

## BSc in Medical Sciences with GLOBAL HEALTH

### Introduction

Global Health is a relatively new concept that reflects the increasing interconnectedness of health and its determinants. Major socioeconomic, environmental and technological changes are producing new challenges, ranging from the global epidemic in obesity through to the emergence and rapid spread of new infectious diseases. These new problems compound existing inequalities in health that are experienced within and between countries. At the same time we are witnessing major scientific and medical advances that hold the promise of solving many of these problems given the necessary leadership and commitment to ensure equitable implementation.

This course will comprise a two week introductory foundation course followed by three 5-week taught modules and either a research project or a specialist course (two 5-week modules).

### Why Imperial College?

Imperial College is already a world leader in public and international health, with major research programmes in the UK and overseas tackling key issues such as emerging infectious diseases, obesity epidemic, and climate change and health (together with the Grantham Institute).

### Course Directors

Dr Mariam Sbaiti	<a href="mailto:m.sbaiti@imperial.ac.uk">m.sbaiti@imperial.ac.uk</a>
Professor Paolo Vineis	<a href="mailto:p.vineis@imperial.ac.uk">p.vineis@imperial.ac.uk</a>
Professor Helen Ward	<a href="mailto:h.ward@imperial.ac.uk">h.ward@imperial.ac.uk</a>

### Course Administrator

Mrs Helen G. King	<a href="mailto:helen.king@imperial.ac.uk">helen.king@imperial.ac.uk</a>
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### Part A (Introductory course)

#### Module Leader

Professor Helen Ward	<a href="mailto:h.ward@imperial.ac.uk">h.ward@imperial.ac.uk</a>
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**Aim:** To provide a broad overview including the scope of global health, the range of disciplines contributing to global health scholarship, and to introduce the basis of research methods and the role of research in Global Health.

### Part B (Modules 1, 2 and 3)

**Aim:** To explore the range of disciplines contributing to global health scholarship, and introduce the global burden and distribution of diseases (Modules 1 and 2). To understand how these are related to broader determinants of health including the process of globalisation. The research methods theme, started in the introductory module, is developed further through each of the Part B modules. There will be a student-led debate at the end of each module.

### Reading

#### Introductory course book

- Neil Pearce, Handbook of Epidemiology - can be downloaded free <http://publichealth.massey.ac.nz/publications/introepi.pdf>
- Richard Skolnik. *Essentials of Global Health*, Jones and Bartlett, 2007 and an accompanying set of case studies?
- Ruth Levine. *Case Studies in Global Health: Millions Saved* Jones and Bartlett, 2007

The case studies are available at: [www.cgdev.org/section/initiatives/\\_active/millionsaved](http://www.cgdev.org/section/initiatives/_active/millionsaved)

### **Other useful resources**

Kelley Lee and Jeff Collin. *Global Change and Health*, OUP, 2005

Lindstrand, *Bergstrom, Rosling et al* Global health, an introductory textbook. Studentlitteratur, 2008

Buse K, Mays N, Walt G. Making health policy. Maidenhead: McGraw-Hill/Oxford University Press; 2005

Global Health Watch 2 (2008) : a radical critique of current global health policies and institutions - can be downloaded free [http://www.ghwatch.org/ghw2/ghw2\\_report.php](http://www.ghwatch.org/ghw2/ghw2_report.php)

Kawachi I, Wamala S, editors. Globalization and health. Oxford: Oxford University Press; 2007.

Commission on Social Determinants of Health (2008) Final Report: Closing the gap in a generation: Health equity through action on the social determinants of health. Geneva, WHO. URL: [http://www.who.int/social\\_determinants/final\\_report/en/index.html](http://www.who.int/social_determinants/final_report/en/index.html)

### **Course Outline**

#### **Part A**

##### **Introductory Module (2 weeks):**

- Global health: an introduction to the field of study
- Research methods: Critical Appraisal skills, Reviewing the Literature, Introduction to research in the Global Health context; Research strategies and design; Descriptive epidemiological studies; Experimental studies and clinical trials; Sampling, Bias and confounding, Basic risk measurement; Tests of significance; Association and causation; Ethics. This theme will continue through part B.
- Plagiarism training.

There will be a small group formative assignment at the end of the first week to consolidate students' learning on research methods.

#### **Module director**

Professor Helen Ward

#### **Content:**

**Lecturers: Paolo Vineis, Helen Ward, Graham Cooke, Jackie Cousins, Mariam Sbaiti, Wendy Harrison**

#### **Part B**

These 3 modules will provide a broad overview including the scope of global health, the range of disciplines contributing to global health scholarship, and an introduction to the global burden and distribution of disease. We will also continue the research methods theme started in the Introductory Module. Each module comprises one day of joint teaching with students from the International Health BSc at University College London and the Global health BSc at King's College London.

#### **Module 1: Infectious diseases new and old: major threats, transmission, molecular epidemiology, control**

#### **Directors**

Professor Helen Ward and Dr Graham Cooke

**Content:** Global burden and surveillance of infectious disease, including methods for describing and comparing; emerging infectious disease, introduction to modelling, vaccination, antibiotic resistance; Control of Schistosomiasis and other neglected tropical diseases: experience of the SCI; Current topics in HIV, TB and malaria; anthropology; STI,

migration and health; Refugees and migrants.

**Lecturers include:** Helen Ward, Graham Cooke, Paolo Vineis. Wendy Harrison, Stephen Smith, Alan Fenwick, Joanna Webster, Mike Templeton, Bethan Davis, Ruby Siddiqui (MSF), Alasdair Bamford, Andy Hall (LSHTM), Nick Grassly, Kath O'Reilly, Kath O'Reilly, Dr Heidi Larson (LSHTM), Jonathan Weber, Cathy Ison, Maria-Gloria Basanez, Deidre Hollingsworth, Kath Maitland, Dr Ingrid Muller, Nathan Ford (MSF), Peter White, Neil Ferguson, Manish Pareek, Ajit Lalvani, Beate Kampmann, Phillip du Cros, Mariam Sbaiti. Joint teaching day with King's College London and University College London students (based at University College London).

## **Module 2: The challenges of new epidemics: obesity, diabetes, tobacco and environmental hazards; from discovery of causes to governance.**

### **Director**

Professor Paolo Vineis

**Content:** Global burden of non-infectious diseases, including methods for describing and comparing; descriptive epidemiology by geographic area, ethnicity; rates in migrants; trends; the epidemics of obesity and diabetes nutritional epidemiology and the metabolic syndrome; ; malnutrition; tobacco-related diseases and tobacco control; environmental exposures in developed and developing countries; climate change and its effects on health; adaptation to climate change; the interplay between genes and the environment; preventive strategies and policies.

**Lecturers:** Paolo Vineis, Teresa Norat, Neil Pierce, Aneire Khan, Clive Hoggart, Toby Athersuch, Lesley Regan, speakers from the Grantham Institute for Climate Change, Marta Blangiardo, Marc Chadeau, Majid Ezzati, James Flanagan, Anne-Claire Vergnaud, David Beran (UCL), Marjo–Riitta Jarvelin, Angela Burnett (Medical Foundation for the Victims of Torture). Joint teaching day with King's College London and University College London students (based at King's College London)

**Visits:** Grantham Institute talk

## **Module 3: Global health in context: Poverty, Health Systems and Governance**

### **Director**

Dr Mariam Sbaiti

**Content:** Interpretation and critical assessment of evidence in global health, health needs assessment, social epidemiology in the context of global health, heterogeneity in health systems world-wide (organisation, governance, financing and equity issues in access); multidisciplinary approaches and ethical issues in research in resource-poor countries, global health actors, governance and architecture; health and international development; poverty and migration; the role of science and technology development; the pharmaceutical industry and access to medicines.

**Lecturers include:** Peter Smith, Simon Gregson, Helen Ward, Lesong Conteh, Mylene Lagarde, Nathan Ford (Médecins Sans Frontières), Alejandro Reig (Amazonic Center for Research and Control of Tropical Diseases, Venezuela), Aulo Gelli (Partnership For Child Development), Angela Burnett (Medical Foundation for Victims of Torture), Majid Ezzati, Judith Cherni, Paolo Vineis, Mariam Sbaiti. Joint teaching day with King's College London and University College London students (based at Imperial College London).

## Teaching methods

In each of the modules teaching will be through lectures and practicals, student-led seminars, case studies and field visits (in London). Students will be encouraged to take part in the lively internal seminar programme in the School of Public Health.

## Assessment

### Part B assessment:

There is one formative in-course assessment for the Introductory module and two summative in-course assessments for each of the three main modules, plus the part B examination (held in February). The summative in-course assessments include:

#### Module 1

**Critical appraisal:** Each student will be given a written assessment based on appraising a research paper. Students will be given the introduction, methods and discussion of an unseen research paper and asked to write the conclusion section (5%).

**Emerging infection case study:** students will work in groups of three to produce a short presentation on an emerging infectious disease to cover the key determinants of emergence and transmission, and factors associated with persistence and/or control. These will be presented to the whole group one afternoon and they will be assessed on the presentation. (5%)

#### Module 2

**Country health profile:** students will work in pairs to produce a country/regional health profile to be presented to the whole group. The aim of this is to demonstrate an ability to retrieve and interpret routine data, surveillance, appreciate the range of health issues, and discuss the key priorities for this country. (5%)

**Data interpretation exercise:** each student will receive a simple set of data and (s)he will be required to describe and interpret them in a written form (5%).

#### Module 3

**Essay:** individual essay based on an element of group work based on country case studies in which students will work in teams to design a country health system package (5%)

**Group presentation:** as “country health profile” but on the country **health systems** (5%).

## Part C

Each student will undertake an individual project or take one of the specialist BSc courses (Medical Humanities, History of Medicine or Death, Autopsy and the Law). The projects will give the students the opportunity to undertake a piece of individual research. Projects will be able to address any question in global or environmental health. The topic can be selected from a range offered by teaching staff (some of whom collaborate with external organisations such as Médecins Sans Frontières) or may be one suggested by the student. A small number of students wishing to conduct their Project in another country will be chosen through a pre-determined selection process.

Projects may be:

- Literature-based, for example a systematic review and meta-analysis or an evidence-based policy review
- Analysis of an existing data set within one of the many research programmes

- Undertaking the collection of new data, for example a clinical audit, within the context of an existing clinical or research programme

#### **Past BSc Project Titles in Global Health:**

- The influence of BCG vaccine strain on mycobacteria-specific and non-specific immune responses in a prospective cohort on infants in Entebbe, Uganda
- Implementation and utilisation of community based mortality surveillance: A case study from Chad
- Operational data on antiretroviral therapy provision CD4 counting
- Adherence to HIV post-exposure prophylaxis in victims of sexual assault
- Micro-credit and HIV prevention- What is the evidence? A systematic review
- Climate change and salinity in drinking water as a global problem; Using remote sensing methods to monitor surface water salinity
- A bundle of joy? An analysis of the fertility problem: Trends and policies
- Soil-transmitted Helminths; the problems that they cause in chronic infection
- Which should we pay attention to: DALYs or QALYs? A comparative Review
- A retrospective analysis of patterns in inpatient mortality in four hospitals in south sudan from 2008-2010
- A systematic review and meta-analysis of treatment outcomes in children with MDR-TB
- Determining the prevalence of Mycobacterium tuberculosis infection among BCG-immunised children at 5 years of age in Entebbe, Uganda: an observational, cross-sectional study
- The availability and regulation of home tests of sexually transmitted infections within the UK
- Health expenditure and mortality: An Econometric study
- Pesticide exposure in Bangladesh
- Evaluation of the effectiveness of border control measures for emerging respiratory diseases
- How does the treatment of neglected tropical diseases by mass drug administration affect the nutritional status of children?
- How does mass drug administration for the control of neglected tropical diseases (NTDs) impact maternal health
- The Global Burden of HIV associated neurocognitive disorders
- What are the barriers and facilitators to development of research culture in acute healthcare settings?
- The chronic consequences of and co-morbidities associated with schistosomiasis infection in Africa: a systematic review
- Antibiotic use beyond severe cholera: A systematic review and meta-analysis
- Identifying the barriers to implementation of WHO guidelines for the in-patient treatment of severely malnourished children in under-resourced facilities of sub-Saharan Africa.