



LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



Annual Report 2015

Improving health worldwide



Improving health worldwide

School Centres address an array of global health challenges – **page 20-21**

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From our partners



Dr Matshidiso Rebecca Moeti
Regional Director,
World Health Organization
Africa Region

“ I studied for my MSc in Community Health for Developing Countries at the London School of Hygiene & Tropical Medicine in 1986, at the height of the global AIDS epidemic. The knowledge and relationships I gained there have helped in my career in international public health. We have come a long way in the past few decades, but Africa - and the world - still face many difficult health challenges, as we have seen over the past year. As well as the support of member states, WHO needs good partners in government, civil society and the research community. I am delighted to be working with colleagues at the School to develop effective interventions and services, and to push for improvement in global health systems.”



Dr Soumya Swaminathan
Secretary, Department
of Health Research,
Government of India,
and Director General,
Indian Council of Medical
Research

“ As India and the UK share a long and deeply connected history, so do the Indian Council of Medical Research and the London School of Hygiene & Tropical Medicine. Over many decades, we have worked together on the development of human resources and strengthening capacity of our health research institutes, and joint studies, notably on malaria and kala-azar. I look forward to further strengthening these collaborations with the School in our mission to find solutions to national and global health priorities.”



Duncan Selbie
Chief Executive,
Public Health England

“ The London School of Hygiene & Tropical Medicine is a key partner in our shared ambition to protect and improve the public's health, domestically and around the world. Disease does not recognise borders and the School's mission of improving health worldwide is common to both of our organisations. This shared mission was demonstrated most powerfully in the recent response to the Ebola outbreak in West Africa.

The London School of Hygiene & Tropical Medicine shapes public health research and the workforce of our future, and its staff are at the forefront of translating this knowledge into policy and practice in order to improve health and health equity. Public Health England works alongside the School on a wide range of topics as diverse as ticks, measles, and our collaboration on the annual Flusurvey. I look forward to continuing our work together in order to protect and improve health both locally and globally.”



Viroj Tangcharoensathien
Senior Adviser, International
Health Policy Program,
Ministry of Public Health,
Thailand

“ Universal Health Coverage is key to achieving the health related sustainable development goals agreed this year, promoting health equity and reducing poverty. The London School of Hygiene & Tropical Medicine continues to play an important role in developing the evidence base for these, for example through RESYST, an international research consortium to enhance the resilience and responsiveness of health systems. Drawing lessons from countries across Africa and Asia on planning, purchasing and human resources strategies, RESYST's findings are helping governments to design systems which contribute to health equity, efficiency and cost containment while ensuring high quality of care, governance and a committed health workforce. In turn, these contribute to improving health systems and outcomes in low and middle income countries.”

Foreword



Dame Marjorie Scardino
Chairman of Council

Dame Marjorie Scardino took up her appointment as Chairman of Council at the London School of Hygiene & Tropical Medicine in November 2015. She was previously Chief Executive Officer of Pearson PLC from 1997 to 2012, is on the boards of Twitter and IAG, and a member of several charitable and advisory boards, including The Carter Center and The Royal College of Art.

As the world shrinks and the pace of human interaction accelerates, the need for our work at the London School of Hygiene & Tropical Medicine grows. Having devoted a career to business, journalism and the law, I'm grateful now for the chance to participate as Chairman of the School's Council.

In 2015, Sir Tim Lankester completed a decade as the Council's Chairman. With his combination of dedication, intelligence and modesty, he helped steer the School through an important period, working closely with Directors Andy Haines and Peter Piot. We thank him for his service and congratulate him on the successes during his tenure.

The Council's role is to ensure that the School is able to take up the opportunities and obligations to public health that it was built for. We need to be sure that our goals are large and our financial health and courage up to meeting them; and we need to be sure that our faculty and students are of the highest calibre and have what they need to teach and learn.

Early in the new year, the School will host an exhibition describing the success of the Carter Center in eradicating guinea worm disease in Asia and Africa. Over the past 30 years, the number of people afflicted with guinea worm has dropped from 3.5 million to only 30 at last count in October. The public health professionals at the Center attribute their success to teaching water hygiene in every village they could reach on two continents.

We cope with even greater challenges. The number of diseases spreading around the world is growing. HIV, Ebola, SARS, MERS and others yet to be named have made it clear that we have both dilemmas and opportunities ahead. The mass migrations now underway in Europe, the Middle East and Africa will present new demands to cope with illnesses that many thought were tropical diseases confined to tropical regions - and to history, at least in Western Europe. They have returned as urgent public health issues in many places, and they never disappeared in many others.

The world needs our research and our clinical work in the field more than at any other time in over a century of our history. To support this work, we have to enlist partners in business, government, philanthropic organisations and other academic centres. To thrive, we must spread our story to all of these audiences.

Since 2006, the School's research income, activity, outcomes and impacts have grown, as has the reach of the School's education offering with the development of its distance learning programmes. In addition, Keppel Street has been modernised and new buildings have opened in Tavistock Place. We have a dedicated faculty and staff, a student body eager to develop and use their skills for the good of public health and a Council committed to supporting them.

I look forward to working with everyone to help to make our financial health, our teaching, and our support for students among the best in the world, so that we can continue to do our part in addressing some of the world's greatest health challenges.

Our vision is to be a world-leading school of public and global health, working closely with partners in the UK and worldwide to address contemporary and future critical health challenges.

Our mission is to improve health and health equity in the UK and worldwide; working in partnership to achieve excellence in public and global health research, education and translation of knowledge into policy and practice.

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Director's Introduction – learning lessons



Professor Baron Peter Piot
CMG FRCP FMedSci

Whereas 2015 was another year of major contributions and of continuing growth of our School, it ended with a most shocking tragedy - the untimely loss of our great friend and colleague Jeroen Ensink.

Jeroen was Senior Lecturer in Public Health Engineering and Course Director on our Master's degree in Public Health in Developing Countries. He was passionately committed to improving access to water and sanitation, and his career crossed many continents. Working in collaboration with numerous universities and international agencies, he devoted particular effort to building local research capacity in developing countries. Jeroen was immensely popular with students, and his kindness and inspiration will be hugely missed by all who had the privilege to know him and to work with him.



Jeroen Ensink, photo courtesy of Nadja Ensink-Teich

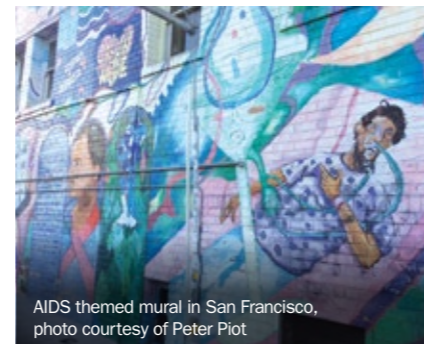
I am very proud of the role that our School has been playing in the response to the Ebola epidemic in West Africa, which now seems to be under control. Staff and students have volunteered in the emergency effort, and have also been engaged in key research projects and vaccine trials in Guinea and Sierra Leone. We are now committed to providing longer term support to the region in terms of epidemic preparedness, and strengthening of health services, public health education and research capacity.

One of the many shocking aspects of this epidemic is that it could have been contained much sooner with an effective national and global response. The international community is still counting the cost, and much more is needed to rebuild health care systems and services.

Researchers at our School have estimated that thousands more people could have been saved if the treatment centres had been in place a month earlier than they were. It also clear we must create a way, where there is market failure, to accelerate the development of vaccines and therapies for pathogens with epidemic potential. In November, the [Harvard - LSHTM Independent Panel on the Global Response to Ebola](#), which I chaired, presented its final report, with ten recommendations to strengthen public health system capacity and improve global governance and response, including

the role of the World Health Organization. The crisis has strong echoes of the early years of the AIDS pandemic. Today, HIV is endemic in most countries. Thanks to major prevention efforts and widespread use of anti-retrovirals, new infections and mortality have been brought down significantly at great cost. And even now, hard lessons have still to be learned, as the end of HIV/AIDS is not in sight, including in London, where every day five people become infected with HIV.

As highlighted in our [Lancet UNAIDS Commission report](#) published this summer, simply maintaining the current intense level of response will not be enough to stop deaths from HIV increasing in many countries. Prevention is key, while challenging discrimination and stigma, particularly among high risk populations.



AIDS themed mural in San Francisco, photo courtesy of Peter Piot



Volunteer participant Idrissa Kamara receiving first vaccine of EBOVAC-Salone, photo by Alexandra Donaldson, on the big screens in Times Square, New York, courtesy of Johnson & Johnson

This will require extraordinary leadership, particularly to ensure the Global Fund to fight AIDS, TB and malaria is fully replenished in 2016. The history of progress in health shows that despite major achievements, infectious diseases remain a massive burden, particularly in sub-Saharan Africa. Global mobility has increased the threat of epidemics, and rising antimicrobial resistance risks reversing much of the progress made throughout the past century. We need to continue investing in research for better diagnostics, vaccines, treatments and behavioural and social interventions, as well as innovating in service delivery.

Diabetes now accounts for around 10% of all expenditure in the NHS, and the worldwide rise of chronic diseases, such as diabetes, cardiovascular disease, cancer, obesity and mental illness, presents even greater challenges, and here too, sustainable solutions will require innovation in prevention, care and health systems delivery. Contemporary urban culture is not conducive to healthy lifestyles, and bolder action needs to be taken by policymakers to promote sustainable health and wellbeing. This means making existing effective interventions widely available, and a more proactive approach to diet, tobacco, alcohol and exercise, including through regulation and structural interventions including transport and the built environment which promote health and wellbeing, not disease.

Building on the new Sustainable Development Goals adopted by all member states of the United Nations, we also need greater political commitment to advancing universal health coverage and global health security, working more effectively across borders, for example in response to the migrant and refugee crisis in the Middle East and Europe.

Such a comprehensive approach to health and disease is a critical part to ensure 'planetary health' as promoted by *The Lancet* - Rockefeller Foundation Commission chaired by my predecessor Professor Sir Andy Haines. To support much needed research on sustainable health in a sustainable environment, the Wellcome Trust launched an important new funding stream 'Our Planet our Health'. Our School has a major role to play in this critical area for our future, wherever we live.

Earlier in the summer, colleagues produced a report for the All-Party Parliamentary Group on Global Health entitled [The UK's contribution to health globally: benefiting the country and the world](#). This shows how Britain is leading the way in many aspects of global health and development, particularly in research and innovation, partnership with commercial and not-for-profit entities, universal health coverage and emergency response.



Courtesy of the All-Party Parliamentary Group on Global Health

It was encouraging news for our School that the UK government's commitment to global health was further underlined in the autumn spending review, which largely protected science and international development budgets, and pledged new funding to address challenges including malaria and antimicrobial resistance. We are also continuing to expand our research with partners in the UK and globally. Our joint venture with UCL to support the Bloomsbury Research Institute reached new milestones with the award of a £7.5 million Catalyst grant from the UK government, and the appointment of Professor Sharon Peacock as Director of the Institute, which will work on new solutions for infectious disease threats.

However, there are new and unnecessary barriers including visa restrictions on health professionals, researchers and students, which risk holding us back, so we are calling on UK ministers to take a strategic approach to ensure that we can realise the opportunities for the economy and health in the UK and worldwide. Let us not forget that the NHS has been an inspiration for the new global movement on universal health coverage.

The AIDS epidemic put global health on the world's agenda. The Ebola crisis in West Africa should now be an equal game changer for how the world prevents and responds to epidemics. Through a sustained commitment to excellent education and research, our School will continue to contribute to improving health in the UK and worldwide.

Professor Baron Peter Piot
Director



2015: the year in review

[Selected highlights from our news archive](#)

January

Her Royal Highness The Countess of Wessex marked her 50th birthday by visiting eye health projects at the School. Accompanied by her husband, HRH the Earl of Wessex, she met staff and students working on avoidable blindness programmes funded by the Queen Elizabeth Diamond Jubilee Trust.



Courtesy of the Queen Elizabeth Diamond Jubilee Trust / Tara Moore

"You can't understand other cultures without understanding their music" Peter Piot was a castaway on the iconic BBC Radio 4 programme 'Desert Island Discs'.

February

The School joined an alliance of partners aiming to eliminate indigenous cases of malaria on the island of Hispaniola by 2020. The Malaria Zero consortium was established with a \$29.9 million grant from the Bill & Melinda Gates Foundation, with work at the School led by Chris Drakeley.

Efforts to discover and develop new TB vaccines were boosted as the School partnered in a new 24.6 million euro project. Hazel Dockrell, Helen Fletcher and Greg Bancroft are each coordinating projects as part of TBVAC2020, which uses innovative approaches and preclinical models for vaccine development.

[Read more about our media coverage in 2015](#)

March

The prestigious Canada Gairdner Global Health Award 2015 was awarded to Peter Piot for his work on the Ebola virus, his many contributions to HIV/AIDS research and his extraordinary leadership in the global response to the HIV/AIDS epidemic, especially in Africa.

A decade on from the northern Nigeria polio vaccination boycott and its global costs to the polio eradication initiative, the State of Vaccine Confidence report, led by Heidi Larson, examined global issues affecting confidence and hesitation around vaccines since the new millennium.

April

A study of identical and non-identical twins revealed that the likelihood of being bitten by mosquitoes could be down to our genes. The research, led by James Logan, made headlines around the globe and resulted in more than 1,000 news articles.

Vikram Patel was named in *TIME Magazine's* list of the 100 most influential people in the world, in recognition of his work addressing the unmet needs of those from resource-poor countries who live with and suffer from mental-health disorders.

Brian Greenwood and colleagues published final trial results of the world's most advanced malaria vaccine, RTS,S, which revealed it could prevent a substantial number of cases of malaria, especially in areas of high transmission.

May

An app to test eyesight was found to work as well as traditional eye testing charts. It was designed and developed by the team from Peek (Portable Eye Examination Kit). The findings from a study in Kenya led by Andrew Bastawrous were published in the *Journal of the American Medical Association - Ophthalmology*, becoming the journal's all-time top ranking paper.

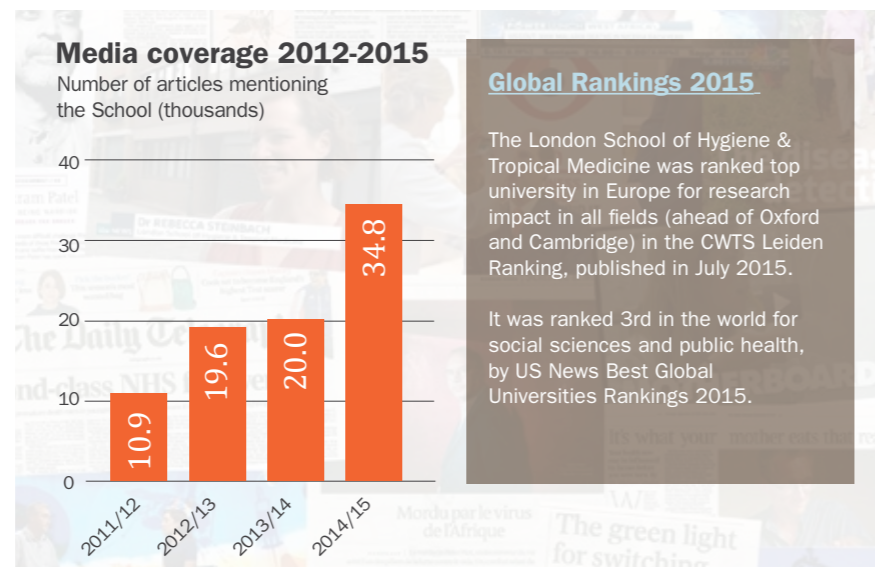
June

A report by the School and UNAIDS warned that the world must drastically accelerate AIDS efforts or risk the epidemic rebounding within the next five years.



Dr Nkosazana Dlamini Zuma, Chairperson of the Commission of the African Union with (from left) Dr Richard Horton, editor of *The Lancet*, Michel Sidibé, Executive Director, UNAIDS and Professor Piot at the UNAIDS and *Lancet* Commission report launch at the School, June 2015. Courtesy of *The Lancet*

A programme in Ugandan primary schools succeeded in reducing violence by teachers against children by 42%. The 'Good School Toolkit' was designed by Raising Voices and evaluated by a team led by Karen Devries.

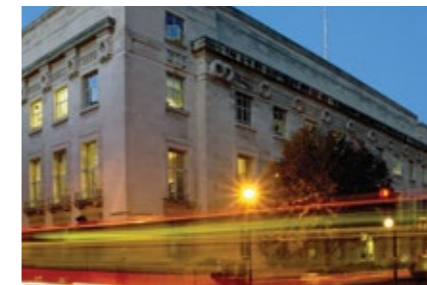


July

The Rockefeller Foundation-Lancet Commission on Planetary Health called for immediate, global action to protect the health of human civilisation and the natural systems on which it depends. Led by Andy Haines, the report showed that solutions are within reach to return us from the brink of triggering irreversible damage.

Reanalysis of a flagship study questioned the extent to which deworming children has educational benefits. A team led by Alexander Aiken and Calum Davey called for the evidence that informs international policy to be re-appraised.

First interim results from an Ebola vaccine trial in Guinea suggested high protection. The trial used a ring vaccination design, which was developed by John Edmunds and colleagues at the School.



A study of reduced street lighting across England and Wales found switching off at night was not associated with increased road traffic collisions or crime. The research, led by Phil Edwards, was headline news across the UK.

August

Sarah Walters and colleagues found that cancer survival was improving in England, but still lagging behind other countries with similar healthcare systems.

September

The School began two new major streams of work funded by the Wellcome Trust: a series of research partnerships with African scientists as part of the DELTAS Africa programmes; and two new projects on food security and low-income housing as part of the Our Planet, Our Health initiative.

Martin McKee questioned the evidence on e-cigarettes in *The British Medical Journal*, raising concerns about Public Health England's recent endorsement of them as aids to quit smoking.

October

Giving UK children the flu vaccine was shown to be a cost-effective way to reduce the burden of the disease in the general population. The research, led by Marc Baguelin, informed changes to UK flu vaccination policy.

An Ebola vaccine trial coordinated by the School got underway in Sierra Leone. The evaluation of the 'prime-boost' vaccine, led by Deborah Watson-Jones and colleagues, offers an alternative strategy to other Ebola vaccines being tested in the region.



Courtesy of Alexandra Donaldson

David Lawson's study of polygynous marriage in Tanzania found sharing a husband may lead to greater health and wealth. Published in the *Proceedings of the National Academy of Sciences*, the findings suggest that in some settings, prohibiting polygyny could be disadvantageous to women.

Ebola treatment beds prevented 40,000 deaths in Sierra Leone, according to a study led by Adam Kucharski. However, the analysis, which was also published in the *Proceedings of the National Academy of Sciences*, revealed that introducing beds just one month earlier might have halved the outbreak.

November



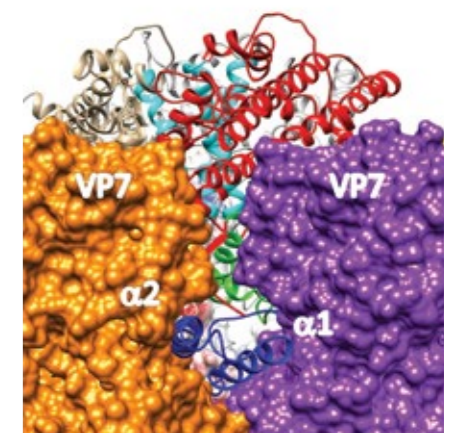
Courtesy of Molly Miller-Petrie

A £5 million project was launched to improve a critical gap in data on newborn survival. Led by Joy Lawn and funded by the Children's Investment Fund Foundation, the project will transform measurement in Bangladesh and Tanzania.

An independent panel led by the School and Harvard issued a hard hitting analysis on the global response to Ebola and offered 10 major reform proposals to prevent future such catastrophes. The report generated more than 1,000 news stories around the world.

December

A five-year research partnership led by Polly Roy with the University of California Los Angeles has revealed the atomic-level structure of the bluetongue virus, published in *Nature Structural & Molecular Biology*. In a separate paper in *PLOS Pathogens*, she showed for the first time how the genomes of multi-segmented viruses are expressed.



Courtesy of Polly Roy

Research: building strategic partnerships



Professor Dame Anne Mills
DCMG CBE FMedSci FRS
Deputy Director and Provost

The School's research encompasses a spectrum from fundamental laboratory research in infectious diseases and studies of disease causation, through development and assessment of novel interventions and services, to advising on implementation in real life settings of interventions, service and system reforms, and evaluation that informs policy and practice.

We work with a range of partners at every stage; these include research collaborators in other academic settings, clinical and health practitioners, user communities, and public, private and voluntary sector organisations. In 2015, we have focused more on strategic partnerships, both in the UK, including with the Department of Health and Public Health England, and globally,

where research consortia are now being led by strong Southern partners, and we play a supportive and capacity strengthening role.

UK Department of Health research units

Our Faculty of Public Health and Policy hosts three research centres funded by the Department of Health, all of which are implemented in collaboration with partners across the UK.

The [Policy Innovation Research Unit](#) was established to undertake a wide range of evaluations of national pilots, trailblazers and other key innovations in health and social care policy. In 2015, a series of reports were published evaluating the Public Health Responsibility Deal, a public-private partnership in which public and private organisations commit to pledges to improve health in the fields of food, alcohol, physical activity and health at work. The findings in these publications, which have attracted considerable attention from policy makers and media, include:

- The Responsibility Deal pledges tended to focus on less effective interventions, such as information labelling and relying on consumer behaviour change
- Most participant organisations committed to actions that they would have undertaken without the Deal
- Implementation plans were not precisely specified and progress was poorly reported
- There were no clear rewards for success or sanctions for failure embedded in the partnership

The Unit has now been commissioned to undertake a major long-term evaluation of England's integrated care pioneers and an evaluation of the UK's Antimicrobial Resistance Strategy.

The [Policy Research Unit in Commissioning and Health Systems](#) studies the development of healthcare commissioning and related systems in the NHS in England. This year, two major studies were completed: one concerning the value of the participation of GPs in clinical commissioning groups; and the other examining the allocation of financial risk in contracts with healthcare providers. The Unit also continued research on the organisation of public health within local authorities and the NHS, and published a review of the literature on the relationship between GPs and other healthcare providers in the community.

Our [School for Public Health Research](#) pioneered a programme of evaluative research with practitioners on a range of local alcohol policies aimed at reducing alcohol availability, such as the withdrawal from sale of high strength alcohol, and this work has been instrumental in providing an objective empirical evidence base for policymakers in local government, the Home Office, Department of Health and Public Health England.



Southern Africa

The School has continued to build upon a key academic partnership with the [Africa Centre for Population Health](#). The Centre is located in rural South Africa, where HIV prevalence is very high and tuberculosis, particularly drug-resistant tuberculosis, is a leading cause of disease and death.

The Africa Centre research strategy has been refreshed under the new directorship of Deenan Pillay, from UCL. School staff are leading two new research programmes at the Africa Centre. One, led by Alison Grant, aims to understand the drivers of tuberculosis and drug-resistant tuberculosis transmission, and how to interrupt transmission. The second, led by Janet Seeley, will investigate how the characteristics of a 'society in transition', such as migration, diversity, an ageing population and inequality, impact on health and well-being.

[Healthy Adolescents & Young Adults](#), a new partnership between the School's Centre for Maternal, Adolescent Reproductive & Child Health and the Africa Centre, with funding from Viiv and directed by Jane Ferguson, provides an interdisciplinary forum to undertake and promote research and capacity on adolescent health across sub-Saharan Africa.



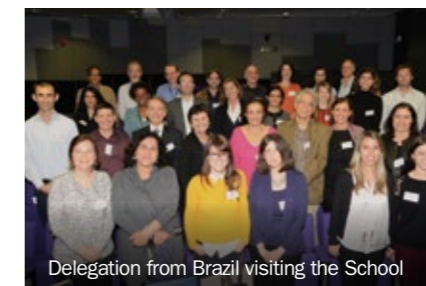
Courtesy of Raising Voices

Japan

The School's partnership with Nagasaki University has gone from strength to strength in 2015, culminating in the opening in October of the new building for the [Institute of Tropical Medicine and Global Health](#). John Edmunds is leading on partnership activities for the School, and Sharon Cox and Chris Parry have been appointed as joint academics based in the Institute. Earlier in the year, research workshops were held in Nagasaki and London, and several projects initiated. These include a Gates-funded trial of reduced-dose pneumococcal vaccination strategies in Vietnam, led by Lay Myint from Nagasaki, with Stefan Flasche and Kim Mulholland at the School. This trial promises to be very important, as many middle income countries have not introduced conjugate pneumococcal vaccines because of their high cost. Two successful short courses were held in Nagasaki over the summer, on Clinical Trials and on Epidemiology and Statistics; this is also being run there as a Master's module.

Latin America

The School has a growing network of collaborations in Latin America, and our report, [Improving Health in Latin America](#), was launched at the end of 2014. We have developed strategic partnerships with three leading institutions in Brazil – the Oswaldo Cruz Foundation, Universidade de Sao Paulo, and Universidade Federal da Bahia. This initiative, led by Laura Rodrigues and colleagues, has resulted in an active exchange with Brazilian partners, including visiting professorships, joint meetings and showcases of research collaborations at respective Embassies, and has brought increasing funding for both research and masters and doctoral training through Science without Borders and the UK government's Newton Fund and Science and Innovation Network.



Delegation from Brazil visiting the School

India

Chronic conditions are now the leading cause of death in India, accounting for more than five million deaths each year, and they are also a leading cause of disability. A new international partnership has been set up to tackle the growing health crisis of chronic conditions such as heart disease, diabetes, cancer, and mental illness. The [Centre for Control of Chronic Conditions](#) was launched in April 2015, with a vision to generate world-class knowledge which can impact policy and practice aimed at reducing the burden of chronic conditions in India and beyond.

The Centre is a partnership between the Public Health Foundation of India, All India Institute of Medical Sciences, Emory University, and the London School of Hygiene & Tropical Medicine. The Directors are Vikram Patel and Dorairaj Prabhakaran, who holds a joint Chair at PHFI and the School.



Professor Anne Mills launched the Centre with Shri Y.S. Chowdary, India's Minister of State for Science and Technology and Professor K. Srinath Reddy, Director of Public Health Foundation of India. Photo courtesy of PHFI

Education: learning and teaching



Professor Della Freeth
Pro-Director (Learning and Teaching)

for the Association of Learning Technology's Learning Technologist of the Year Award.

Our next two MOOCs, *Improving the Health of Women, Children and Adolescents: from Evidence to Action* and *Global Blindness: Planning and Managing Eye Care Services* were similarly multidisciplinary in their creation and delivery. They grew out of the educational, research, clinical and service development expertise of two of the School's Centres: The Centre for Maternal, Adolescent, Reproductive and Child Health and the International Centre for Eye Health. Each benefitted from staff expertise developed in traditional education provision and both supported innovations that will now enhance our traditional education courses.

Student voice

The School places great importance on listening to students' feedback and ideas. The Director and senior staff host a termly lunch and discussion forum for student representatives in London. The Student Representative Council was very active during 2014/15. The School participated in the biennial Postgraduate Research Experience Survey and annual Postgraduate Taught Experience Survey. These national surveys provide benchmarked results that help to identify and celebrate the strengths of our education provision, and pinpoint areas where we plan to undertake targeted development in 2015/16.



Student Representative Council executive committee 2014/15

New leadership

In 2015, Stuart Anderson retired from his role as acting Dean for Education, having provided transitional leadership while the School created two new senior leadership roles: Della Freeth has taken up her post as Pro-Director (Learning and Teaching) to hold leadership responsibility for the strategic development the School's education provision and maintain oversight of its operational delivery. John Peck has joined the School as Academic Registrar, providing leadership of the School's student-facing support services and supporting the work of the Pro-Director.

The School's education provision continues to be vibrant and relevant. Applications to the School's MSc degrees, research degrees (PhD, DrPH and MPhil) and short courses for professional development increased substantially in 2014/15.

Surpassing this, the biggest surge in engagement with the School's high quality learning opportunities was due to the launches of our first three MOOCs (Massive Open Online Courses) during 2015. These free online courses, lasting three or six weeks, fulfil important professional learning needs for people who might not be able to participate in the School's traditional London-based or distance learning programmes. They also serve as engaging and inspiring 'tasters' for the School's work.

The School's first MOOC *Ebola in Context: Understanding Transmission, Response and Control* launched in January 2015, with contributions from clinicians, laboratory scientists, epidemiologists, anthropologists, health services researchers and others. This MOOC proved to be record-breaking for the host platform, FutureLearn. Our first run of the Ebola MOOC attracted over 18,000 registrants from 185 countries and territories, with very good representation from low and middle income countries. Worldwide, MOOC participation is characterised by high numbers of initial registrations followed within a week by a sharp decline. In contrast, our MOOC sustained participation, with substantially above average completion rate and record-breaking certification rates. The MOOC ran twice more during 2015 and was short-listed

Studentships and scholarships



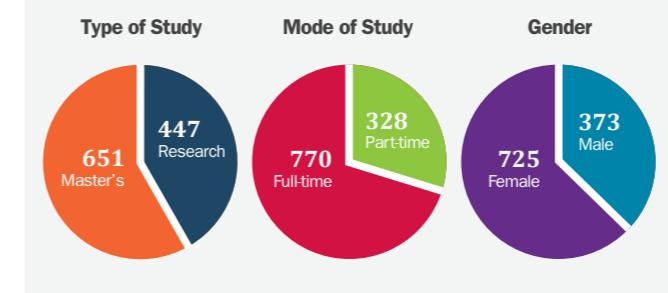
Graduation ceremony, courtesy of Robert Irving

The School continues to attract new studentships, with generous awards, gifts and pledges from the China Medical Board, the Saïd Foundation and the Shauna Gosling Trust, among others.

We continued to grow our partnerships with prestigious government scholarship schemes, including Marshall Partnership Scholarships, Chevening Partnership Scholarships and Commonwealth Shared Scholarships. A new trilateral partnership with the Open Society and the Chevening Partnership Scholarships programme will provide up to eight new scholarships each year until 2018/19 for up to 24 exceptional students to undertake Master's degrees at the School.

In October 2015, we launched The London Intercollegiate Doctoral Training Partnership, funded by the Medical Research Council and in partnership with St George's, University of London, to provide at least 10 studentships each year for high-quality PhD training across the spectrum of biomedical and public health research. Such partnerships are essential to attract and support top-flight students who would not otherwise have the means to undertake postgraduate study.

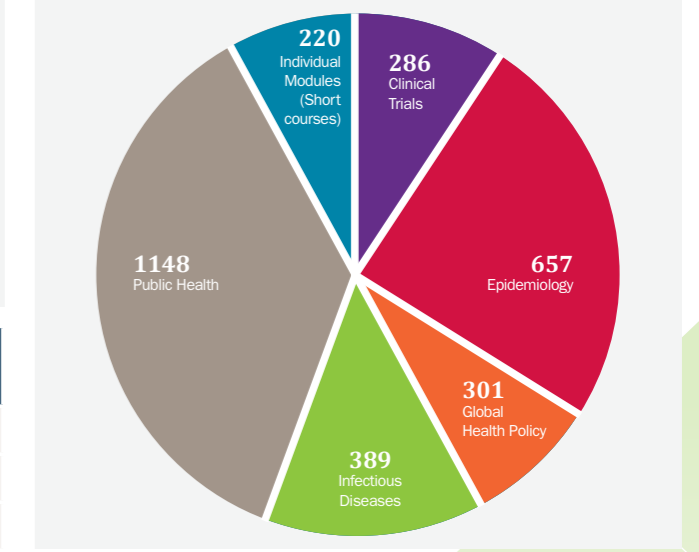
TOTAL LONDON-BASED STUDENTS 2015/16 1098



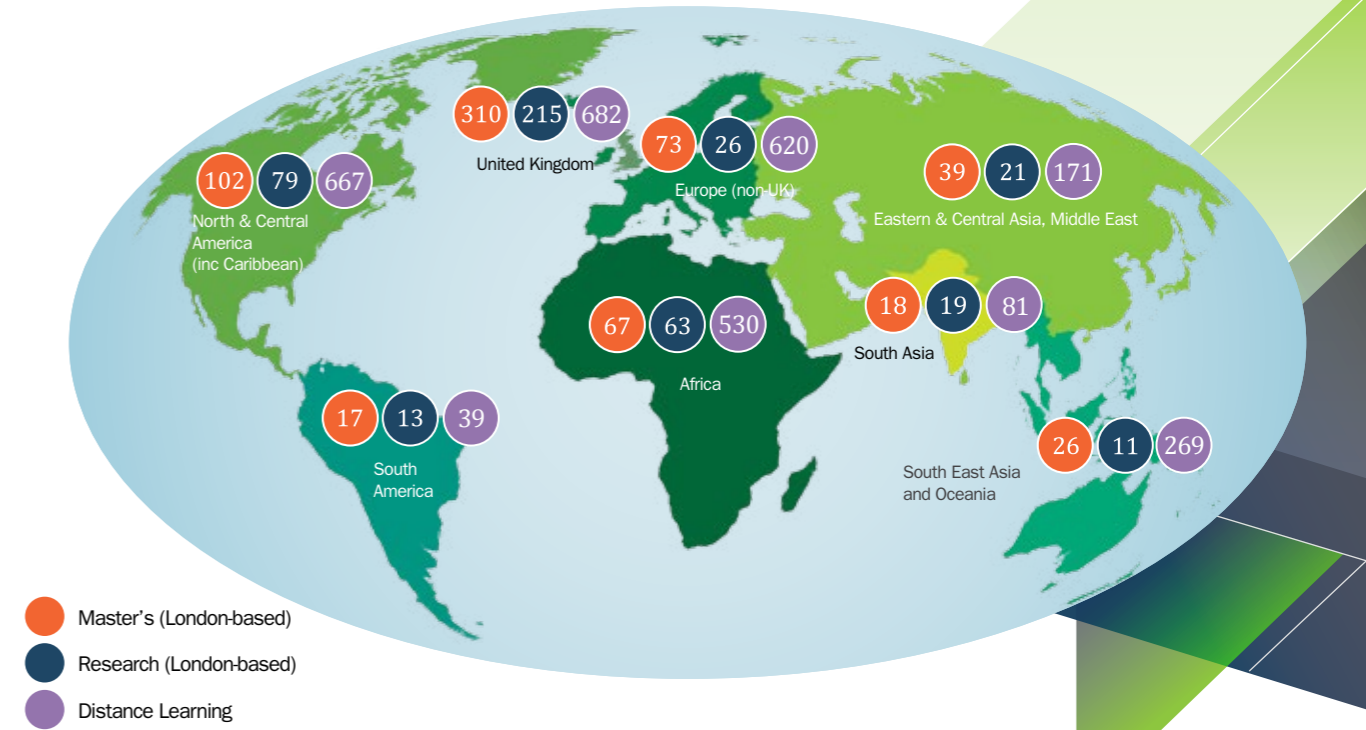
RESEARCH DEGREE STUDENTS BY FACULTY 2015/16 447

Epidemiology and Population Health	160
Infectious and Tropical Diseases	135
Public Health and Policy	152

DISTANCE LEARNING STUDENTS 2015/16 3001



Student numbers by region of origin 2015/16



SHORT COURSES RUN IN 2014/15 Total number of participants: 998

Adolescent Health in Low and Middle Income Countries	Infectious Disease Modelling
Advanced Course in Epidemiological Analysis	Intensive Course in Epidemiology and Medical Statistics
Advanced Stata: Programming and Other Techniques	Issues in Global Non-Communicable Diseases
Cancer Survival: Principles, Methods and Applications	Laboratory Diagnosis of Malaria
Causal Inference in Epidemiology	Laboratory Diagnosis of Parasites
Certificate in Pharmacoepidemiology & Pharmacovigilance	Methods for Addressing Selection Bias in Health Economic Evaluation
Clinical Trials	Model Fitting and Inference for Infectious Diseases Dynamics
Design and Analysis of Discrete Choice Experiments	MSc Modules
Diploma in Tropical Medicine and Hygiene	Pathogen Genomics & Genomic Epidemiology of Infectious Disease
Diploma in Tropical Nursing	Practical Pharmacoepidemiology
East African Diploma in Tropical Medicine and Hygiene	Researching Gender-based Violence: Methods and Meaning
Epidemiological Evaluation of Vaccines: Efficacy, Safety and Policy	Statistical Analysis with Missing Data Using Multiple Imputation
Factor Analysis & Structural Equation Modelling	Systematic Reviews and Meta-Analyses of Health Research

Knowledge translation and innovation

Alongside research and education, the School is working to translate its specialist knowledge into innovative products, services, contract research and consultancy. We encourage innovation and provide a supportive environment for ideas to flourish and develop into contributions for improving people's lives and health worldwide.

Our aim is to maximise the impact and benefit of research through expanding areas of application, exploiting our expertise and setting up responsible partnerships with industry and governments, for example in translational medicine and evaluation.



Richard Benson, Professor Simon Croft, Ann Fazakerley and Andrew Young lead on knowledge translation

Chariot Innovations

Chariot Innovations Limited, a wholly-owned subsidiary of the School, was set up to focus on commercially-viable knowledge translation activities, and to strengthen business development, including the

School's intellectual property portfolio. Chariot Innovations is a separate entity, acting as an incubator for innovation in the School, bridging the gap between research and enterprise and ensuring appropriate checks and balances are in place. Over the past year, we have developed a robust governance structure and business plan, and are now working with researchers to translate ideas into successful products and services.

Arthropod control product testing

In 2015, our [Arthropod Control Product Test Centre](#) (arctec) continued to expand, and it is now established as a world-leading independent test centre for consultancy and the evaluation and development of arthropod pest control technologies. arctec provides rigorous clinical trials, laboratory and field testing of products including insect repellents, head lice treatments, insecticides and insecticide-impregnated textiles.

The team works closely with regulatory authorities including the Health and Safety Executive and provides a high quality scientific service to ensure that accurate data are used to inform decisions about which products should be promoted for use, to protect people against insects that transmit disease.

Also in 2015, we established Vecotech Limited specifically to develop and commercialise novel arthropod attractant and repellent technologies discovered by researchers based at the School.



Bedbug, courtesy of arctec



Scanning electron micrograph of a bedbug, courtesy of CDC /Janice Haney Carr



Team photo, courtesy of arctec

Public engagement

Another major area of our knowledge translation strategy is to communicate with the general public about our research, and to increase understanding and facilitate greater participation and debate around science and health.

Through [our public engagement strategy](#), coordinated by Vickie Bazalgette, we have developed a rich programme of activities to stimulate discussions around public health, to support staff and students engaging with a diverse range of groups from health service users and their carers to local residents and school children, and to use this learning and feedback to inform research.



Young Scientists group, July 2015

Giving young people an insight into the research process to help inform their future career choices is a key part of our work. During the 2014/15 academic year, the School hosted 29 school pupils for work experience through the School's Young Scientists Programme. A further 26 pupils took up placements supervised by individual members of staff. School staff and students have reached more than 5,800 pupils at primary and secondary school events, giving interactive talks on subjects including antimicrobial resistance, disease vectors, public perceptions of vaccines, insect life cycles and maternal health.

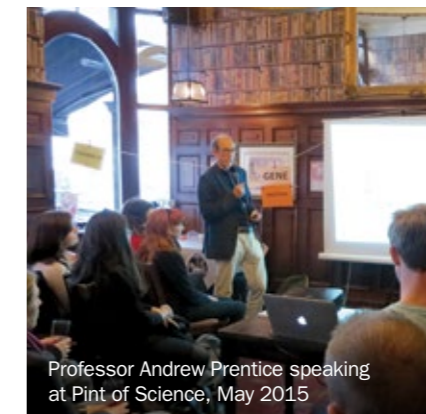
We worked with cultural organisations and festivals to foster conversations about our research with audiences beyond the academic community. As part of the international 'Pint of Science' Festival in May, six researchers presented three exciting evenings of science in pubs, bringing cutting-edge research to life in areas such as public health mapping, antimicrobial resistance, and epigenetics with demonstrations involving the audiences.

At the Cheltenham Science Festival in June, more than 800 people took part in the interactive events hosted by the School's Centre for the Mathematical Modelling of

Infectious Diseases and our NIHR Health Protection Research Unit in Immunisation, exploring how mathematical modelling can predict infection spread. Our researchers also seeded a 'pegademic' – a disease spread by a 'clothes peg pathogen' – to demonstrate how an infection can spread in a well-populated place.

School researchers spoke about their work at Science Museum Late events for adult audiences, and Wellcome Collection Packed Lunch events throughout the year. We were also invited to collaborate on the British Museum's public programme, contributing two lectures to its 'Celebrating Africa' summer events season, themed around the new Sustainable Development Goals.

2015 has been an exciting year for the development of public engagement projects that stimulate dialogue around research projects both in the UK and overseas. Rashida Ferrand and Adam Kucharski were awarded an International Engagement Award and a People Award respectively from the Wellcome Trust.



Professor Andrew Prentice speaking at Pint of Science, May 2015

Rashida Ferrand, an HIV clinical specialist and epidemiologist, has worked with young people in Harare, their families and healthcare workers, to make a film based on their experiences. It is being used to frame discussions with local communities about the challenges faced by HIV-infected adolescents, and to help develop solutions.

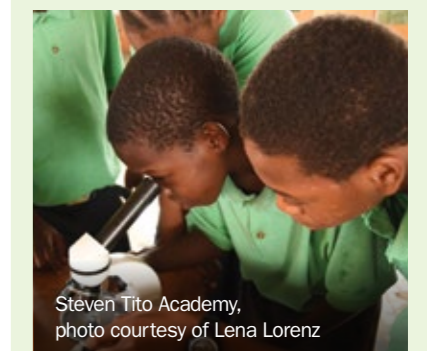
Adam Kucharski's project aimed to bridge the gap between university research and the public by enabling school students to explore the questions surrounding research into infectious disease outbreaks. Students conducted their own projects to investigate social contact networks at their schools, and helped researchers to design a range of teaching resources for schools that explore how maths can be used to analyse how infectious diseases spread.

Public Engagement Leadership programme

Heads of the Departments of Disease Control and Clinical Research, Joanna Schellenberg and Philippe Mayaud, launched a small grants scheme to encourage staff and research degree students to develop and deliver public engagement activities in the UK and overseas, with funding from the Wellcome Trust's Public Engagement Leadership programme. Four grants were awarded this year:

Sham Lal is running activities for secondary school students at the London Metropolitan Archives, using original Victorian maps to explore how the smallpox epidemics in the 19th Century spread and were eventually brought under control.

Lena Lorenz is working with Tanzanian school children to explore the questions "What makes you happy and healthy? What makes you sick?" using photography and painting.



Steven Tito Academy, photo courtesy of Lena Lorenz

Sarah-Lou Bailey is running workshops in Zambia which allow people living with diabetes to share stories about living with diabetes, reflections that will be captured by local cartoonists to share with wider audiences.

Ewan Hunter is organising workshops in Tanzania for the parents and teachers of children with epilepsy, to explore suggestions for educational programmes that will help improve access to mainstream education for these children.

Our people: diversity, engagement and achievement

The London School of Hygiene & Tropical Medicine embraces and values the diversity of its staff and student population and seeks to promote equality as an essential element in enhancing the School's contribution to improving health worldwide.

The School has a very high proportion of female staff at all levels, and in recent years, we have focused on both working environment and career development. Building on family-friendly policies, in 2015 our Faculty of Public Health and Policy was successful in achieving the Athena SWAN Silver award. This year, we have continued to develop the School's participation in the Aurora leadership development initiative for women, run by the Leadership Foundation for Higher Education. Investment in IT is helping improve remote and flexible working.

We also reaffirmed our commitment to equality and diversity as a Stonewall Diversity Champion. The School has an active lesbian, gay, bisexual and transgender (LGBT) and friends group. Staff and students have organised LGBT-related social, support and academic activities, and there has been a lively programme of meetings and events.

Our work all over the world is reflected in the ethnic diversity of our staff, and in October 2015, we celebrated Black History Month at the School with a series of well-attended events and lectures.

The School holds the Two Ticks for Disability symbol and we have been working to improve the accessibility of our facilities. These initiatives and others are organised through the School's active Equality and Diversity committee, with staff and student volunteers from across the School.



Dr Margaret Chan, WHO Director General, gave our Women in Science Lecture, March 2015

Sharing ideas and strengthening skills

As the School's worldwide activity expands, an increasing number of staff – currently more than 120 – are based overseas, some in countries and regions which have faced security issues. In 2015, we introduced new travel policies to safeguard our staff and students, wherever they are working. Some of our international staff, particularly those on joint or part-time contracts, have been adversely affected by changes to the UK visa system. We have been engaging with the Home Office and ministers across UK government to seek to address these issues.

In late September, many overseas staff joined those here at the School for our Annual LSHTM Week, entitled 'Sharing Ideas, Strengthening Skills', which included a range of research meetings, inaugural lectures, funders' talks, an overseas staff forum and training. The week also coincided with our International Students Welcome weekend, for new students arriving in London.

Improving our working environment and careers development

In 2015, we have continued to make progress improving the School's management and administration systems, with enhanced structures for Faculty management, training for academic and service managers, and career development for professional services staff across the School.



The School's staff development programme supports this commitment through a number of initiatives, several of which have been introduced this year. The School's Postgraduate Certificate in Learning and Teaching was re-accredited by the Higher Education Academy and our Senate. A new appraisal scheme, the Performance Development Review, was consulted on, piloted and implemented across the school.

An institution-wide mentoring scheme for all staff has been launched and a programme of unconscious bias training has been rolled out, supporting the School's commitment to equality and diversity.

Honours and Prizes won by staff in 2015

January: Professor Anne Mills, Deputy Director and Provost, made a Dame in the Queen's New Year Honours list in recognition of her services to international health. Professor Chris Whitty made Companion of the Order of the Bath for public and voluntary service to Tropical Medicine in the UK and Africa.

March: Professor Peter Piot awarded the Canada Gairdner Global Health Award for his work on the Ebola virus and leadership in the global response to the HIV/AIDS epidemic. In April he was awarded the the Robert Koch Gold Medal for his work on the worldwide prevention of infectious diseases.

April: Professor Vikram Patel named in *TIME* magazine's 2015 list of the 100 most influential people in the world.

May: Professor Charlotte Watts elected a Fellow of the US Academy of Medical Sciences.

June: Professor Laura Rodrigues elected a Fellow of the Brazilian Academy of Sciences, in recognition of her excellence in vaccine evaluation and the epidemiology of infectious diseases.

July: Professor Nick Black, Professor David Heymann and Dr Ben Goldacre named among the *Health Service Journal* list of top 100 Clinical Leaders in 2015.

August: Professor Vikram Patel awarded a prestigious five-year Principal Researcher Fellowship by the Wellcome Trust.

November: Professor Joy Lawn awarded the Sheth Distinguished International Alumni Award from Emory University.

December: Professor Brian Greenwood awarded the Medical Research Council's Millennium Medal.



Professor Sir Brian Greenwood, courtesy of MRC

Professor Peter Piot awarded the Inserm International Prize by Institut National de la Santé et de la Recherche Médicale, Paris.

Professor John Edmunds named OBE in the Queen's New Year Honours list for services to infectious disease control, particularly the Ebola crisis response in West Africa.

Staff Survey 2015: results and next steps

The School is an "employer of choice", according to the results of our Staff Survey, conducted in Summer 2015.

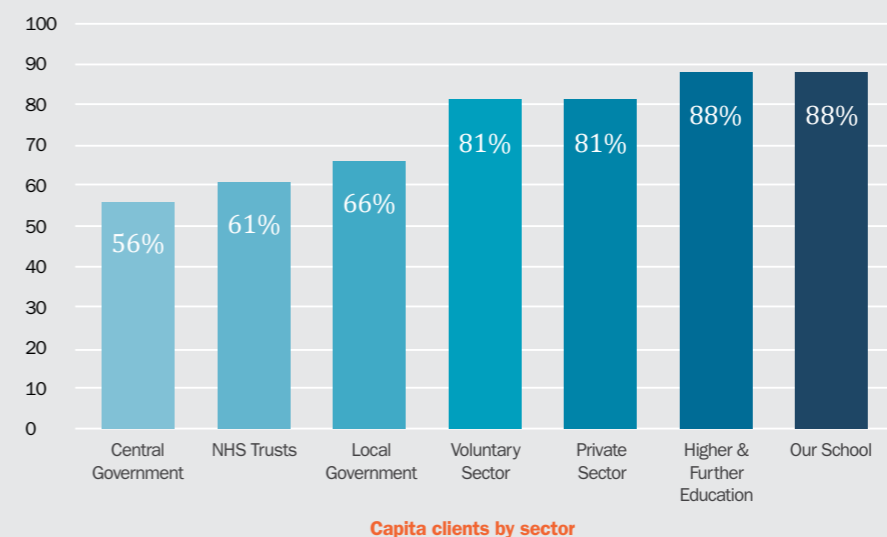
952 staff completed the survey, a 68% response rate. An impressive 88% of staff agreed that the School "is a good place to work". This equals the benchmark for the higher and further education sector and is significantly higher than all other sectors. Overall, the School ranked 36th out of 335 public and private sector organisations, and 17th out of 41 higher and further education institutions surveyed by Capita during the past 12 months.

95% of respondents agreed "I feel proud to work for the School" and 96% agreed that "I feel safe and secure in my working environment". Proportions of staff saying they experienced bullying, harassment or discrimination were much lower than sector averages.

Despite excellent outcomes in these and many other areas, we recognise that there are some key areas we need to improve, and a School-wide human resources strategy, along with action plans to address the key areas for improvement, was agreed by the senior leadership team in December.

Is this organisation a good place to work?

% of respondents who agree/tend to agree



Capita clients by sector



Participants in the Aurora leadership development initiative





Faculty Review: Epidemiology and Population Health

KEY DATA

Dean of Faculty:

Professor John Edmunds
Number of staff total: 392
Academic: 300
Professional support: 92

Departments

Department of Infectious Disease Epidemiology

Head: Dr Véronique Filippi

Department of Population Health

Head: Professor Basia Zaba

Department of Medical Statistics

Head: Professor Neil Pearce

Department of Non-communicable Disease Epidemiology

Head: Professor Liam Smeeth

Research Degrees Directors

Professor Suzanne Filteau and
 Professor Simon Cousens

Taught Course Director

Craig Higgins

New grants awarded in 2014/15: top five by total value

1. Innovative Medicines Initiative
 2 Joint Undertaking - Ebola vaccination deployment and communication strategy – Heidi Larson:
EURO 20.3 million
2. Merck for Mothers evaluation projects – Caroline Lynch with Catherine Goodman (PHP):
US \$9.9 million
3. Catholic Relief Services - Achieving catalytic expansion of seasonal malaria chemoprevention in the Sahel – Paul Milligan:
US \$6.7 million
4. Medical Research Council - The CRASH-3 Trial: Tranexamic acid for the treatment of significant traumatic brain injury – Ian Roberts:
£2.2 million
5. Wellcome Trust - Supporting Research in the Ebola Epidemic Region - James Whitworth:
£1.5 million



Professor John Edmunds

Epidemiology and population sciences are changing. A wealth of new data from electronic health records, genome sequencing and other sources is transforming how we conduct and analyse studies. Researchers within our Faculty are at the forefront of these changes.

The availability of sequence data has provided new insights into infectious disease epidemiology, as the genetic relatedness of pathogens indicates possible transmission routes. Although much can be inferred from genome sequence data alone, many more insights are gained when this is combined with detailed epidemiological work. A very nice example of this approach is a recent



Active TB case finding in Malawi, courtesy of Liz Corbett

study from Karonga in Northern Malawi. The team, led by Judith Glynn, sequenced every available isolate of tuberculosis found over a 15 year period in the study area, more than 1,700 cases in total. By combining this with disease and demographic data collected over the study period, they were able to construct networks of how the bacteria spread through the community. They also found that the amount of transmission from recent infection had declined, indicating that control efforts had been successful.

More traditional forms of data collection continue, and some of these studies can also be very large. The CONCORD-2 study is an impressive example of this. The Cancer Research UK Cancer Survival Group, based in our Faculty, collected follow-up data on 10 different cancers from 279 population-based cancer registries covering 67 countries. In total, they amassed nearly 26 million individual patient records. Their most recent paper, published in *The Lancet*, demonstrated shocking differences in cancer survival across the world. Even within Europe there are large disparities; for instance five-year net survival for women with breast cancer was 86% in Norway, but only 72% in Slovakia. The findings have clear implications for public health and clinical practice, and the group is already taking forward plans to investigate the underlying causes of this variation and to update and expand their study further.

One of the best ways to judge the strength of the Faculty is to look at our success rate at obtaining competitive personal fellowships. In recent years, we have been highly successful at obtaining such awards, with 20 since 2013. In 2015, Rhian Daniel and Krishnan Bhaskaran were both awarded prestigious Sir Henry Dale Fellowships for mid-career researchers by the Wellcome

Trust. Rhian's research focuses on developing statistical methods for analysing genetic associations with chronic diseases, and Krishnan will use his fellowship to investigate cardiovascular disease in cancer survivors.

Ruth Keogh was awarded a mid-career fellowship from the Medical Research Council to develop new methods to predict survival, which she intends to apply to data from US and UK cystic fibrosis registries. Adrian Root was awarded a Medical Research Council Population Health Fellowship to look at potential unintended adverse events arising from taking multiple drugs. Sarah-Jo Sinnott is using her Sir Henry Wellcome Fellowship to examine optimal treatment choice in adults requiring multiple drugs to control their blood pressure, which is one of the key research recommendations from the National Institute for Health and Care Excellence hypertension clinical guidelines. Baptiste Laurent was awarded a National Institute for Health Research Doctoral Training fellowship to look at how new ways to cope with missing data can be incorporated into economic analyses based on clinical trials.

Among our more senior staff, Neil Pearce was awarded a European Research Council Advanced Grant to take forward his work on the epidemiology of asthma. By collecting detailed clinical and “-omics” data from asthma cases and controls from a number of different countries, he aims to identify the different causes of asthma and open the way to new therapeutic measures. Vikram Patel was awarded the highly prestigious Wellcome Trust Principal Research Fellowship, which provides long-term support to carry out his ground-breaking work on developing and evaluating psychological treatments delivered by lay health workers, as well as to expand pioneering projects on adolescent mental health. In April, Vikram was named as one of the world's 100 most influential people of the year by *TIME* Magazine.



Professor Vikram Patel speaking at TEDxLSHTM in October. Vikram was named as one of the world's 100 most influential people of the year by *TIME* Magazine



Courtesy of Tina Bonde Sørensen

As the devastating Ebola epidemic in West Africa wore on, the focus for the Faculty shifted more from the humanitarian response towards research. The Centre for the Mathematical Modelling of Infectious Diseases, in particular, was very active, providing real-time projections of the epidemic for many different organisations to use, assessing the impact of different policies, such as expanding treatment facilities, and helping to design and analyse vaccine trials.

This included work on the World Health Organization's Guinea vaccine trial, Although at the time of writing the trial is continuing, the interim results, published in *The Lancet* in July, were extremely encouraging, with the vaccine appearing to offer 100% protection in the primary analysis. This trial, and other work on vaccines, such as EBOVAC, offer hope that we will be able to respond much more effectively and safely to the next Ebola outbreak.

Faculty Review: Infectious and Tropical Diseases

KEY DATA

Dean of Faculty:

Professor Brendan Wren

Associate Dean:

Professor David Mabey

Number of staff total: 386

Academic: 272

Professional support: 114

Departments

Department of Clinical Research

Head: Professor Philippe Mayaud

Department of Disease Control

Head: Professor Joanna Schellenberg

Department of Immunology and Infection

Head: Dr Colin Sutherland

Department of Pathogen Molecular Biology

Head: Professor David Conway

Research Degrees Directors

Dr Ron Behrens & Dr Jayne Webster

Taught Course Director

Dr Graham Clark

New grants awarded in 2014/15: top six by total value

1. Innovative Medicines Initiative 2 Joint Undertaking for Ebola vaccine trials – Deborah Watson-Jones: **EURO 58.3 million**
2. UK Department for International Development - Data For Decision Making - David Schellenberg: **£4.2 million**
3. Medical Research Council - Rapid Urine-Based Screening for Tuberculosis to Reduce AIDS-Related Mortality in Hospitalized Patients in Africa - Stephen Lawn: **£2.1 million**
4. USAID - Translating Research Into Action - Oliver Cumming: **US \$2.0 million**
5. Medical Research Council - Dissecting the Red Blood Cell Invasion Pathways of the Malaria Parasite *Plasmodium knowlesi* - Robert Moon: **£1.1 million**
6. European Research Council - Translational regulation in the persistence and drug susceptibility of *Mycobacterium tuberculosis* – Theresa Cortes: **EURO 1.5 million**



Professor Brendan Wren

Over the past year, the Faculty has made significant breakthroughs in the design of effective inexpensive veterinary vaccines. These are based on innovative technology platforms, which include the use of viral-like particles and the recombinant development of glycoconjugate vaccines that can protect livestock against several diseases simultaneously. This not only prevents disease in the animal but can also prevent zoonotic transfer of disease to humans. Additionally, effective vaccines in livestock should minimise antibiotics in the food chain.

Antimicrobial resistance

The increasing focus within the Faculty on antimicrobial resistance reflects increasing public awareness of this problem, as highlighted by the UK chief medical officer Dame Sally Davies. In 2014, the public voted to dedicate the £10 million Longitude prize to the challenge of antibiotic resistance, and the School's Director Peter Piot is a co-chair of the Prize Committee. This year antimicrobial resistance was added to the Bill & Melinda Gates Foundation's list of Grand Challenges. While antibiotics are estimated to add an average of 20 years to the human life span, the combination of a lack of investment in the development of new antimicrobials, and the rise of multi-drug resistant pathogens, mean that we are facing the threat of virtually untreatable infections.



Assessing trachoma in infants, courtesy of Anna Last

Within the Faculty, research into multi-drug resistant bacteria covers all aspects from basic research to novel antimicrobials. For example, *Acinetobacter baumannii* is an opportunistic bacterial pathogen of patients in intensive care units that rapidly acquires and develops resistance to many classes of antibiotics. Carbapenems, often a drug of last resort for several important Gram-negative pathogens, were once very active against *A. baumannii*. This emerging resistance has led to the reintroduction of colistin, an antibiotic from the 1950s. Research in the Faculty has focussed on both on the genetic mechanisms behind colistin resistance in *A. baumannii* and the emergence and management of carbapenem-resistant clones.

The rise of multi-drug resistant tuberculosis is a major global concern and as such has been focus of faculty research for many years. Multi-drug resistant TB strains have now developed resistance to fluoroquinolones and aminoglycosides, resulting in extensively drug resistant TB strains. Rapid identification of the resistance profile is essential to the selection of appropriate chemotherapy. Faculty research has used Genomics to design a web-based tool that can produce a rapid, accurate predictor of resistance phenotypes and epidemiological information.



Students in the teaching laboratories

Work within the Faculty has also investigated eukaryote antimicrobial resistance, with a particular focus on malaria. Evidence suggests that the African malaria parasite is developing resistance to the most effective drug available, Artemisinin. Our research has shown that mutations in the gene *Ap2mu* results in reduced sensitivity to the drug. These findings will be used to understand resistance of malaria and for monitoring malaria treatment in the future.

Faculty staff have also initiated a new Antimicrobial Resistance Interest Group within the School, to bring together researchers interested in antimicrobial resistance from both basic and social science and modelling with the aim of facilitating innovative research.

In December, the Biotechnology and Biological Sciences Research Council announced the award of a £5.7 million strategic grant to research low-cost and effective vaccines for poultry to minimise antibiotics in the food chain and reduce infections in humans.

Ebola vaccine trials

Developing effective vaccines against Ebola is a global public health priority. To date, there is no licensed vaccine, treatment or cure for the Ebola virus, so new ways to prevent the spread of the disease are urgently needed.

Faced with the urgent public health need posed by the recent Ebola outbreak in West Africa, the development of candidate vaccines has been accelerated. The EBOVAC1 project (Development of a Prophylactic Ebola Vaccine using a Heterologous Prime-boost regimen), coordinated by the London School of Hygiene & Tropical Medicine, comprises a series of clinical trials in Europe and Africa which are assessing the safety, tolerability and immunogenicity of a novel prime-boost Ebola vaccine regimen (Ad26.ZEBOV and MVA-BN-Filo). The trials are being conducted by School researchers coordinated by Deborah Watson-Jones and Brian Greenwood, in collaboration with Janssen Pharmaceuticals, University of Oxford and the French Institut National de la Santé et de la Recherche Médicale. The consortium is funded under the European Union's Innovative Medicine Initiative.

Phase 1 trials are being carried out in the UK and several non-affected countries in Africa. These trials are gathering preliminary information on the safety and tolerability of the vaccine regimen, and the immune response generated by the regimen will also be evaluated longer term.

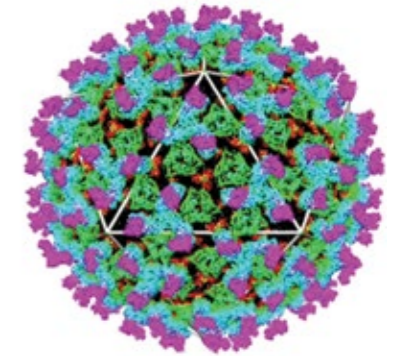


EBOVAC launch in Sierra Leone, courtesy of Alexandra Donaldson

A large-scale safety and immunogenicity study is also underway in Kambia district in northern Sierra Leone. This study is gathering information on the regimen's safety and immunogenicity in a population affected by Ebola, including in specific groups such as adolescents and children.

Viral structures

Faculty researchers have continued to make breakthroughs in our understanding of the structure and genomics of viruses, with two papers published in December. One, in *Nature Structural & Molecular Biology*, revealed the atomic-level structure of the bluetongue virus. The second, published in *PLoS Pathogens*, showed for the first time how viruses with multi-segmented genomes package a correct set of genes in the infected cells.



Bluetongue virus structure, courtesy of Polly Roy

Concordat on animal research

The School, together with more than 70 other leading research institutes and funding agencies in the UK, is a signatory to the Concordat on Openness on Animal Research. To understand the basic biology and progression of diseases such as malaria and tuberculosis, which kill millions of people every year, and to design new strategies for their prevention and treatment, research using animals is essential. The majority of research in the Faculty does not involve animals, and in the small proportion of cases where researchers work with animals within our specialist facility, small laboratory rodents - mostly mice - are the only animals used.



Faculty Review: Public Health and Policy

KEY DATA

Dean of Faculty:

Professor Richard Smith

Associate Dean, Research:

Professor Kara Hanson

Number of staff total: 289

Academic: 248

Professional support: 41

Departments

Department of Global Health and Development

Head: Dr Susannah Mayhew

Department of Health Services Research and Policy

Head: Dr Pauline Allen

Department of Social and Environmental Health Research

Head: Professor Tim Rhodes

Research Degrees Director

Professor Judith Green, Dr Nicki Thorogood (Deputy)

Taught Course Director

Dr Hannah Babad

New grants awarded in 2014/15: top five by total value

1. Bill & Melinda Gates Foundation - Methods for Routine HIV Measurement and Surveillance Guidance - James Hargreaves: **US \$3.7 million**
2. UK Department of Health - Evaluation of the Integrated Care and Support Pioneers Programme in the Context of New Funding Arrangements for Integrated Care in England - Nicholas Mays: **£2.0 million**
3. South African Medical Research Council - What works for Violence against Women and Girls Prevention - Lori Heise: **£1.4 million**
4. Wellspring Advisors - Violence against Women Prevention - Charlotte Watts: **US\$ 2.0 million**
5. University of Oxford - Artemisinin Resistant Malaria Research Programme - Shunmay Yeung: **£1.1 million**



Professor Richard Smith

The Faculty of Public Health and Policy continued its mission to improve health globally through research, teaching and engagement in areas of health systems and services, health policy, and the individual, social and environmental determinants of health. This year saw significant profile and policy impact for our research concerning major health issues facing the local population in the UK and the work of the National Health Service.

UK government funded health research units

We host three [Health Protection Research Units](#) in partnership with Public Health England, and have had extensions to our two flagship Department of Health Policy Research Units. Of notable impact this year, members of the Department of Health Services Research and Policy undertook critical work on avoidable deaths in the English NHS to determine the strength of association between excess deaths identified by hospital-wide standardised mortality ratios and avoidable death proportions. This study, the largest nationally representative case record review of hospital deaths in England, confirmed that hospital-wide ratios should not be used to compare hospitals. These findings were published in the *British Medical Journal* and fed into the development of a national programme focused on mortality review, and the introduction of a new national outcome indicator (avoidable deaths due to problems in care), to be rolled out in 2016.

“Members of the Department of Health Services Research and Policy undertook critical work on avoidable deaths in the English NHS.”

Within wider public health, as part of the national School for Public Health Research, staff within the Department for Social and Environmental Health Research have pioneered a programme of evaluative research with practitioners on a range of local policies aimed at reducing alcohol availability, such as cumulative impact zones and voluntary retail initiatives including the withdrawal from sale of high strength alcohol. In this controversial and contentious area, staff from the Faculty have been instrumental in providing an objective empirical evidence base for policymakers in local government, the Home Office the Department of Health and Public Health England.

Health systems research

Health systems research in low and middle income countries continues to be a major area of work in the Faculty. This year, we received substantial new funding for health systems research through a new initiative run jointly by the Medical Research Council, Economic and Social Research Council, the Wellcome Trust and the Department for International Development. Staff from the Department for Global Health and Development were involved in six successful applications, covering a wide range of topics. These included the determinants of health worker performance in Senegal, the impact of district health management in India, lessons from health systems strengthening in maternal and newborn health in China, and the role of the Health Development Army in Ethiopia. Staff from the Department also took a leading role in the “social science approaches for research and engagement in health policy & systems” thematic working group of Health Systems Global.



Girls taking part in the IDEAS maternal and newborn health research project in Ethiopia, courtesy of Neil Spicer

Martin Gorsky of our Department of Social and Environmental Health Research received a prestigious five-year Wellcome Trust Investigator Award in Medical Humanities, to interrogate the intellectual history of the concept of ‘health systems’, which is now so prominent in international health discourse, and examine the ways in which it has been adopted and mobilised within the policy arena.

Ebola response and evaluation

Many Faculty staff were involved in the School’s response to the Ebola outbreak this year. As well as working in the affected countries, staff from the Department of Global Health and Development were centrally involved with the Ebola Response Anthropology Platform, established with funding from the Department for International Development and Wellcome Trust. Drawing on our substantial anthropological expertise, this was widely seen as a “game-changer” within academia and UK government agencies, providing targeted fieldwork and clear, practical and real-time advice about how to engage with socio-cultural and political dimensions of the epidemic and thereby build locally-appropriate interventions. The importance of social sciences in informing engagement with local communities, which was a critical feature of this outbreak, means that this initiative will be extended to provide a resource for future outbreak response and planning.

Engagement with policy and practice

As well as informing policy and practice through our research, we continue to place high value on forging and maintaining close engagement with policy and practitioner communities. In October 2015, Charlotte Watts was seconded to the Department for International Development as Chief Scientific Advisor and Director of the Research and Evidence Division. Also in 2015, Martin McKee began his term of office as President of the European Public Health Association.

At the other end of the career spectrum, our research students won three Economic and Social Research Council CASE Awards this year, which are held jointly with partners outside the university sector, and are a valuable way to build links with policy and practitioner communities. Philip Corran is undertaking a PhD on transport systems, social exclusion and citizenship, with Transport for London, the city’s strategic transport authority; Maddy Gupta-Wright is working with the charity Sightsavers

on a project in Malawi to develop a biosocial approach to blinding trachoma; and Kaat de Corte is working on improving how cost-effectiveness studies are used in recall strategies for whole blood, in collaboration with the UK National Health Service Blood and Transplant Special Health Authority.

Improving our working environment and careers development

Finally, in addition to our research, teaching and engagement, we are also committed to continual improvement of the working environment of the Faculty. We were therefore especially pleased that the Faculty was awarded a Silver Award under the Athena SWAN Charter, which recognises commitment to advancing women’s careers in science, technology, engineering, mathematics and medicine.



Staff and families at the Faculty summer gathering, 2015

During the last few years as a Bronze Award holder we have striven, through extensive consultation with staff, to reflect on our working practices, policies and facilities, and pursued a policy of active improvement, from installing a dedicated fridge to store breast milk, through active CV review to encourage career development, to measures to improve job security. It is testament to the work of those leading this initiative to have such important external validation of these efforts. Although justly proud of the achievement of a Silver Award, they are working hard now towards a Gold Award!

School Centres: progress and highlights in 2015

There are currently 14 [School Centres](#), which are strongly multi-disciplinary, drawing on a diverse range of expertise across the School to address global health challenges.

Bloomsbury Centre for Genetic Epidemiology & Statistics ran monthly seminars on topics including genes and metabolism, public health genomics, and chicken parasites. "Genetics and the Brain", the Centre's 2015 conference, focused on psychiatry, neurology and behaviour. Our short courses, Introduction to Genetic Epidemiology and High Throughput Sequencing, were again fully subscribed, and a networking day for PhD students proved popular.

Centre for Evaluation launched a new short course on Evaluation of Development Programmes with the London International Development Centre, and a course on Evaluation of Public Health Programmes. The Centre worked with colleagues at UCL to produce a six paper series on Stepped Wedge Trials, launched in September 2015 along with a highly influential "replication" analysis on the effects of deworming schoolchildren.

Centre for Global Mental Health enjoyed another busy and successful year, with new research grants of more than £7.5 million awarded to Centre members. Student numbers on the flagship MSc Global Mental Health programme increased again, several hundred people attended the Centre's seminars, more than 3,000 visitors every month used the website, and the Twitter following increased to over 1,600.



Courtesy of Anna Kagstrom

Centre for Global Non-Communicable Diseases established three regional hubs in South Asia, East Africa and West Africa. The Centre has been an active participant in key global NCDs initiatives, organised 12 seminars on cutting edge issues, and hosted a symposium with the Novartis Foundation.

Centre for History in Public Health expanded its networks through an exhibition and workshop on vaccination, jointly with the Vaccine Centre, and involvement in the Women in Science and HIV/AIDS exhibitions and conference at the School, and enhanced its social media presence. This year, it received increased funding from the Wellcome Trust, with new awards for Alex Mold and Martin Gorsky.

Centre for Maternal, Adolescent, Reproductive & Child Health (MARCH) members were awarded several large grants for large scale multi-country evaluations. In September, it launched a new free online course, Improving the Health of Women, Children and Adolescents, which attracted more than 10,000 participants, mainly from low and middle income countries. In March, the Centre hosted the Global Women's Research Conference at the Royal College of Obstetricians and Gynaecologists.

Centre for the Mathematical Modelling of Infectious Diseases is home to a vibrant seminar series as well as journal clubs and regular meetings. It hosted Seromod, a workshop on serology for modelling infectious diseases, as well as a two day Ebola Modelling workshop with the World Health Organization, both of which attracted world-renowned speakers and delegates.

Centre for Statistical Methodology organised a series of three lectures on Designing Investigations, given by the eminent statistician Sir David Cox. Each attracted participants from all over the UK. The Centre also ran 14 seminars, attracted an average of 2,700 monthly visits to its website, supported the application of several successful methodological fellowships, and won a new capacity building grant from the MRC Newton Fund to study women's access to breast and cervical cancer control in Brazil.

ECOHOST – The Centre for Health and Social Change has an active seminar series, and popular topics in 2015 included global health diplomacy, health research using Google Trends, and corporations and public health. The Global Health Lab series with *The Lancet* continues to draw in large audiences. Membership of the Centre has grown to 135, and the Centre has launched a quarterly newsletter.



Courtesy of ECOHOST

International Centre for Evidence on Disability ran nine well attended seminars and hosted an international workshop on Social Protection and Disability. It strengthened research collaborations and increased engagement with students, through a new MSc Module, establishing a student group, and supporting 12 MSc projects.

International Diagnostics Centre expanded its website with the publication of the first online dashboard on the dual elimination of mother-to-child transmission of HIV and syphilis. It also launched a quarterly newsletter, co-convened a diagnostic quality assurance meeting, a forum on diagnostic connectivity, and in September ran its popular and established Advanced Course in Diagnostics.



Mosquito control in Benin, courtesy of Jess Critchley



TB testing in Peru, courtesy of Cesar Ugarte



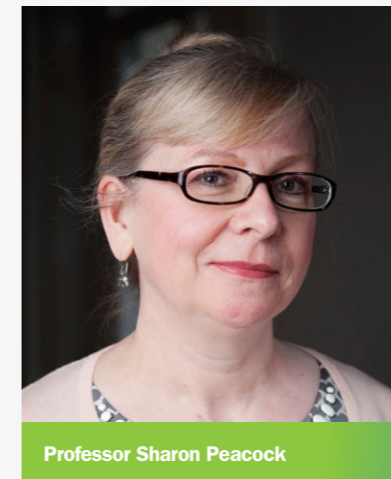
Vaccines exhibition at Keppel Street

Malaria Centre hosted ten seminars, a symposium for World Malaria Day with 150 guests, a World Mosquito Day event, and a retreat attended by 120 researchers. New funding for staff included a Wellcome Trust Investigator award, an MRC Fellowship and a new partnership in Nairobi for a project funded by the Department for International Development. This year also saw the completion and publication of the RTS,S malaria vaccine trial results.

TB Centre ran a number of successful symposia, where challenges in tuberculosis were examined from the perspectives of social, laboratory, and clinical science. It held a major conference for World TB day in March in partnership with UCL, which attracted 270 delegates plus 1,500 participants in 24 countries accessing the live web feed. In November, more than 100 staff and students took part in the Centre's retreat, presenting new research and launching a new website and biennial report.

Vaccine Centre increased overall membership by 25% due in part to an improved website. Student participation was enhanced through two dedicated PhD events, and the Centre's monthly Scientific Meetings and a symposium on decision support modelling attracted good audiences. It also collaborated in an exhibition with the Centre for History in Public Health, and a symposium on vaccine research with the Malaria Centre.

Bloomsbury Research Institute



Professor Sharon Peacock

The School is working closely with University College London to develop the [Bloomsbury Research Institute](#) as a joint research facility focusing on new treatments and solutions for the prevention and control of infectious diseases.

We are planning state-of-the-art laboratories to bring together more than 200 scientists working on the most important challenges in infectious disease, and contribute to international efforts to address antibiotic resistance and develop new antimicrobial treatments and tools, a key priority for the World Health Organization and the UK Government.

In January 2015, the Institute received a major boost with the announcement of a Catalyst Fund grant of £7.5 million from the Higher Education Funding Council for England, and in the summer, leading

“The Bloomsbury Research Institute's mission is to find new treatments, vaccines and diagnostics for the prevention and control of infectious diseases.”

microbiologist Professor Sharon Peacock was appointed Director of the Institute, joining from the University of Cambridge.

Fundraising for the development is now underway from potential funders and donors including research councils, charitable trusts, philanthropic organisations and individuals.



Courtesy of UCL

Bloomsbury Research Institute



Resources and support

The School's range of projects and programmes in the UK and worldwide continue to grow. Total income from research grants and contracts again increased by around 8% to £92.2 million in 2014/15, at a time when the funding environment is increasingly competitive.

As well as continued increases in grants from the UK research councils and government departments, the School attracted additional European funding, particularly for Ebola vaccine development, and from charitable sources. Our School's success in the Research Excellence Framework was reflected in a 6% increase in our annual quality research funding from the Higher Education Funding Council for England.

This success has created additional demands on facilities and central services, and in 2015, we began a review of our support systems for managing research grants. We have also improved security with upgraded access control in all buildings, and better systems for staff and students working overseas. Our new Director of Human Resources Peter Mitchell successfully led the first annual Staff Survey, implemented performance and development reviews, and is now consulting on promotions and other aspects of Human Resources strategy, to address issues such as short-term contracts.



Boris Johnson with Ann Fazakerley, Director of External Relations, at the London Universities International Partners event in New York City

Philanthropic fundraising

The School continued to grow its philanthropic income in 2015. A highlight of the year was a generous gift from Worldwide Support for Development, a Japanese non-profit that supports international cooperation, social welfare, universities and academic institutions. The gift has been used to establish a professorial chair at the School, the Handa Professorship in Global Health, named in honour of the Chair of Worldwide Support for Development, businessman and philanthropist Dr Haruhisa Handa. The inaugural chair holder is the School's Director, Professor Baron Peter Piot, who now carries the additional title of Handa Professor of Global Health.

Other priorities for which philanthropic funding was raised include new laboratory facilities, scholarships and research and travel grants. The School continues to attract new scholarships, with generous awards, gifts and pledges from the China Medical Board, the Saïd Foundation and the Shauna Gosling Trust, as well as growing partnerships with prestigious government scholarship schemes, as detailed on page 8.

Such partnerships are essential to attract and support the most able students from around the world who would not otherwise have the means to undertake postgraduate study. There is still a great need to identify and secure new sources of philanthropic income to support the global health leaders of tomorrow.



Richard Benson
Secretary and Director of Resources and Planning



Andrew Young
Chief Operating Officer

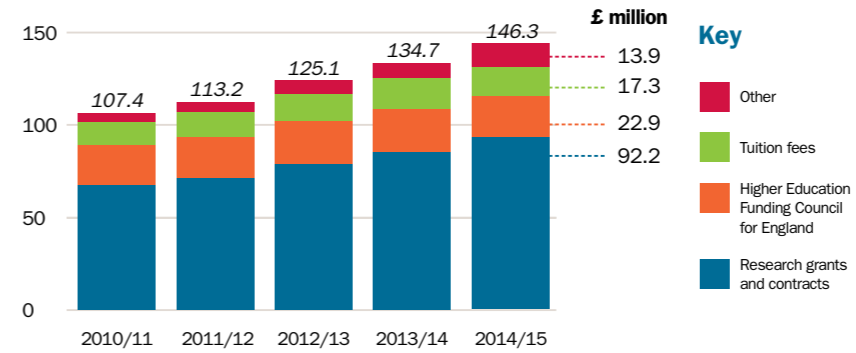
American Friends

The American Friends of the London School of Hygiene & Tropical Medicine is a charitable organisation established in the United States to support School activities there. Under the leadership of a board of directors, the American Friends provides strategic advice, operational support, and introductions to facilitate fundraising, business and academic links and student engagement in the United States. In 2014 the American Friends established a scholarship fund to support US students. Currently, the American Friends is developing internship placement opportunities in the USA for students at the School.

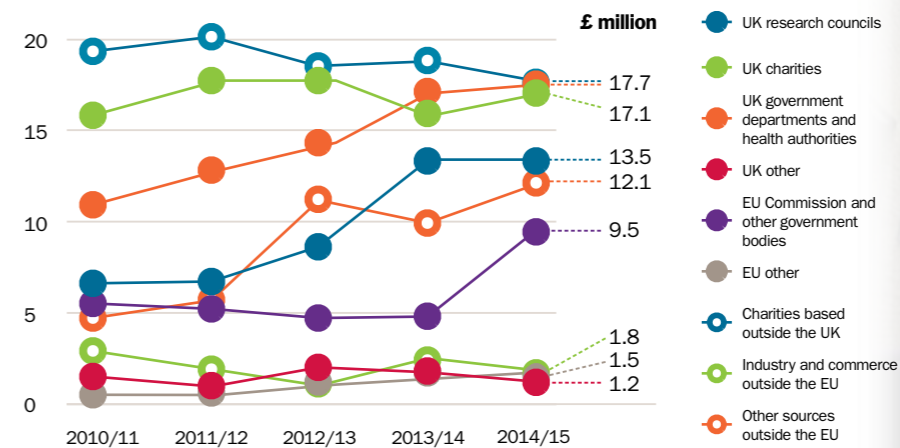


Members of the Board of the American Friends

Income from all sources 2010/11 to 2014/15



Research income: grants and contracts



Alumni Fund campaigns

The School's annual Alumni Fund Telephone Fundraising campaign has raised over £500,000 in pledges and donations for scholarships, teaching and research. We are very grateful to the hundreds of alumni who have chosen to make gifts to support the School's work improving health worldwide.

More than 1,000 alumni in total attended 25 alumni events held around the world in 2015. Highlights included a London showcase event in New York City with Mayor of London Boris Johnson, drinks at a beach bar in Cape Town during

the Union World Conference on Lung Health and a special event in the School Library to thank everyone who has supported the Alumni Fund. The School's online alumni community continues to grow, with thousands of people accessing the online alumni directory and contributing to the School's alumni blog, email newsletter and magazine. Our network of Alumni Chapters have held more than 30 networking events in countries including Nigeria, Cambodia, Singapore, Bangladesh, the USA, Canada, France, Japan and Mozambique.



American Friends fundraiser in Philadelphia, September 2015, courtesy of Alice Perry



Dr Rajesh Babu Bhattachala completed his MSc in Community Eye Health at the School in 2009. Returning to India, he founded Drishti Vision for Life, a social enterprise to provide affordable eye care in Karnataka. He was awarded the Social Impact Award at the British Council's Education UK Alumni Awards 2015, and is pictured here with Clare Gilbert, Professor of International Eye Health.





Governance and management

Council membership as at December 2015

Chairman

Dame Marjorie Scardino, DBE, FRSA

External members

Dr Andrée Carter, PhD FISOilSci MCIWEM
 Mr Kash Chandarana, BSc, ACA
 Ms Ann Grant, BA MSc
 Mr John O'Donnell, LLB LLM
 Mr Sushil Premchand, BA FCA
 Mr Jon Roper, MA (Cantab)
 Professor John Stephenson, BSc PhD CBiol FIBiol
 Dr Diana Walford, CBE MA BSc MSc MD FRCP FRCPATH FFFH

Elected staff members

Professor Alison Grant, MB BS, MSc, PhD, DTM&H, FRCP
 Mr Jens Hinricher, LL.M FRSPH
 Dr Susannah Mayhew, BA, MA, PhD
 Professor Helen Weiss, MSc DPhil

Director

Professor Baron Peter Piot, MD, PhD, FRCP, CMG (ex officio)

President of the Student Representative Council

Dr Adrian Rabe MD (ex officio)

Secretary

Mr Richard Benson BA



Dame Marjorie Scardino chaired her first Council meeting in November 2015

Honorary Fellows

An Honorary Fellowship is the School's most prestigious honour and is conferred on those people who have rendered exceptional service to the School or have attained exceptional distinction in any of the subjects taught in the School.

- Dame Valerie Beral
- David Bradley
- André Capron
- President Jimmy Carter
- Baroness Chalker Of Wallasey
- Manuel Dayrit
- John Robert Evans
- Sir Richard Feachem
- William Foege
- Tedros Adhanom Ghebreyesus
- Tore Godal
- John Godfrey
- Coluthur Gopalan
- Sir Brian Greenwood
- Demissie Habte
- Donald Henderson
- Ralph Lainson
- Robert Logan
- Adetokunbo Lucas
- Dame Sally Macintyre
- Halfdan Mahler
- Tony McMichael
- David Nabarro
- Sadako Ogata
- Sir Eldryd Parry
- Sir Richard Peto
- K Srinath Reddy
- Amartya Sen
- John Hilary Smith
- Alfred Sommer
- Robin Weiss
- Peter Williams

Patron

HRH Prince Philip
 Duke of Edinburgh KG KT



HRH the Duke of Edinburgh with staff and supporters at the Director's Circle lunch, Buckingham Palace in October 2015, courtesy of Robert Irving

Organisational chart with post holders from December 2015

Key

