LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Improving health worldwide: Southern Africa

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Improving health worldwide

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As part of research examining gender norms and HIV/AIDS vulnerability, women gather to discuss these issues using participatory methodologies in the village of Bilibiza, Mozambique. Photograph by School researcher Sarah Bandali

August 2013

Joyce Banda, President of Malawi

"In Malawi, as in every country around the world, we need to ensure that services are provided that are accessible for all clients and are free from stigma. Integrated services, provided by trusted and competent providers, can be a step in the right direction to ensuring access to more health services for all."

President Banda speaking at the launch of the School's Integra partnership project report at the UK Houses of Parliament, March 2013.

In June, she joined Peter Piot and colleagues in Lilongwe to launch the UNAIDS and Lancet Commission. Today, over half a million people in Malawi are on life-prolonging antiretroviral treatment, and new HIV infection rates have been reduced by nearly three-quarters.

Max Price, Vice-Chancellor, University of Cape Town and School alumnus (MSc Community Health in Developing Countries. 1986)

When I studied and subsequently worked at the London School of Hygiene & Tropical Medicine in the mid-1980s, we were just beginning to study in depth the functioning of health systems and how best to strengthen them and improve resource allocation. On returning to South Africa, I became involved in the development of health policy in anticipation of the ending of apartheid. A quarter of a century on, we understand a lot more, through hard experience, trial and error, but also painstaking research, advocacy and implementation of reforms. South Africa has seen tremendous progress and the policies guiding the health system have been transformed on equity principles. Implementation has been far more uneven and often disappointing. In both planning and evaluation, and learning the lessons from failure and success, the government and universities have forged strong scientific and programme collaborations throughout the country. Much however, remains to be done.

Our long-standing partnerships between the University of Cape Town and the London School, and others, have been vital to this work, which has gone from strength to strength over the decades. Today, world-leading researchers collaborating across both institutions are producing pioneering work in key areas. These range from TB diagnostic tools, vaccines and treatments through mental health interventions, to health systems and public/private delivery. We are also working together on new challenges, including the emergence of non-communicable diseases such as diabetes and hypertension, and the varied implementation of health policies at different levels and in different regions. Collaboration is the lifeblood of science and academic enterprise, and we look forward to continuing to work with colleagues at the School in future on our common purpose, 'improving health worldwide'.

Pretoria skyline

Transforming horizons in southern Africa

Over the past quarter of a century, despite the ravages of the AIDS epidemic, the tide has now turned in southern Africa. Thanks to a synergy of science, leadership, money, and programmes on the ground, the region has made great strides in improving health for millions of people.

Today, the region is on an upward trajectory, but despite this progress, many people continue to suffer and die from preventable and treatable diseases; not only from AIDS and tuberculosis, but also from malnutrition, diarrhoea, hypertension, diabetes, cardiovascular diseases and complications of childbirth.

Ill-health is both a consequence and a cause of poverty, and it is vital to understand the complex social, economic, educational and environmental factors that contribute to health outcomes and inequalities.

We are engaged in collaborative research with numerous partners across the region. These links have been further strengthened by participation in a growing number of international research consortia designed to enhance the capacity of African institutions to carry out world-class research.

The next few years are critical. With economic growth and the spread of information technology, it is time to invest seriously in innovation that saves lives and transforms livelihoods. Southern Africa now has the people and skills to develop, implement and scale up solutions that can improve health for all. Together, we can meet this challenge.

Peter Piot
Director and Professor of Global Health,
London School of Hygiene & Tropical Medicine.

Baron Peter Piot is Professor of Global Health and Director of the London School of Hygiene & Tropical Medicine. He was previously Under Secretary-General of the United Nations and founding Executive Director of UNAIDS. He co-discovered the Ebola virus and has published over 500 scientific articles and 16 books on infectious diseases. In 2013, he was awarded the Hideyo Noguchi Africa Prize for Medical Research by the Prime Minister of Japan, for his pivotal research on diseases endemic to Africa.

Contents:

Four decades of research and innovation

Infectious diseases have long been a focus for School research in the region, and since the 1970s, we have been working closely in partnership with universities, governments and non-governmental organisations to build strong, long-term collaborative programmes. These have developed African research and innovation, and many are now recognised as world-leading centres that not only address the complex challenges for health in the region, but also provide models for other countries.

Malawi Epidemiology and Intervention Research Unit

The Karonga Prevention Study was established in northern Malawi in 1979 to study leprosy. It has since expanded to include TB, HIV, and most recently, cardiovascular disease and diabetes, as the epidemic of non-communicable diseases spreads across Africa. The programme has been funded primarily by the Wellcome Trust since 1996.

Over the years, School researchers have been working with partners including Moffat Nyirenda from the Malawi College of Medicine, and Charles Mwansambo and colleagues in the Ministry of Health. A new research site recently opened in Lilongwe, and the combined programme will be brought together as the Malawi Epidemiology and Intervention Research Unit (MEIRU). In August 2013, Professor Nyirenda was appointed director of the Unit, with Mia Crampin as deputy director.

Today, a uniquely detailed database links information on around 300,000 people from over three decades, including continuous demographic surveillance in 33,000 individuals, geographical information and data from detailed demographic, epidemiological, immunological, molecular and clinical and social science studies.


Field staff at Karonga

Researchers at MEIRU are now studying non-communicable diseases to quantify the burden of diabetes and hypertension, identify risk factors and the barriers to accessing care, and design and evaluate interventions (see page 12).

The MEIRU researchers are also investigating TB transmission and variations in virulence, combining field epidemiology and whole genome sequencing on an unprecedented scale. They are assessing the impact of antiretroviral therapy roll-out on mortality, reproductive health and family welfare, and evaluating retention in care and impact of Malawi's new HIV test-and-treat policy (option B+) for pregnant women.

ALPHA network: population-based HIV data

A vast amount of data are available on various aspects of health in Africa, but it can often be difficult to compare studies. The network for Analysis of Longitudinal Population-based HIV data in Africa (ALPHA) is working to improve the usefulness of data generated in community-based cohort studies on HIV in sub-Saharan Africa by combining data sets into a common format.

The network is co-ordinated from the School by Basia Zaba and Jim Todd, advised by colleagues at World Health Organization and UNAIDS and working with partners in Kenya, Malawi, South Africa, Tanzania, Uganda and Zimbabwe.

Using these pooled data, they found that HIV mortality has halved since antiretroviral therapy became widely available. Recently, the team published findings showing that an estimated 24% of pregnancy-related deaths in sub-Saharan Africa are attributable to HIV, and that HIV positive pregnant and post-partum women are eight times more likely to die than their HIV negative counterparts.

With funding from the Wellcome Trust, the ALPHA network links ten existing HIV cohort studies. The improved, pooled data are available to national and international agencies to help design and monitor HIV interventions and create epidemiological forecasts. The network has now been awarded additional funding from the Bill & Melinda Gates Foundation to investigate patterns of mortality among HIV positive adults in East and Southern Africa.

Reducing the burden of AIDS-related tuberculosis

The Zambia AIDS Related Tuberculosis Project (ZAMBART) works to help reduce the public health burden of the dual epidemics of TB and HIV in resource-limited communities. It recently completed the largest ever TB/HIV intervention trial – the Zambia-South Africa TB and AIDS Reduction (ZAMSTAR) trial, in collaboration with the Desmond Tutu TB Center at Stellenbosch University in South Africa.

Led by Helen Ayles, this study found that a household-level intervention of combined TB/HIV care significantly reduced both prevalence of TB in adults and new infections in children, a discovery that has vital implications for treatment. The team is now beginning another large trial investigating the Population effect of Antiretroviral Therapy to reduce HIV (PopART) in South Africa and Zambia – see page 4 for details.

Established as a collaboration between the School and the University of Zambia School of Medicine, ZAMBART now comprises a multi-disciplinary team with expertise in epidemiology, clinical science, social science, operations research, health systems and services research, health policy analysis, health economics, health communications, and laboratory techniques.

Four School staff members are based in Zambia, providing training and supervision for five PhD students, and working closely with other academic institutions in Africa and worldwide.


Chilumba Rural Hospital


Children in the village of 25 de Junho in the province of Cabo Delgado, Mozambique. Photograph by School researcher Sarah Bandali

New approaches to AIDS

Over the past quarter of a century, southern Africa has been ravaged by the AIDS epidemic, decimating communities and causing in a significant decline in life expectancy, which has only recently begun to recover thanks to a huge global effort. The AIDS epidemic is not over, but it is changing, and in many areas, HIV is now a controllable endemic condition. The School's work spans clinical, social and anthropological research, health system analysis, and pioneering collaborations to reduce infection and transmission.

PopART: Antiretroviral Therapy to cut HIV Transmission

Can timely treatment for HIV also serve to reduce transmission within populations?

A major trial is now underway to test a new approach to the prevention and control of AIDS in Africa. The Population effect of Antiretroviral therapy to Reduce HIV Transmission study, widely known as PopART HPTN 071, involves 21 communities with a total of 1.2 million people in South Africa and Zambia.

Current approaches to HIV treatment have serious limitations. Many people do not get tested for HIV and do not know they are infected. Even when they are diagnosed, people often do not receive treatment until their immune systems have already deteriorated. As well as being damaging for the patient's own health, the effect of these delays in testing and treatment is that HIV-positive people can continue to infect others for many years.

The new test-and-treat approach encourages and supports the entire community to test for HIV, and offers immediate treatment with anti-HIV drugs to everyone who is HIV-positive. This enables HIV-positive individuals to be diagnosed at a much earlier stage, and they can start treatment right away. This strategy should protect the health of HIV-infected patients at the same time as steeply reducing the number of new infections.

Communities taking part in the trial have been randomly allocated to three study arms. Arm A receives the full combination HIV prevention package including universal testing, promotion of medical male circumcision, immediate access to antiretroviral therapy, counselling and condom provision. Arm B receives the full package except that treatment will be started according to national guidelines, and arm C receives current standards of care.

Led by Richard Hayes and colleagues from the School in partnership with the ZAMBART Project, Desmond Tutu TB Centre and Imperial College London, the trial will measure HIV incidence within populations over three years. It is an HIV Prevention Trials Network study funded by the National Institutes of Health, the US President's Emergency Plan for AIDS Relief and the International Initiative for Impact Evaluation, with support from the Bill & Melinda Gates Foundation.

The trial will provide evidence for policy-makers to develop HIV control policies in many other countries, and globally through the World Health Organization's international HIV treatment guidelines.

PopART randomisation ceremony

Benefits of HIV self-testing and home treatment

People in Malawi are three times more likely to report they have HIV and start antiretroviral therapy if they are able to self-test and begin treatment at home, according to the findings of the first large-scale self-testing study in Africa. Researchers led by Liz Corbett have examined the impact of providing oral HIV self-testing and counselling for 16,660 adults in 14 of 28 poor urban neighbourhoods in Blantyre. Seven of those 14 neighbourhoods were then given the option to begin HIV care at home after reporting their results.

Within six months, 58% of adult residents with access to self-testing had taken a HIV test in private at home. Reporting back of positive test results was significantly higher when people also had the option of beginning treatment at home – 6% reported positive results compared to 3.3% where people had to go to a health facility to begin treatment. This suggests home-based testing and treatment is potentially effective.

Furthermore, an estimated 46% of HIV positive adults began antiretroviral therapy when they were able to do so in their home, compared to just 15% when they had to go to a health facility for treatment – a similarly low figure was found for people beginning treatment in the other 14 neighbourhoods with no self-testing or home treatment at all.

The difference between groups was still increasing at six months, suggesting ongoing benefit from the combined home testing and HIV care intervention. The research was conducted in partnership with the Malawi-Liverpool-Wellcome Clinical Research Programme and the College of Medicine, Malawi.

Supervised self-testing, courtesy Liz Corbett

Sport and HIV prevention

Interest in sport as a tool for behavioural HIV prevention has grown substantially over the past decade. School researchers Zachary Kaufman and David Ross recently published a systematic review on the effectiveness of sport-based interventions to date on HIV-related outcomes, and are currently conducting two trials in South Africa and Zimbabwe.

The MCUTS Trial in Zimbabwe is evaluating the 'Make The Cut' initiative, using football as a tool for increasing uptake of voluntary medical male circumcision. Developed by Grassroot Soccer in 2012 and supported by the Bill & Melinda Gates Foundation and the Doris Duke Charitable Foundation, the programme has reached more than 45 teams in the Bulawayo area, with encouraging preliminary results.

The GOAL Trial is examining the effectiveness of the Generation Skillz programme for reducing risk behaviour among 15-18 year old boys and girls in Cape Town and Port Elizabeth. Funded by Comic Relief and MAC AIDS Fund, it is also assessing the effectiveness of SMS text messages in enhancing the intervention's effectiveness. Preliminary results show very strong evidence of positive effects on HIV-related knowledge and attitudes.

Young players on the 'Make the Cut' initiative, Bulawayo. Photo courtesy Zak Kaufman

Turning the tide on tuberculosis

Cases of TB have increased by 400% in some areas of southern Africa over the past 15 years. The disease is particularly severe where HIV is prevalent and it imposes great economic burdens, affecting many people of working age. The School is working with partners to trial new diagnostic tools, vaccines and treatments that are essential for efforts to reduce TB.

Innovative interventions and treatment

The epidemics of TB and HIV have come together with devastating consequences in the gold mines of South Africa. Thibela TB ('prevent TB' in the Sotho language) is a large workplace-based study involving almost 80,000 mineworkers at 15 gold mines in Gauteng, Free State and North West provinces in South Africa.

Principal investigators Alison Grant and Katherine Fielding, in collaboration with the Aurum Institute, Johannesburg, have been investigating a novel TB control strategy, offering screening for active disease followed by treatment for latent infection to entire workforces of up to 11,000 workers, rather than targeted to high risk individuals.

Gold miners taking part in the Thibela TB project

Their findings suggest that even this unprecedented intervention has not made a lasting impact on the TB epidemic in gold mines, and School researchers are using mathematical modelling of trial data to predict what further interventions will be needed to bring TB under control in these mines.

The project was funded by the Consortium to Respond Effectively to the AIDS TB Epidemic (CREATE), supported by the Bill and Melinda Gates Foundation.

Drug treatment for tuberculosis takes six months with a combination of drugs. Research by Jackie Cliff from the School in collaboration with Gerhard Walzl at the University of Stellenbosch in South Africa shows that gene expression patterns change very quickly after only a few weeks of treatment.

This work will now be extended as part of an EU-funded consortium. known as TANDEM. Led by Hazel Dockrell, researchers in seven countries are working on the complex immunological interactions between TB and diabetes, including how TB patients with diabetes respond to TB treatment.

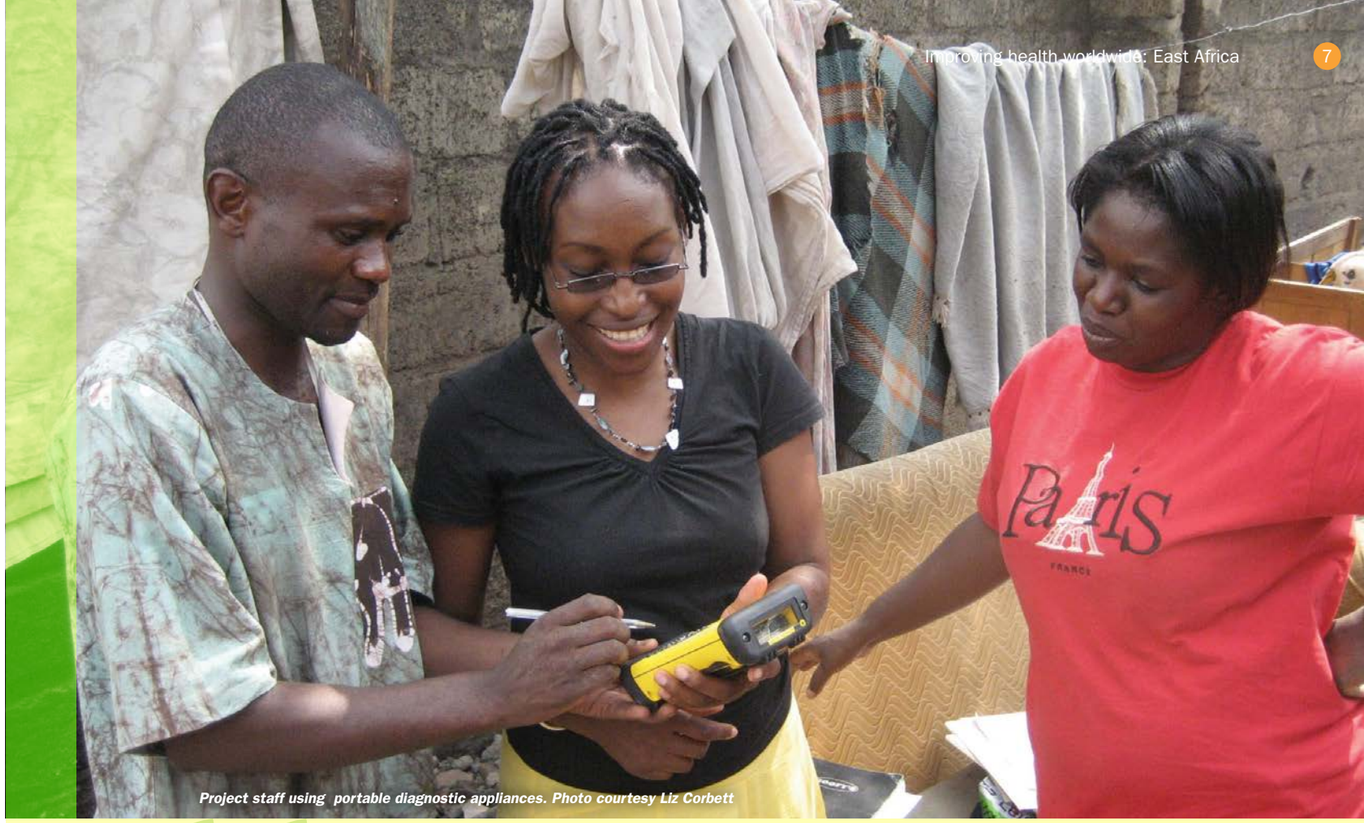
Empowering communities in Zambia

The Zambia project for actively curing TB (ZAMPACT) focuses on improving TB control by working with communities to detect cases of TB earlier and more effectively. Helen Ayles and colleagues are investigating diagnosis and treatment in resource-poor urban clinics in Lusaka, where the need for a new approach in finding cases of TB and delivering treatment is vital.

Towards effective vaccination

Researchers are attempting to develop new vaccines for TB, which could in future cost-effectively prevent up to 67 million cases and 8 million deaths by 2050 in the 22 high-burden countries worldwide. Presented at the Third Global Forum on TB Vaccines at the University of Cape Town in 2013, the modelling by Richard White and Ulla Griffiths shows that the needs of countries such as South Africa would be best met by developing vaccines effective in adolescents and adults.

TB project at Ndirande clinic, courtesy Liz Corbett



Project staff using portable diagnostic appliances. Photo courtesy Liz Corbett

> *"We must be innovative in our approach to TB treatment and diagnosis, which is why I have made deployment of a faster new diagnostic tool a priority for the nation. New, more effective vaccines must also be part of the solution and I am committed to supporting their development by the world's leading researchers."*
>
> *Dr. Aaron Motsoaledi, South African Minister of Health*

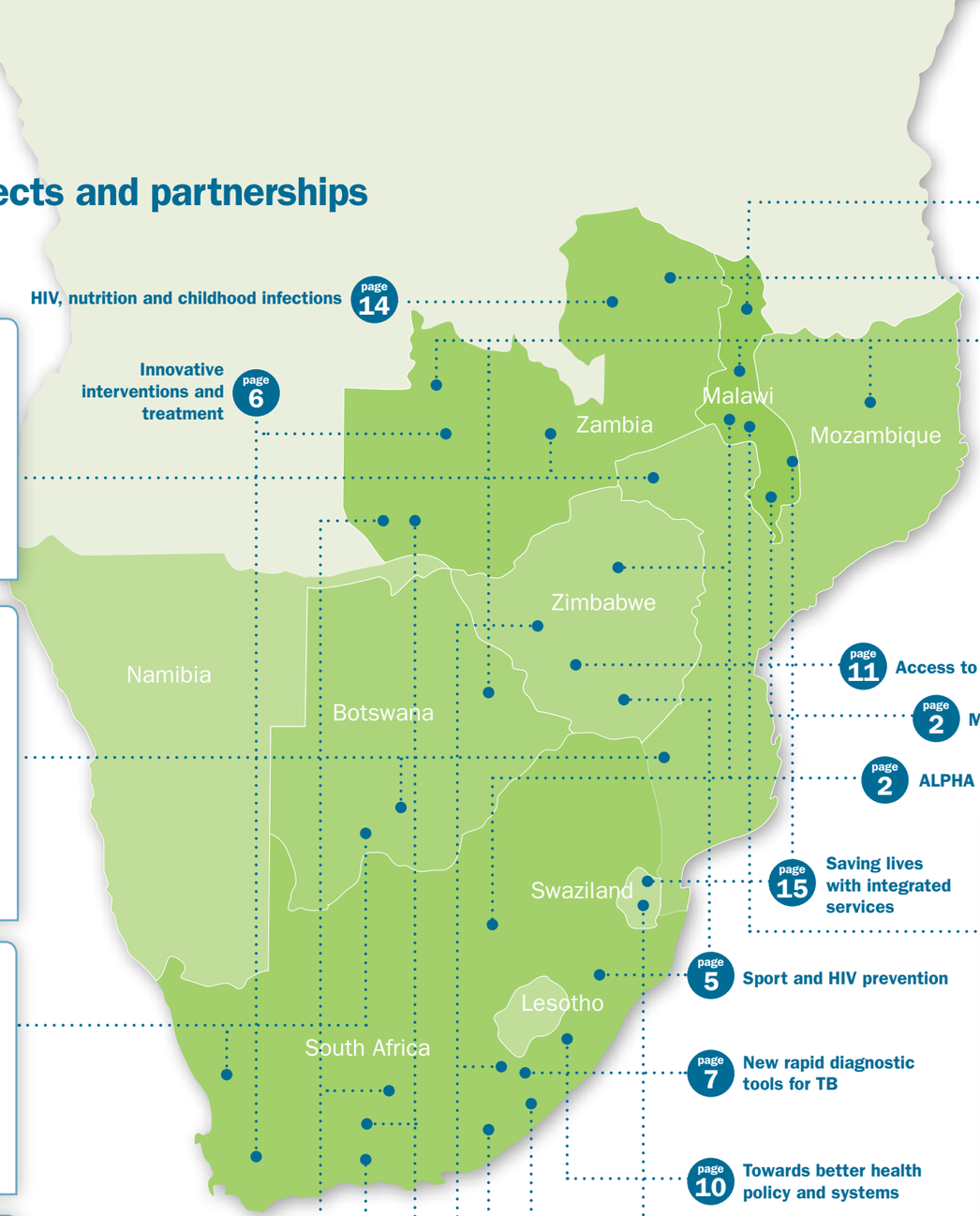
New rapid diagnostic tools for TB

Almost one third of acute medical hospital admissions with HIV infection in some areas of South Africa have undiagnosed active TB, and yet traditional sputum-based diagnosis misses much of this disease. Major increases in case detection can be achieved through the addition of novel urine-based approaches to TB diagnosis, which are being evaluated by School researcher Stephen Lawn with partners including Graeme Meintjes and Mark Nicol at the University of Cape Town.

Katherine Fielding, Alison Grant and Anna Vassall from the School are collaborating with Gavin Churchyard, Kerrigan McCarthy, Violet Chihota and Salome Charalambous at Aurum Institute and other partners in South Africa, to evaluate the impact and cost-effectiveness of the new Xpert MTB/RIF test for TB, which is now being rolled out nationally., with funding from the Bill and Melinda Gates Foundation. They are also working on the TB Fast Track trial, which uses simple tests that can be used by nurses in primary care clinics to identify people with HIV at highest risk of TB, so that they can start immediate TB treatment, followed by antiretroviral therapy.

Photo courtesy Liz Corbett

Health on the map: selected projects and partnerships



Reducing mortality among HIV patients

HIV-infected adults starting antiretroviral therapy often die unnecessarily because of delays in treatment, poor adherence to therapy, and complications associated with undiagnosed cryptococcal meningitis, especially if they are also malnourished. School researchers are working with the National Institute for Medical Research in Dar es Salaam and the Ministries of Health in Tanzania and Zambia on improved diagnosis and treatment.

Trachoma mapping and treatment

Blinding trachoma affects more than 21 million people globally, with up to 180 million at risk in the world's poorest countries. The Global Trachoma Mapping Project is a consortium of ministries of health, NGOs and academic partners worldwide, funded by DFID. School researcher Anthony Solomon, chief scientist for the project, is training teams to use smart phones to collect data on water, sanitation and hygiene, and examining people for clinical evidence of trachoma in countries including Botswana and Mozambique.

International Epidemiologic Databases to Evaluate AIDS

Richard Lessells and colleagues are working with the Universities of KwaZulu-Natal and Cape Town to develop and implement methodology to effectively pool data on HIV in Botswana and South Africa, providing a cost effective means of generating large data sets to address high priority research questions.

Cervical cancer, human papillomavirus and HIV

Every year, cervical cancer kills around a quarter of a million women in sub-Saharan Africa, and many of these lives could be saved by simple screening and vaccination against strains of the human papillomavirus. Women living with HIV are at particular risk of infection, and experience more rapid disease progression.

Working in partnership with the University of Witwatersrand in South Africa, the EU-funded HARP (HPV in Africa Research Partnership) Consortium, led by Philippe Mayaud at the School, is investigating the efficacy and cost-effectiveness of various screening strategies, and developing algorithms to improve detection and management of cervical cancer in these high-risk populations.

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Human and animal infectious disease surveillance

School researchers are working with partners from the Royal Veterinary College and institutions across sub-Saharan Africa on a range of infectious diseases in humans and animals. These include Rift Valley fever, filoviruses in the Democratic Republic of Congo and South Africa, and foot and mouth disease in Zambia, Mozambique and South Africa. Led by Mark Rweyemamu at Sokoine University in Tanzania, the Southern African Centre for Infectious Disease Surveillance is a Wellcome Trust funded consortium to strengthen capacity for 'One Health' throughout the region.

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Safety of malaria drugs

Artemisinin-based combination therapy is the first line recommended treatment for malaria. Although it is highly effective, there are many issues around access, safety, targeting and drug quality. The ACT Consortium, with its secretariat based at the School, is a global research collaboration that addresses these issues through 25 studies in 10 countries.

Karen Barnes of the University of Cape Town is working with partners including Sarah Staedke and Clare Chandler from the School to develop accurate patient-reported data on the safety of artemisinin-based combination therapy in Tanzania and South Africa. The study is part of a wider investigation into the interaction between HIV and malaria drugs in patients' bodies, in areas where the prevalence of both diseases is high. The Consortium's core team, based at the School, also supports the analysis of a study led by David Lalloo of the Liverpool School of Tropical Medicine in Chikwawa, Malawi, examining how the repeated use of artemisinin-based combination therapy drugs affects the health of young children.

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VISION 2020 for eye care

Researchers from the School's International Centre for Eye Health are working with hospitals in the region as part of the VISION 2020 Links Programme, a global initiative established in 1999 to eliminate avoidable blindness worldwide. The programme provides training and support for eye specialists in the Good Shepherd Hospital in Swaziland.

Note: The lines and points on the map indicate which countries these projects are working in. They are not meant to be geographically accurate within each country. Headings and numbers in blue circles page 3 indicate page references within this publication. The School is involved in many other projects in the region, and this publication represents only a selection. For an updated map of global projects and partnerships visit http://www.lshtm.ac.uk/aboutus/introducing/map

Improving health systems, services and policy

Since the ending of apartheid, South Africa's health system has been transformed, with far more equitable coverage and investment in primary health care. However, it is also highly fragmented, between public and private, urban and rural, with varied implementation of health policies at different levels. Over the past two decades, our School has been collaborating closely with partners in South Africa, conducting pioneering research on health economics and health policy change across Africa, and supporting the implementation of reforms intended to achieve universal coverage by monitoring and evaluating processes and outcomes.

Towards better health policy and systems

Early studies looked at contracting out hospital management and primary care to the private sector. More recently, research has focused on financing issues, including understanding the process of financing policy change. The recently completed EU-funded SHIELD project, and its successor, UNITAS, are identifying options for financing universal coverage in South Africa, Ghana, and Tanzania, supporting the implementation of reforms intended to eventually achieve universal coverage by monitoring and evaluating the policy processes.

The Consortium for Health Policy & Systems Analysis in Africa is a partnership of seven universities in Africa and four universities in Europe, including the School, working to build the capacity of Africa to produce and use high quality health policy and systems research.

The consortium provides teaching materials and resources on an open access platform www.hpsa-africa.org, and supports the development of African researchers and educators.

Lucy Gilson, principal investigator of the consortium, and professor at both the School and the University of Cape Town, leads research focusing on equity in health, health systems governance, how health care is funded and organised, and how decisions are made at household, managerial and policy levels. The researchers recently used stakeholder analysis to evaluate plans for universal health coverage in South Africa.

Resilient and Responsive Health Systems

School researchers have long-standing relationships with partners at the universities of the Witwatersrand and Cape Town. Building on the success of the Consortium of Research on Equitable Health Systems, Kara Hanson, Lucy Gilson and colleagues are currently working in seven countries across Africa and Asia in the Resilient and Responsive Health Systems (RESYST) research programme. Funded by the UK Department for International Development, the consortium focuses on governance, human resources and financing issues. In South Africa, it is addressing how to finance universal coverage, and key challenges such as establishing functioning district health systems and how to retain nurses in rural areas.

Images courtesy Zak Kaufman

Access to care for vulnerable groups

Availability of antiretroviral therapy for HIV continues to increase rapidly throughout Africa, but some marginalised and hard-to-reach groups are not receiving treatment. For example, it is very difficult to identify children born with HIV who have not yet been diagnosed and link them into the health system.

The Zimbabwe study for enhancing testing and improving treatment of HIV in children (ZENITH) is evaluating community-based testing for children aged 6-15 years. Rashida Ferrand from the School is working with Harare City Health, Child Protection Society, the University of Zimbabwe Medical School and Population Services International on this study, which includes a trial comparing children receiving community-based support from lay health workers with those who receive standard HIV care services from local clinics.

The researchers previously found that health care workers are reluctant to offer provider-initiated testing of children, and a qualitative study is now underway to explore the reasons for this. A trial led by the Centre for Sexual Health, HIV and AIDS Research in Zimbabwe is also investigating how community peer support for sex workers affects their use of antiretrovirals.

Despite the very high rates of HIV among female sex workers, many experience discrimination from health workers and cannot afford the time and cost of waiting for diagnosis or treatment at health centres. The research team is evaluating the acceptability, feasibility and perceived effectiveness of interventions among sex workers, their families and communities.

Zimbabwe study for enhancing testing and improving treatment of HIV in children (ZENITH) is evaluating community-based testing for children, courtesy Rashida Ferrand

Non-communicable diseases, social, economic and environmental factors

Non-communicable diseases, known as NCDs, include cardiovascular disease, diabetes, cancers, chronic respiratory diseases and neurological diseases. Collectively, they represent the biggest cause of death and disability globally, and this is increasing. In sub-Saharan Africa, NCDs now contribute a third of the disability-adjusted life year burden, the World Health Organization's index of the impact of disease on populations. Deaths from NCDs occur at younger ages in Africa and in other low and middle income countries, and globally, we face the quadruple burdens of communicable diseases, non-communicable diseases, mental illness, and injuries.

Khonjeni Health Centre, South Africa, courtesy Liz Corbett

The Karonga Prevention Study, in partnership with the Malawi College of Medicine and Ministry of Health, is addressing non-communicable diseases's in Southern Africa. Current projects include quantifying the burden of hypertension, diabetes, hyperlipidaemia and chronic kidney disease and their risk factors, the clinical complications associated with these conditions, and the factors which determine linkage to and retention in care. They are also examining different measurement techniques, and preparing for major intervention trials over the next few years.

School researchers are also involved in a number of global non-communicable diseases projects which include countries in Southern Africa. The Centre for Global Change and Health is investigating the effects of policies for reducing greenhouse gas emissions.

The CONCORD programme, led by the School, has initiated global surveillance of cancer survival, with data from more than 280 cancer registries on 10 cancers diagnosed since 1995.

Neil Pearce, Director of the School's Centre for Global NCDs, was a key partner in the recently completed International Study of Asthma and Allergies in Childhood. This found steep increases in these conditions among young people over the past 20 years, especially in urban areas, including in two trial centres in South Africa: Cape Town and Polokwane.

This led to the establishment in 2012 of the Global Asthma Network, to improve asthma care in low and middle income countries, through enhanced surveillance, standardised care, research collaboration, capacity building, engagement with policy-makers and access to quality-assured essential medicines.

Intervention Research for Mental Health

Mental health is increasingly recognised as a global issue. Vikram Patel, Mary De Silva, Sujit Rathod and colleagues from the School's Centre for Global Mental Health are working with partners including Crick Lund, Mark Tomlinson and Inge Petersen in South Africa and Zimbabwe to build capacity for intervention research, and create networks of collaboration between researchers, non-governmental organisations and government agencies.

Together with the Institute of Psychiatry at King's College London, the Centre is part of the Programme for Improving Mental Health Care.

Image courtesy Zak Kaufman

Local market in Lusaka, Zambia. Image istock photo

Maternal, adolescent and child health

The School has for many years pioneered research into child and adolescent health in low and middle income countries. The recently established Centre for Maternal, Adolescent, Reproductive and Child Health (MARCH) now works extensively with many partners in Southern Africa and globally to integrate, scale up and evaluate maternal and newborn health policy and practice.

Saving lives from diarrhoea

Diarrhoea is a major cause of death among children, despite being easily preventable and treatable. Val Curtis and Katie Greenland from the School are working with the Centre for Infectious Disease Research and the Zambian Ministry of Health on developing a multiple behaviour change programme as part of a wider strategy to reduce morbidity and mortality associated with diarrhoea in Lusaka Province, Zambia.

They are evaluating this programme's impact on handwashing with soap, exclusive breastfeeding for the first six months of life, and use of oral rehydration solution and zinc for home management of diarrhoea. The comprehensive diarrhoeal disease control strategy is funded by Comic Relief, Absolute Return for Kids and the UK's Department for International Development.

Diarrhoea is still a major cause of infant morbidity. Photo courtesy Liz Corbett

Family planning in rural Malawi

Women bear on average six children in Malawi, with many unintended pregnancies. Although contraceptive use is relatively high at 42%, a quarter of women have an unmet need for contraception in Malawi. Working with The Karonga Prevention Study, the District Health Office, and the College of Medicine, Aisha Dasgupta is using patient-held records to build a longitudinal dataset of women living in northern rural Malawi, which will enable researchers to understand family planning over time, including continuity of contraceptive use and switching of methods and provider-s. Over 8,000 women were offered a special family planning card, and all health providers in the study area were trained to record information on the cards for one year.

Measuring children's arm circumference, Malawi

This alternative method of collecting family planning data has revealed that many women use contraception inconsistently, which might in part explain the persistently high fertility in Malawi.

Incentives for teenage girls

Transactional sex and relationships with older men lead many young women to become infected with HIV and HSV2. Swa Koteka, a three-year intervention in rural Mpumalanga Province, South Africa, is investigating whether small, regular cash payments keep young women in schools, and if that in turn reduces the number of young girls having transactional sex and relationships with older men. School researchers from the Tackling the Structural Drivers of HIV (STRIVE) consortium are working with trial partners from the universities of Witwatersrand and North Carolina to understand the health, development and economic benefits of such intervention programmes.

HIV, nutrition and childhood infections

Infants exposed to HIV in the womb have reduced immunity to other viruses, but infections can be significantly reduced by breastfeeding and vitamin and mineral supplements, according to new research. Suzanne Filteau, Ursula Gompels, Lackson Kasonka and colleagues have been working extensively on the effect of these interventions on antibodies for poliovirus and the effects of human cytomegalovirus in groups of infants in Zambia. The team is now testing lipid-based dietary supplements for malnourished patients in the Nutritional Support for Africans Starting Antiretroviral Therapy (NUSTART) trial.

Youth-friendly health services

Young people, especially adolescent girls, are at high risk of HIV infection. The South African Department of Health, in collaboration with the national non-governmental organisation LoveLife, provides a national programme of youth-friendly clinics working to prevent HIV across South Africa. Rebecca Geary and colleagues are investigating how young people use the services in urban Soweto and rural Agincourt, and what experiences they have at the clinics.

> *"In Malawi, as in every country around the world, we need to ensure that services are provided that are accessible for all clients and are free from stigma. Integrated services, provided by trusted and competent providers, can be a step in the right direction to ensuring access to more health services for all."*
>
> *Joyce Banda, President of Malawi*

Saving lives with integrated services

More than half of maternal deaths worldwide occur in sub-Saharan Africa and an estimated 1.2 million people die from HIV every year in the region. Poor sexual and reproductive health and HIV are both driven by similar factors, including socio-economic and gender inequality and social marginalisation of vulnerable populations.

The results of the Integra Initiative, a five-year study into the benefits, effectiveness and challenges of combining HIV and sexual and reproductive health services in Kenya, Malawi and Swaziland, were recently launched by Joyce Banda, President of Malawi, at the UK Parliament.

Working with the International Planned Parenthood Federation and the Population Council, and funded by the Bill & Melinda Gates Foundation, School researchers found that integration of services can lead to better health outcomes, better service experience, decreased stigma, and cost savings.

Professor Andy Haines and Dr Susannah Mayhew from the School announce the results of the Integra study alongside President Banda at the UK Houses of Parliament in March 2013. Photo courtesy Flynn Warren

The GOAL Trial is examining the effectiveness of the Generation Skillz programme for reducing risk behaviour among 15-18 year old boys and girls in Cape Town and Port Elizabeth.. Photo courtesy Zak Kaufman

Support our work

The London School of Hygiene & Tropical Medicine's work in southern Africa is only possible thanks to the generous support of funders who share our commitment to improving health worldwide.

Gifts from individuals and institutions make all the difference in making sure good ideas become good policy and practice. We hope you will join us in contributing to a healthy future for southern Africa.

For more information about supporting our work, please contact:

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