



THE AGA KHAN UNIVERSITY
Report 2017



"We have faced challenges that have moulded us, secured fast friends and forged lifelong professional relationships. We have learnt to serve the wealthy, the wanting and everyone in between with the best of ourselves. We have interacted with others in our fields and remembered that we are indeed world-class from our training, and able to not only fit in but lead in any environment. We are eternally grateful for the opportunity to pursue our passion while practising our trade among people we have come to consider our family."

Dr Angela Ongewe

Master of Medicine in Anaesthesiology
Class of 2016 Kenya Valedictory Address



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Creating Visions of Opportunity

“It is only realistic, in my view, to acknowledge an increasing frustration concerning the pluralism story. We talk sincerely about the values of diversity, about living with complexity. But in too many cases more diversity seems to mean more division.

The stakes seem to be getting higher as time goes by, but so do the obstacles. One enormous challenge, of course, is the simple fact that diversity is increasing around the world. The task is not merely learning to live with that diversity, but learning to live with greater diversity with each passing year.

One aspect of this changing reality is the challenge of human migration. More people are moving, willingly and unwillingly, across national frontiers than ever before. In country after country, the migration question is a central issue of political life. Often it is *the* central issue. And old habits of mind, including narrow, exclusionary definitions of citizenship, have not met the challenge.

In such a world, the ‘Other’ is no longer a distant someone whom we encounter primarily in the pages of a magazine, or on a video screen, or an exotic holiday trip. The Other increasingly is someone who appears in what we think of as ‘our space,’ or even, ‘in our face.’ And that reality can be hard to handle.

When the Other is seen as a potential competitor, for a job for example, even when this fear is unfounded, then the challenge of pluralistic attitudes becomes even more difficult. For those who feel insecure, it is tempting to look for scapegoats, for someone to blame, when their self-esteem seems threatened. Often, we then find it easier to define our identity by what we are against, than by what we are for.

Such fears may be culturally based, or economically driven, or psychologically rooted. But they should not be underestimated. And they will not be driven away by nice sounding words proclaiming lofty ideals.

This is why I would emphasize our responsibility to improve the quality of life in places throughout the world where that quality is unsatisfactory – fighting poverty, improving health and education, expanding opportunity – as the first manifestation of a healthy pluralistic ethic. Pluralism means responding to diversity not only at home, but on a global basis, creating genuine ‘visions of opportunity’ wherever constraints or reversals are in the air.”

His Highness the Aga Khan

Chancellor, The Aga Khan University

Speech Accepting the Adrienne Clarkson Prize for Global Citizenship, Toronto, 2016



At AKU's Stadium Road campus in Karachi, students gather in the courtyard of the Medical College between classes and rounds at the Aga Khan University Hospital.



The Power of the Research University



As His Highness the Aga Khan, Chancellor of the Aga Khan University, says, lofty ideals are not enough to improve quality of life. To create the visions of opportunity of which he speaks, we need knowledge that equips us with evidence, strategies and technologies for solving crucial problems.

As prolific generators of new knowledge, universities are therefore essential to our future. University research underlies much of our well-being and prosperity. From smartphones to MRIs, from Google's search algorithm to the use of vitamin A supplements to save the lives of countless children, it has transformed our world.

To date, however, such advances have been largely the work of the great academic institutions of Europe and North America. What then is the role of the research university that calls the developing world home, as AKU does? Research, after all, is a costly undertaking. Why not allow universities in the industrialized world to bear the expense, and import the fruits of their labour?

The answer is that the university that is both rooted in the developing world and capable of conducting inquiry at the cutting edge – that combines local insight with global excellence – can make unique contributions to knowledge. Moreover, it is exceptionally well-equipped to train future leaders who possess the vision and ambition to change lives.

Take, for example, AKU's innovative approach to fighting polio in Pakistan, undertaken with the Bill & Melinda Gates Foundation's support, and in collaboration with government and other organizations. Some were sceptical that immunization rates could be increased in insecure areas where resistance to vaccination ran high. But AKU researchers were persuaded they could boost vaccine acceptance through health camps that provide an array of medical services. Their efforts led to the immunization of 250,000 children and generated the evidence to prove their strategy worked, resulting in its widespread adoption. That is one reason that today the number of polio cases in Pakistan stands at an all-time low.

Or consider AKU's use of a smartphone application and other measures to increase rates of vaccination against various diseases in a rural district of Sindh, Pakistan. Developed with the Aga Khan Development Network's eHealth Resource Centre, the app is used by government vaccinators to document their work, making it easier for managers to ensure vaccinators are doing their jobs and to plan their activity.

To create visions of opportunity, we need knowledge that equips us with evidence, strategies and technologies for solving crucial problems.

In one year, vaccination rates in the district doubled or tripled, depending on the vaccine. With the University's assistance, the Sindh Health Department plans to expand use of the app to other districts.

As these examples indicate, the research university is among the most powerful tools low-income countries can possess for improving quality of life. It can discern possibilities where others see only obstacles. It can forge partnerships that are indispensable for knowledge generation and action. It can pursue local priorities while also assisting in meeting global goals. And it can tap the immense reservoir of intellectual talent in developing societies.

Knowing the difference its research has made already, AKU is determined to make an even greater contribution to knowledge going forward. Hence it is expanding its research portfolio well beyond its original areas of emphasis.

The University's East Africa Institute is investigating issues related to urbanization, inequality, food systems and the extractive industries. The Institute for Human Development is designing interventions to help children in disadvantaged communities reach their full potential. As it launches its first master's degree programme, the Graduate School of Media and Communications is poised to shed new light on the task of building a responsible and dynamic media and communications sector in East Africa and beyond.

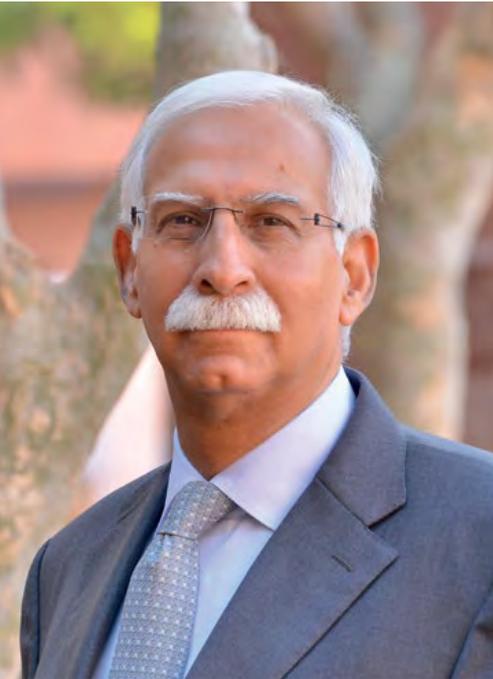
In partnership with my longtime home, the University of California, San Francisco, AKU is planning one of the most exciting initiatives in its history: the Centre for Regenerative Medicine and Stem Cell Research. Using stem cells to harness the body's capacity to heal itself, regenerative medicine makes it possible to mend or replace tissues and organs damaged by a wide range of diseases. Beginning in Karachi, the Centre will break new ground as one of the first institutions of its kind in a low-income country.

With initiatives such as these in place, AKU will demonstrate the value of the research university to the developing world. And it will make vital contributions to knowledge that reduce poverty, improve health and education, and expand opportunity.

Dr Haile T. Debas

Chairman pro tem, The Aga Khan University Board of Trustees

The Spirit of Adventure



Today, more is required of us, as both workers and citizens, than ever before. As technology continues to displace human labour, the jobs that remain demand increasingly sophisticated skills. As the internet and social media place the power to publish in everyone's hands, we are constantly called upon to distinguish fact from fiction and ideology from objectivity. As cultures collide, our capacity for empathy is tested. In these circumstances, nothing less than a great education will do.

Ten years ago, our Chancellor, His Highness the Aga Khan, outlined his vision of a great education. It would be, he said, a learning experience that develops future leaders characterized by personal integrity and intellectual excellence. As "the polar opposite of indoctrination," it would "open young minds to what it is that they do not know, and send them on a wide and rigorous search for new knowledge." It would be "serious and focused, but also joyous and inspiring." And it would produce graduates who possess "the spirit of anticipation, the spirit of adaptation and the spirit of adventure."

A liberal arts education provides just such an experience. Thus, at the same time that the University's research portfolio is expanding to address a greater array of challenges, we also are seeking to provide our students with a more complete and well-rounded education, as called for by the liberal arts approach to developing future leaders. This evolution, while well underway, will not be completed overnight. But it will transform the way students are educated at AKU, bringing us steadily closer to fulfilling the Chancellor's vision. Four changes will be especially noteworthy.

First, an AKU education will be increasingly multidisciplinary. The more complicated the phenomenon to be explained, the more intractable the problem we wish to solve, the more important it is to be able to scrutinize reality from multiple perspectives. Through classes in mathematics, the natural and social sciences, literature and the arts, we will introduce students to the many ways humans have sought to comprehend their world. We will spark curiosity while developing the analytical, quantitative, verbal and visual capacities needed to think critically and creatively, communicate clearly and collaborate with others.

Second, we will offer students a more multifaceted experience. Leadership is not an exclusively intellectual activity. AKU will provide students with more opportunities for self-discovery and character development outside of class and off-campus. Some will be part of the curriculum, such as independent summer research projects and

A great education must build “the spirit of anticipation, the spirit of adaptation and the spirit of adventure.”

internships abroad. Others will be non-academic: through activities such as sports, clubs and volunteering, students learn the value of teamwork, cultivate new talents and gain practical experience in launching and running organizations.

Third, we will provide greater exposure to diversity. AKU continues to invest or expand in every country it calls home. A more fully international AKU will create bridges between countries. It will increase the number of nationalities represented on each of its campuses, and enable students and faculty from one campus to spend time on another, enriching both visitors and visited. Similarly, as the University adds programmes in new disciplines, it is becoming more diverse intellectually. Along with doctors, nurses and teachers, our campuses will be home to budding economists, environmental scientists, entrepreneurs, artists, writers and policymakers. The experience of living and learning alongside individuals of diverse backgrounds and talents will provide essential preparation for life in a pluralistic world.

Finally, students will experience more innovative pedagogies. As our new Centre for Innovation in Medical Education is showing already, technology has great potential to deepen student engagement, whether via computer-based simulations, personalized learning experiences or “flipped” classrooms that move lectures online and make class time more interactive. Our teaching must demonstrate the same openness to new ideas that we seek to inculcate in our students.

Central to the University’s transformation will be the establishment of its Faculties of Arts and Sciences in East Africa and Pakistan, which will deliver an undergraduate liberal arts education unlike anything available in either region. But no less important to our evolution are our think tanks and current and future Graduate Professional Schools. Our new Institute for Human Development, East Africa Institute and Graduate School of Media and Communications are all integral to AKU’s quest to foster the spirit of anticipation, adaptation and adventure in new generations of young people.

“Educating effective future leaders is a high responsibility,” as our Chancellor has said. “To do it well, we must look beyond the world which is passing from sight and turn our eyes to the uncharted world of the future.” So AKU has done, and so we will continue to do.

Firoz Rasul

President and Chief Executive Officer, The Aga Khan University

Timeline of Highlights



January 2015

The Neonatal Intensive Care Unit at the Aga Khan University Hospital in Karachi doubles in size to 24 beds. In its first two years of operation, it cares for 1,400 critically ill newborns.



March 2015

Launch of the Post-RM Bachelor of Science in Midwifery in Uganda. The country's first such midwifery programme, it will produce leaders who help more women to give birth safely. *(See p. 63)*



September 2015

A suite of three new operating rooms with the latest technologies opens at the Aga Khan University Hospital in Karachi to provide surgical patients with the safest, most effective care possible.



November 2015

Opening of the Centre for Innovation in Medical Education, Pakistan's first state-of-the-art facility for simulation-based learning. (See p. 66)



January 2016

To make high-quality health care more widely available in Tanzania, AKU begins training specialists in internal medicine and general surgery at the Aga Khan Hospital in Dar es Salaam. (See p. 23)



December 2015

His Highness the Aga Khan, Chancellor of AKU, announces a new Aga Khan University Hospital will be built in Kampala to bring world-class care to Uganda and train health professionals. (See p. 69)



March 2016

Supported by funding from the Federal Republic of Germany, the School of Nursing and Midwifery in Tanzania moves into updated facilities that provide an enhanced environment for teaching and learning.



January 2016

The East Africa Institute's Kenya Youth Survey reveals the aspirations and values of the country's young people. Results for Tanzania, Uganda and Rwanda are released later in 2016. (See p. 34)



March 2016

The Postgraduate Medical Education programme in Afghanistan produces its first graduates, in paediatrics and paediatric surgery. By 2020, 65 physicians will have graduated. (See p. 47)

Timeline of Highlights



April 2016

In southern Tanzania, the Institute for Educational Development distributes 55,000 copies of contextually relevant children's books that faculty developed with teachers and parents. (See p. 31)



May 2016

The eight-bed Paediatric Intensive Care Unit opens at the Aga Khan University Hospital in Karachi to provide cutting-edge care for an expected 400 critically ill children annually.



April 2016

Launch of the Countdown to 2015 Kenya Case Study, which provides a roadmap for achieving the Sustainable Development Goals for maternal and child health in Kenya. (See p. 44)



June 2016

Nation Media Group journalists graduate from the 12-week Nation Media Lab run by the Graduate School of Media and Communications in Nairobi. (See p. 59)



April 2016

Inauguration of the new Mother and Child Health Research and Training Centre, which will help to improve the health of women and children in the Matiari District of Sindh, Pakistan.



June 2016

The Institute for Educational Development completes the seven-year Strengthening Teacher Education in Pakistan project, having trained 4,135 teachers and reached 300,000 rural students. (See p. 28)



August 2016

Classes begin for students pursuing a Diploma in Oncology Nursing, making AKU the first to train cancer nursing specialists in East Africa, where cancer kills 100,000 people annually. (See p. 19)



November 2016

The University celebrates its 15-year partnership with the Johnson & Johnson Corporate Citizenship Trust, which has helped more than 2,000 nurses graduate from AKU in East Africa. (See p. 63)



September 2016

AKU announces it will work to improve health for 11.5 million mothers, children and adolescent girls in Pakistan with a US\$ 25 million grant from the Bill & Melinda Gates Foundation. (See p. 42)



February 2017

Documentaries produced with the Graduate School of Media and Communications' support begin showing on Kenya's NTV, highlighting East Africa's environmental challenges. (See p. 56)



November 2016

The new Women's Wing at the AKU-managed French Medical Institute for Mothers and Children opens. It is Afghanistan's premier provider of OB-GYN care and a key training centre. (See p. 47)



February 2017

The Aga Khan University Hospital's Clinical Laboratories become the first in Pakistan accredited by the College of American Pathologists, confirming that they provide world-class testing services.

Timeline of Highlights



March 2017

AKU opens a research office in Mombasa, Kenya, as part of a project to improve health for 135,000 women and children in collaboration with government and fellow AKDN agencies. (See p. 46)



June 2017

In *The Lancet Global Health*, AKU and its partners detail how they increased polio vaccination rates in Pakistan. The study later wins Research Paper of the Year at the BMJ Awards South Asia. (See p. 40)



March 2017

The Aga Khan University Hospital opens new outreach medical centres in Lahore and Rawalpindi. The Hospital now has 264 such centres in more than 100 cities across Pakistan.



June 2017

The AKU Examination Board's survey of students who graduated from schools affiliated with the Board in 2015 finds 90 per cent were admitted to university. (See p. 33)



March/April 2017

In Pakistan and Uganda, AKU and partners bring together scores of stakeholders to discuss strategies for achieving the Sustainable Development Goals for health.



August 2017

The Pakistan Council for Science and Technology finds that seven of Pakistan's 10 most productive health researchers are AKU faculty members.

By the Numbers

733

students graduated from AKU.



39,701

surgeries were performed.



2.06

million patients were treated by the University health system.



103,791

individuals received free care at medical camps in Nairobi.



710,000

low-income patients received financial assistance through the Patient Welfare Programme.



13

outreach medical centres were added in Pakistan, for a total of 264 centres.



22,260

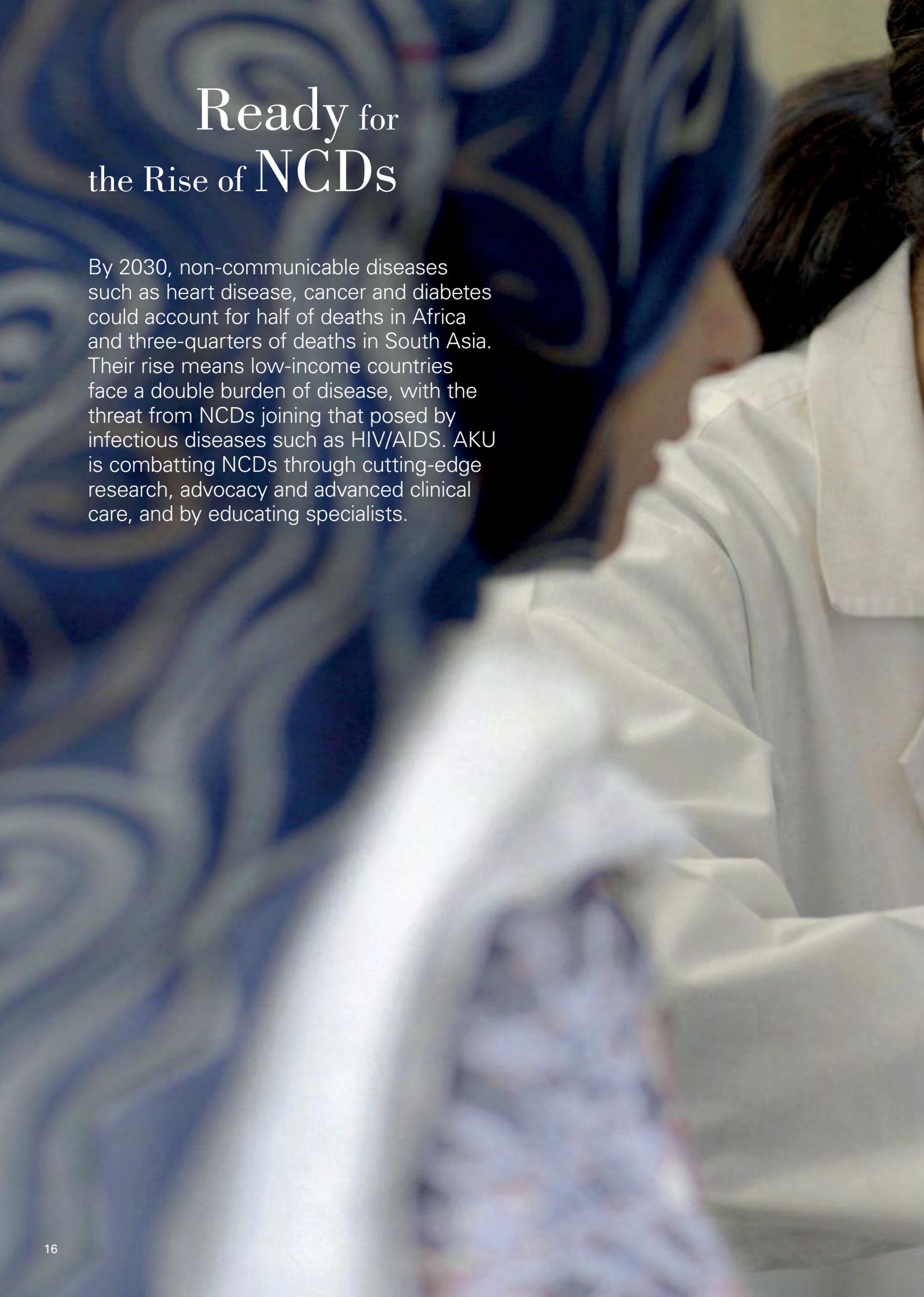
babies were delivered.



250,515

children were immunized against polio by AKU and its partners in high-risk areas of Pakistan.





Ready for the Rise of NCDs

By 2030, non-communicable diseases such as heart disease, cancer and diabetes could account for half of deaths in Africa and three-quarters of deaths in South Asia. Their rise means low-income countries face a double burden of disease, with the threat from NCDs joining that posed by infectious diseases such as HIV/AIDS. AKU is combatting NCDs through cutting-edge research, advocacy and advanced clinical care, and by educating specialists.



“AKU’s research could impact the diagnosis and treatment of patients with breast cancer not only in Pakistan but globally.”

Professor El-Nasir Lalani

Breast Cancer Research at the Cutting Edge

Faculty members are pioneering a new field in breast cancer research that could lead to treatments that are both more effective and more affordable than those currently available. Researchers led by Professor El-Nasir Lalani – Director of AKU’s Centre for Regenerative Medicine and Stem Cell Research – are exploring the capacity of androgens to protect against breast cancer and to fight various subtypes of breast cancer. They have found that women with breast cancers that are androgen-receptor positive have enhanced survival times of up to 10 years.

The researchers’ experimental work on breast cancer cell lines has demonstrated that testosterone significantly inhibits the growth of breast cancer cells driven by an onco-protein called HER-2. This inhibitory effect is as effective as utilizing Herceptin, a drug for HER-2-positive breast cancers that costs tens of thousands of dollars for a full treatment course. The results are especially notable because treatments utilizing testosterone alone would be significantly cheaper than Herceptin – as would utilizing Herceptin in combination with testosterone, because it would lower the required Herceptin dose.

Assistant Professor Nazia Riaz, a breast surgeon and member of Professor Lalani’s team, is extending the study to other breast cancer subtypes and is seeking funds to undertake a clinical trial to determine if the laboratory findings can be reproduced in a clinical setting. “Our aim is that the research we undertake results in the development of affordable and optimal treatments for patients with breast cancers and other cancers,” she said.

Previous page and this page: Assistant Professor Nazia Riaz and Professor El-Nasir Lalani are part of a team of researchers whose work could lead to new treatments for breast cancers.



“It’s thrilling to be able to make this kind of difference for people on the other side of the world.”

Pamela Savage,
Princess Margaret
Cancer Centre, Toronto

Training East Africa’s First Oncology Nurses

With an estimated 100,000 people losing their lives to cancer in East Africa every year, AKU launched the region’s first programme to train oncology nurses, and helped Moi Teaching and Referral Hospital, a public institution in Kenya, to establish a similar programme.

“The knowledge that trained cancer nurses have is really critical,” Assistant Professor Tayreez Mushani said. “They can detect breast cancer early through manual exams. They can safely administer chemotherapy and other treatments. They can manage side effects and counsel patients so they feel comfortable continuing their treatment.”

In addition to working with patients at the bedside, graduates will be leaders who expand access to skilled cancer care. For example, Immaculate Wambugu has been asked to establish an oncology nursing training programme at Nairobi Hospital’s Cicely McDonnell College of Health Science after she graduates. “I think the course is a very good thing for our country,” Wambugu said. “I want to help more people get this kind of training.”

The Princess Margaret Cancer Centre of Toronto played an essential role in developing the Diploma in Oncology Nursing at AKU in Nairobi and Moi. The Centre initially reached out to the University about collaborating to train cancer nurses, and helped to develop the diploma curriculum. The Centre also supports Mushani in her work and in assisting faculty at Moi. “A cancer diagnosis changes your life,” said Pamela Savage, Director of Professional Practice at Princess Margaret. “East Africa needs nurses who can address the challenges patients face.”

Oncology nurses learn to use an implanted venous access device for chemotherapy. As the first such nurses trained in East Africa, they will be key to addressing the region’s cancer burden.



“There is no other study of this nature being done in the world.”

Dr Salim Yusuf, Population Health Research Institute

Contributing New Insights into Chronic Conditions

Two major studies to which AKU has contributed are yielding surprising findings, some with the potential to prompt shifts in global health policies and guidelines.

Guidelines have recommended consuming no more than 1.5-2.4 grams of sodium daily – the amount in a teaspoon of salt or less – to reduce the risk of high blood pressure. But the Prospective Urban and Rural Epidemiological (PURE) study shows such a low level of sodium intake may not be healthy. Unique in its size and scope, covering 225,000 people in 25 countries, the study has collected data on non-communicable diseases and a wide range of risk factors.

In *The New England Journal of Medicine*, the PURE investigators reported sodium intake below 3 grams is associated with a greater risk of heart problems than more moderate consumption of 3-6 grams. At the same time, they found that consumption above 6 grams is risky.

“There is no other study of this nature being done in the world, and few people grasp the whole scope and ambition of it,” said Professor Salim Yusuf of McMaster University, co-lead investigator of PURE and Executive Director of the Population Health Research Institute in Canada. “PURE is beginning to have an influence on policy, and hopefully on practice as well.”

The Pakistan component of the study is led by AKU Associate Professor Romaina Iqbal, Professor Khawar Kazmi and Assistant Professor Iqbal Azam.

The Cardiometabolic Risk Reduction in South Asia Surveillance Study (CARRS) is responsible for another surprising finding: 47 per cent of Karachi residents are either diabetic or at high risk of becoming diabetic, and roughly a quarter have high blood pressure. The study is a collaboration between AKU, Emory University in the United States and two institutions in India.

“Shock is pretty much the reaction we get to this data,” said Emory Associate Professor Dr Mohammed K. Ali. “Everybody asks, ‘How can they have these levels of metabolic and cardiac disease at such a young age and such low body-mass index?’” One explanation is that South Asians are genetically predisposed to such problems – a possibility the authors hope to investigate further using blood samples from participants.

“This study will help in charting new strategies for dealing with NCDs,” said AKU Professor Muhammad Masood Kadir, the project leader in Karachi.

Data collected from 9,000 adults by AKU researchers shows that almost half of Karachi residents are diabetic or at high risk of becoming diabetic.



“We’ve seen a visible improvement in health and safety. Workers now have the sense that their health is very important to them.”

Khairoonnissa Merchant,
International Textile Ltd.

Fighting Lung Disease in Textile Mills



In Pakistan’s vast textile industry, lung ailments from cotton dust are common and include byssinosis, which disabled an estimated 30,000 workers in the United States in the decades prior to the introduction of safety measures in the 1970s.

Assistant Professor Asaad Nafees and his team are working with six textile mills that employ approximately 9,000 people to reduce lung problems by training management and workers on limiting exposure to cotton dust, including through the use of face masks, improved ventilation and safe disposal of waste.

Before-and-after measurements of air quality and workers’ lung function, as well as improvements in their knowledge and practices, will make clear the extent of the project’s impact. But Khairoonnissa Merchant, Head of Human Resources and Compliance at International Textile Ltd., said the company is already losing fewer days to illness and injury as a result of AKU’s training sessions. “When the Aga Khan team talks to the workers, it is like they are talking to a friend, and the workers really listen to them,” she said, echoing sentiments expressed by other managers participating in the study. “We are looking forward to continuing this relationship.”

Though the study – called MultiTex for short – is ongoing, government and industry are already interested in expanding it. “Nothing like MultiTex has been done in Pakistan,” said Dr Hasan Nawaz Tahir, who is working on the study with Dr Nafees. “It’s a win-win situation for everyone.”

“These disciplines are very understaffed in Tanzania, so there is a desperate need for our graduates.”

Associate Dean Mushtaq Ahmed

Delivering Essential Specialists in Tanzania



Surgeons and specialists in internal medicine are essential to addressing non-communicable diseases in Tanzania, as well as injuries and infectious diseases. Yet the country has just a fraction of the specialists in these fields it requires. To address the shortage and increase the availability of high-quality specialty care in Tanzania, the University added training in general surgery and internal medicine to complement its existing programme in family medicine at the Aga Khan Hospital in Dar es Salaam. Specialists in internal medicine – internists – are trained to handle a wide array of illnesses in adults, and are especially well-equipped to deal with chronic illnesses and complex, difficult-to-diagnose cases.

The pressing need to expand access to surgical care in Tanzania and other low-income countries has become especially clear in recent years, thanks to a surge of research and interest in the subject. Ninety-three per cent of people in Sub-Saharan Africa lack access to safe, affordable surgical care, and Tanzania needs 20 times as many surgeons as it has, according to The Lancet Commission on Global Surgery. Without access to surgery, minor injuries or conditions can become life-threatening and common birth defects can turn into permanent disabilities.

With the Hospital undergoing a US\$ 80 million expansion and adding specialty care in cardiology, oncology and neurosciences, AKU plans to add other residency programmes in the coming years to continue to fill the vast need for specialists in Tanzania. Already, the University's Postgraduate Medical Education programme in East Africa has trained more than 150 specialists.

AKU-trained specialists in surgery and internal medicine will help make high-quality medical care more widely available in Tanzania. Opposite page: A textile mill where researchers are working to reduce lung illnesses.

“Western levels of care can be achieved in a developing country.”

Assistant Professor
Syed Shahabuddin, et al.



Providing World-Class Cardiac Care

When he arrived at the Aga Khan University Hospital (AKUH) in Karachi, 28-year-old Arifullah was unable to work or care for his children due to a heart condition he had been living with since birth. An operation at another hospital had failed to help him, but a successful surgery at AKUH restored him to health, and he now supports his family as a rickshaw driver.

With three-quarters of cardiovascular deaths occurring in low- and middle-income countries, Arifullah is far from an isolated case, which is why AKU continues to work to expand access to world-class cardiac care.

In Nairobi, surgeons at the Aga Khan University Hospital's Heart and Cancer Centre became the first in the region to use a diamond drill to unblock a coronary artery, a procedure that makes it possible to clear blockages that cannot be addressed by an angioplasty. In Afghanistan, the AKU-managed French Medical Institute for Mothers and Children introduced adult cardiac surgery, building on its successful paediatric cardiac surgery programme. Beneficiaries include Bismillah Mohammad Yaqoub, 59, who became the first person in Afghanistan to undergo a successful on-pump quadruple bypass. "I am happy, healthy and back at work, thanks to Allah and FMIC," Yaqoub said.

New programmes to develop cardiac specialists are moving forward: AKU soon will begin training cardiac surgeons at FMIC (where it already trains cardiologists), and offering fellowship training in cardiology in Nairobi. Also still to come is construction of the Centre of Excellence in Cardiac Sciences in Karachi, a new building that will increase clinical and research capacity.

In addition, the University is aiming to stimulate improvements in other hospitals' cardiac surgery programmes. In the first presentation of such data from Pakistan, Assistant Professor Syed Shahabuddin, Associate Professor Hasanat Sharif and colleagues reported in the *International Journal for Quality in Health Care* that the mortality rate for patients undergoing a common form of elective open-heart surgery at AKUH in Karachi was lower than that in the United States. Not only do the results show it is possible to provide world-class cardiac care in lower-income countries, but their publication provides other institutions with a benchmark for measuring their performance. "We hope it will encourage others to publish their data and strive for improvements in performance," the authors wrote.

Cardiologist Dr Mohamed Jeilan at the Aga Khan University Hospital in Nairobi. The Hospital is the region's first to use a diamond drill to unblock coronary arteries too calcified for an angioplasty.

Translating Research into Policy

Dr Gerald Yonga was an Associate Professor and Head of the NCD Research-to-Policy Unit at AKU until retiring in January 2018. His advocacy helped lead to Kenya's first NCD survey and strategy, and he plans to continue working on NCD policy.

Q: Where do things stand today with non-communicable diseases (NCDs) in East Africa?

A: NCDs cause about 30 per cent of all deaths in the region, and they are expected to become the leading cause of death, ahead of infectious diseases such as HIV/AIDS. The growth is driven by increased consumption of sugar, salt, fat, tobacco and alcohol, low consumption of fruits and vegetables, and reduced physical activity. Unhealthy foods are cheaper, cigarette smoking is rising amongst youths and educated women, and obesity is increasing and is still considered a sign of wealth. Moreover, poverty predisposes one to NCDs and NCDs contribute to poverty.

Q: What is the right approach to the problem?

A: The majority of the upstream drivers of NCDs lie outside the health sector, so we need to involve all sectors in prevention and control. For example, you need strong tobacco and alcohol control laws, enforcement and public education. You need policies that support healthy diets, and environments that encourage physical activity. The health system also

needs strengthening. Most people in East Africa have never been screened for high blood pressure, and about nine in 10 have never been tested for blood sugar, cholesterol or cervical cancer.

Q: What about your own work?

A: In 2015, Kenya took a huge step forward with adoption of a national strategy for NCDs and publication of a national NCD survey, both of which I worked on as National Chair of the Kenya NCD Alliance. I recently completed a pilot study on integrating NCD screening into HIV/AIDS clinics, an area I'm also investigating through a project led by the U.S. National Institutes of Health's Fogarty International Center.

Q: You are a cardiologist. How did you get interested in NCDs and public policy?

A: It's easy to think in silos. You see patients with a blocked artery, you unblock the artery and you feel heroic. But then they return and more new ones keep cropping up! Eventually you get quite concerned about why they got heart disease in the first place.



Building Better Education Systems

AKU's largest education projects to date – one completed in Pakistan in 2016, and one completed in East Africa in December 2017 – have produced valuable insights into what it takes to improve schools and engage students. Together, they trained more than 7,500 educators and reached more than 600,000 students.



“The STEP project showed that when you really support rural teachers, their skills improve and student learning increases.”

Assistant Professor Takbir Ali

Strengthening Teacher Education in Pakistan

The seven-year Strengthening Teacher Education in Pakistan (STEP) project focused on 10 rural districts in Sindh and Balochistan provinces, among them some of the country’s poorest educational performers. After completing training of up to one year at AKU’s Institute for Educational Development (IED), 235 teachers and head teachers from these districts returned to their schools. From these “nucleus schools,” they then mentored 3,900 teachers in 1,500 nearby “feeder schools,” reaching 300,000 students through what is known as a cascade model of professional development.

A rigorous independent evaluation found students in the nucleus schools scored better in math, science and social studies than students in comparable non-project schools. It also found that teachers in all STEP schools were significantly more likely to challenge students to think, to have girls write on the blackboard, to praise students and to engage them in group work.

Contrary to expectations, however, the test scores of students in feeder schools were not better than in comparable non-STEP schools. The hard but valuable lesson: a cascade model of in-service teacher training may not always be the most effective. No less important, though, was the evidence showing that training provided directly by IED makes a measurable difference in how teachers teach and how much students learn.

“The programme has deeply influenced my knowledge about teaching and learning,” said one teacher. “We were exposed to a variety of tasks and activities such as classroom discussions, case studies, writing and sharing our reflections, identifying problems and solving them through action research. These experiences helped us enhance our critical-thinking and problem-solving skills.”

In addition to training teachers under STEP, IED trained government education officials and conducted community mobilization activities that reached 28,500 students, parents and school management committee members. It also worked to improve public teacher training institutes through courses for 400 faculty members and leaders, ranging from two-week short courses to a two-year Master of Education.

The C\$ 13 million project was supported by Global Affairs Canada and Aga Khan Foundation Canada.

Teachers from rural Sindh and Balochistan who completed an Advanced Diploma at AKU were able to raise student scores in math, science and social studies.

TRAFFIC LIGHTS AND SHAPES



Parts of body
Head
Hair
Eye
Arm
Finger
Elbow





“The children were thirsty for books like these, books that engage their imagination and bring their local world to life.”

Assistant Professor
Mary Oluga

Strengthening Education Systems in East Africa

The Institute for Educational Development in East Africa played a key role in a five-year, C\$ 31.8 million initiative aimed at strengthening pre-school and primary education for children on the southern coasts of Kenya and Tanzania and in Uganda’s West Nile region.

Over the course of the project, IED trained more than 3,400 government educators and officials, impacting more than 307,000 students. Known as Strengthening Education Systems in East Africa (SESEA), the project was funded by Global Affairs Canada and Aga Khan Foundation Canada, and implemented by multiple agencies of the Aga Khan Development Network.

One of its notable successes was an AKU research effort in Tanzania that built enthusiasm for reading among young children and demonstrated that teachers and parents can work together to improve student learning. In rural Lindi and Mtwara, Associate Professor Jacob Marriote Ngwaru and Assistant Professor Mary Oluga brought together teachers and parents to write stories that are relevant to children’s lives and depict the communities in which they live. The 10 books that resulted from the collaboration have proved highly popular. Teachers are using them in their classrooms, students are borrowing them from school libraries or reading them in community libraries in villagers’ homes, and school reading clubs have added them to their core reading lists. So far, 55,000 copies have been distributed.

“The children were thirsty for books like these, books that engage their imagination and bring their local world to life,” Oluga said.

In one story, a coffee farmer travels from northwest Tanzania to the coast, which he learns is not the land of deprivation he had imagined. In another, city-dwelling children visit their grandparents in a village, discovering the hardships and rewards of a farmer’s life.

To the north, in Tanzania’s Mwanza and Kilimanjaro regions, IED played an important part in another major project designed to furnish the Government of Tanzania with a model for improving pre-primary education across the country.

In East Africa, AKU is working to improve education for hundreds of thousands of children, and to produce evidence that can guide efforts to increase student learning across the region.

Tanzania is pushing to expand access to pre-primary education. But few educators are trained in the field and there is much uncertainty about the way forward. Involving 180 schools and 27,000 children, *Fursa Kwa Watoto* (Opportunities for Children) is helping to change that.

90% of students who graduated in 2015 from schools affiliated with the AKU Examination Board were admitted to university.

Under the project, IED trained nearly 600 teachers, school leaders and tutors in teacher training colleges. The results demonstrated that pre-primary education can be improved through courses for working teachers and school leaders that combine theory with ample opportunities for practice, take into account local realities and include follow-up mentoring. Children whose teachers completed the IED courses are benefitting from interactive learning experiences and vibrant environments filled with a variety of learning materials, many of them made by teachers and parents. Key lessons learned include the importance of mentoring teachers after they return to their classrooms, and of involving school heads so there is a shared understanding of what constitutes high-quality early childhood education.

“Before, classrooms were almost empty,” said Clarence Mwinuka, ECD Focal Person in the Ministry of Education. “But now they have a lot of pictures, diagrams and books, and the teachers are interacting with the children.”

Opportunities for Children is supported by Dubai Cares and the Hewlett Foundation and led by international NGO Children in Crossfire.

AKU’s Institute for Educational Development trains teachers to create engaging classrooms. Opposite page: AKU Examination Board Director Shehzad Jeeva, who holds a PhD in chemistry from Cambridge University.

“IED is involved in some of the most exciting education initiatives in East Africa,” said IED Director Joe Lugalla. “We’re making important contributions to knowledge that policymakers and others can draw on to improve education.”



Examination Board Innovates & Grows



AKU's Examination Board (AKU-EB) is a unique component of the University that is improving middle and secondary school education for thousands of students across Pakistan. With a new strategic plan and a new director, its success is garnering the attention of students, parents and government officials alike.

To graduate from secondary school and higher secondary school, students in Pakistan must pass an examination developed and administered by one of 33 regional government examination boards. Alternatively, private school students can take exams given by international organizations such as the International Baccalaureate.

AKU-EB is the only private examination board based in Pakistan. Its examinations, which are taken by approximately 9,000 students annually, require students to go beyond rote learning, unlike most government board exams. Exams are graded with a secure electronic system that prevents cheating and allows the collection of detailed information on the performance of students, teachers and schools. While equivalent in standard, they cost one-third as much as international examinations, making them affordable for lower-cost private schools, which serve nearly 40 per cent of students in Pakistan.

AKU-EB also is unique in providing teacher training and course syllabi

designed to encourage problem-solving and critical thinking. For example, middle school students might be asked to design a house in a mathematics class, or to report on local endangered species in a social studies class.

A survey found that 90 per cent of students who graduated in 2015 from schools affiliated with AKU-EB were admitted to university. Six in 10 were admitted to universities ranked in the top 20 in Pakistan. At NED University of Engineering & Technology, 93 per cent of AKU-EB students passed the entrance exam, equalling the performance of private schools using Cambridge International Examinations and International Baccalaureate exams. One in 25 students earned admission to universities abroad. Increasingly, government examination boards are looking to AKU-EB as a model and requesting its assistance.

Nonetheless, because the Board's mission is to serve low- and middle-income students, its fees cover just one-third of its expenses, requiring a subsidy from AKU and donations.

"We're making it possible for more and more students from modest backgrounds to get a high-quality education that prepares them for success," said AKU-EB Director Shehzad Jeeva, a University of Karachi graduate with a PhD in chemistry from Cambridge University.

Talking About Their Generation

The East Africa Institute's survey of 7,000 young people in Tanzania, Kenya, Uganda and Rwanda revealed the values, ambitions and anxieties of the region's youth, earning widespread media coverage and sparking a much-needed discussion of corruption, ethics and integrity.





THE AGA KHAN UNIVERSITY
East Africa Institute

Dialogue Series



Results of the survey, which focused on young people ages 18-35, were launched in each country at events attended by senior government officials, and led to scores of articles in leading media outlets. Well-known Kenyan anti-corruption activist John Githongo spoke for many in describing the survey as a wake-up call. “We need to address the challenge of corruption immediately, before we pass it on to the next generation,” he said.

Since its release, the project has influenced action by several organizations. Market-research giant Ipsos used the study as the basis for a survey of students in secondary schools that revealed attitudes much like those found by the Institute. The Wangari Maathai Foundation is using it as the basis for discussions at its Youth Cafes, and its findings informed the development of a series of forums organized by AKU and the Aga Khan Foundation that bring together young entrepreneurs, government and civil society organizations. Officials with Vision 2030 – Kenya’s national development effort – also are taking an interest.

“It’s gone well beyond what we thought we could achieve,” East Africa Institute Director Alex Awiti said. “It has generated so much interest, and the interest has endured. People feel these issues are unresolved and they don’t want to move on – they want to do something about them.”

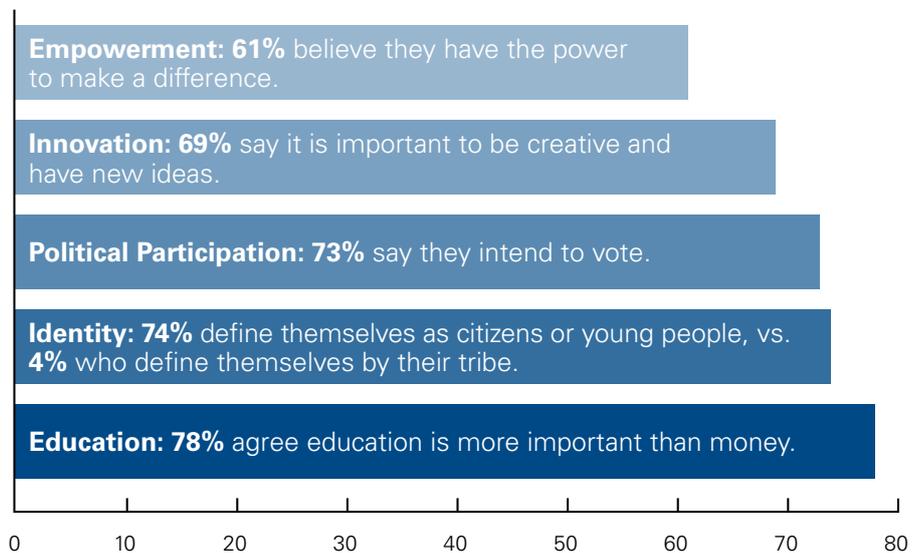
Funding for the project came from the Ford Foundation, the Rockefeller Foundation, Aga Khan Foundation Canada and Canada’s International Development Research Centre.

AKU East Africa Institute Director Alex Awiti listens during a meeting with Kenyan youths and Canadian officials. Previous page: Activists and journalists in Uganda discuss the Youth Survey.

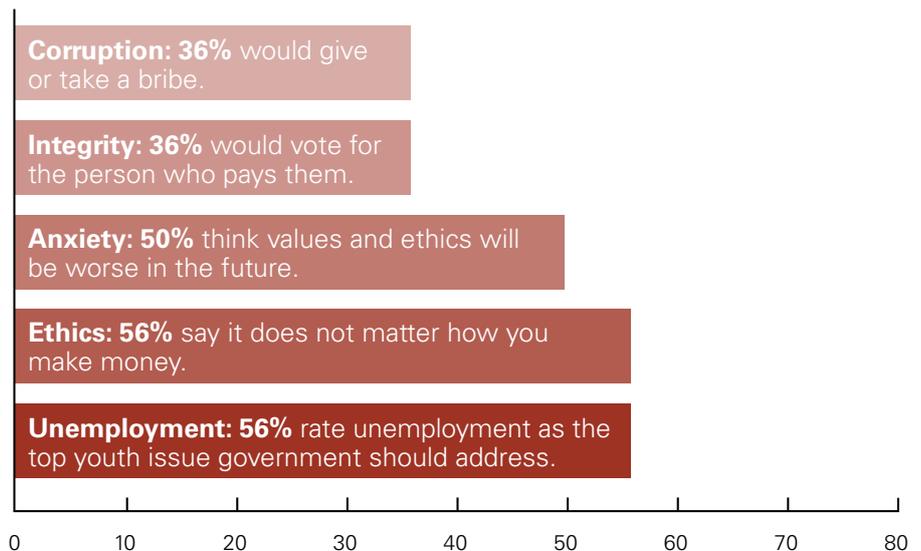


The East Africa Institute's survey of East Africans ages 18-35 revealed young people's readiness for change and the high value they place on their religious faith, as well as the unfortunate willingness of a sizeable minority to engage in unethical behaviour.

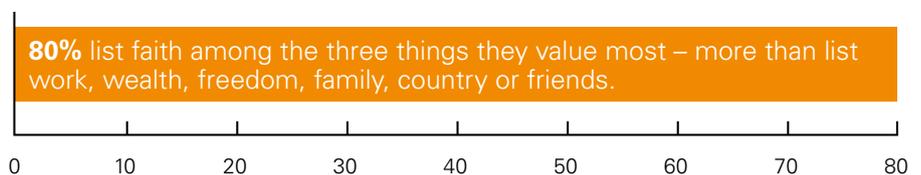
Ready for Change



Reasons for Concern



Faith Matters





Setting the Agenda in Maternal and Child Health and Development

Over the past decade, AKU helped to galvanize efforts to save the lives of mothers and children, with faculty members contributing to and leading globally influential studies. Today, the University is building on this record of success: increasing vaccination rates in Pakistan, delivering crucial insights for policymakers in Kenya, breaking new ground in undernutrition research and launching its largest maternal and child health field project ever.



“Our results showed the government that it could increase community demand for vaccination among hard-to-reach and insecure populations.”

Professor Zulfiqar Bhutta

Fighting Polio and Other Vaccine-Preventable Diseases

AKU helped drive the number of polio cases in Pakistan to its lowest level ever by introducing an innovative and influential immunization strategy in conflict-ridden areas.

Working in high-risk communities of Karachi, Khyber Pakhtunkhwa, the Federally Administered Tribal Areas and the border area of northern Sindh and Balochistan, researchers increased polio vaccination rates through health camps where a range of services were offered, including immunizations. That represents a shift from door-to-door, vaccination-only campaigns. Taking its cue from the results, the government implemented the health-camp approach in numerous areas, helping to slash the number of cases of the crippling disease from 306 in 2014 to 20 in 2016, with declines continuing into 2017.

“Our results showed the government that it could increase community demand for vaccination among hard-to-reach and insecure populations with vaccine hesitancy,” said Professor Zulfiqar Bhutta, Founding Director of the AKU Centre of Excellence in Women and Child Health. “It got the system moving.” In total, more than 250,000 children were immunized against polio by the project, which brought together AKU, the Ministry of Health, the Trust for Vaccines & Immunization and Peshawar Medical College. The Bill & Melinda Gates Foundation funded the ongoing initiative, which is expanding its work in Balochistan, with a US\$ 7.7 million grant.

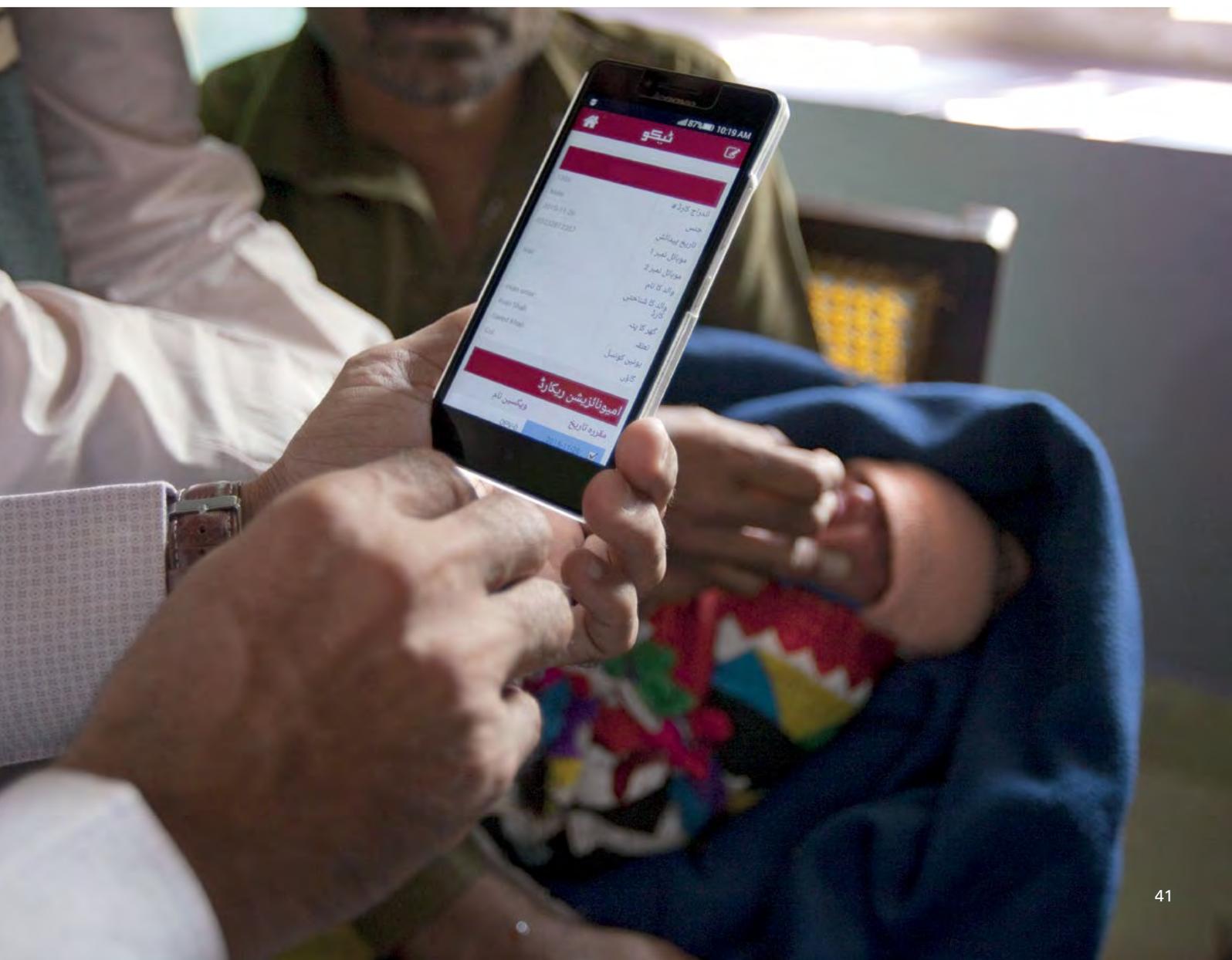
Polio is only one of many vaccine-preventable diseases that cause immense suffering in Pakistan. In fact, with nearly half of the country’s children going unvaccinated every year, tens of thousands die from diseases such as pneumonia and diarrhoea. But that can change, as shown by a pilot project led by Associate Professor Shehla Zaidi in rural Tando Muhammad Khan district in Sindh.

When the effort began, only 12 per cent of children were receiving the required three doses of pneumococcal conjugate vaccine and only 22 per cent were receiving the required three doses of pentavalent (five-in-one) vaccine. In one year, the project tripled the figure for the former and nearly doubled it for the latter. Working with the Sindh Expanded Programme on Immunization and the district government, Dr Zaidi and her team have trained immunization managers and health facility staff, educated the public through radio bulletins and equipped vaccinators with a smartphone application developed by the Aga Khan Development Network’s eHealth Resource Centre. Vaccinators take photos of each child they

A mobile-phone app from the Aga Khan Development Network's eHealth Resource Centre helped AKU researchers to significantly increase vaccination rates in a rural area of Pakistan.

immunize using the app, which also records date, time and location, enabling managers to monitor vaccinators and ensure that reported activity matches real activity.

The project's success has captured the interest of the Government of Sindh Health Department, which has signed a memorandum of understanding with the University, under which AKU will advise it on scaling up the initiative. If the results are anything like those of the pilot, numerous lives will be saved. "It shows what happens when you bring together evidence and innovation to improve the health system," Dr Zaidi said.



“This initiative can help Pakistan to achieve its SDG targets for maternal and child survival.”

Dr Christopher Elias
Bill & Melinda Gates Foundation

Gates Grant to Impact Millions

As many as 11.5 million women, children and adolescent girls stand to benefit from a multifaceted project AKU will pursue with a US\$ 25 million grant from the Bill & Melinda Gates Foundation – the largest research grant the University has ever received. And still more could benefit if the project is as successful as expected, and policymakers incorporate the evidence and lessons it generates into future health efforts.

“The scale of this is beyond anything we have done to date,” said Professor Zulfiqar Bhutta. “It’s a golden opportunity to partner with government and prove that it can significantly improve health with the right strategies and partnerships.”

Over five years, researchers will work with nearly 12,000 health workers in rural Sindh, Punjab and Balochistan, plus low-income areas of Karachi. The goal is to reduce stillbirths and deaths of the youngest newborns by 20 per cent, and deaths of children from pneumonia and diarrhoea – two of the biggest killers of children – by 30 per cent. In clinics and hospitals, quality of care will be improved by training health workers in emergency obstetric care, neonatal resuscitation and other techniques, and providing basic medications. At the same time, community-based health workers will receive training and supplies to help them provide home-based preventive and promotive care, connect people to their local health facility and promote healthy behaviours such as exclusive breast feeding.

Researchers will also test more innovative strategies such as couples education intended to prevent domestic violence. And as part of a new focus within AKU on adolescent health, they will empower adolescent girls by providing health, nutrition and life-skills education in schools. That component of the project builds upon an analysis of hundreds of studies of adolescent health interventions conducted by eight faculty members and published as a 92-page supplement to the *Journal of Adolescent Health* and a series of five papers in the *Annals of the New York Academy of Sciences*.

“This initiative can help Pakistan to achieve its SDG [Sustainable Development Goals] targets for maternal and child survival and show the rest of the world what success looks like,” said Dr Christopher Elias, President of the Gates Foundation’s Global Development Program, at the launch of the project, known as *Umeed-e-Nau* (New Hope).

Children in Ibrahim Hyderi, near Karachi. AKU will work to reduce child deaths in the area as part of a major project funded by a US\$ 25 million grant from the Bill & Melinda Gates Foundation.







“Aga Khan University has made a mark as one of the world’s leaders in maternal and child health research.”

First Lady of the Republic of Kenya,
Her Excellency Margaret Kenyatta

A Roadmap for Achieving the SDGs in Kenya

Kenya has made great strides in improving maternal and child health, but an estimated 80,000 mothers and children still lose their lives every year, largely from preventable causes.

To help Kenya accelerate progress and achieve the Sustainable Development Goals for maternal and child health, AKU and the SickKids Centre for Global Child Health of Toronto worked with Kenya’s Ministry of Health and other stakeholders to deliver the Countdown to 2015 Kenya Case Study. Published in *The Lancet Global Health*, the study is perhaps the most detailed and in-depth analysis yet of maternal and child health in the country, and provides a roadmap for achieving the SDGs.

Recommendations include focusing on preventing deaths of mothers and newborns around the time of birth through proven interventions, expanding coverage of services to disadvantaged women and increasing access to sexual and reproductive health services for adolescents. Emphasizing promotive and preventive interventions would have a major impact, according to the study, which also noted the importance of reducing out-of-pocket costs for patients and ensuring accountability by monitoring and publicizing results. Researchers plan to disseminate the case study findings not only through journal publications but by engaging with government and health professionals.

“Aga Khan University has made a mark as one of the world’s leaders in maternal and child health research,” said First Lady of the Republic of Kenya, Her Excellency Margaret Kenyatta, at the launch of the study, which also was attended by Princess Zahra Aga Khan. “Your work provides our governments with essential evidenced-based analysis.”

Professor William Macharia, who co-led the study with Professor Zulfiqar Bhutta, called it “a landmark that can catalyse action and guide efforts to prevent tragic and avoidable deaths.” Experts from the University of Nairobi and the FCI Program of Management Sciences for Health also contributed to the study.

First Lady Margaret Kenyatta and Princess Zahra Aga Khan at the launch of the Countdown to 2015 Kenya Case Study, a key resource for improving maternal and child health in Kenya.

New joint projects will help 875,000 women, newborns and children in Kenya and Tanzania.



Centre of Excellence to Address Key Challenges in East Africa

How can promising pilot projects be turned into programmes that help millions? How can women be empowered to avoid unwanted pregnancies? What can be done to provide high-quality obstetric care in rural areas?

These are the kinds of questions the new Centre of Excellence in Women and Child Health, East Africa will explore. At its helm is Director Marleen Temmerman, an obstetrician-gynaecologist who is former Director of Women's Health and Research at the World Health Organization and the author of more than 500 articles and books.

Among the Centre's first initiatives are major maternal and child health projects in Kenya and Tanzania. In Kenya's Kilifi and Kisii counties, it will work with government health facilities to address the health needs of 135,000 women and children. The effort is part of a C\$ 31 million project dubbed Access to Quality Care through Extending and Strengthening Health Systems, which also includes work in Mozambique, Mali and Pakistan. In Tanzania's Mwanza region, the Centre will participate in an effort to improve the quality of health care in 80 government facilities under a C\$ 15 million effort known by its acronym, IMPACT. As many as 740,000 women and children could benefit. Both projects are collaborations with the Aga Khan Foundation and the Aga Khan Health Services, and are funded by Global Affairs Canada and Aga Khan Foundation Canada.

"AKU is part and parcel of the health system in East Africa," Dr Temmerman said. "There is a lot of potential to have an impact."



Top right and bottom left:
The new Women's Wing at the
AKU-managed French Medical
Institute for Mothers and Children
offers advanced care unavailable
elsewhere in Afghanistan. Top
left: A nursing student assists
mothers at a community health
centre in Tanzania.



Women's Wing Opens in Afghanistan

The newly opened Women's Wing at the AKU-managed French Medical Institute for Mothers and Children (FMIC) in Kabul is a national resource for Afghanistan. With 52 beds and the country's first neonatal intensive care unit, it is providing women and newborns with access to advanced, life-saving care unavailable anywhere else in the country. It also will help to improve the quality of care within other institutions by serving as a training centre for health professionals and by setting a new standard for excellence in obstetric and gynaecological care.

"I think the Women's Wing will create momentum for change," said Dr Abdullah Fahim, FMIC Medical Director. "We have seen this happen already with our cardiac services, which have influenced other institutions." Dr Fahim estimated the Women's Wing will serve 20,000 patients annually within five years. The €16.6 million project was funded by His Highness the Aga Khan and Agence Française de Développement.

A partnership of the Aga Khan Development Network (AKDN), La Chaîne de l'Espoir and the Governments of France and Afghanistan, FMIC also is educating medical specialists through its Postgraduate Medical Education (PGME) programme, jointly operated by AKU and the Ministry of Public Health. The programme produced its first graduates in 2016: three paediatricians and three paediatric surgeons who now work at the hospital. By 2020, nearly 65 physicians in seven specialties will have graduated.

"It was a wonderful programme," said paediatric surgery graduate Dr Shirazuddin Quraishi. "We had excellent facilities, and very good, experienced teachers."

FMIC is one of many contributions to Afghanistan's health system by AKDN, which has trained community health workers and nurses, built health centres, and operates public health facilities in collaboration with the Government of Afghanistan.

Another way AKU is helping to improve the health of women and children in Afghanistan is through its research. Faculty contributed to the most comprehensive recent analysis of maternal and child health in the country, published in *The Lancet Global Health*. In addition, they analysed 16,000 pregnancies in Badakhshan Province, capturing data over three years despite a deteriorating security situation. Findings included a substantial drop in newborn mortality due to the work of the Aga Khan Health Services at Fayzabad Hospital.





“There is no better way to build strong, prosperous, fair societies than by investing in early child development.”

Kofi Marfo, Director, AKU Institute for Human Development

Sharing the Science of Early Child Development

Providing children with a healthy, stimulating environment in their earliest years pays lifelong dividends. To help ensure policy and practice reflect this fact, the AKU Institute for Human Development is collaborating with other agencies of the Aga Khan Development Network to introduce professionals from government and NGOs to the science of early child development (ECD).

“There is no better way to build strong, prosperous, fair societies than by investing in early child development,” Institute Director Kofi Marfo said.

With a US\$ 1.5 million grant from the Conrad N. Hilton Foundation, the Institute and its partners delivered face-to-face seminars and an online course to 190 individuals from 10 countries, providing them with a thorough grounding in the science of ECD, and an understanding of the great potential of programmes that focus on young children.

Most course participants came from organizations working with children affected by HIV/AIDS in Kenya, Malawi, Mozambique, Tanzania and Zambia. Many said their approach to their work was transformed. “Through what I learned, a paradigm shift has happened within the UNICEF Kenya country office,” said Oscar Kadenge, a UNICEF programme officer. “Early experiences really, really matter.” The online course was developed by Red River College in Manitoba, Canada, and the Aga Khan Development Network. The grant also supported development of a pre- and post-doctoral research education programme at the Institute.

Proponents of the online course include former AKU intern Sabrina Natasha Habib, 28. She and her husband run Kidogo (“small” in Kiswahili), a social enterprise that provides high-quality daycare in informal settlements of Nairobi. “The science of early child development course helped us get smart on ECD,” she said.

Going forward, the Institute will continue to offer the courses with the support of a second Hilton grant. In addition, under a separate grant, it will undertake its largest field research project since its 2015 launch. Focused on children in Nairobi up to age 2, it aims to produce evidence that can inform large-scale interventions. A collaboration with the University of Toronto and the Alliance for Human Development at the Lunenfeld-Tanenbaum Research Institute, the project is supported by a C\$ 2 million grant from Canada’s International Development Research Centre and Aga Khan Foundation Canada.

A Uganda preschool that is part of the Aga Khan Foundation’s Madrasa Early Childhood Development Programme offers the kind of stimulating learning environment that young children need.

“We are a first-world facility in a third-world setting. That’s why we can break new ground in this field.”

Associate Professor
Syed Asad Ali

At the Forefront of Undernutrition Research

Widespread among children in low-income countries, environmental enteric dysfunction (EED) prevents the absorption of essential nutrients, leaving children undernourished and vulnerable to disease. It also has been implicated in the diminished effectiveness of vaccines among children living in poverty. Associate Professor Syed Asad Ali is at the forefront of global efforts to understand EED and develop ways to combat it.

“If you’re malnourished as a child, your chance of dying is remarkably higher because your immune system is compromised,” said Dr Ali, who received a US\$ 4.1 million grant from the Bill & Melinda Gates Foundation to study the disorder, which causes intestinal inflammation. “Your intellectual development is compromised. The human potential to break out of poverty is compromised. So addressing EED is important.”

Unlike prior studies that analysed blood or urine samples, Dr Ali and his colleagues, including Assistant Professor Kamran Sadiq, are performing cutting-edge analysis of intestinal tissue samples. Dr Ali’s principal collaborator in the United States, Associate Professor Sean Moore of the University of Virginia, likened the difference to examining Mars based on satellite images versus collecting data from the planet’s surface.

“I think this is a seismic shift, and I’m very optimistic about the progress we’ll make,” Dr Moore said. One possibility the investigators are examining is that differences in individuals’ microbiomes – the collection of bacteria residing largely in the gut – play a decisive role in the condition. Ultimately, Dr Ali said, his research could pave the way for the development of pharmacological techniques for controlling the effects of EED.

Associate Professor Syed Asad Ali and colleagues are conducting cutting-edge research into a key cause of malnourishment. Opposite page: Children in a Karachi-area community where undernutrition is widespread.





AKU's midwifery programme "has prepared highly motivated and confident leaders," according to an independent assessment commissioned by the United Nations Population Fund.

Transforming Midwifery in Pakistan

Pakistan's 8,000 community midwives could play an important role in improving maternal and child health, but most lack the training needed to provide high-quality care. AKU's Post-RM Bachelor of Science in Midwifery (BScM) is the first midwifery bachelor's programme in the region. An independent assessment found it is enabling midwives to develop leadership capacities and acquire life-saving clinical skills, and is establishing itself as a model programme.

With support from the United Nations Population Fund (UNFPA), AKU launched the bachelor's degree in 2013. Although some graduates have been placed in positions where they cannot fully utilize their skills, the programme "has prepared highly motivated and confident leaders," according to the assessment, which was commissioned by the UNFPA.

Alumni are training midwives, serving as principals of midwifery schools and have been lauded for their work as managers. They also are making a difference as clinicians. For example, a stakeholder credited an alumna with transforming the labour room at a major government hospital. In another facility, doctors requested a graduate to advise them on implementing evidence-based delivery practices. Four graduates – one from each province – are currently serving as Board Members of the Midwifery Association of Pakistan and are advocating for the midwifery profession.

Officials are looking to the programme as an exemplar, and exploring the possibility of offering midwifery bachelor's degrees at public-sector institutions. With qualified midwifery educators in short supply, "the already trained BScM graduates can play a big role" in that endeavour, the assessment reported.

A midwifery student in Rehri Goth. AKU's Bachelor of Science in Midwifery programme is the region's first, and officials are looking to it as an exemplar.



A New Vision for Health

Associate Professor Shehla Zaidi played a key role in developing Pakistan's new National Health Vision, which will guide health planning over the next decade.

Q: The National Health Vision is the first such document in 16 years. How important is it and what was your role?

A: It's a landmark to have a vision agreed to by all provinces, reflecting input from numerous stakeholders and addressing the need for reforms across the system. My time was formally requested by the Ministry of Health, and I served as an unpaid technical advisor. I helped ensure that the process was widely consultative, with each province hosting a roundtable, rather than an Islamabad-dominated exercise. Over six months, in consultation with the Ministry, I developed the framework that served as the basis for stakeholder discussions, led the discussions and wrote the text on the basis of the agreements forged in those discussions, with support from a team of consultants hired by the Ministry.

Q: What does the Vision mean for the health sector?

A: The Vision departs from the narrower focus on selected diseases and issues seen in previous national policy documents. It puts attention squarely on effective health governance, adequate and efficient financing, essential commodities and human resources. These are key issues that must be

addressed in order to complete the unfinished maternal and child health and infectious disease agendas, as well as respond to the growing importance of non-communicable diseases.

Q: What's next?

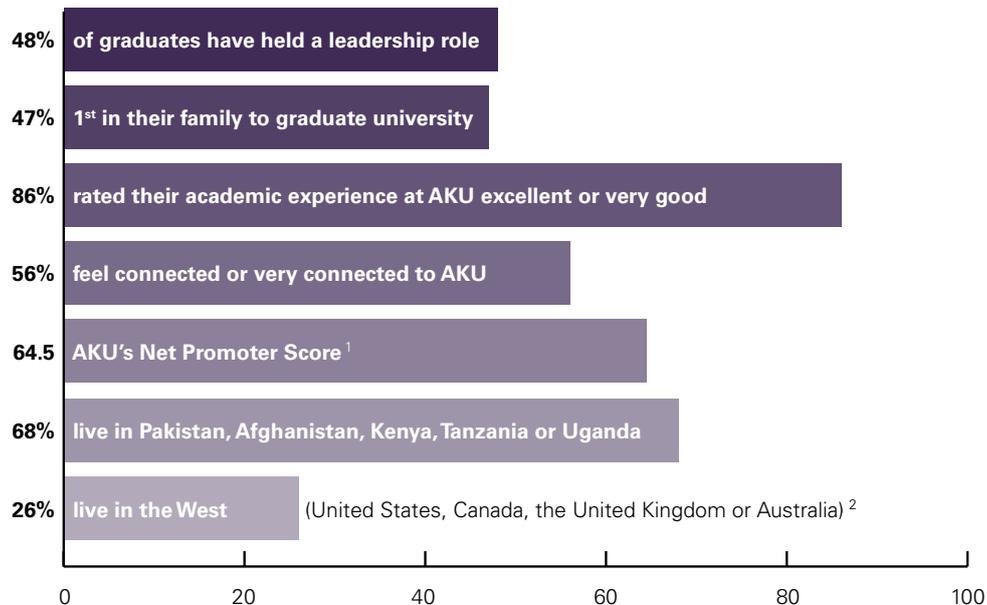
A: The Vision provides an overarching framework for provincial health policy development. It also provides a framework for consultatively setting national targets for ending hunger and malnutrition, and developing a process to meet them. So it can help us achieve a more unified approach that yields results, while still providing the provinces with control. At the same time, we need the federal government to play its part by establishing a federal-provincial forum that encourages coordination and helps the provinces learn from each other, a long-stated provincial demand.



Alumni Survey Demonstrates Impact

Based on responses from more than 3,000 graduates in 49 countries, the comprehensive alumni survey found that nearly half of graduates have served in a leadership position.





¹ Measures the ratio of the most highly satisfied alumni to the least satisfied alumni. Equals the highest Net Promoter Scores among 19 North American universities in a recent survey, including three ranked among the world's top 25 universities.

² The percentage living outside their country of origin ranged from 52% for the Medical College in Pakistan to 3% or less for the Institute for Educational Development in East Africa and the School of Nursing and Midwifery in East Africa.



Left: Dr Adil Haider, MBBS '98, and students. Dr Haider is Kessler Director of the Center for Surgery and Public Health at Brigham and Women's Hospital. Above: Members of the Class of 2016.

Giving Nature a Voice

“It seems nobody really knows or cares about this huge problem. We’re trying to raise awareness.”



Population growth, climate change and illicit activities are putting the fate of East Africa’s spectacular environment and wildlife at risk. A series of documentaries produced with the help of the Nairobi-based AKU Graduate School of Media and Communications (GSMC) ran on Kenyan television, drawing attention to the crisis and to some of the activists working to ensure nature’s voice is heard before it is too late.

The ongoing project, Giving Nature a Voice, is run by Emmy Award-winning filmmaker Andrew Tkach – formerly Christiane Amanpour’s producer at CNN – and funded by Canadian entrepreneur Ross Beaty.

“If you really want to have an impact, you need to reach people through character and emotion and storytelling,” Tkach said. “My goal is to help journalists tell their stories in a way that connects with the broadest possible audience.”

Documentaries about East Africa’s extraordinary flora and fauna are familiar to Western audiences. But TV stations in the region had been unable to screen such films due to the high cost of license fees, until NTV Kenya and GSMC brought them to Kenya’s prime-time audience.

Drought has sparked significant violence in Kenya’s desiccated northern pasturelands, a critical issue addressed by two reports as part of Giving Nature a Voice. *End of the River* was produced by John-Allan Namu, perhaps Kenya’s most accomplished investigative reporter. *Saving Wildlife, Keeping the Peace* focused on the work of conservationist Kuki Gallmann, airing a week before she was shot by cattle herders.

Of all East Africa’s Great Lakes – which hold one-quarter of the world’s freshwater – Lake Turkana in northwest Kenya may be the most threatened. Scientists and environmentalists say a hydropower dam built by Ethiopia could reduce the lake’s level by a third or more, an argument Ethiopia rejects. *Water to Dust* blends spectacular images of the lake with interviews that bring home the difficulties local residents already face in eking out a living. The film was named Best East African Documentary at the third annual Mashariki African Film Festival in Rwanda.

Environmentalists say a dam could drastically reduce the level of Kenya’s Lake Turkana. The lake’s plight, and that of the people who depend on it, is the subject of an award-winning documentary by GSMC students.

“Outside of northern Kenya, it seems nobody really knows or cares about this huge problem,” said writer-producer and Kenyan native Narissa Allibhai. “We’re trying to raise awareness.”



Faculty member Peter Kimani teaches a class at the Graduate School of Media and Communications in Nairobi. His latest novel, *Dance of the Jakaranda*, was lauded by *The New York Times*. "I have never read a novel about my own country [Kenya] that's so funny, so perceptive, so subversive and so sly," wrote the reviewer.



Developing Media Leaders

Three years after its founding, the Graduate School of Media and Communications' efforts to foster a diverse, independent and innovative media sector in East Africa and beyond have entered a new phase.

GSMC has trained 1,200 journalists and communications professionals to date, nearly half of them in 2017 alone. Its courses have included a 12-week programme for young reporters from the Nation Media Group, East Africa's largest media company, led by former *Washington Post* and *St. Petersburg Times* journalist Stephen Buckley. Among the students was Raymond Mujuni, an investigative reporter at NTV Uganda who went on to win an Honourable Mention at the Uganda National Journalism Awards for a feature story on the victims of violence in Uganda's Kasese District.

"It's been very valuable," Mujuni said. "We had a lot of expertise at our disposal. And it was very practical, very hands-on."

GSMC's next major initiative is the launch of its Master of Arts in Digital Journalism. The 24-month part-time programme will prepare working journalists to become industry leaders in an era of technology-driven change, and to make a positive difference in their societies. Students will work closely with renowned journalists

and scholars from around the world, and classes will blend practice, reflection and theory. The curriculum emphasizes multimedia storytelling, in-depth reporting on fields such as business and finance, and ethics and social responsibility. Having been approved by Kenya's Commission for University Education, the programme held its first classes in January 2018.

Meanwhile, GSMC continues to offer professional development short courses for journalists and nonprofit and corporate communicators. More than 50 were completed in 2017, including those that are part of GSMC's World Bank-funded Social Accountability Media Initiative, which is helping grassroots civil society organizations in East Africa and Central Asia to improve their advocacy communications. GSMC also is partnering with the Aga Khan Foundation and faculty from Harvard University's Kennedy School of Government to deliver a course in adaptive leadership for executives from public, private and nonprofit organizations, through a blend of online and face-to-face sessions in Nairobi.

"This is an exciting time for GSMC," said Founding Dean Michael Meyer. "We are seeing the payoff from several years of hard work and careful planning. Our impact will only increase from here."

Pluralism in Action



It's a Wednesday afternoon at the Institute for the Study of Muslim Civilisations in London. Associate Professor Philip Wood's class in "The Sacred Across Cultures" is discussing the ways different cultures regulate marriage and socializing between the sexes, and how such rules enable the transmission of faith, and empower some while disempowering others.

So far, the first-year master's degree students have scrutinized advertisements for marriage partners in Pakistani newspapers, explored a study of marriage among Americans of Gujarati origin and considered the impact of the concept of *izzat*, or honour, on young women in South Asia. And now Wood, an Oxford-trained historian of late antiquity, is summing up. The day before, he reminds his students, they discussed the work of Pierre Bourdieu, Michel Foucault and Antonio Gramsci, and the ways power shapes knowledge.

"What I've argued is that marriage restrictions and limitations on female socialization reflect two sets of interests," Wood says. "One, the patriarchal interest in a household – a father who wants to make sure his daughters don't marry against his material interest. The second, the wider interests of communal elites, who will lose their authority if the community ceases to exist. In other words, there is a coincidence of communalism and patriarchy."

He continues: "I'm trying to use some of the things we looked at yesterday, but in a study-of-religions context. You don't have to agree with me. I've very deliberately set out an argument for you to respond to."

It is only one class, but it illustrates the ethos that animates ISMC – a liberal arts ethos marked by interdisciplinary inquiry, diverse viewpoints and a commitment to connecting scholarship to contemporary dilemmas. Recently, that spirit was on display not only in classroom discussions, but at ISMC's conference "Exploring Media in Muslim Contexts," its ongoing project on Governance for the Public Good in Muslim Contexts, and a workshop designed to help academics reach a wider audience.

Jointly organized with the Graduate School of Media and Communications, the two-day media conference attracted 40 papers from scholars and journalists and more than 100 attendees. In his keynote lecture, Professor Marwan Kraidy of the University of Pennsylvania analysed the insurgent art of the Arab Spring. Other presenters discussed satire in an interconnected world, the shaping of foreign coverage of the revolution in Egypt, Muslim radio stations in Kenya and the use of social media by young people in Tunisia, Morocco and Turkey.

“You don’t have to agree with me,” Wood says. “I’ve deliberately set out an argument for you to respond to.”

At AKU’s Institute for the Study of Muslim Civilisations in London, a single class can touch on everything from sociologist Pierre Bourdieu to advertisements for marriage partners in Pakistani newspapers.

With the arrival of Associate Professor Gianluca Parolin at ISMC, the Institute’s project on Governance for the Public Good in Muslim Contexts has a new leader. Parolin has brought scholars to ISMC to discuss constitutionalism in the Muslim world, including Asifa Quraishi-Landes of the University of Wisconsin School of Law, who sought to show how constitutions might manage the apparently impossible task of satisfying both liberals and Islamists.

Bridging the gap between academia and the public is central to ISMC’s mission. With a British Academy grant, Associate Professor Wood organized a workshop that gave early-career academics a chance to get advice from journalists and media experts on reaching new audiences.

One thing he hopes he might draw attention to: the role of marriage practices in determining the degree to which immigrants are able to integrate into British society. It is a subject his students already know something about.





Leading the Way in East African Nursing and Midwifery

Aiming to improve the quality of nursing and midwifery care in the region, the School of Nursing and Midwifery in East Africa has launched first-of-their-kind programmes in midwifery and oncology nursing and led efforts to harmonize nursing and midwifery standards across countries. It also celebrated the 15th anniversary of its partnership with the Johnson & Johnson Corporate Citizenship Trust with the publication of a study that found the School and its alumni are having a significant impact.

More than 90 per cent of the School's 2,200 alumni in Kenya, Tanzania and Uganda have received partial scholarships from the Trust, which has provided US\$ 2.6 million in support to date. Interviews with employers and nursing officials conducted as part of the study revealed AKU alumni are highly regarded for their clinical skills and leadership abilities. "You find AKU nurses are skillful, competent and very relevant in every institution they are in," a senior government official in Uganda said. "I have confidence in them." A survey of graduates found nearly four in 10 are senior leaders, managers, nurse educators or researchers, and that nearly nine in 10 rated their experience at AKU very good or excellent.

"The study makes it clear that the partnership between the Johnson & Johnson Corporate Citizenship Trust and AKU has saved lives, transformed the lives of alumni and positively impacted the nursing profession in East Africa," said Benjamin Davies, Partnership Director for the Trust.

Every year in Uganda, Tanzania and Kenya, 100,000 newborns die and 20,000 women die in childbirth or as a result of their pregnancy. Graduates of AKU's Post-RM Bachelor of Science in Midwifery programme in Uganda - the first in the country - will address these issues as some of the most highly trained midwives in the region.

Professor of Midwifery Grace Edwards said the difference the programme makes is clear. For example, while some midwives in Uganda are unable to deal with shoulder dystocia, in which a baby's shoulders impede delivery, AKU students know exactly how to respond to such cases, which if mishandled can cause injuries to the mother or result in disability or even death for the baby. "Other midwives are noticing the difference in the skill level of AKU students," she said. "There is a lot of interest in the programme."

With an estimated 100,000 people losing their lives to cancer in East Africa every year, the School launched the region's first programme to train oncology nurses in Nairobi, and helped Moi Teaching and Referral Hospital, a public institution in Kenya, to establish a similar programme. The initiative is detailed on page 19.

Nursing students in Uganda. Scores of AKU nursing alumni hold senior leadership positions across East Africa. Nearly half of alumni work in government facilities.

“Our partnership with AKU has saved lives and transformed the lives of alumni.”

Benjamin Davies,
Johnson & Johnson
Corporate Citizenship Trust

Dr Gerd Müller, German Federal Minister for Economic Cooperation and Development, visits the School of Nursing and Midwifery in Tanzania, which upgraded its facilities with Germany's support. Opposite page: Alumna Esther Mwalugala (at far left).

The School also worked with the East African Community (EAC) to align nursing and midwifery education, regulation and licensure across Tanzania, Kenya, Uganda, Rwanda and Burundi. Ultimately, doing so would enable nurses to go to school, work or teach in any member country. Harmonizing standards also offers an important opportunity to update curricula to emphasize critical thinking, problem solving, leadership and patient safety.

“By acting as a leader in nursing and midwifery, we aim to help people lead healthier, happier and more productive lives,” said Professor Sharon Brownie, Dean of the School of Nursing and Midwifery in East Africa.



A Nurse's Journey



Tanzania's Esther Mwalugala, BScN '05, is one of many nursing alumni interviewed for a study of the impact of the 15-year partnership between the Johnson & Johnson Corporate Citizenship Trust and AKU. This is her story, in her own words, edited for brevity.

"When I worked on Pemba Island, I built the capacity of health care providers caring for pregnant mothers and newborns. We made sure nurses knew the signs of dangerous labour, how to handle emergencies and when to arrange transfer to the district hospital. We educated local people on the need to deliver in facilities. I also asked community leaders to ensure every expecting mama [a mother in Kiswahili] had transport, and when the pregnancy is advanced, for mama to stay near the hospital. I also motivated my colleagues to apply for further education.

Since then, I have been managing and conducting training of health care providers and community leaders to prevent HIV/AIDS and other diseases.

I have worked with several different NGOs in different regions of Tanzania. Today, I am working in the Southern Highlands. My focus is preventing transmission of HIV from mothers to babies, and making sure all HIV-positive people receive quality care.

Something important I learned at AKU is to explain to people why things are necessary. You have to make them understand for themselves, to empower them. During harvest time, a woman might think, 'Why should I go to the health facility and stay waiting for a test?' But when they understand the importance, they will go.

Aga Khan University prepared us to be teachers and role models. It helped me in communication issues, building concepts based on what you observe, in public speaking, in teaching others to understand my mind and feelings. It taught me that everybody has something to offer, so give chances for others to speak. It really prepared us at a high level."

Virtual Reality, Real-World Results

Increasing the quality of health care is one of the developing world's most pressing challenges. At the new Centre for Innovation in Medical Education, students and professionals can use high-tech simulators to hone their clinical skills before they ever touch an actual patient.

Made possible by generous gifts from the families of Bashir Dawood, Bashir Nathoo and Shiraz Boghani, the Centre is the first facility of its kind in Pakistan. With virtual reality tools and programmable mannequins that breathe, have a pulse and cry out in pain, the Centre is a place where "the potential is as big as your imagination," said Professor Rukhsana Zuberi.

Students can conduct pelvic, prostate and breast exams. They can learn to detect heart murmurs and manage obstetric emergencies. They can practice cardiac catheterization and learn to respond to sudden bleeding during surgery. In the dental laboratory, a class can perform a procedure while being observed by an expert overseas, who can then demonstrate a technique while students watch.

Urooj Khowaja is a nursing intern at the Aga Khan University Hospital in Karachi. She recently participated in a session at the Centre that simulated a situation in which a patient becomes acutely short of breath.

"The mannequin responded like an actual patient," she said. "It was very hectic, very realistic. We had to follow the doctor's commands, manage the patient, control our emotions. Afterwards, we were able to watch ourselves on video and see how we could improve."

And the Centre is not just for AKU personnel – experienced practitioners from across Pakistan are using it to learn new skills and practice old ones. It also is equipped to play a role in developing and testing new medical equipment and technologies.

"By seamlessly integrating simulation technologies and practices into our curricula, the Centre will enable students to more fully develop their technical, communication, leadership and decision-making skills," Centre Director Professor Charles Docherty said. "Ultimately, the Centre will lead to better-prepared health professionals, and better patient outcomes. What's more, the Centre can be a leader at the national level in making simulation-based education more widely available."

A resident uses a neurology simulator at the Centre for Innovation in Medical Education. Opposite page: Residents practice cardiac catheterization using a high-fidelity simulator.



“Ultimately, the Centre will lead to better-prepared health professionals, and better patient outcomes.”

CIME Director
Professor Charles Docherty



*“We have to bring to
Africa and Asia global
standards of health care.”*

His Highness the Aga Khan



A New Hospital for Uganda



A new Aga Khan University Hospital in Kampala (AKUH, Kampala) will help thousands of Ugandans from all walks of life by delivering world-class health care and educating highly skilled health professionals.

Located on 60 acres granted to the University by the Government of Uganda, the University Hospital will enable Ugandans to obtain acute care without leaving the country. To expand access to high-quality obstetric care and address Uganda's growing burden of cardiovascular diseases, it will place special emphasis on cardiology and on women's and children's health. Through its Patient Welfare Programme, the Hospital will make it possible for patients who are unable to afford it to receive care. The Hospital will grow in phases to 600 beds over time.

"We have to bring to Africa and Asia global standards of health care," said His Highness the Aga Khan, Chancellor of AKU, announcing the plan for the Hospital. "The populations of these countries cannot be isolated from the best simply because they have been born in countries outside the Western world."

The Hospital will seek to become the first in Uganda accredited by the U.S.-based Joint Commission International. Currently the only hospitals in East Africa to have met the Commission's rigorous standards for quality of care and patient safety are the Aga Khan University Hospital in Nairobi and the Aga Khan Hospital in Dar es Salaam.

The Hospital also will address the urgent need to educate highly skilled nurses, midwives and doctors for Uganda. Highly skilled health professionals handle the most complex illnesses, increase the quality of care as managers and expand the workforce by training new providers. As researchers, they develop innovative solutions to pressing problems, and as advocates they educate the public and support effective policymaking.

AKU's Postgraduate Medical Education programme at the Hospital will train specialist physicians, starting with Family Medicine and adding specialties over time. In addition, AKUH, Kampala will enable the School of Nursing and Midwifery to add programmes in high-need specialties such as critical care nursing, and to offer new professional development opportunities.

The Aga Khan University Hospital, Kampala will be part of the Aga Khan Development Network's growing health care system in East Africa, which treats 1.3 million patients annually.

There are few places where an outstanding hospital is more needed than in Uganda. AKUH, Kampala will save countless lives in the years to come.

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Women and Health Alliance International (WAHA)
World Food Programme
World Health Organization



Students in the Medical College courtyard at AKU's Stadium Road campus in Karachi.



Board of Trustees

His Highness the Aga Khan

Chancellor



Dr Haile T. Debas, Chairman pro tem, AKU Board of Trustees

Founding Executive Director, Global Health Sciences, University of California, San Francisco (UCSF)

With an MD from McGill University, Dr Debas' career as a physician, researcher, teacher and academic administrator spans over four decades and includes positions in Canada and the USA. Dr Debas is an influential voice in academic medicine and global health. He is a fellow of the Royal College of Physicians and Surgeons of Canada and of the American College of Surgeons. He is a member of the National Academy of Medicine and Fellow of the American Academy of Arts and Sciences. A recipient of the UCSF medal, the highest honour conferred by the University, Dr Debas is also former Chancellor and Dean Emeritus of the School of Medicine at UCSF. Dr Debas was appointed to the AKU Board in 2010.



Princess Zahra Aga Khan

Member, Aga Khan Development Network Board of Directors

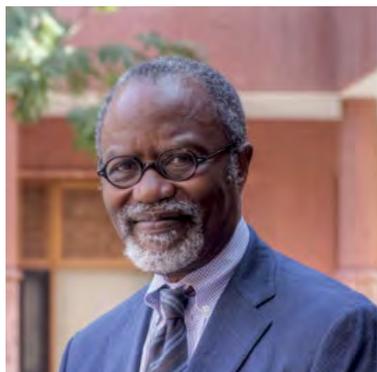
Princess Zahra is a Member of the Board of Directors of the Aga Khan Development Network. She has policy and management responsibility for the Health, Education and Planning and Building Services Companies of the AKDN and their institutions, working in more than a dozen countries in the developing world. She is also involved at the strategic level with other agencies of the AKDN, working in the areas of social and economic development. She sits on the Boards of the Aga Khan Agency for Microfinance and of the Global Centre for Pluralism. Princess Zahra attended Le Rosey School in Switzerland and received her undergraduate degree *cum laude* in Development Studies from Harvard University. She joined the AKU Board in 2003.



Dr Lisa Anderson

Former President, American University in Cairo

Dr Anderson served as President of the American University in Cairo for five years, prior to which she was the University's Provost. She is Dean Emerita of the School of International and Public Affairs at Columbia University (1997-2007) and held the James T. Shotwell Chair in International Relations in the Political Science Department. Before Columbia, she taught at Harvard University. Dr Anderson is a graduate of Sarah Lawrence College, the Fletcher School of Law and Diplomacy and Columbia University, where she earned her PhD in Political Science. Dr Anderson joined the AKU Board in 2016.



Dr Phillip Clay

Former Chancellor, Massachusetts Institute of Technology (MIT)

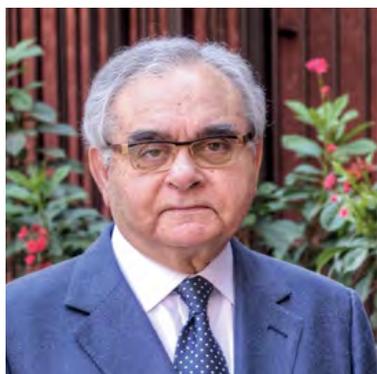
A faculty member at MIT since 1975, Dr Clay has held academic leadership positions at MIT for nearly two decades. He is professor of Urban Studies and Planning and his research has contributed to a range of initiatives influencing US housing and urban policy. Dr Clay served as Chancellor of MIT from 2001 to 2011. He served as Founding Director and Vice Chair of the MasterCard Foundation Board and as a Trustee of his alma mater, the University of North Carolina at Chapel Hill. Dr Clay joined the AKU Board in 2012.



Dr Roderick D. Fraser, OC

President Emeritus, University of Alberta

Dr Fraser served as President and Vice Chancellor of the University of Alberta from 1995 to 2005. Previously, he served at Queen's University in Ontario as Vice Principal (Resources) as well as Dean, Faculty of Arts and Science. He holds a BA in History and Economics and an MA in Economics, both from the University of Alberta, as well as a PhD from the London School of Economics. Dr Fraser joined the AKU Board in 2005.



Mr Munnawar Hamid, OBE

Chairman, Silkbank Limited, Pakistan

Formerly Chairman and Chief Executive of the ICI Group in Pakistan (Subsidiary of ICI Plc, UK), Mr Hamid has held many senior positions in the private and public sectors, such as Chairman Linde/British Oxygen Pakistan, the International General Insurance Company of Pakistan and the Intellectual Property Organisation of Pakistan; Director United Bank, Union Bank, Standard Chartered Bank and member of the Policy Board of the Securities and Exchange Commission of Pakistan; President of the Overseas Investors Chamber of Commerce and Industry, Pakistan; Trustee Lahore University of Management Sciences; and Advisor Huntsman Corp. Singapore. Mr Hamid was educated at the Universities of Punjab and Cambridge and INSEAD and was appointed an Officer of the British Empire in 1997. He joined the AKU Board in 2000.



Mr Yusuf Habib Keshavjee

Former Chairman, White Rose Group of Companies

Mr Keshavjee, formerly Chairman of the Aga Khan Foundation East Africa, brings to the AKU Board a wealth of experience from East Africa's private, government and civil society sectors. He is a cofounder of Honey Care Africa Ltd., a groundbreaking social enterprise, and acted as an advisor on social enterprises to the World Bank. Mr Keshavjee completed a BSc (Hons) in Economics from the London School of Economics and the Executive Management Programme at Harvard Business School. He was honoured in 2005 with a Head of State's Commendation for exemplary service to Kenya. Mr Keshavjee has served on the AKU Board since 2006.

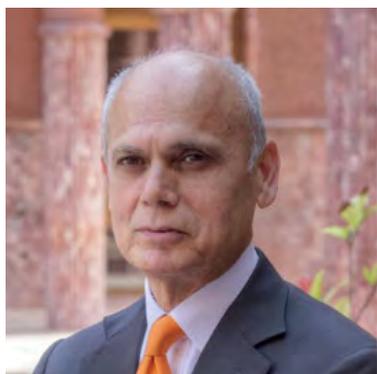
Board of Trustees



Mr Naguib Kheraj

Deputy Chairman, Standard Chartered PLC and Former Group Finance Director, Barclays PLC

A graduate in Economics from the University of Cambridge, Mr Kheraj has held senior positions in international banking over the past 30 years at Standard Chartered PLC, Barclays, JP Morgan Cazenove and Salomon Brothers. Mr Kheraj spends the majority of his time in the not-for-profit sector as a Senior Adviser to the AKDN, a Board member of a number of AKDN institutions and Chairman of the AKDN Endowment Committee. He is a member of the Investment Committee of Wellcome Trust and the Finance Committee of Oxford University Press, and a Non-Executive Director of Rothesay Life. He is a former member of the Board of National Health Service, England and the UK-US Fulbright Commission. Mr Kheraj has served on the AKU Board since 2008.



Mr R. Zakir Mahmood

Former CEO, Habib Bank

Mr Mahmood served as CEO of Habib Bank Ltd., Pakistan's largest bank, for nearly 13 years. Previously he held senior positions internationally with Bank of America and Crédit Agricole, France. Mr Mahmood has served as Chairman of Habib Bank UK and is Chairman of KICB Bank in Kyrgyzstan and First Micro Finance Bank, Tajikistan. He is a director of Jubilee General Insurance and Jubilee Life Insurance and a member of the Board of the Aga Khan Agency for Microfinance and Co-President of the Pakistan-France Business Council. Mr Mahmood has been awarded the Sitara-e-Imtiaz by Pakistan and Chevalier de l'Ordre National du Mérite by France. He holds graduate degrees in Business Administration and Engineering from the University of California, Los Angeles. Mr Mahmood joined the AKU Board in 2013.



Dr Afaf Ibrahim Meleis

Dean Emerita and Professor of Nursing and Sociology, University of Pennsylvania; Professor Emerita, University of California, San Francisco

An internationally renowned nurse scientist and medical sociologist, Dr Meleis was Margaret Bond Simon Dean of Nursing at the University of Pennsylvania and Director of the School's WHO Collaborating Center for Nursing and Midwifery Leadership (2002-2014). This followed her 34-year tenure as Professor at the University of California, San Francisco. A member of the National Academy of Medicine, she co-chaired its Global Forum on Innovation in Health Professional Education. She co-chaired the Harvard-Penn-Lancet Commission on Women and Health and is a member of a CSIS Global Health Policy Center Task Force on Women's and Family Health. Dr Meleis was appointed to the AKU Board in 2015.



Dr C. David Naylor, OC

Professor of Medicine and President Emeritus, University of Toronto

From 2005 to 2013, Dr Naylor was President of the University of Toronto, where he was previously Dean of Medicine and Vice Provost for Relations with Health Care Institutions. He received his MD from the University of Toronto and DPhil in the Faculty of Social and Administrative Studies at the University of Oxford, where he studied as a Rhodes Scholar. He is the co-author of approximately 300 scholarly publications. Dr Naylor has been a high-level policy advisor to governments in Canada and abroad for 25 years, and is the recipient of various national and international awards for excellence in research and leadership. He was appointed an Officer of the Order of Canada in 2006. Dr Naylor joined the AKU Board in 2013.

Mr Firoz Rasul *President and Chief Executive Officer, Aga Khan University*



Dr Julie A. Freischlag

Chief Executive Officer, Wake Forest Baptist Medical Center

Dr Freischlag oversees Wake Forest Baptist Medical Center's clinical, academic and innovation enterprises and its US\$ 2.5 billion annual operating budget. From 2014 to April 2017, she was Vice Chancellor for Human Health Sciences and Dean of the School of Medicine at the University of California, Davis. Previously, Dr Freischlag was professor, chair of the surgery department and surgeon-in-chief at Johns Hopkins Medical Institutions. She is past chair of the Board of Regents of the American College of Surgeons, and past president of the Society for Vascular Surgery. She has authored more than 250 publications. She joined the AKU Board in 2017.



Hon. Mohamed Chande Othman

Former Chief Justice of Tanzania

Mohamed Chande Othman served as the Chief Justice of Tanzania from 2010 to 2017, after serving as a High Court and Appeal Court Judge. Justice Othman's extensive international legal experience includes serving as Prosecutor General of East Timor, Chief of Prosecutions of the International Criminal Tribunal for Rwanda and Senior Legal and Justice Reform Advisor for UNDP Cambodia. Justice Othman also served as Head of the UN Independent Panel of Experts that examined conditions and circumstances involving the tragic death of former UN Secretary-General Dag Hammarskjöld and others, and as the UN Human Rights Council's Independent Expert on human rights in Sudan. He joined the AKU Board in 2017.



Dr António Manuel Bensabat Rendas

Former Rector, Universidade NOVA de Lisboa

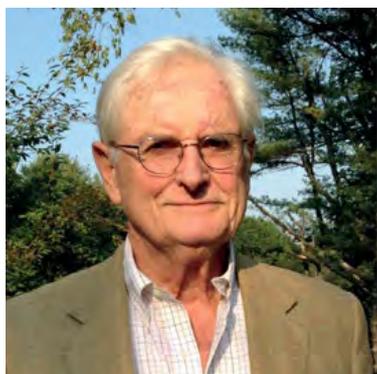
Dr Rendas was Rector of the Universidade NOVA de Lisboa from 2007 to 2017, and President of the Council of Rectors of Portuguese Universities from 2010 to 2014. Previously at NOVA, he was Dean of the Portuguese Institute of Hygiene and Tropical Medicine and of the NOVA Medical School. Dr Rendas graduated in Medicine from the University of Lisbon and has a PhD in Experimental Pathology from the Cardiothoracic Institute, University of London, and is the author or co-author of more than 200 publications. He is a member of the Steering Committee of UNICA (Network of Universities from the Capitals of Europe) and the recipient of a number of awards. He joined the AKU Board in 2017.

Board of Trustees



Dr J. Robert Buchanan, Trustee Emeritus, Aga Khan University
*Former Professor of Medicine and Dean, Cornell Medical College;
Former Professor of Medicine, Harvard University and General Director
(CEO) of Massachusetts General Hospital*

A leader in medical education and health care administration, Dr Buchanan was Professor of Medicine at Harvard University, President of Michael Reese Hospital and Professor of Medicine at the University of Chicago. He served as a founding Trustee of AKU until 2016 and is a member of the National Academy of Science, Engineering and Medicine.



Mr Robert H. Edwards, Trustee Emeritus, Aga Khan University
Former President, Bowdoin College and Carleton College

Mr Edwards is a graduate of Princeton University, read law at Cambridge University and received an LLB from Harvard University. Mr Edwards has held senior positions with the Ford Foundation as well as the Secretariat of His Highness the Aga Khan. He served as President of Carleton College and of Bowdoin College. Mr Edwards served as a Trustee of the Aga Khan University from 1987 to 1990 and again from 1999 to 2011.



Mr Guillaume de Spoelberch, Advisor to AKU Board of Trustees
Member, Board of Directors, Aga Khan Foundation

A founding Trustee of the Aga Khan University, Mr de Spoelberch served on the Board from 1985 to 2006. Having studied at Princeton University, Harvard University, the University of Cape Town and the London School of Economics, he joined the UN Special Fund as Assistant to the Managing Director and eventually became the UNDP's Deputy Representative for Europe in Geneva. In 1970, he joined the Ford Foundation and served as representative in Tunis, Jakarta and Cairo. From 1981 to 1989, he was the General Manager of AKF, and subsequently its Executive Director.

Executive Team



Mr Firoz Rasul

President and Chief Executive Officer

Mr Rasul joined AKU in 2006. From 1988 to 2003, he was President and CEO of Ballard Power Systems, a world leader in fuel cell technology. He has served on the Board of Governors of the University of British Columbia and as President of the Aga Khan Council for Canada. Mr Rasul holds a Bachelor of Industrial Engineering from the University of Hertfordshire, UK, and an MBA from McGill University, Canada. He has been awarded the degree of Doctor of Laws, *honoris causa*, by Simon Fraser University, Canada, and the degree of Doctor of Science, *honoris causa*, by the University of Alberta, Canada.



Dr Carl Amrhein

Provost and Vice President, Academic

Most recently, Dr Amrhein served as Deputy Minister (Permanent Secretary), Alberta Health, and Official Administrator for Alberta Health Services. From 2003 to 2014, he was Provost and Vice President (Academic) of the University of Alberta. Previously, he was Dean of the Faculty of Arts and Sciences at the University of Toronto. Dr Amrhein holds a PhD in Geography from the State University of New York at Buffalo and was a full professor at both the University of Alberta and the University of Toronto.



Mr Al-Karim Haji

Vice President, Finance and Chief Financial Officer

Mr Haji joined AKU in 2002. A Canadian chartered accountant, he is a member of the Aga Khan Development Network Endowment Investment Committee. Previously, Mr Haji was the Principal of his own corporate finance firm, Intercontinental Capital Corporation, and Vice President of Deloitte & Touche Corporate Finance Canada, Inc. He holds a Bachelor of Commerce from the University of British Columbia Sauder School of Business.



Ms Carol Ariano

Vice President, Human Resources

Ms Ariano joined AKU in 2008. With more than 35 years of experience in the public, private and voluntary sectors, Ms Ariano has worked extensively in the research, development, implementation and evaluation of human resource programmes and policies suited for local and global application. Before joining AKU, she was Vice President, Human Resources for Global Operations at CGI – a global IT services firm headquartered in Montreal – for nearly a decade, during which the firm grew from 2,000 employees in Canada to 25,000 in 21 countries.

Financial Highlights

The University health system has posted strong growth. Revenues have increased significantly and the number of patients treated has grown rapidly. At the same time, AKU has greatly increased the amount of patient welfare it provides, thereby enabling many more low-income individuals to access high-quality health care at its facilities. Financial aid to students also has grown, ensuring that talented students with limited financial resources are able to afford an AKU education.

AKU is a private, not-for-profit university. Its income and property are used only for the promotion of its objectives, and no payments, directly or indirectly, are made by way of dividend or profit to any individual or institution. Independent firms of international repute audit the institution's financial statements annually.

Health System Growth

Health System Revenues

2012 **US\$ 231M** ▶ 2017 **US\$ 369M** = 60% ▲

Patients Served

2012 **1.46M** ▶ 2017 **2.06M** = 41% ▲

Laboratory Tests

2012 **10.15M** ▶ 2017 **14.58M** = 44% ▲

Outreach Centres

2012 **240** ▶ 2017 **311** = 30% ▲

Average Available Beds

2012 **1,037** ▶ 2017 **1,203** = 16% ▲

Growth in Financial Assistance and Subsidies

Individuals Receiving Patient Welfare

2012	94,000	▶	2017	710,000	=	655%	▲
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Value of Patient Welfare

2012	US\$ 8M	▶	2017	US\$ 24M	=	200%	▲
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Patients in need of treatment but unable to pay receive assistance through the Patient Welfare Programme. Since 1986, it has assisted 3.1 million patients with US\$ 160.9 million.

Patients Benefitting from Other Subsidies

2012	408,000	▶	2017	511,000	=	25%	▲
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In addition to providing financial assistance through the Patient Welfare Programme, AKU subsidizes its general ward hospital beds in Pakistan (that is, the fee patients pay is discounted by 35 per cent below AKU's break-even point). In 2017, 43,845 patients benefitted, and the total value of the subsidy was US\$ 1.9 million. In addition, clinics at Integrated Medical Services facilities, the Community Health Centre and secondary hospitals in Pakistan were subsidized, along with clinics at the Aga Khan University Hospital in Nairobi. The number of patients benefitting was 466,829, and the value of the subsidies was US\$ 392,000. Another 103,791 patients received free care at medical camps in Nairobi in 2017. Patients paying discounted prices can also receive assistance from the Patient Welfare Programme.

Value of Student Financial Assistance and Tuition Fee Subsidy

2012	US\$ 29.8M	▶	2017	US\$ 34.7M	=	16%	▲
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In 2017, 1,566 students with a demonstrated financial need received US\$ 7.3 million in financial assistance, in the form of grants (US\$ 5.4 million) and interest-free loans (US\$ 1.9 million). This is an increase from 946 students in 2012. To date, US\$ 46.4 million in student financial assistance has been provided. In addition, AKU provides a substantial tuition fee subsidy. Tuition fees are set, on average, at approximately one-third of the actual cost to educate students. This means that, on average, students benefit from a 67 per cent tuition fee subsidy. In 2017, the aggregate tuition fee subsidy was US\$ 27.4 million.

Consolidated Financial Performance

	2017	2016
	(US\$ in millions)	(US\$ in millions)
Operating Income		
Hospital Revenues	369	347
Tuition Fees	18	13
Research Grants	20	17
Programmatic Grants	4	5
Donations	4	3
Endowment Income	10	9
Other Income	37	30
Total Operating Income	462	424
Less:		
Patient Welfare	(24)	(21)
Financial Aid – Grants to Students	(5)	(5)
Net Operating Income	433	398
Operating Expenses		
Faculty and Staff	(209)	(191)
Medical, Surgical and Other Supplies	(94)	(88)
Other Operating Expenses	(85)	(74)
Total Operating Expenses	(388)	(353)
Excess of Operating Income over Expenses	45	45
Donations for Capital	18	9
Borrowing	15	14
Investment in Capital Equipment	(32)	(27)
Investment in Facilities	(49)	(38)
Other	(21)	(12)
Excess / (Shortfall) of Income over Expenditure	(24)	(9)
Funding from the Chancellor, His Highness the Aga Khan¹	12	12
Reserve / (Deficit)²	(12)	3

Notes

¹ Funding from the Chancellor is utilized towards supporting academic programmes and for planned new initiatives.

² Deficit is funded through reserves carried forward from previous years.



The World of AKU



Afghanistan

French Medical Institute for Mothers and Children¹

Pakistan

Aga Khan University Hospital²
Faculty of Health Sciences
Institute for Educational Development
Examination Board
Faculty of Arts and Sciences*
Graduate Professional Schools*

Kenya

Aga Khan University Hospital³
Faculty of Health Sciences
Graduate School of Media and Communications
Institute for Human Development
East Africa Institute

Tanzania

Faculty of Health Sciences⁴
Institute for Educational Development
Faculty of Arts and Sciences*
Graduate Professional Schools*

Uganda

School of Nursing and Midwifery
Aga Khan University Hospital*⁵

United Kingdom

Institute for the Study of Muslim Civilisations

¹ Managed by AKU as part of a partnership of the Aga Khan Development Network, La Chaîne de l'Espoir and the Governments of France and Afghanistan.

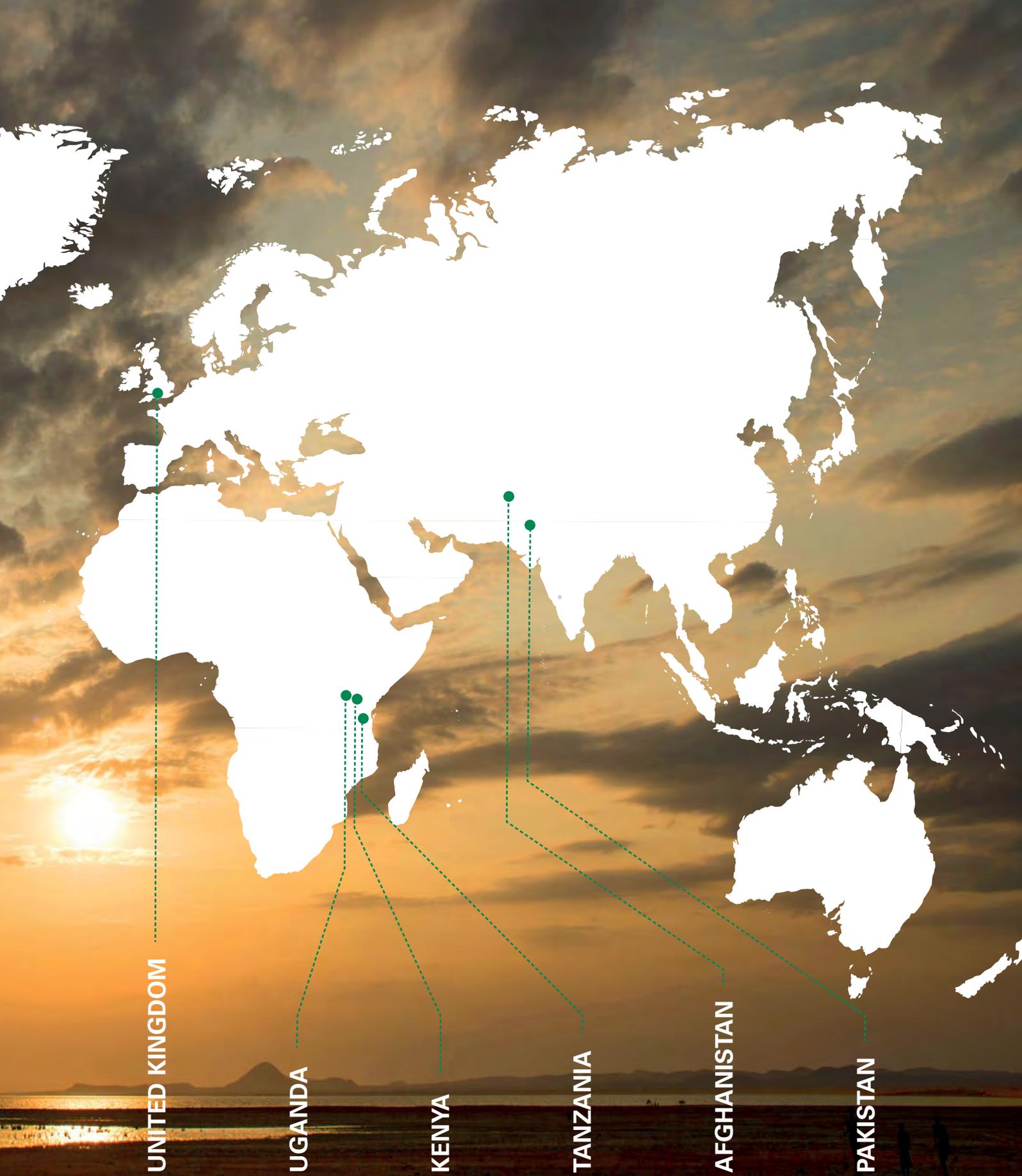
² The AKU health network in Pakistan also includes four secondary hospitals and 264 outreach medical centres.

³ The AKU health network in Kenya includes 43 medical centres.

⁴ AKU's health-related activities in Tanzania also include its medical centre in Arusha.

⁵ The University currently operates four medical centres in Uganda.

*Future programme or institution.



UNITED KINGDOM

UGANDA

KENYA

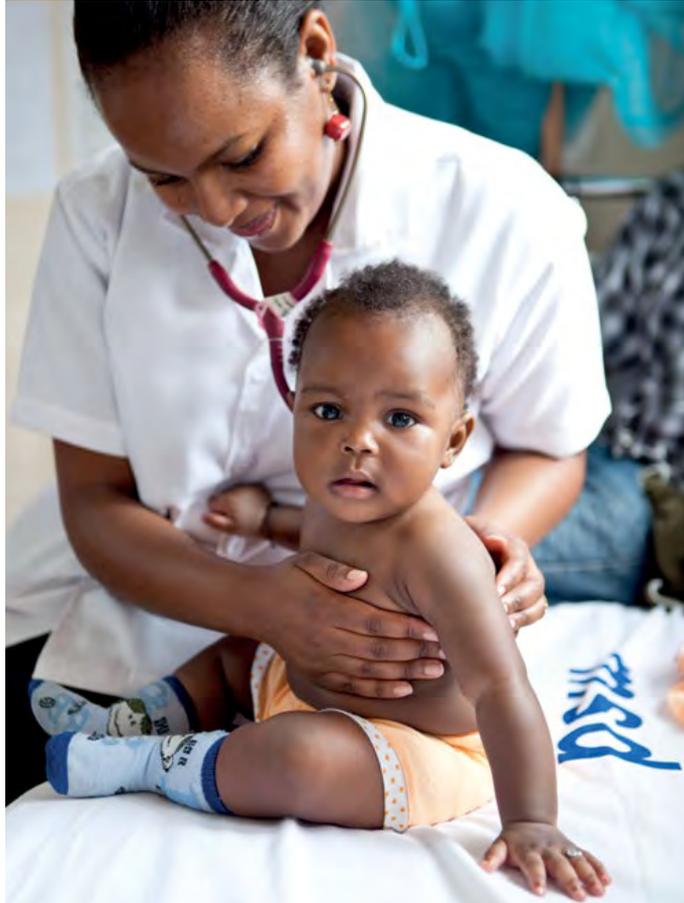
TANZANIA

AFGHANISTAN

PAKISTAN

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