed the importance of testing drug regimens vs single drugs if we are to achieve TB treatment shortening.

Dr Derek Sloan talked about his work on persistent mycobacteria, which tend to resist drug treatment. Dr Klaus Reither said the rising diabetes pandemic is having a profound effect on TB. Globally, 15% of global TB cases have been thought to be attributable to diabetes. Hyperglycaemia is common in TB patients but in most cases it is normalised after TB treatment. Thus diabetes seems to be a result and not a cause of TB. Dr Jim Huggett presented methods of quantitating *M. tuberculosis* (PCR-based and RNA-based), which offer the potential for rapid monitoring of bacterial load/viability that could increase the pace of clinical trials. However, more work is needed to reduce biological/clinical 'noise'.

Partners for product development

The focus of the symposium **'Leveraging partnerships to advance product development and build research capacity'** was the activities of BIO Ventures for Global Health (BVGH), a non-profit organisation aiming to save lives by accelerating the development of novel biotechnology-based drugs. BVGH regards partnership as a critical element of funding.

The meeting heard of various BVGH programmes. The BVGH-organised 'African Pavilion' at the 2015 and 2016 BIO International Conventions were intended to build international partnerships. The BVGH Fellowship Program has placed fellows at MSD. There are BVGH equipment donation

programmes. BVGH FundFinder is a database making it possible to identify relevant awards. Panellists described their experiences of BVGH partnership, highlighting best practices, unexpected benefits and lessons learned.

The Liberian Institute for Biomedical Research (LIBR) said partnership should be based on trust and interest, and praised BVGH for its role as a 'matchmaker'. BVGH has assisted in connecting LIBR with the pharmaceutical industry, academic institutions, government agencies and biotechnology companies. Traditional routes of funding are drying up, and the BIO International Convention is a good place to find innovative funding opportunities.

The University of Buea team said BVGH had connected them with MSD, which provided free synthetic compounds, to screen for potency against neglected infectious diseases. FundFinder helped them to identify the Wellcome Trust Pathfinder Award, which provided a grant. FundFinder also allowed them to identify the Multilateral Initiative on Malaria (MMV) which has also supplied a grant. The university participated in the BIO International Convention.

Supporting scientists

The Monday collaborative session was entitled **'Coming together to support scientists in low-and middle-income countries: partnering among funders to achieve impact'**. Partnership has many advantages but it poses challenges.

Joint fellowship calls are intended to reach out to a larger number of researchers and clinical staff. A joint call for EVD research was launched in response to the West African outbreak and to address the lack of coordination and capacity. Future opportunities are being explored with new areas of collaboration being sought.

Career Development Fellows benefit from their experience which opens up networks in their career. The interests of the trainee are aligned with the host organisation's activities. A majority of fellows have progressed within their home countries, where the aim is to build a critical mass of expertise.

A recipient of the EVD grant described how the group managed to conduct a phase I trial of an Ebola vaccine and the challenges experienced. The grant will assist build national technical, regulatory and policy-making capacity and infrastructure to assist with vaccine development, and lead to self-sufficiency.

Views and experiences of partnership were shared by representatives of three organisations. NIH-Fogarty conducts its work with partners but finds it difficult to prioritise applications when working with other countries due to bureaucracy and timelines. The Swedish International Development Cooperation Agency (SIDA) supports organisations with transparent structures and governance. It seeks bilateral cooperation with different countries and universities, which must submit concept notes outlining their research plans. The South African Medical Research Council believes that innovation is required when working with limited resources. Finance and human capital development are priorities. Research organisations must take the lead on forging collaborations between individual researchers. Diplomacy is key when managing funding, especially between countries.

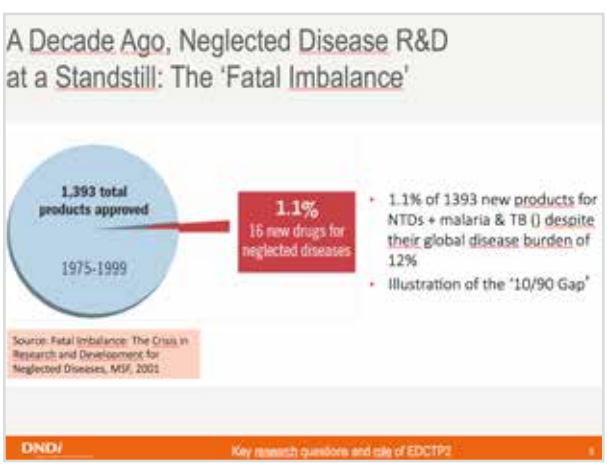
Day 3: Malaria, neglected infectious diseases, and the Ebola epidemic

Tuesday began with status updates on two more diseases – malaria and the neglected infectious diseases (NIDs).

Malaria and NIDs: status update

Dr Abdisalan Noor of the Surveillance, Monitoring and Evaluation Unit of the Global Malaria Programme spoke of the unprecedented level of investment into malaria programmes in recent years, the successes achieved with distribution of long-lasting, insecticide-treated nets (LLINs), artemisinin combination therapies (ACTs) and rapid diagnostic tests (RDTs), and the resulting reductions in case numbers and deaths. But there is still a high disease burden due to malaria and there have been reverses in some countries. Less than half the funding needed to meet the targets set for 2020 has yet become available. Dr Noor also gave a fascinating account of his own area of spatial epidemiology and the mapping of malaria. The impact of malaria interventions is also now being investigated through mapping, along with transmission metrics. The work that his unit is undertaking is intended to influence policy and interventions. It will add to understanding of transmission metrics, infectiousness and the role of the asymptomatic reservoir. Spatial epidemiology also has much to offer in the study of other diseases, including soil-transmitted helminths, onchocerciasis and trachoma.

Dr Nathalie Strub Wourgraft of the Drugs for Neglected Diseases initiative (DNDi) reminded the meeting that much has happened in the last few years. Ten years ago research into NIDs was at a standstill; only 1% of research was then devoted to NIDs despite their being responsible for 12% of the global burden of disease – 'the fatal imbalance'. NIDs are now firmly on the agenda; Dr Strub Wourgraft outlined the various landmarks along the way including the London Declaration of 2012 which involved donors, pharmaceutical companies and the health ministries of endemic countries. In 2014 EDCTP added NIDs to its business plan. Nevertheless, research spending is still not proportionate to the disease burden. Meanwhile, current treatments are ineffective, toxic, difficult to use, restricted by patents, and are often not yet registered in epidemic regions. She gave a comprehensive account of the research gaps that must be addressed and spoke of the need to transition from clinical research to implementation and impact. EDCTP can provide support in areas including: capacity building, regulation, clinical implementation trials, funding, and stimulating African leadership. She closed with a description of the devastating effects of mycetoma, the latest disease to be added to the WHO list of NIDs, which now stands at 19.



Lessons learnt from the Ebola epidemic

The second of the two Tuesday plenaries was a panel discussion looking at the impact of the recent EVD epidemic in West Africa, with the aim of finding the lessons that researchers (and others) can learn from the tragic events that took place starting June 2014. The panel comprised **Dr Rashid Ansumana** (researcher at Mercy Hospital, Sierra Leone) and **Dr Fatorma Bolay** (Director Liberian

Institute for Biomedical Research) and **Professor Peter Horby** (Professor of Emerging Infectious Diseases at the University of Oxford).

There were warnings that such an epidemic could occur but – nationally, regionally and internationally – no one was prepared. The beginnings and course of the epidemic were discussed, and the likely reasons why it spread so rapidly. Community denial, sometimes leading to violence, was said to be a factor, as were funeral practices, alternative health seeking behaviours, and fear of the disease (including the belief that it was being used to reduce the population or the result of a curse). It was noted that the clinical response to infectious disease outbreaks always seems to be delayed, and not just in Africa. The three EVD-afflicted countries in West Africa faced different challenges and varied in their response. Research is needed to find ways of combating such situations and it should be commenced as soon as possible after an epidemic has begun.

Although there were delays, research *did* take place. In such difficult circumstances this was an achievement. Research capacity in the three countries has now been considerably improved and hopefully the response from researchers would be quicker in the event of a similar disease outbreak in future. Lessons have been learned. Nevertheless, it is impossible to predict what the next such major outbreak will be and where it will strike. Effective surveillance programmes are needed.

Issues raised in questions from the floor included how data might be shared internationally and the development of good practice guidelines.

EDCTP AWARDS: OUTSTANDING FEMALE SCIENTIST

Professor Marleen Temmerman received the EDCTP 2016 Award for Outstanding Female Scientist on 8 November 2016. The award consisted of a trophy and 20,000 euro. The award was presented by Professor Nkandu Luo, the Honourable Minister of Higher Education, Research, Vocational Training, Science and Technology of Zambia. The award recognises an excellent world-class female scientist residing in sub-Saharan Africa and working in research activities within the scope of the second EDCTP programme.

"WE NEED THIS AWARD, AS WE NEED TO MAKE AN EXTRA EFFORT TO ENCOURAGE YOUNG WOMEN, FOR WHOM WE WOMEN MAKE BETTER MENTORS, AS WE HAVE LIVED IT OURSELVES."

Professor Marleen Temmerman

Prof. Marleen Temmerman (left) receives the award for Outstanding Female Scientist from Prof. Nkandu Luo

Parallel sessions and symposia

On Tuesday there were four parallel sessions, five symposia, three workshops and a satellite meeting.

Ethics and regulatory activities

Ethics and regulatory activities were the theme of a parallel session opened by Dr Rafaella Ravinetto, of the Institute of Tropical Medicine, Belgium, who said a rising number of commercial and non-commercial clinical trials are taking place in low- and middle-income countries, which can be for either cynical or altruistic reasons. This requires the development and enhancement of ethical and regulatory capacity.

Dr Patrick Kamalo, University of Malawi said an estimated 1-2% of participants in research can suffer a research-related injury. Procedures for institutionalised compensation exist in EU countries but not in Africa. Malawi has mandated that clinical trials should have no-fault insurance to cover research-related injury. More data on RRIs in Africa is needed. Dr Boitumelo Mokgatla of the International AIDS Vaccine Initiative (IAVI) described the RHInnO Ethics Platform, a secure online platform to improve the efficiency of research ethics committees, which could enable simultaneous submission and review of multicentre trials across Africa.

Dr Muhammed Afolabi, UK MRC Gambia Laboratories, said his experience had demonstrated the need for improved participant education and consent mechanisms. A multimedia consent tool was developed, consisting of a 'generic' section on research procedures and a 'trial specific' section, which can be rapidly customised for use elsewhere.

TB diagnostics and treatment

Dr Margaret Phiri Kasaro began the session on **tuberculosis** by outlining the results of her study using GeneXpert and LAM-TB tests to diagnose TB in HIV-positive adults. Standard procedures were shown to be overly sensitive in diagnosing TB, leading to over-treatment. Xpert reduced time to treatment compared to standard care while sensitivity was lower than in previous studies. LAM should not be used as a stand-alone test but combined with Xpert and smear.

Dr Abraham Alabi outlined the challenges of MDR-TB and XDR-TB. Xpert is being rolled out extensively in Africa but has low sensitivity in smear-negative, culture-positive cases, children and HIV/TB co-infected patients. His study found no difference between the performance of Xpert and GenoType compared with culture; both tests are useful but Xpert is easier to perform.

Dr Wilber Sabiiti dealt with the advantages of a molecular bacterial load assay developed at St. Andrews University, UK, which measures change in bacterial load as patients respond to treatment. It gives reliable results within four hours. Results are reproducible in different settings.

Dr Niaina Rakotosamimanana outlined a study where household contacts were treated in high-TB-burden areas. Though impractical, the approach made it possible, by using a combination of tuberculin skin test and blood monocyte count, to improve evaluation of disease progression risk amongst contacts.

Neglected infectious diseases

The first speaker on **neglected infectious diseases** was Dr Veerle Lejon of L'Institut de Recherche pour le Développement (IRD), Paris, who said the world was nearing the elimination of human African trypanosomiasis (HAT). Diagnostic algorithms for passive case detection and early test of cure during trials are essential. They combine serological screens, rapid diagnostic tests (RDTs), molecular tests and standard parasitological techniques. A digital case control/management form for laboratory technicians was also described. An alternative method – trypanolysis – was described by Dr Dama Emilie of the Université Polytechnique de Bobo-Dioulasso (UPB/CIRDES). Its accuracy was examined using samples from animals and humans in areas of varying HAT endemicity. Results correlated with expected endemicities, though some shortcomings were noted.

Schistosomiasis and hepatitis B virus (HBV) are highly prevalent in Africa; both are linked to liver disease and cancer. Dr Caroline Chisenga (Centre for Infectious Disease Research in Zambia [CIDRZ]) described how researchers screened patients for co-infection and subsequently assessed liver function. Co-infected individuals had elevated liver enzymes, but not significantly higher than levels in singly-infected individuals. A lower prevalence of *Schistosoma* and HBV co-infections was found than in previous studies.

HIV antiretroviral therapies

The focus of the **HIV** session was on antiretroviral therapies (ARTs). Dr Michael Owusu of the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR), Ghana said there is still much to learn about ARTs, especially in infants and children. The potential for the introduction of ART-resistance in HIV-infected children has been examined; approximately 16% of children adhering to ART use had treatment failure. Virus mutations were most frequent in children under three-months old.

Dr Francis Ndongo of the Chantal Biya Foundation, Cameroon described a study that found that, in HIV-positive infants, the probability of achieving virological success after two years of ART was 80%. Adherence was the only factor associated with virological success. Combination ART (cART) was associated with better success, but mortality remained high.

Alinda Vos, University Medical Centre, Utrecht, Netherlands said further understanding was needed of the interaction of HIV, ART, and non-communicable diseases (NCDs). Her group had identified elevated cholesterol and hypertension as risk factors for HIV; 84% of HIV-positive individuals had at least one NCD. Hypertension was higher in HIV and *Plasmodium* co-infected patients.

Dr Deogratius Ssemwanga, UK MRC/Uganda Virus Research Institute described an assessment of HIV transmission dynamics that revealed the geographic distributions of different HIV subtypes and that several different transmission networks exist.

Professor Eleni Aklillu, Karolinska Institutet, Sweden spoke about an investigation of the impact of HIV infection, HIV and *Mycobacterium tuberculosis* (Mtb) co-infection, and use of efavirenz on vitamin D levels. ART use correlated with vitamin D deficiency; supplementary vitamin D in HIV-positive individuals may be warranted.

Translation of research into policy

In the symposium '**Strong local research leading to evidence-informed policies in Africa: building research capacity and translating research into policy and practice**', three initiatives aimed at developing networks for capacity strengthening were presented. Professor Pontiano Kaleebu, Uganda Virus Research Institute, highlighted two failures: poor engagement with pharmaceutical partners, and lack of interest from partners not receiving a major portion of the budget.

Professor Exnevia Gomo, University of Zimbabwe, looked at the challenges and lessons learned from the Africa Research Initiative and Support (ARISE), a research and training centre supporting individual researchers through: training, support services and institutional research governance infrastructure. The main challenge was that university financial systems are not geared for research.

Dr Sheila Balinda of the Joint Clinical Research Centre, Uganda, dealt with Affordable Resistance Testing for Africa (ARTA), an initiative developed by a public-private consortium. Issues examined were virological failure, and ultralight HIV drug resistance (HIVDR) genotyping assays. Pascale Ondoa, Amsterdam Institute for Global Health and Development discussed further ARTA challenges.

Dr Cissy Kityo, Joint Clinical Research Center, Uganda, looked at the policy consequences of findings on HIVDR: funding agencies supporting ART rollout should support drug resistance monitoring; the WHO strategy for HIVDR surveillance should be adopted; WHO should provide more guidelines on action points; cost-effective assays for HIVDR and viral load are still needed.

Maximising EDCTP membership

'Maximising EDCTP membership: how to catalyse national efforts and converge EU and African global health efforts'. The opening speaker was Dr Nick Chapman of Policy Cures which on this day was launching its report 'Saving Lives: Making the case for European investment in poverty-related and neglected disease R&D'. Using data on current spending, the report draws several conclusions: EU funding increased sharply in 2015 but partly due to Ebola funding; it is unclear what will happen after Brexit.

Professor Nkandu Luo – Zambia's Minister of Higher Education, Research, Training, Science and Technology – spoke of the benefits to her country of EDCTP partnership. Zambia has received 27 grants from EDCTP. Proposals are generated jointly with international partners. EDCTP strengthens African research and researchers. It strengthens ethics and regulatory frameworks, and allows regular interactions and exchange of ideas. EU countries gain knowledge from their contributions to EDCTP. She outlined the many challenges to research Zambia faces.

Dr Morven Roberts of Medical Research Council, United Kingdom, said that in the period 2003-2015 the UK contributed €64 million to EDCTP. MRC has always regarded global health as a priority; its current global health portfolio amounts to around £50 million per year, mainly devoted to infectious diseases. MRC funding is doubled by EU matching contributions. The UK Department for International Development (DFID) is MRC's strongest partner. Where MRC does not fund product development partnerships directly, DFID does. As a member of EDCTP MRC's investments (within the scope of EDCTP) are doubled by the EU's matching funding to EDCTP.

Professor Hannah Akuffo, Swedish International Development Cooperation Agency (SIDA) said Sweden was the second largest cash contributor to EDCTP. She gave more information about the work of SIDA highlighting its unique features; it is unusual in using development money for research. She also spoke on the history of EDCTP – its progress from a programme to a partnership and now to an association.

Issues raised in the discussion that followed included the different ways in which funding can be given, noting that African countries can contribute in-kind as well as in cash. Improving coordination and avoiding duplication of effort were also seen as priorities.

Research activities in Zambia

In the symposium **'Clinical research in Zambia'**, speakers from the National Malaria Control Centre, the Ministry of Health and the School of Veterinary Medicine described clinical research activities conducted in Zambia with a focus on malaria and lymphatic filariasis (LF).

Malaria transmission intensity in Zambia is heterogeneous and endemic. This variability in transmission necessitated a review of the strategic approach to elimination leading to the development of the National Malaria Elimination Strategy for 2016-2020. The evidence-base for development of the strategy and the strategic approach that has been adopted were discussed.

LF is endemic in Zambia and is one of the neglected tropical diseases earmarked for control and elimination by 2020, through mass drug administration (MDA) campaigns. Zambia conducted its first national MDA, using diethylcarbamazine and albendazole, in 2015. Independent drug coverage surveys are conducted to ensure prompt corrective action where sub-optimal coverage is found; and to validate the accuracy of reported MDA coverage rates.

Community drug distributors can achieve high coverage with MDA.

Also discussed were capacity development and knowledge translation in the strengthening of Zambia's health system and health care delivery. Knowledge is often seen as the uni-directional transfer of research knowledge into policy but it is a broader dynamic process involving cycles of evidence.

Day 4: Clinical trial design, new interventions, community engagement

The first of Wednesday's three plenary sessions comprised one lecture and a panel discussion.

Innovatice clinical trial designs

Innovations in the design of clinical trial were the subject of **Dr Patrick Phillips** of the MRC Clinical Trials Unit, UK. He reminded the meeting of the history of the randomised controlled trial (RCT) noting that much trial data for TB and HIV has come from trials in Africa. The majority of trials conducted today still use the traditional two-arm design. But there is a need to speed up the rate at which potential new treatments are trialled and brought into use. TB trials typically take 4–7 years during which no one is analysing the data that is slowly accruing. New trial designs can answer more questions faster and bring benefits to patients faster. They can also be easier to conduct and need fewer trial participants.

"THE MAJORITY OF TRIALS STILL USE THE TRADITIONAL TWO-ARM DESIGN BUT NEW DESIGNS HAVE MANY ADVANTAGES – THEY ANSWER MORE QUESTIONS AND BRING FASTER BENEFITS TO PATIENTS."

Dr Patrick Phillips

Dr Phillips described five new designs 1) multi-arm, 2) multiple randomisations (factorial and multi-target factorial, 3) treatment strategy trials, 4)multi arm-multi-stage (MAMS), 5) platform trials. The latter is particularly suitable for TB in the African setting. He outlined a number of TB (and other) trials currently under way that illustrate these new approaches; one of these is the EDCTP-funded PanACEA MAMS-TB phase II trial. He stressed that the most important aspect of trial design was to start with a good question, and then to conduct a systematic review of the existing evidence.

EDCTP can facilitate improved trial designs in several ways, including knowledge transfer and flexible funding. He cautioned, however, that new designs can be hard to explain within a grant application; peer reviewers may find them hard to understand and so recommend against them.

The panel discussion allowed three contributors to share their own experience of the implementation of new interventions in the field.

Implementation of new interventions

Dr Jeremiah Chakaya of the Kenya Medical Research Institute (KEMRI) outlined the progress that has been made in TB diagnostics during the last 10 years. There have been improvements in smear microscopy and culture using non-commercial assays, and new developments with molecular assays, and lateral flow urine lipoarabinomannan assay (LF-LAM). (Negative recommendations have been made on serological assays.) However, the adoption of the new tools now available is taking too long. There are many critical issues. New tools must be endorsed by WHO, and appear in its guidelines accompanied by clear guidance on where and how to use them. Challenges in implementation include: cost and procurement issues, modifications that may be required in infrastructure, training, changing practice, and possible impact on surveillance programmes. Dr Chakaya noted that EDCTP funds high-quality research but it should also support downstream research to facilitate adoption and

scale up. It should develop partnerships with all entities working in the area of TB diagnostics.

Dr Veronica Mulenga, paediatrician in the infectious disease unit of the University Teaching Hospital, Zambia described her experience working on a trial for a much-needed new paediatric antiretroviral (ARV) formulation for HIV – 'the baby pill'. Her study was published showing that adequate drug exposure could be achieved using the pill, with few side effects. Soon after it was given US Food & Drug Administration (FDA) approval; supplies of the drug then became available in Zambia in 2008. Two years later, however, only 30% of children who needed it were receiving the baby pill. One problem seems to have been that the publication of the trial came just *after* the publication of the Zambia treatment guidelines. Information about the baby pill trickled down only slowly, barely reaching clinics in the 'outer areas'. Dr Mulenga called for the development of new strategies to achieve the rapid transmission of new information.

Dr Veronica Mulenga talks about her experiences in working on a trial for a new paediatric ARV formulation for HIV

The next speaker was **Jean Marie Talom**, a lawyer specialising in human rights, especially as they apply to health. He is Coordinator of a Cameroon civil society organisation – the Network on Ethics, Law and AIDS (Réseau sur l'Ethique, le Droit et le Sida – REDS). He raised several issues that arise in bringing new interventions into widespread use. Civil society groups can help in several ways. They can assist with communication to overcome prejudice and achieve behaviour change. They can become advocates for better access to new products, through putting pressure on pharma companies to reduce prices and on health ministries to integrate them into national programmes. In addition, they can draw the attention of health providers to service delivery problems and assist in the reporting of side effects.

"CIVIL SOCIETY GROUPS CAN HELP BRING NEW INTERVENTIONS INTO WIDESPREAD USE."

Jean Marie Talem

Impact of clinical trials on care

Wednesday afternoon's plenaries began with a presentation from **Dr Khátia Munguambe** of Universidade Eduardo Mondlane and Centro de Investigação em Saúde de Manhiça (CISM), Mozambique. She described an EDCTP-supported study (in Gabon, Mozambique and Tanzania) in which she and colleagues looked at the impact of clinical trials on the care received by participating communities. It has always been assumed that a community will have immediate benefits from a trial (in terms of improvements in services, care and knowledge) and will ultimately benefit further when the intervention finds its way into care. But do trials really strengthen the local health system or do they distort service delivery? There is scarce evidence on this point. Her study was intended to address the issue, with the intention of informing future trial design, formative research prior to trial launch and the evaluation of local trial impact. Trial participants were asked about their experiences of service quality and how the trial affected their seeking of care. Based on their answers a list of positive and negative impacts was produced. The results (which varied between locations depending on previous familiarity with trials) showed many benefits to participants but in some cases the impact of trials was counter-intuitive in terms of quality, availability and use. Dr Munguambe also described a pre-trial study in Mozambique. The results, which included the finding that local health workers were sceptical about the forthcoming trial, have been used to inform the trial design.

Observational clinical studies also have a lot to offer to find out more about this issue.

Dr Khátia Munguambe speaks about improving maternal and child health through community engagement in clinical trials

Building research capacity in Africa

Representatives of three more organisations then discussed their work in the context of building research capacity in Africa. **Dr Evelyn Gitau** represented the Alliance for Accelerating Excellence in Africa (AESA). She described AESA as being 'health and wellbeing focused' and outlined its current programme, which includes building scientific leadership, supporting innovation and entrepreneurship and advocacy. She pointed out that Africa would need to train one million PhDs per year in order to meet the World Bank goal whereby every country should have 1000 scientists per million people. She spoke on the power of partnerships and the role of EDCTP. AESA's own partners include DFID, MRC, the Pasteur Institute and the Bill & Melinda Gates Foundation.

Professor Núria Casamitjana Badia, Director of Education and Training, Institute of Global Health (ISGlobal), Barcelona spoke of the work of her organisation. Priorities include infection, non-communicable diseases and environmental health. ISGlobal has a global presence, with 100 institutions in 40 countries. Activities in Africa focus mainly on training, and capacity building and strengthening. Projects are under way in Mozambique and Liberia. She identified a number of challenges and opportunities for EDCTP: enable the environment needed for African researchers to develop their careers; reintegrate Africans trained abroad to avoid the brain-drain; focus on young scientists especially women; facilitate academic recognition for those who complete training outside institutions; provide sustainable funding; promote interdisciplinary and multisectoral approaches; continue to establish global, equitable and sustainable partnerships and programmes.

Professor Souleymane Mboup discussed the contributions made by L'Université Cheikh Anta Diop de Dakar (UCAD), Senegal which included studies done on HIV2 that had showed it to be less virulent and less transmissible than HIV1. African scientists face many challenges: the lack of a research culture in Africa, poor infrastructure and working conditions, and the lack of a clear career path. He described EDCTP's West Africa Network of Excellence for TB, AIDS and Malaria (WANETAM), which has helped renovate and update facilities in Burkina Faso, Guinea Bissau and Nigeria. It has also facilitated the accreditation of laboratories in The Gambia, Mali and Senegal. IRESSEF (Institut de Recherche en Santé, de Surveillance Epidémiologique et de Formation) is an institution intended to be a highly equipped laboratory with excellent research facilities.

From left to right: Dr Evelyn Gitau, Prof. Núria Badia, and Prof. Souleymane Mboup at the panel discussion 'Building research capacity in Africa'

Closing remarks

After a summary of the proceedings of the Forum was delivered by the rapporteur, **Dr Michael Makanga** made some closing remarks, speaking of the breadth and depth of sessions that had taken place and emphasising the importance of the awards that had been presented. He promised that, at the next Forum, in 2018, there would be additional awards to help stimulate research

within Africa. He thanked all those who had made this Forum possible: the Government of Zambia, the local organising committee, the organising and programme committees, Kashone Communications, the staff of the EDCTP Secretariat ('a lean team in two offices') and Forum participants themselves.

The meeting was then closed by The Honourable Minister of Health of the Republic of Zambia, **Dr Chitalu Chilufya**. He thanked EDCTP for providing a platform to share evidence from Zambia. The Forum had been a rare opportunity to engage with international colleagues and to hear what is happening elsewhere. He applauded the speakers.

Dr Chitalu Chilufya gives his closing remarks

"THE FORUM HAS BEEN A RARE OPPORTUNITY TO ENGAGE WITH INTERNATIONAL COLLEAGUES AND TO HEAR WHAT IS HAPPENING ELSEWHERE ... EVIDENCE IS NEEDED FOR PROGRESS TO BE MADE ... THE FINDINGS OF RESEARCH SHOULD BE USED TO INFORM POLICY IN AFRICAN NATIONS."

Dr Chitalu Chilufya, Hon. Minister of Health, Republic of Zambia

EDCTP AWARDS: DR PASCOAL MOCUMBI PRIZE

The EDCTP Dr Pascoal Mocumbi Prize was given to Professor Fred Binka at the closing session of the Eighth EDCTP Forum on 9 November 2016. The award consisted of a trophy and 50,000 euro. Professor Charles Mgone, former Executive Director of EDCTP, presented the award to Prof. Fred Binka. Sonia Mocumbi and Pascoal Mahykete Mocumbi, daughter and son of Dr Pascoal Mocumbi, were also present to pay a tribute to their father. The Dr Pascoal Mocumbi Prize rewards an individual in recognition of his or her outstanding achievements in advancing health research and capacity development in Africa with significant impact on the wellbeing of the African population.

"I WILL DEVOTE OF THE AWARD TO THE ADVANCEMENT OF MEDICAL RESEARCH IN GHANA."

Professor Fred Binka

Prof. Fred Binka (right), winner of the Dr Pascoal Mocumbi Prize with EDCTP Executive Director Dr Michael Makanga


Accelerating health research
...to cure and prevent better
Public Organisations and NGOs

Parallel sessions

There were four parallel sessions on Wednesday.

Interventions against diarrhoeal diseases

The session on **diarrhoeal diseases** featured presentations on the vaccine pipeline for viral and bacterial diarrhoeal pathogens, as well as the efficacy of current interventions to reduce mortality and morbidity. Dr Duncan Steele from the Bill & Melinda Gates Foundation spoke on enteric viral infections. Rotavirus is the main cause of moderate-to-severe diarrhoea followed by adenovirus, *Shigella* and enterotoxigenic *Escherichia coli* (ETEC). Norovirus and hepatitis E are also concerns. Vaccine efficacy is lower in low-income countries. Research opportunities include improved immunization schedules and clinical testing of new live, attenuated vaccines.

Dr Richard Walker (PATH) dealt with bacterial diarrhoea, particularly ETEC and *Shigella*. Although mortality is decreasing, long-term developmental and cognitive effects result from repeated diarrhoeal episodes. No licensed vaccines are available but candidates exist in the pipeline. The development of a combination vaccine for ETEC and *Shigella* is desired; the most advanced candidates are ETVAX and TSWC.

Dr Roma Chilengi (Centre for Infectious Disease Research in Zambia [CIDRZ]) talked about the impact of targeted interventions against diarrhoea. A programme has encompassed different interventions including: rotavirus vaccine, use of oral rehydration salts (ORS)/zinc, promotion of exclusive breastfeeding, and handwashing with soap. Rotavirus vaccine efficacy was determined in a number of sites. Areas where interventions were rolled out show reductions in mortality and morbidity compared to baseline figures.

Neglected and emerging infectious diseases

The session on **neglected and emerging infectious diseases** began with a report from Dr Rashid Ansumana, MHRL, Sierra Leone, on simultaneous use of two RDTs to detect cases of *Burkholderia* and dengue fever. The results of tests examined by laboratory technicians were compared to those using an automated 'Deki' reader. Deki reader results matched those of the technicians. The Deki, which can be monitored remotely, could assist with surveillance, particularly in remote settings.

Dr Ayola Adegnika of CERMEL, Gabon, reported that a hookworm vaccine had demonstrated similar safety and adverse events as a control vaccine. Antibodies to the hookworm protein used in the vaccine were detected in vaccinated individuals after one boost, but decreased until the second boost was administered. Elevated antibodies were detected up to 194 days post-vaccination. The vaccine may help reduce the helminth's effect on haemoglobin levels.

Bache Bache, also of CERMEL described a small (n=40) Phase I safety trial of an Ebola virus disease vaccine in children and adolescents. The VSV backbone-based vaccine was determined to be safe and tolerable in children and adolescents. The safety profile was similar to that in adults. Only a Phase IV trial can reveal the range of side effects that the vaccine might induce.

Professor Moses Bockarie emphasised that clinical trials for neglected infectious diseases targeted for elimination – in particular lymphatic filariasis, onchocerciasis, trachoma, and schistosomiasis – are still important. Trials are needed to examine potential vaccines that can accelerate elimination and alternative treatment strategies such as new drug formulations, drug combinations, and altered timing of mass drug administrations.

Malaria treatment

In the first presentation in the **malaria** session, Dr Michael Nambozi (Tropical Diseases Research Centre [TDRC], Zambia) described a study of ACTs in pregnant women. Dihydroartemisinin-piperaquine (DHA-PQ) seems the most suitable treatment for uncomplicated malaria in pregnancy. Artemether-lumefantrine (AL) had best tolerability but the lowest efficacy. Adverse effects were more common in the MQAS group, but it may be an option for women with treatment failure after AL or

DHA-PQ. There were no differences in pregnancy outcomes between treatment groups.

Dr Georgina Humphreys (on behalf of WWARN) discussed the findings of a systematic review of the effect of ACTs on haematological response. Patients with fever and/or high parasitaemia were less likely to present with profound anaemia, but more likely to experience significant drops in haemoglobin in the following seven days. Patients with non-AS had higher drop in haemoglobin compared with those treated with ACT.

Dr Jesse Gitaka of Mount Kenya University reported on MDA integrated malaria elimination efforts in a hypo-endemic island in Lake Victoria. Two rounds of MDA reduced malaria prevalence by 2% (measured by PCR). Resurgence due to importation was observed after two months. Monitoring of importation, and intensive vector control are required for sustainable elimination.

Dr Naomie Kabore of Institut de Recherche en Sciences de la Santé (IRSS-DRO), Burkina Faso, outlined findings from an RCT to assess the effects of DHA-PQ and AL on QTc interval. The frequency of prolonged QTc was higher in DHA-PQ group compared to the AL group. There was no clinical impact on QTc over consecutive episodes.

A study of molecular markers of resistance in 'real life' repetitive DHA-PQ treatment was presented by Dr José Pedro Gil (KI, Sweden): Pfcrt 76T seems to be significantly selected by DHA-PPQ during the first 63 days of follow up. A significant selection of 184Y was not observed. The 184Y is associated with earlier reinfection, when analysing beyond the usual D63 limit.

SUNDAY 6 NOVEMBER 2016

TIME	TITLE	ROOM
17:00–19:30	**PLENARY SESSION I**	Main auditorium
17:15–18:30	Welcome address and opening of the Eighth EDCTP Forum	
18:30–19:30	R&D to tackle global health challenges: roles and responsibilities for EDCTP	
19:30–19:40	**AWARD CEREMONY** Outstanding Research Team award	
19:40–21:00	**WELCOME RECEPTION**	Banquet Hall

MONDAY 7 NOVEMBER 2016

TIME	TITLE	ROOM
07:45-08:45	**WORKSHOP** Applying for an EDCTP2 grant	Conference room 1
09:00-10:30	**PLENARY SESSION II**	Main auditorium
09:00-09:45	EDCTP2 vision and strategy	
09:45-10:30	Evidence-informed policy making	
10:30-11:00	**COFFEE BREAK**	Foyer
11:00–12:30	**PLENARY SESSION III** HIV and tuberculosis: status update, key research questions and role of EDCTP2	Main auditorium
12:30–14:00	**LUNCH**	Banquet Hall
12:30–16:00	**HIGH-LEVEL MEETING OF AFRICAN AND EUROPEAN POLICY MAKERS** (by invitation only)	Conference room 8
12:45–13:45	**COLLABORATIVE SESSION** Coming together to support scientists in low- and middle-income countries: partnering among funders to achieve impact	Conference room 1
12:45–13:45	**WORKSHOP** Supporting prospective clinical trial data collection	Conference room 2
12:30–14:00	**POSTER PRESENTATION — A**	Foyer
14:00–16:00	**SCIENTIFIC SYMPOSIA** Using systematic reviews to inform policy and research direction on neglected diseases	Conference room 1
14:00–16:00	**SCIENTIFIC SYMPOSIA** Leveraging partnerships to advance product development and build research capacity	Conference room 2
14:00–16:00	**SCIENTIFIC SYMPOSIA** Importance of blood-stage malaria vaccine candidates in the development of a next generation malaria vaccine	Conference room 3
14:00–16:00	**SCIENTIFIC SYMPOSIA** Tuberculosis: shorter and better treatments on the horizon	Conference room 4
16:00–16:30	**COFFEE BREAK**	Foyer
16:30–17:30	**PLENARY SESSION IV** Panel discussion: Supporting clinical research in Africa: needs, priorities, and the role of public and private sectors	Main auditorium
17:30–17:45	**AWARD CEREMONY** Scientific Leadership award	
18:00–19:00	**SATELLITE MEETING** New diagnosis and AMR control tools for newborns and infants presenting diarrhoea	
19:30–21:30	**CONFERENCE DINNER**	

Programme at a glance

TUESDAY 8 NOVEMBER 2016

TIME	TITLE	ROOM
07:45–08:45	**WORKSHOP** Grant agreement preparation with EDCTP2	Conference room 1
09:00–10:30	**PLENARY SESSION V** Malaria and neglected infectious diseases: status update, key research questions and role of EDCTP2	Main auditorium
10:30-11:00	**COFFEE BREAK**	Foyer
11:00–12:30	**PARALLEL SESSION** Ethics & regulatory activities	Conference room 1
11:00–12:30	**PARALLEL SESSION** Tuberculosis	Conference room 2
11:00–12:30	**PARALLEL SESSION** Neglected infectious diseases	Conference room 3
11:00–12:30	**SCIENTIFIC SYMPOSIA** Attenuated sporozoite-based vaccines for malaria	Conference room 4
12:30–14:00	**LUNCH**	Banquet Hall
12:30–13:30	**MEET THE EXPERTS**	Banquet Hall
12:45–13:45	**WORKSHOP** ISO-accreditation for sub-Saharan African laboratories	Conference room 1
12:45–13:45	**WORKSHOP** Higher education and innovation in public health	Conference room 2
12:45–13:45	**ANNOUNCEMENT** Birth Day Prize	Conference room 3
12:30–14:00	**POSTER PRESENTATION — B**	Foyer
14:00–16:00	**PARALLEL SESSION** HIV	Conference room 1
14:00–16:00	**SCIENTIFIC SYMPOSIA** Strong local research leading to evidence-informed policies in Africa	Conference room 2
14:00–16:00	**SCIENTIFIC SYMPOSIA** Post registration safety and efficacy monitoring on new antimalarial treatments	Conference room 3
14:00–16:00	**SCIENTIFIC SYMPOSIA** Maximising EDCTP membership: how to catalyse national efforts and converge EU and African Global Health efforts	Conference room 4
16:00–16:30	**COFFEE BREAK**	Foyer
16:30–17:30	**PLENARY SESSION VI** Panel discussion: Is Africa prepared for epidemics? Lessons learnt from the Ebola epidemic	Main auditorium
17:30–17:45	**AWARD CEREMONY** Outstanding Female Scientist award Scientific Leadership award	Main auditorium
18:00–20:00	**SCIENTIFIC SYMPOSIA** Clinical research in Zambia	Conference room 1
18:00–20:00	**SATELLITE MEETING** Building an innovation ecosystem for global health	Conference room 2

WEDNESDAY 9 NOVEMBER 2016

TIME	TITLE	ROOM
08:30–10:00	**PLENARY SESSION VII**	Main auditorium
08:30–09:15	Innovative clinical trial designs	
09:15–10:00	Panel discussion: Implementation of new interventions: experience from the field	
10:00–10:30	**COFFEE BREAK**	Foyer
10:30–12:00	**PARALLEL SESSION** Diarrhoeal diseases	Conference room 1
10:30–12:00	**PARALLEL SESSION** Neglected and emerging infectious diseases	Conference room 2
10:30–12:00	**PARALLEL SESSION** Malaria	Conference room 3
10:30–12:00	**PARALLEL SESSION** Vaccine development (HIV and TB)	Conference room 4
12:00–13:30	**LUNCH**	Banquet Hall
12:30–13:30	**MEET THE EXPERTS**	Banquet Hall
12:15–13:15	**WORKSHOP** From research to publication	Conference room 1
12:15–13:15	**SATELLITE MEETING** Can mobile health increase funds for healthcare and improve access to high quality care?	Conference room 2
12:15–13:15	**SATELLITE MEETING** BVGH session	Conference room 3
12:00–13:30	**POSTER PRESENTATION — C**	Foyer
13:30–15:00	**PLENARY SESSION VIII**	Main auditorium
13:30–14:15	Improving maternal and child health through community engagement in clinical trials	
14:15–15:00	Panel discussion: Building research capacity in Africa	
15:00–15:30	**COFFEE BREAK**	Foyer
15:30–16:00	**AWARD CEREMONY** Dr Pascoal Mocumbi Prize	Main auditorium
16:00–17:00	**PLENARY SESSION IV**	
16:00–16:30	Summary and future directions	
16:30–17:00	Closing session	

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