University of Amsterdam

Progress through Partnership: The UvA and Africa

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In memory of

Joep Lange
Jacqueline van Tongeren

Table of contents

Foreword

LOUISE GUNNING-SCHEPERS

Just days before boarding the Malaysia Airlines plane that was shot down over eastern Ukraine, Joep Lange contributed an article to this book; a personal tale about his love for Africa and his commitment to making health care accessible worldwide. Joep had been the driving force behind this book, just as he had been the driving force behind so many things throughout his life. Joep and Jacqueline van Tongeren, his partner and co-worker who was with him on the flight, were loved and admired colleagues whom we will sorely miss.

Joep and Jacqueline made an immense contribution to the struggle against HIV/AIDS and in making health care accessible across the globe. Not content with standing idly by while HIV/AIDS decimated whole communities in Africa, Joep used his charm, energy and razor-sharp intellect to build bridges with researchers, forge international partnerships and eventually take meaningful steps towards eradicating this and other diseases. He inspired people and ensured their support for innovative, life-changing projects. Some of his most notable achievements include his medical research in the Netherlands, the clinical trials he initiated and coordinated in Africa, his tireless efforts to turn PharmAccess Foundation into a global success, the roll-out of low-cost health insurance to poor communities and the creation of the soon-to-be launched Amsterdam Health and Technology Institute (AHTI). These projects bear witness to Joep's ability to galvanise others around new endeavours and to achieve the seemingly impossible.

Through Joep and Jacqueline, yet also through many others, the UvA has an enduring relationship with many countries in Sub-Saharan Africa. Over the past few years we have witnessed the growth and development taking place on the African continent. We have cooperated with institutes and universities, conducted research together and fostered collaborative partnerships. As an intellectual hub bringing together students with over 100 nationalities – many of them African – and actively seeking international partnerships in the field of teaching and research, the UvA attaches great importance to this type of collaboration.

The rich selection of stories in this book illustrates this. For more than two decades, fruitful collaboration has taken place in a wide range of academic fields, including medicine, law and even linguistics. We are currently studying the benefits of multiple language acquisition, developing a law degree programme in Ethiopia, establishing the Africa Research Initiative and Support Centre, cooperating closely with Makerere University in Uganda, to name but a few examples. These partnerships have resulted in pioneering research, especially by the UvA's Academic Medical Center, which continues to play an active role in conducting research on infectious diseases and strengthening local research capacity in Africa. Links such as these are not, however, limited to research. Every year, the UvA plays host to an increasing number of African exchange students, many of whom build productive, lifelong friendships with their Dutch peers before returning home to share their skills and expertise.

The development of teaching and research in Africa is a cause for celebration. There is much that we and our African partners can learn from one another. As described in this book, we witness so-called 'reverse innovation', in which African countries leapfrog the North, such as with mobile health applications in Ghana. In the coming years, the UvA will build on and expand its research relationship with Africa in the knowledge that strong partnerships are the mainstay of any successful academic endeavour. Although they are tragically no longer with us, it is an endeavour that Joep and Jacqueline would have wanted us to follow through with, and which, in their memory, we will.

Dr Louise Gunning-Schepers
President of the Executive Board

Africa on the rise

Joep Lange, professor of Medicine at the University of Amsterdam (UvA) and director of the Amsterdam Institute for Global Health and Development (AIGHD), reflects on his first visit to Africa and the progress that has since been made in the struggle against HIV/AIDS.

JOEP LANGE

Joep Lange was a Dutch clinical researcher, professor of Medicine, and a former president of the International Aids Society. Lange and his partner, Jacqueline van Tongeren, were among the victims of the Malaysia Airlines Flight 17 (MH17) crash in eastern Ukraine on 17 July, 2014.

My first trip to Africa took place in August 1992. For 10 years, I had been treating and doing research on men who have sex with men (MSM; then usually called homosexuals or gay men) with HIV at the UvA's Academic Medical Center (AMC-UvA). I now, however, wanted to see the epicentre of the HIV/AIDS epidemic, which is why I joined the World Health Organization's Global Programme on AIDS (WHO/GPA) as chief of Clinical Research and Drug Development. My official starting date was 1 September, but I was asked to already make a visit to Kampala, Uganda, in August because GPA was in a hurry to initiate a study to demonstrate the uselessness of Kemron, a fake and expensive AIDS remedy promoted by former Kenyan President Daniel Arap Moi.

That visit turned out to be a life-changing event. Driving from Entebbe airport to Kampala, I immediately fell in love with the country: the red earth, the lushness of

the vegetation, the way people walked (many barefoot) along the roadside. Nevertheless, even on that road the presence of AIDS could not be ignored – people were selling coffins everywhere. Although I was aware that Uganda at that stage had an adult HIV prevalence rate of 30+ per cent, even this knowledge didn't prepare me for what I was about to see at Makerere University's Mulago hospital. Accompanying Elly Katabira – the principal investigator of the Kemron study and leading academic HIV physician in Uganda – on his rounds, I was shocked to see the internal medicine wards almost entirely occupied by people with AIDS, two in each bed and many lying on mattresses on the floor. At regular intervals, I saw how people who had just died were being carried away. Besides a lack of running water, there were virtually no diagnostic tools and little to no medicines. I still remember seeing a woman with a baby on her back and an enormous, painful anogenital herpes ulcer, visiting the hospital and being sent home without acyclovir or painkillers. After seeing all of this, I was unable to take care of people who complained about having to take too many pills when I returned to the AMC-UvA in 1995 – I literally told several of them to find another doctor.

That morning at Mulago hooked me on Africa. It also became my mission to do something about the terrible global inequality in access to life-saving medicines. When effective triple drug therapy for HIV became available in high-income countries in 1996, it vexed me to see how little could still be done for Africa. Drug regimens were very expensive, assumed too complex, and many policymakers felt that prevention was more cost-effective than treatment (we now know that treatment is the most effective prevention). Then, suddenly, in May 2000, on the eve of the 13th International AIDS Conference in Durban, South

Africa, an agreement between five major pharmaceutical companies and UNAIDS was announced. In the agreement, the companies pledged to start providing antiretrovirals at greatly reduced prices for poor countries with a large HIV burden. This was the first International AIDS Conference to be held in Africa, which certainly prompted this agreement. Now that the drugs were 'affordable' and the regimens less complex, we could finally take action. I converted PharmAccess International into PharmAccess Foundation and continued the policy of approaching companies that are active in Africa, such as Heineken, to convince them to start providing HIV treatment to their local employees, which Heineken did in 2001. Since then, many companies have followed suit. It took another two years before big funding mechanisms for a massive HIV treatment roll-out were established. Today, more than 10 million people in low and middle-income countries are receiving antiretrovirals – an unprecedented success story of global health.

Throughout the years, our group has always remained active in Africa, doing clinical research, building research capacity, offering educational programmes and exploring novel ways of financing health care and improving the quality of care. We are active in many countries (Ghana, Kenya, Mozambique, Namibia, Nigeria, Rwanda, Tanzania, Uganda, South Africa), but Uganda holds a special place in my heart. Elly Katabira has been a close friend and steady collaborator since our first encounter. Thanks to him, the AMC-UvA has been able to build a spiritual and physical presence at Mulago.

Since my first visit more than twenty years ago, I have seen Africa transform, especially urban Africa, which now boasts a rapidly growing middle class. The change has been impressive. Where roads once stood empty, they are now congested with traffic. Where virtually no proper restaurants once existed, visitors now have a pick of many excellent and exotic ones. Informal settlements are making way for splashy new buildings, nobody goes barefoot any longer, almost everybody has a cell phone, and a number of African cities, such

as Nairobi, are hotspots of innovation. After years of one pessimistic story after the other ('the lost continent'), *The Economist* in December 2011 had 'Africa rising' on its cover, copied by *Time Magazine* a year later. To those who regularly visit Sub-Saharan Africa, the pace of change is indeed astonishing, and there are many reasons to be optimistic about the region. We should, however, also realise that many countries suffer from bad leadership (not unique to Africa) and poor institutions, that many places have stayed behind and/or are conflict-ridden, that very little has changed for the poor in rural settings, and that the lives of those who left for urban slums are extremely difficult. To include the latter two groups in the 'great escape' from poverty is the big challenge ahead.

Reverse innovation: the new model for global health

Traditional approaches to development, wherein countries in the global 'North' assist those in the 'South', are rapidly disappearing. The same holds true with respect to health and health care. Tobias Rinke de Wit, professor of Sustainable Healthcare at the University of Amsterdam and Krishna Udayakumar, associate professor of Global Health and Medicine at Duke University, throw light on some of the novel ways in which developing countries in Africa and elsewhere are contributing to global health care innovation.

TOBIAS RINKE DE WIT

KRISHNA UDAYAKUMAR

While many low and middle-income countries (LMICs) continue to cope with well-known infectious killer diseases (HIV, malaria, tuberculosis), rapid urbanisation, the emergence of a growing economic middle class with more sedentary lifestyles, and evolving nutritional patterns have added new burdens of non-communicable diseases, such as diabetes and cardio-vascular diseases, which used to predominantly affect the North. In addition to this 'double burden', financial resources in LMICs remain substantially more constrained, particularly in the health sector, which is not the highest priority for many LMICs.

In many LMICs, this combination of circumstances – where the need is greatest and resources most under pressure – has fuelled waves of transformative innovation across health and health care, leading to the development of new technologies, services, financing models and approaches to the health workforce. Over the past several years, LMICs in the South have proven their ability to leapfrog the North in implementing new solutions, with mobile phones penetrating into the smallest villages in Africa and offering innovative m-health services, such as those to pregnant mothers in Ghana.

Higher income countries in the North may now be better able to contend with the 'law of the handicap of a head-start', which often inhibits further innovation in their own health systems. Advances in global health are already becoming more multi-nodal, with a global community solving issues together as partners. This new paradigm offers opportunities for 'reverse innovation', in which higher income countries learn from and adopt innovations developed in the global South. Examples of reverse innovation are already numerous. For instance, the Discovery Vitality plan – which was developed in South Africa and rewards health insurance members for healthier behaviour, such as purchasing healthy food, going to the gym or undergoing regular health checks – is being jointly adapted and implemented in the US with Humana Inc.

Another example is India-based Narayana Health, which provides high-quality cardiac care (open heart surgery) to whole populations at a price that is 10-50 times lower than in the Western world. This is accomplished through a clever combination of the 'assembly line' concept, a model of pay-per-use for medical equipment and the use of low-cost prefab buildings. Patient outcomes are excellent, and this approach has now raised serious interest from high-income countries eager to implement it as well, as evidenced by the newly opened Health City Cayman Islands, a Narayana Health project joined by Ascension, the largest private, not-for-profit health network in the US. All in all, this new framework for global health provides exciting opportunities to develop a truly global knowledge network and thereby improve health and health care.

Forging closer ties through collaboration

In Africa, the saying goes that ‘if you want to go fast, go alone; if you want to go far, go together’. A hollow phrase to some, but to Dr Harriet Mayanja-Kizza it forms the bedrock on which she conducts her personal and professional life. As a physician and dean of the School of Medicine at Makerere University in Kampala, Uganda, Mayanja-Kizza is thoroughly convinced of the mutual benefits of increased collaboration with the University of Amsterdam. ‘Despite our limited resources, there is a lot our two institutions can learn from each other.’

HARRIET MAYANJA-KIZZA

Harriet Mayanja-Kizza already became acutely aware of two important facts at a young age. First, that medicine would play a prominent role throughout most of her life, and second, that life’s most pressing problems are best solved with the help of others. Growing up in a society with an underdeveloped health-care sector, Mayanja-Kizza’s belief in the importance of teamwork evolved into an article of faith after witnessing the value that collaborative partnerships can have in the field of teaching and research. Little wonder then that Mayanja-Kizza, appointed dean in 2011, sees the advantages of building on the strong relationship that already exists between the AMC-UvA and Makerere.

Every year, Makerere's School of Medicine welcomes AMC-UvA students and researchers who come to participate in local research and fieldwork. These exchanges are supplemented by joint programmes such as INTERACT – a project between the UvA-aligned Amsterdam Institute for Global Health and Development (AIGHD), Makerere University and others – that aim to more effectively coordinate research activities in Uganda, which in the past were fragmented and confined. Mayanja-Kizza: 'By setting up a unified research support unit with the help of the UvA and others, we can now provide tailored support to local researchers and thereby strengthen local research capacities.'

Despite the huge strides that have been made by implementing such projects, Ugandan health care still faces important challenges. These include a lack of resources and a high prevalence of transmissible diseases such as malaria, tuberculosis and HIV/AIDS. According to Mayanja-Kizza, the UvA is perfectly placed to help address these issues, not least because of its specialist expertise and talented researchers. 'Most of our students are trained to follow the same trajectory: diagnosis and treatment. By interacting with their Dutch counterparts, they have now learnt that sometimes it's good to take a step back and look at the bigger picture. Why is someone getting sick, and how can we deal with the root cause?' Such student exchanges are beneficial to Ugandan students, but also to the UvA, says Mayanja-Kizza. 'UvA students who do an exchange at Makerere are exposed to high disease presentation rates on a daily basis, something which is obviously not the case in Western societies. These students, who are used to high-tech health care, also see how most of our doctors and researchers provide good health care with limited means, and return home with the knowledge that more isn't always better.'

In the coming years, Mayanja-Kizza – who obtained her PhD at the UvA in 2014 – hopes to strengthen the 'linkages' between Makerere and the UvA by further stimulating student collaboration and joint research projects. 'Linkages aren't only about money, but about people. By forging closer ties between our respective institutions, we won't only be laying the groundwork for vigorous and successful research, but also for lifelong friendships.'

Consolidating the Ethiopian justice sector

For more than two decades, the University of Amsterdam, through the Ethiopia Capacity Building Institute (ECBI), has played an important part in helping to improve and consolidate the Ethiopian justice sector. In this interview, Dr Haile Selassie, who has headed the Institute since its inception, gives a brief summary of the ECBI's aims as well as its role in fostering collaborative partnerships between UvA and Ethiopian researchers in the field of law.

HAILE SELASSIE

Could you tell us more about the Ethiopia Capacity Building Institute?
The Ethiopia Capacity Building Institute has supported human resource development and justice reform in Ethiopia for more than twenty years. An initiative of the UvA's Faculty of Law, the ECBI is currently responsible for executing the Justice Capacity Building Project (2012-2016), which is sponsored by the Royal Netherlands Embassy in Ethiopia and is aimed at training key personnel in the Ethiopian justice sector, including the country's Ministry of Justice.

What are the Institute's chief tasks?
The ECBI is charged with designing, coordinating and implementing training, research and consultancy programmes for legal researchers and jurists in Ethiopia. This is done in collaboration with various

academic, professional and governmental institutions in the Netherlands and Ethiopia. The Institute's goals are to help strengthen the Ethiopian justice system and to facilitate closer cooperation between the UvA and Ethiopian universities in the field of law and jurisprudence. To this end, the ECBI offers a doctoral programme, a Master's of Law degree programme (LLM) and several short training courses.

What is the focus of the LLM and doctoral programmes?
The LLM programme was created to help support and strengthen postgraduate law degree programmes at various Ethiopian universities. It augments local LLM programmes which, together with adequate and effective legal institutions, are being created by Ethiopian universities to address the country's growing human resource needs. Our LLM programme has been specifically tailored to meet the needs of the Ethiopian justice sector and is geared towards the 80 public prosecutors and legal experts employed by the Ethiopian Ministry of Justice. The participants are taught by a number of professors and lecturers from various legal institutions in the Netherlands and Europe, who in turn also benefit by gaining vital teaching experience in Africa.

The doctoral programme was created in response to the UvA's desire to assist the Ethiopian Justice Ministry in training competent and qualified legal researchers. At the moment, we have five PhD candidates who are participating in the programme and are writing their dissertations on various legal topics.

As part of their studies, these candidates travel to the Netherlands for short periods to conduct research, engage with UvA students, participate in seminars, gain exposure to Dutch legal culture and visit prominent legal organisations.

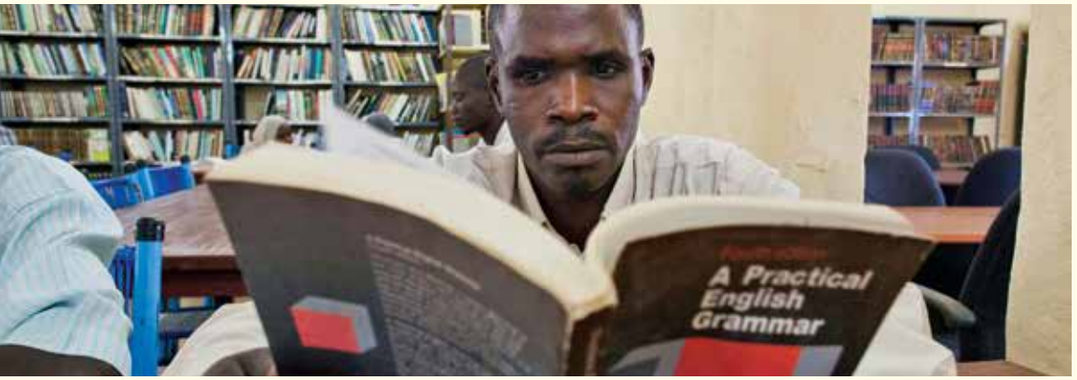
What has been the value of the UvA's involvement in the Ethiopian justice sector?
The sustained improvement of Ethiopia's justice sector is crucial to the country's development. The ECBI's degree programmes provide all stakeholders, including the UvA, with the opportunity to help realise this noble objective. Over the past few decades, the ECBI's involvement in Ethiopia has not only resulted in tangible improvements to the country's justice system, but has also forged closer research ties between the UvA and a number of Ethiopian universities.

Taking language acquisition to a higher level

Language offers a vast reservoir of knowledge about the rich tapestry of humanity. To understand language in all its forms, is to unlock this knowledge, but also to empower those who speak it. According to Enoch O. Aboh, professor of Linguistics at the University of Amsterdam, the field of linguistics has an important part to play in driving development in Africa, a continent with about 2000 languages. 'If you allow people to become conscious of their language, you open up millions of opportunities to them; to me that's more effective than pouring millions of euros into a country.'

ENOCH O. ABOH

Born and raised in Benin, West Africa, Aboh – like most of his fellow Béninois – grew up speaking several languages, one of which was French, the country's official language. Aboh received his schooling exclusively in French, a language on which he had initially planned to do his dissertation. It was only after his supervisor had encouraged him to focus on Gungbe (a Kwa language) that Aboh rediscovered his own indigenous native tongue. 'As my work evolved, it became clear to me that certain linguistic phenomena, which I once assumed to be typical of languages with an oral



culture, are constant across typologically different languages as well as across oral or written cultures.'

In 2007, Aboh, together with linguists from Rutgers University and New York University, founded the African Linguistics School (ALS). Unique in terms of its objectives and teaching methodology, the ALS – with the help of funding from the UvA – aims to expose African students to new advances in linguistics and help them conduct further research on African languages. Aboh has no doubt about the importance of stimulating such a programme. 'In Africa, most indigenous languages are used informally, as opposed to colonial languages, which are only known to a minority. Because these languages are mostly oral, a lot of local knowledge is lost to the world when one generation passes on. To be able to reverse this trend and safeguard this knowledge, speakers need to be able to operate in their own language, which is only possible if we study these languages, standardise them and offer them in schools. With this in mind, the ALS participates in the preservation, spread and creation of knowledge.

Besides the obvious advantages for African countries, the UvA also stands to benefit from stimulating linguistic research in Africa, says Aboh. 'One of the aims of linguistics is to understand how children acquire and use language. If we look at language acquisition, the vast majority of studies have been conducted within a monolingual, Western context. This means that our theories of how children learn language are only based on one predominant socio-cultural view. In Africa, where very little acquisition research has been done, most children acquire multiple languages simultaneously. If we really want to know how language develops in our brains, we need to understand what cognitive capacities these children deploy in acquiring their languages. Africa represents a great opportunity to gain exactly such an understanding.'

Aboh believes the UvA, which is well-respected for its expertise on language acquisition, language contact and typology, is ideally placed to help take linguistic research in Africa to a higher level. 'It is important for us to be able to know and say something about an area with one of the largest concentrations of languages on earth. By promoting further research, we will be ensuring that Africans become full participants in the construction of knowledge.'

Building research capacity in Africa

In recent years, the University of Amsterdam (UvA) has participated in several programmes aimed at building and strengthening medical research capacity in Sub-Saharan Africa. Nadine Pakker, director of clinical operations at the Amsterdam Institute for Global Health and Development (AIGHD), Frank Cobelens, professor of Epidemiology and Control of Poverty-related Infectious Diseases, and Michaël Boele van Hensbroek, professor of Global Child Health, explain how the UvA is supporting local research on the African continent.

NADINE PAKKER

FRANK COBELENS

MICHAËL BOELE VAN HENSBROEK

Why is adult life expectancy in Africa still relatively short and are children still dying? When trying to address these questions, it becomes clear that there are a vast number of unanswered research questions in nearly all areas of global health. These include a basic understanding of disease prevalence, as well as the severity and outcome of neglected, but also common, non-neglected tropical diseases. It is also unclear as to why these research questions are not properly addressed. Possible reasons include: the poor quality of the majority of research projects conducted so far, with severe shortcomings in the study design and conduct of studies (often not conducted according to international standards); inadequate local research capacity (i.e. the limited number of African researchers able to conduct high-quality research); and the unequal distribution of areas covered by current research.

To address this capacity and ownership problem, two research capacity building programmes were initiated in Uganda/Rwanda and Malawi a decade ago. Both programmes were funded by a grant from the Dutch Government, of which the UvA's Academic Medical Center (AMC-UvA) was the main applicant. The

Ugandan/Rwandan programme (INTERACT) focused on the development and implementation of an integrated research and training programme within both the College of Health Sciences at Makerere University in Uganda and the Centre for Treatment and Research on AIDS, Malaria, Tuberculosis and other Epidemics (TRAC-Plus) in Rwanda. The INTERACT project had a learning-by-doing approach and built capacity through 8 PhD projects on HIV, tuberculosis and malaria by training staff in clinical research, implementing data monitoring and data management systems, expanding laboratory capacity, and by creating a vibrant research environment. As part of the Malawian (COMMAL) programme, a research support centre (RSC) was established within the University of Malawi's College of Medicine. The RSC started providing a package of courses, individual research support and research services for the College's staff and its research partners.

Both programmes were successful and were adopted by the principal management of the respective hosting universities. Its success was also recognised by the donor (NWO-WOTRO, Dutch Government), who encouraged the AIGHD to consolidate the results of the INTERACT and COMMAL programmes, and to develop a research and training network for Eastern and Southern Africa. The ARISE (African Research Initiative and Support) network was established in 2012 and includes Malawi, Uganda, Zimbabwe and Rwanda. The objectives of the ARISE network are to improve sustainable research capacity through a network of Research Support & Training Centers (RSTCs), which are meant to broaden the base of health research both in terms of numbers of researchers as well as in the quality of their work.

The UvA's African community

UvA students from Africa: countries of origin

'I have brought back new skills, know-how and professional competence'

Ayorit Yasin
(Ethiopia)

'As an African working at the UvA, I was amazed about the University's many links with Sub-Saharan Africa.'

Johan Rheeder
(South Africa)

UvA employees from Africa: countries of origin

'Doing an exchange at the UvA has been a life-changing experience.'

Magalie Masamba
(Congo)

Improving lives in the slums

Over the last few years, the African Population and Health Research Center (APHRC), together with the University of Amsterdam, has actively sought measures to improve the lives of Kenyans who live in slums. Alex Ezeh, executive director of the APHRC, explains.

ALEX EZEH

In 1999, the APHRC implemented a study on condom use during the HIV/AIDS era. This study was implemented in a number of rural districts in Kenya and highlighted the perceptions of rural Kenyan residents that HIV and other sexually transmitted infections appear to increase during festive seasons when urban migrants return home. This led us to examine sexual networking in Nairobi's slums, which highlighted some of the major health challenges faced by the urban poor. In 2000, we designed the first comprehensive large-scale household survey, the Nairobi Cross-section Slum Survey (NCSS 1), to examine the magnitude of the health challenges facing slum residents. The survey, titled Population and Health Dynamics in Nairobi's Informal Settlements, brought to light the plight of slum residents in Kenya, which hitherto had been hidden in national data systems and urban averages. The survey also focused on the excess mortality and disease burden among the urban poor, their limited access to health care and family planning services, and the debilitating environment in which they live.

Recognising the numerous challenges facing the urban poor, the APHRC started to implement a longitudinal

Nairobi Urban Health and Demographic Surveillance System (NUHDSS) in 2002, which has since kept track of about 75,000 individuals in 24,000 households in two slum communities in Nairobi City. The NUHDSS, which has recorded data on births, deaths, migrations, vaccinations, marriage and socio-economic status, has become an invaluable tool with which to monitor change and continuities in the lives of the urban poor, and has led to more than 100 peer-reviewed publications on various aspects of urbanisation. It has also provided a strong platform for evaluating interventions (national and local) aimed at improving the lives and well-being of slum residents in Nairobi and across Sub-Saharan Africa. Several of these interventions have been instrumental in informing national strategies. One example is SCALE-UP, a study implemented in partnership with the University of Amsterdam's Amsterdam Institute for Global Health and Development (AIGHD). This three-year implementation research project builds on previous observational studies in the same study population of adults who are resident in the NUHDSS. The intervention has several components aimed at reducing the risk of cardiovascular disease.

A premier scientific workshop in Sub-Saharan Africa

Jacqueline van Tongeren, director of Communications at the UvA-aligned Amsterdam Institute for Global Health and Development (AIGHD), gives a brief summary of INTEREST, an international workshop on HIV treatment, pathogenesis and prevention research in resource-poor settings.

JACQUELINE VAN TONGEREN

Jacqueline van Tongeren was director of Communications at the Amsterdam Institute for Global Health and Development (AIGHD) and a professional HIV/AIDS nurse. Van Tongeren and her partner, Joep Lange, were among the victims of the Malaysia Airlines Flight 17 (MH17) crash in eastern Ukraine on 17 July, 2014.

INTEREST focuses on issues that are relevant to the African continent and offers a forum for high-level exchange between local researchers, clinicians, policy-makers, students, community representatives and international experts in the field of HIV prevention and treatment. The workshop has been a catalyst in strengthening the African scientific community and in forging new collaborations to advance the African HIV research agenda.

The first INTEREST meeting was held in 2007 in Kampala, Uganda. Since then, subsequent meetings have been held in various locations: Dakar, Senegal (2008); Lusaka, Zambia (2009); Maputo, Mozambique (2010); Dar es Salaam, Tanzania (2011); Mombasa, Kenya (2012); Dakar (2013); Lusaka (2014). The 2014 workshop brought together over 350 participants from 23 different countries and included pre-workshop meetings with a specific focus on paediatrics and prevention of mother-to-child transmission of HIV, implementation science and antiretroviral drug resistance.

INTEREST presents the latest and most relevant scientific advances to Africa, and consists of plenary lectures by

some of the world's leading experts in the field, as well as group discussions among participants. In addition, symposia and roundtables cover specific topics that require more in-depth presentation and discussion, and often include policy implications. On several occasions, attention has been given to 'key-affected populations' such as men who have sex with men (MSM), transgenders and sex workers, as well as intravenous drug users.

One of the most rewarding outcomes of past INTEREST workshops has been the increasingly active participation of African presenters and audience members. Participants now refer to the meeting as 'the African CROI', CROI being the foremost US conference on HIV and related research. INTEREST also offers young researchers the opportunity to share the stage with their more experienced peers, in a setting which comfortably facilitates active and open interaction. To quote Elly Katabira, professor at Makerere University College of Health Sciences in Kampala, Uganda: 'These kinds of interactions have resulted in new collaborative partnerships as a result of the discovery of young research talent.'

Cementing a global legal fraternity

For Congolese student Magalie Masamba, the time she spent on exchange at the University of Amsterdam's Faculty of Law was one of the most formative periods of her life. In this interview, Masamba talks about her experience and the value of studying abroad.

MAGALIE MASAMBA

Why did you decide to do an exchange at the University of Amsterdam?
There were three important reasons why I decided to do an exchange semester at the UvA. First the UvA has a good relationship with the University of Pretoria (South Africa), where I am currently completing my Master's in Law, with a special focus on International Trade and Investment Law. Second, I've always enjoyed being exposed to a different culture, meeting new people and learning a new language. Third, and more importantly, I wanted to gain a new perspective on trade and investment law in what is unarguably the centre of international law: the Netherlands. Once I had decided on the Netherlands, the UvA, as one of the country's most well-known, respected universities, seemed like the obvious choice. Besides having a wealth of knowledge and expertise, the UvA is also located in a city endowed with a vibrant history and a rich cultural heritage.

What struck you the most about the UvA's approach to teaching and learning?
What struck me most was the short lines of communication between the students and academic staff. The UvA prides itself on its academic transparency and openness, which is obvious from the way the lecturers openly encourage students to share their own legal knowledge and experience. This makes for lively, stimulating debates in which the emphasis is on the creation and exchange of knowledge. The lecturers, who were always readily available for questions, were also cognisant of the fact that a large number of students were foreign and therefore had their own unique perspective on jurisprudence and tax law.

Do you consider your time at the UvA a success?
Most definitely. Doing an exchange at the UvA has been a life-changing experience. I have grown as a lawyer and as an individual. Every student, especially those from my home continent, Africa, should get such an opportunity, because it is one thing to read books and study legal literature, and something completely different to be actually taught by the judges and other experts you read about, and to visit some of international law's most hallowed institutions. The law becomes alive and real in the Netherlands.

Do you think it is important that African students in particular do an exchange at foreign universities, such as the UvA? Why?
Yes, I do, and I think the UvA should be their primary choice. This decision is especially important for students who are taking up international studies. Traveling is one of the best ways to network and also learn about your field. This is particularly true for African students, because their continent is trying to be more competitive and meet international standards. The best way to achieve this lofty objective is to learn from the best.

Did you manage to increase your international network as a result of your time at the UvA?
Studying at the UvA brought me into contact with many people both within and outside the field of law. This interaction furthered my horizons and changed my outlook in a number of ways. The people I met not only contributed greatly to my own development as a student and as a legal practitioner, but also allowed me to make strong and lasting friendships. More importantly, interacting with such a diffuse group of students gave me the chance to share some of my own unique knowledge as an African.

HIV research in post-apartheid South Africa

Professor Helen Rees, executive director of the Wits Reproductive Health and HIV Institute (WRHI) at the University of Witwatersrand (Johannesburg, South Africa), talks about HIV treatment and prevention strategies in post-apartheid South Africa.

HELEN REES

Post-apartheid South Africa dawned in 1994 with the inauguration of Nelson Mandela and the installation of a new democratic government, a time of promise and hope. HIV antenatal prevalence was 7.4%, and overall prevalence was lower than in many other African countries. Within months of the government coming to power, the National South African AIDS Plan was adopted, which focused on prevention, human rights and counselling. It was optimistically believed that South Africa would avoid the high rates of infection seen on the continent.

Despite initial optimism, HIV prevention strategies failed, and South Africa became the country with the largest number of people with HIV before the decade was over. Antiretroviral treatment (ART) was considered too expensive for public health services, and prevention focused on information campaigns and condoms. For clinicians, this was a depressing time to work. HIV

dominated hospital admissions and despite treatment being available in developed countries, it was only available for the rich, and patients died in their hundreds of thousands.

During Thabo Mbeki and Manto Tshabalala-Msimang's reign, a time of AIDS denialism was started. The government denied that HIV caused AIDS, which confused patients, hindered prevention messaging and delayed treatment interventions. The government rejected the use of ART for prevention of mother-to-child HIV transmission (PMTCT) until the constitutional court ruled that a lack of PMTCT interventions was unconstitutional. In April 2004, ART was made available to people with AIDS in South Africa as a result of overwhelming international and local pressure on the government. By then there had been an explosive increase in HIV, with antenatal HIV prevalence at 29.5%.

President Jacob Zuma, at the head of a new administration, brought about the end of AIDS denialism in 2008. Today, South Africa has the largest antiretroviral programme in the world, with about 2.4 million people on ART. Mother-to-child transmission has been reduced to 2% and mortality has declined. Many people living with HIV have normal, economically active lives. Nevertheless, several challenges remain, the most important of which are to ensure that the

health system is strengthened, the quality of care improved, patients continue receiving long-term treatment and new strategies developed to optimise service delivery.

The South African HIV pandemic provided a range of research opportunities. South Africans have collaborated with international academic institutes and have conducted epidemiological, basic sciences, prevention, therapeutic and clinical research initiatives. Ground-breaking interventions in prevention and the basic sciences, as well as treatment trials addressing optimal ART and the timing of treatment in common opportunistic infections, have been led by South Africans.

Putting HIV drug resistance on the map in Africa

In 2006, the Pan-African Studies to Evaluate Resistance (PASER) project was launched with the support of the Netherlands Ministry of Development Cooperation through the AIDS Fonds. This multi-country research programme focuses on building capacity for the assessment of HIV drug resistance in Sub-Saharan Africa and on disseminating information to international policymakers. Tobias Rinke de Wit, professor of Sustainable Healthcare at the University of Amsterdam, gives a brief summary of the programme's aims and achievements to date.

TOBIAS RINKE DE WIT

Pan-African Studies to Evaluate Resistance (PASER) has created high-profile involvement in the international policy arena of HIV treatment in Africa. PASER builds on the pioneering work done by Prof. Joep Lange and the PharmAccess Foundation in the area of access to HIV treatment in resource-poor settings. This follows a long tradition at the University of Amsterdam's Academic Medical Center (AMC-UvA), which has been at the forefront of treatment and care for HIV patients since 1982.

The PASER project, coordinated by the Amsterdam Institute for Global Health and Development (AIGHD), is continuously building capacity in Africa to monitor HIV drug resistance. Using methodologies that are fully compatible with the World Health Organization (WHO), the project determines this inevitable consequence of large-scale HIV treatment programmes. Looking back, the timely start of PASER (2006) almost

seems visionary, as it now shows results of up to 72-84 months of patient follow-up. No other HIV drug resistance effort in Africa can produce such long-term data on such a comprehensive scale.

Since its inception, PASER has focused on regionalising the programme into Eastern, Western and Southern Africa to collect data from 13 clinical sites in the following 6 countries: Kenya, Uganda, Zambia, Zimbabwe, South Africa and Nigeria. Extensive experience and benefits have been gained from the regional aspects of the programme. In 2012, PASER contributed 25% of all data on African HIV drug resistance to the WHO.

PASER continues to build local capacity through the training of clinic staff, nurses, counsellors and lab technicians at regional workshops in good clinical and laboratory practice. In addition, PASER has proven to be a true advocate of HIV drug resistance by publishing nearly 50 scientific manuscripts in peer-reviewed journals, delivering presentations at key HIV conferences and reaching out to mass media in Africa. Through its excellent networks, PASER influences policy on HIV treatment in Africa, particularly via HIVResNet, the Global HIV Drug Resistance Surveillance Network of the WHO .

Supporting African academics in Amsterdam

The verdict is out: Africa is a continent on the rise. In several African countries, growing economic prosperity, coupled with a better educated citizenry, will contribute to an increase in the amount of African students and researchers coming to the University of Amsterdam (UvA) on exchange. To make sure that the UvA and the city of Amsterdam fully benefit from such exchanges, Kiza Magendane, a political science student at the UvA's Faculty of Social and Behavioural Sciences, recently founded the African Student Abroad (ASA) platform. In the following article, Magendane talks about the importance and aims of the ASA.

KIZA MAGENDANE

To what extent are Africans represented in the cultural and intellectual life of Amsterdam? Although this question can produce different answers, it is odd that such a great and diverse city as Amsterdam does not have its own platform solely dedicated to bringing together African students for intellectual debate and the exchange of ideas. This is why I decided to create the African Student Abroad (ASA) student platform.

A platform for African students in Amsterdam is vital, now more than ever. The University of Amsterdam, like most leading universities around the globe, is becoming increasingly aware of the importance of international collaboration and is actively seeking to attract some of the world's best researchers and students. In the coming years, this process, known as 'internationalisation', is only expected to intensify further. If the UvA is to achieve its goal of becoming a

global knowledge hub, it will need to actively involve all of its students, including those from the African continent. But how can we ensure that African students who arrive in Amsterdam are brought into closer contact with Dutch society, and that their unique talents and expertise are fully utilised to the benefit of the UvA? I believe the ASA can play a pivotal role in this respect.

The African Student Abroad platform is aimed at facilitating the exchange and growth of knowledge about Africa in Amsterdam, and actively wishes to promote stronger partnerships between African researchers and their Dutch peers at the UvA. In the coming years, it is my hope that the ASA will build on its humble beginnings and play a more prominent part in helping the UvA to expand its already impressive research network in Africa, while also supporting the UvA's African student community and spreading knowledge about Africa in Amsterdam.

Current UvA projects in Africa

Peter Geschiere
professor of Anthropology and chairperson of the International African Institute
(Sub-Saharan Africa)

Geschiere is currently participating in a project which explores the rise of homophobia in various parts of Africa as a result of the continent's interaction with the West during colonial and postcolonial times. In addition, Geschiere is also involved in a joint project about the revival of 'traditional' chieftaincy in Yaoundé, Cameroon.

Rachel Spronk
assistant professor Anthropology
(Kenya, Ghana)

Spronk's research focuses on the (notion of) middle classes in Kenya and Ghana, and how social transformations relate to changes in gender, sexuality and self-perceptions. One of her chief aims is to generate a new way of thinking about contemporary theoretical repertoires.

Robert Pool
professor of Social Science and
Global Health
(Uganda)

Pool is currently coordinating the Developing Sustainable Community Health Resources in Resource-Poor Settings in Uganda (CoHeRe) programme, which aims to contribute to the development of empirical, problem-oriented medical anthropological research capacity in Uganda. The programme also explores, within a single setting, basic social processes and dynamics relating to self-help and sustainable community support with the aim of extrapolating findings to other similar settings in Africa, but also to Western settings such as the Netherlands.

A centre of knowledge for infectious diseases

Martin Grobusch, professor of Tropical Medicine at the University of Amsterdam and head of the AMC-UvA's Center for Tropical Medicine and Travel Medicine (Tropencentrum - TC), gives a brief description of the Center's activities in the field of infectious diseases in Sub-Saharan Africa.

MARTIN GROBUSCH

A number of our teaching and research activities are aimed at both undergraduate and postgraduate students. Although wide-ranging, these activities have a strong focus on the epidemiology, prevention, diagnosis and treatment of infectious diseases in Sub-Saharan Africa. As well as providing support and supervision to Bachelor's and Master's students who perform fieldwork in the tropics, particularly in Africa, we also give guidance to PhD students. We currently have 18 such students, of whom half originate from African countries, where they now conduct fieldwork in areas such as epidemiology and the molecular characterisation of echinococci (Sudan), malaria control and elimination (Malawi, Gabon, Rwanda), malaria and HIV co-infections in high-risk groups such as pregnant women and people with sickle cell disease (Rwanda, South Africa, Ghana), and TB epidemiology, treatment and control (Zambia, Gabon, South Africa). Our Dutch PhD students also conduct research at the Center's African partner sites in South Africa and Gabon.

One of the TC's chief areas of interest is malaria. At the moment, our deputy head, Dr Michèle van Vugt, and I are involved in several clinical projects in Gabon,

Malawi and Rwanda. In Gabon, a country in which I have been active for more than twenty years, the TC is currently conducting large-scale research into malaria, tuberculosis, HIV and helminthic infections. Due to the success of these projects, we have managed to build a strong research capacity and create the necessary infrastructure and manpower to effectively deal with malaria and other infectious diseases.

In Rwanda, the 'Empowering the Community towards Malaria Elimination' (MEPR) programme – which is led by Michèle van Vugt – seeks to tackle and control the spread of malaria by mobilising and empowering local communities. In recent years, the MEPR programme has made remarkable progress in halting and reversing malarial infections, and has helped to better coordinate national and local malaria treatment programmes. Another of the TM's field projects is the Majete Integrated Malaria Project (MMP), a community-based malaria control optimisation project on the perimeter of Majete Wildlife Reserve in Malawi. One of this project's chief aims is to implement state-of-the-art malaria control tools and to monitor and evaluate affected communities.

Treating hypertension in Sub-Saharan Africa

Hypertension is the leading risk factor for death in Sub-Saharan Africa (SSA). If not appropriately treated, hypertension can lead to cardiovascular diseases such as stroke and heart disease. Steven van de Vijver and Marleen Hendriks, two researchers from the UvA-aligned Amsterdam Institute for Global Heath and Development (AIGHD), and Samuel Oti, senior research officer at the African Population and Health Research Center (APHRC), describe two projects aimed at tackling hypertension on the African continent.

STEVEN VAN DE VIJVER

MARLEEN HENDRIKS

SAMUEL OTI

Growing urbanisation and its associated lifestyle is one of the main reasons for an increase in hypertension. The number of people living in African cities will triple in the next few decades to more than 1.2 billion, and so will the number of hypertension patients. Unfortunately, more than 60% of the urban population in SSA live in slums with only very limited health care infrastructure.

The SCALE UP project aims to develop, implement and evaluate a cost-effective and scalable model for the prevention of cardiovascular diseases, with a focus on hypertension. The AIGHD and APHRC jointly developed this model in collaboration with the Boston Consulting Group (BCG). The project is implemented in Korogocho, a Nairobi slum with 35,000 residents. Through household visits, community health workers identified people at risk for hypertension and referred them to a local clinic where high-quality care was offered by trained staff using standardised guidelines. The impact of the model is currently being evaluated, and there is already interest in increasing the coverage of the project to one million residents in the poor, eastern part of Nairobi.

Another innovative programme tackling hypertension in SSA is Hygeia Community Health Care (HCHC), a health insurance programme for low and middle-income groups in Kwara State, Nigeria. The programme provides access to health care for patients and improves the quality of care in the programme's health-care clinics. Over 64,000 people were enrolled in the HCHC programme in April 2014, with planned expansion to 600,000.

An anthropological contribution to global health research

As one of the University of Amsterdam's research priority areas, Global Health and Development seeks innovative, cross-disciplinary answers to some of Africa's (and the world's) most pressing health issues. In this article, Anita Hardon, professor of Anthropology, briefly highlights how UvA anthropologists are contributing to this important research priority area.

ANITA HARDON

Globalisation has led to a faster movement of health products, information and pathogenic agents in Africa. As a result, health systems are changing rapidly. Moreover, successful medical interventions have increased average life expectancy, resulting in an increase in chronic illnesses such as cancer, diabetes and dementia – diseases requiring long-term care. The University of Amsterdam's Global Health and Development research priority area integrates knowledge and expertise in the fields of medicine, economics and social science into innovative, cross-disciplinary research that combines qualitative and quantitative data on health care. Within the priority area, anthropologists from the Amsterdam Institute for Social Science Research (AISSR) help to generate an understanding of the way in which socio-cultural factors affect how medical technologies, which are introduced through large-scale health programmes in Africa, are utilised.

In recent years, much of the AISSR's anthropological research has focused on interventions aimed at

mitigating the HIV/AIDS epidemic in Africa. One example is the Institute's collaboration with the World Health Organization in the Multi-country Research on AIDS Testing and Counselling (MATCH) study. This study used various methods to assess the acceptability of routine HIV testing in African health-care settings (Malawi, Uganda, Kenya and Burkina Faso).

Researchers from the AISSR also participated in 'mixed method' research within the MAXART (Maximizing ART) project in Swaziland, where one in four persons is infected with HIV. This project is a partnership with STOP AIDS NOW, an NGO which received 8 million euro from the National Postal Code Lottery's Dream FUND. The MAXART project seeks to promote early antiretroviral treatment (ART) for people infected with HIV, and is based on evidence from biomedical research which suggests that people using ART are less likely to transmit the virus to others.

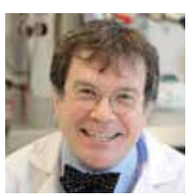
Disease, health and health care have become globally more integrated, and solutions demand a multi-disciplinary approach. After all, reality is often more complex than expected. With its unique approach and innovative capability, the Global Health and Development research priority area will in the coming years contribute a great deal to the field of global health and thereby help to ensure a better quality of life across the planet.

Tackling hookworm head-on

The University of Amsterdam's Academic Medical Center (AMC-UvA) recently received a multimillion euro grant from the European Commission for the HOOKVAC programme, which will fast track the development of a vaccine for hookworm. Remko van Leeuwen, Martin Grobusch and Peter Hotez briefly explain why such a programme is now needed more than ever.

REMKO VAN LEEUWEN

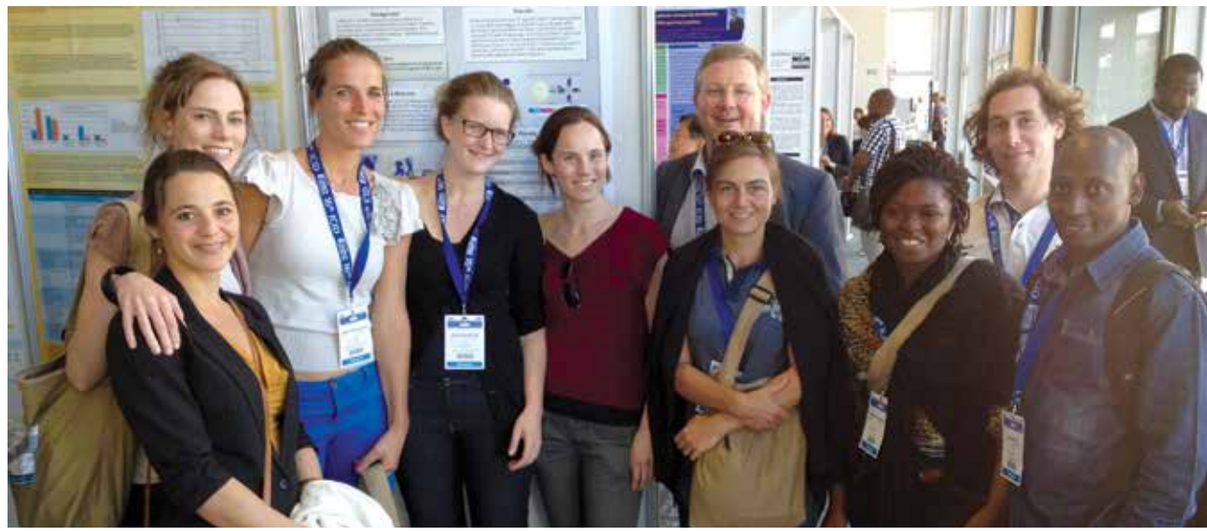
MARTIN GROBUSCH



PETER HOTEZ

As some of the world's most urgent health threats, diseases such as polio, Ebola and influenza have of late received much publicity. Nevertheless, recent studies reveal that anaemia is also emerging as a worrying health disparity, especially among women and children living in poverty. Although perhaps not as dramatic as the infections mentioned above, anaemia has been shown to have devastating and long-term effects on childhood cognition and intellect, and to increase the risk of maternal morbidity and mortality. The new Global Burden of Disease Study 2010 has determined that 32.9% of the world's population- mostly in low and middle-income countries - is anaemic at any given time, and that anaemia is currently responsible for a significant percentage of the world's total disease burden. The high level of anaemia among the poor also has long-term economic consequences and is one of the reasons why the 'bottom billion' remain trapped in poverty.

Recent research shows that a significant cause of global anaemia among the most impoverished is a result of intestinal worms, especially hookworm. Almost 440 million people suffer from hookworm,



all poor and many of them children and pregnant women. Hookworms feed on blood and rob children of nutrients, and have actually been shown to reduce childhood intelligence and cognition. Moreover, more than a quarter of pregnant women in Sub-Saharan Africa (SSA) have hookworms when they go into labour, and are at risk of severe illness or death not because they bleed more than women in industrialised countries, but because they have already lost a considerable amount of blood due to these hookworms.

In October 2013, the AMC-UvA was awarded a prestigious €6 million euro grant from the European Commission for the HOOKVAC programme, which will fast track the development of a vaccine for hookworm. This HOOKVAC programme will be coordinated by the Amsterdam Institute for Global Health and Development (AIGHD), where Remko van Leeuwen acts as the programme director.

In the HOOKVAC consortium, the AIGHD links the academic expertise provided by the AMC-UvA and partners with the assets and skills of several specialised companies that will assist in increasing the production of the vaccine, a complicated but essential process that takes years of planning and preparation. Although currently focused on a vaccine for hookworm, the consortium will in future seek to forge new and strategic partnerships for affordable vaccine production.

Towards universal access to health care in Sub-Saharan Africa

Jacques van der Gaag, emeritus professor at the University of Amsterdam, throws light on efforts to provide universal health care in Africa. 'A large segment of the population does not have access to any kind of quality health care because the distribution of health expenditures favours the rich.'

JACQUES VAN DER GAAG

Sub-Saharan Africa (SSA) is home to 15% of the world's population and suffers from 25% of the global burden of disease, and 47% of the infectious disease burden. Nevertheless, it spends under 1% of all global resources available for the prevention and treatment of disease. Although the disease burden is dominated by communicable, maternal, nutritional and new-born diseases, a rapidly growing second burden is also developing: non-communicable diseases, such as stroke, depression, diabetes and ischemic heart disease.

Health-care systems in SSA countries are severely underfunded. For example, in countries such as Ethiopia, the Central African Republic, Burkina Faso and Burundi, total per capita spending on health ranges from US$18 to US$38 a year. Half of this comes from the government and half consists of out-of-pocket expenditures by private, uninsured households. In Kenya and Tanzania, per capita health expenditures average US$45 and US$41 respectively. If all of these countries' citizens would have the same access to health care, which costs between US$40 and US$45 annually, they could be covered with a basic package of services as defined by the World Health Organization

(WHO). Unfortunately, a large segment of the population does not have access to any kind of quality health care because the distribution of health expenditures favours the rich.

Although many donors have supported governments in SSA with loans and donations to improve health-care systems, consistent failure to reach those who need it most has recently lead to a rethink of health aid efforts. Rather than supporting central governments that consistently fail to deliver adequate services to the poor, there is a growing push to provide direct support to low-income groups and engage the private sector on the supply (health care delivery) side. A good example of this approach is championed by the PharmAccess group, which is aligned to the Academic Medical Center (AMC-UvA).

The PharmAccess model empowers low-income households by providing them with access to subsidised private health insurance. Participating clinics and hospitals take part in a structured upgrading programme in which they undertake to provide high-quality health care. A complementary health credit fund actively engages private investors to put money in the health-care system, thereby giving doctors and health-care managers access to low interest credit to help further expand and upgrade health-care facilities. This model has been rolled out among carefully chosen (very poor) target groups in Kenya, Tanzania and Nigeria. Researchers from the Amsterdam Institute for Global Health and Development (AIGHD) and the Amsterdam Institute for International Development (AIID), a joint venture between the UvA and VU University Amsterdam (VU), are conducting multidisciplinary impact evaluations to measure the effect of these interventions on health care use, out-of-pocket expenditures and the health status of target groups. Preliminary results indicate a large increase in access to health care, a reduction in out-of-pocket spending and improvements in selected health outcomes. These impact evaluations are published in peer reviewed journals, contributing to the scientific output of both the UvA and the VU.

Studying at the UvA

Intellectual hub
Founded in 1632, the University of Amsterdam is an intellectual hub. With over 100 nationalities represented among its 31,000 students and 5,000 staff members, it collaborates with countless national and international academic and research institutions. The UvA forges a meeting of minds for the advancement of education and science.

Open campus
The UvA is inextricably linked with the city of Amsterdam, sharing its tradition of tolerance, learning and innovation. It has long-standing ties with many cultural and educational institutes and the vibrant business community in the city, and is located on four open campuses within the city.

High standards, high rankings
Dutch higher education is renowned throughout the world for its high standards. With 12 Dutch universities in the top 200 of the Times Higher Education (THE) World University Rankings, the Netherlands occupies the third place worldwide (after the UK and the USA). The UvA itself is ranked between 50 and 100 in all of the internationally recognised university rankings (THE, Shanghai and QS).

Stimulating academic environment
In terms of education, our aim is to offer an inspiring international academic environment in which both staff and students can develop their talents optimally. Teaching and research are inextricably linked in all programmes at the UvA, with research-intensive training beginning early on in the Bachelor's phase.

Learning at the UvA
The UvA's academic tradition places great emphasis on active personal responsibility in learning and on critical independent thinking. Our aim is to stimulate personal interests and motivation.

Facts & figures
- 7 faculties: Humanities, Social and Behavioural Sciences, Economics and Business, Law, Science, Medicine and Dentistry
- 31,000 students (3,000 of whom are international)
- 8,000 first-year students
- 3,3080 researchers (incl. PhD), lecturers, professors (of whom 27% international)*
- 517 doctorates awarded (32% international)
- 130 English-taught programmes

* excl. Faculty of Medicine

Partners and networks
The UvA collaborates with a large number of leading research universities. It is a member of the League of European Research Universities (LERU) and of Universitas 21 (U21), a prominent global network of research-intensive universities.

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