

# RESEARCH PLATFORMS AND CLINICAL COHORTS:

Represent the basis on which a large proportion of scientific research funded through competitive grants is conducted. They provide an important competitive advantage when submitting research grants, the opportunity to carry out preliminary, exploratory work and to host PhD and career development students. MRCG at LSHTM researchers have equal access to all platforms and cohorts.

## HEALTH DEMOGRAPHIC AND SURVEILLANCE SYSTEMS

Supports demographic research, e.g. adult mortality; facilitates identification of clinical cases/study subjects for all research themes; and provides a well-defined denominator for estimating morbidity/mortality rates. It provides an excellent opportunity to investigate important but neglected causes of morbidity and mortality.

## WEST AFRICA COLLABORATION

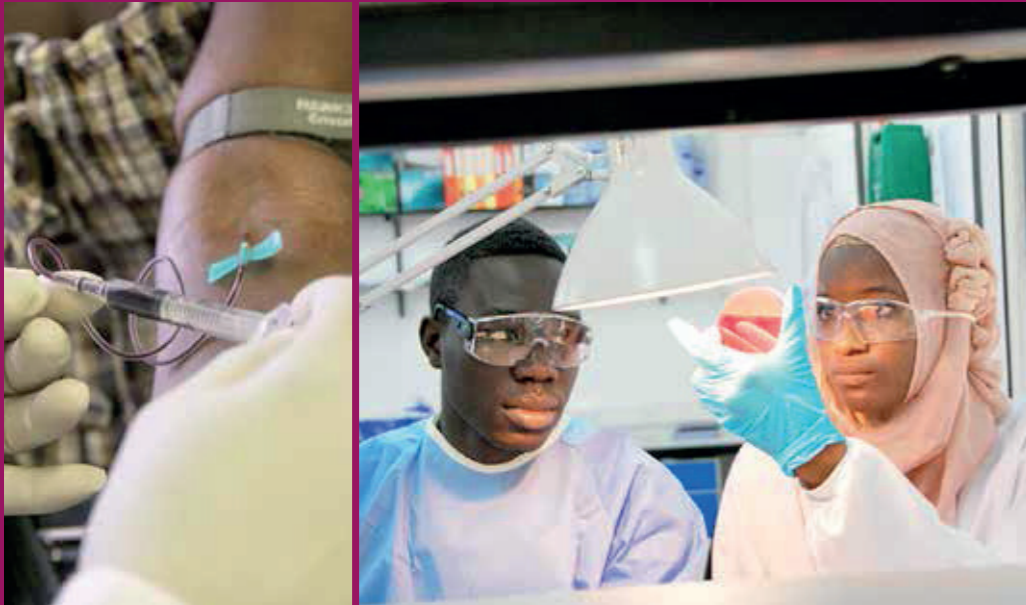
Active since building strong collaborative links with other West African institutions and has actively organised capacity building activities consisting of short courses, post-graduate training and institutional strengthening, e.g. Regional HIV database system, item-tracking biobank system and development of a clinical trial unit at the Laboratoires Bacteriologie et Virologie (LBV), Universite Cheikh Anta Diop (UCAD) in Dakar, partly supported also by competitive funding.

## CLINICAL RESEARCH

Combines MRCG at LSHTM clinical services, the Sukuta Health Centre often used by the Vaccines & Immunity Theme to carry out clinical trials on vaccines, and the paediatric ward of the Edward Francis Small Teaching Hospital in Banjul. Merging these three different entities has the objective of better coordination for increasing clinical research.

## TUBERCULOSIS CASE CONTACT

Has existed since 2001 and provides the ideal framework to identify correlates of protection and of risk in populations who are TB-exposed, infected or diseased. It hosts studies of household transmission dynamics, biomarker research for diagnosis and treatment responses, and facilitates evaluation of novel diagnostic tests and of genetic and immunologic host markers, all of which are required to inform the design of future TB vaccines.



# CAPACITY BUILDING

We believe in nurturing talent for transformational, professional and personal development to deliver the mission of MRCG at LSHTM.

### Objectives:

- Develop the best researchers in the West African region by providing scholarships and fellowships at the pre-doctoral, doctoral and post doctoral levels.
- Provide training that is essential to delivering excellent science safely and ethically.
- Enable staff to develop fundamental competencies through value adding professional qualifications.
- Develop training strategies, materials, courses and workshops to build capability and capacity.
- Support and strengthen national, regional and international training partnerships to mutual benefits.
- Encourage Africans to develop research capacity to become inspirational and transformational leaders.



MRC | Unit  
The Gambia



# Leading health research in West Africa to save lives and improve health across the world

# RESEARCH SUPPORT SERVICES

## RESEARCH GOVERNANCE & SUPPORT SERVICES:

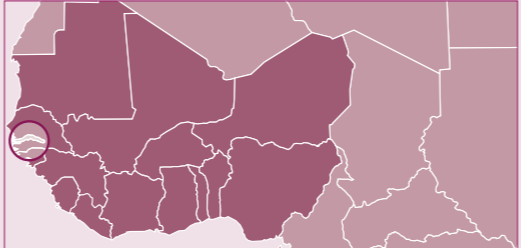
Created with the aim of better coordinating activities between its different components (clinical trial support, data management and statistics, research development and project management) and thus providing support to investigators to carry out clinical research at the highest possible standards. Research development and project management provides support for negotiating and managing research projects and it's entirely supported by competitive funds.

## LABORATORY SERVICES:

Includes all laboratory activities carried out at MRCG at LSHTM plus the biobank and the biomedical engineering, and it's essential for producing world-class science. The clinicallab, the serology and TB lab have successfully achieved full GCLP accreditation and the more stringent ISO 15189 accreditation standards. The increasing number of large scale population-based studies, community interventions and novel genomic approaches requires high-throughput technologies and increased capacity in bioinformatics.

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## WHO WE ARE?

The Medical Research Council Unit The Gambia at the London School of Hygiene & Tropical Medicine (MRCG at LSHTM) is one of two research units established in sub-Saharan Africa by the Medical Research Council UK and is the MRC's single largest investment in medical research in a low and middle income country. In February 2018, the Unit integrated the London School of Hygiene and Tropical Medicine (LSHTM), becoming the MRCG at LSHTM. The Unit represents a unique concentration of scientific expertise and high-quality research platforms in the West African region. The Unit's investigator-led research is underpinned by the combination of excellent laboratory facilities and easy access to the field with well-defined populations that are highly supportive of our research, excellent clinical services, rigorous ethical procedures and ability to deliver GCP-compliant clinical trials. Our large research portfolio spans basic research to the evaluation of interventions for the control of diseases of public health importance in sub-Saharan Africa.

### Our Mission:

- To deliver innovative, world-leading research aimed at reducing the burden of illness and death in low and middle income countries, supported by an enabling research environment.
- To maintain the ability to attract and retain the highest calibre of staff by ensuring that MRCG at LSHTM's reputation for scientific integrity, quality and excellence is preserved.
- To transform the outputs and outcomes of the MRCG at LSHTM's research, using a variety of mechanisms, into changes in health practices and policies that maximise the health and economic impact of our research.
- To train and develop MRCG at LSHTM staff in order to meet the required capacity to manage processes, people and resources effectively, and to increase capacity in health research in the West African Region and beyond.
- To address health issues of priority in low and middle income countries by strengthening partnerships and engagement with a range of stakeholders, including the people and the Government of The Gambia and the West African Region, funding partners and research collaborators.

## WHAT WE HAVE ACHIEVED?

For almost 70 years, the MRCG at LSHTM has tackled major infectious diseases of global public health importance in sub-Saharan Africa and is currently a focused centre for delivering excellent global health research. The MRCG at LSHTM's research output has been used to implement interventions that have had (and continue to have) a major impact on childhood mortality and morbidity, not only in The Gambia but also in other sub-Saharan African countries. Examples are The Unit's pioneering work on insecticide-treated bed nets, vaccines against Haemophilus influenzae type b, prenatal dietary supplementation, hepatitis B, pneumococcal conjugate vaccines, azithromycin mass administration against trachoma, and seasonal malaria chemoprevention.

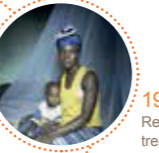
**2001**

First efficacy trial of RTS,S malaria vaccine in semi-immune adult men in The Gambia.



**2004**

Flies and Eyes study findings published describing the role of flies in spreading trachoma and the provision of latrines for trachoma control. Conducted in the North Bank and Central River Divisions, managed from Farafenni Field Station.



**1995**

Recognized that insecticide treated bednets decrease overall mortality in children aged 1 to 9 years by 25%



**1986**

Commencement of The Gambia Hepatitis Intervention Study whose main objective was to prove the protective efficacy of hepatitis B vaccine against hepatocellular carcinoma.



**1964**

The Trachoma Group transferred from Jordan to The Gambia.



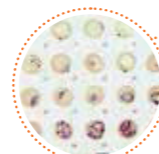
**1949**

Dr Ian McGregor recruited to study the relationship between parasitism and nutrition; in the same year, Keneba Field Station was established.



**1947**

Nutrition Working Party established at Genieri in the Central River Division. The Gambia under the leadership of Dr W T C Berry.



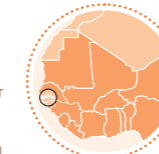
**2008**

Dramatic decline in malaria burden in The Gambia between 2003 and 2007 revealed in a retrospective analysis.



**2005**

Elimination of Haemophilus influenzae type b in The Gambia, following the incorporation of the vaccine into The Gambia's Extended Programme of Immunisation.



**2016 - 2021**

The next 5 years, our scientific vision is to contribute to the post-2015 sustainable development agenda by producing evidence base research to improve health in West Africa and beyond.

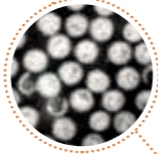
More specifically:

- Contribute to the control/elimination of infectious diseases of public health importance in West Africa and sub-Saharan Africa;
- Address the unacceptably high burden of maternal and neonatal mortality;
- Design and implement next generation interventions against nutrition-related diseases through discovery science;
- Strengthen research on non-communicable diseases, particularly on those associated with infections.



**2011**

Substantial reductions in child death rates (69% in 1-4 years old and 39% in <1 year old) in The Gambia with achievement of the Millennium Development Goal 4 before 2015.



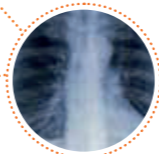
**2013**

Discovery that five pathogens (rotavirus, Shigella, ST-EPEC, Cryptosporidium, typical enteropathogenic E. coli.) cause most diarrhoeal diseases in children; new interventions and accelerated implementation of existing interventions urgently needed. This is the reason of implementing rotavirus vaccine in The Gambia. The VIDA project is the follow up of the previous study.



**2015**

Combining insecticide indoor residual spraying (IRS) and long-lasting insecticidal nets (LLIN) shown to be no more effective in cutting malaria than LLIN alone.



**2014**

The Global Burden of Disease initiative investigates the major causes of infant, child and adult (including maternal) mortality worldwide. In The Gambia between 1990 to 2013, mortality from measles decreased by 54% and pneumonia caused 21% fewer deaths. In 1990, these diseases killed 2,421 people.

## WHERE WE WORK?



Fajara

Keneba

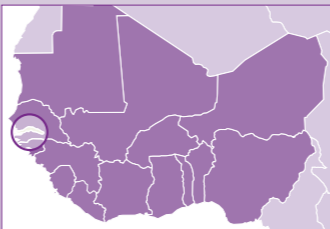
Wali Kunda

Basse



Above: Map of The Gambia showing our Field Stations

Top right: The Gambia highlighted within the map of West Africa



## HOW WE WORK?

The MRCG at LSHTM is structured into three research themes, a structure that provides important opportunities for inter-theme synergy

### DISEASE CONTROL AND ELIMINATION

The Disease Control & Elimination Theme's scientific strategy focuses on investigating the interactions between hosts, pathogens and vectors, and evaluating interventions aimed at interrupting transmission and/or reducing the disease burden. Its research portfolio includes diseases of public health importance in West Africa at different stages of control or elimination, e.g. malaria, bacterial diseases, hepatitis B.

### NUTRITION

The Nutrition Theme aims at understanding the pathophysiology of diet-disease interactions in order to accelerate the development of more effective next-generation community and clinical interventions. Examples are the studies on iron regulation and relation with infectious diseases such as malaria and bacterial infections; and those on the peri-conceptual diet and the epigenetically-mediated adverse outcomes.

### VACCINES AND IMMUNITY

The Vaccines & Immunity Theme thrives to understand the ontogeny of immunity to inform the design of vaccines and maximise their impact. Through laboratory science and clinical trials, the theme's aim is to contribute to the evidence based development and deployment of vaccines. The theme also undertakes a series of translational and more fundamental immunological studies aiming at understanding the development of the immune system in infancy, particularly in the context of bacterial colonisation and infectious diseases. Its TB research focuses on the identification of correlates of protection in adults and children in order to ultimately inform TB vaccine design.

