



Title of PhD project / theme	Projections of future temperature-related health impacts under climate change and adaptation scenarios
Supervisory team	Antonio Gasparrini – LSHTM Masahiro Hashizume – Nagasaki University Chris Fook Sheng Ng – Nagasaki University
Brief description of project / theme	<p>Several studies have investigated the health effects of non-optimal temperature, either heat or cold, and have projected the impacts under future scenarios of climate change. However, little is known on the geographical variation of the risk, and on the extent to which alternative mitigation strategies to decrease greenhouse gas emissions, such as those considered in the implementation of the Paris Agreement, will translate in a reduction of the health burden. In addition, while other studies have demonstrated an attenuation of the risk associated to extreme heat in the past decades, there is limited knowledge on the factors responsible for this decreased susceptibility, and on which role they can play in determining adaptive mechanisms in a warming planet.</p> <p>This PhD project will address these research gaps by investigating temperature-health associations and related climate change impacts, using data collected within the MCC Network, including daily time series from 518 locations in 28 countries from various regions of the world. The student will also examine geographical and temporal variation in risks, and the role of various location-specific factors, such as climatic, socio-economic, and infrastructural characteristics. This information will be then used in the definition of composite health impact projections dependent on scenarios of global warming and future trends of susceptibility drivers. The project will make use of state-of-the-art study designs and statistical methods applied for multi-centre time series analysis, recently developed and applied by the supervisors.</p>
Particular <i>prior</i> educational requirements for a student undertaking this project	The candidate should have a quantitative background (e.g. MSc in Medical Statistics, or Health Economics or Epidemiology with equivalent level of quantitative content), and prior training in epidemiology. Experience in advanced time series regression modelling, meta-analytical technique, and R statistical software is highly desirable.
Skills we expect a student to develop/acquire whilst pursuing this project	The student will develop advanced quantitative skills, including the handling of complex data, which are transferable to many types of research.



The student will acquire understanding of the modelling approaches for causal inference and prediction, develop ability to identify and apply the correct techniques, and formulate the appropriate sensitivity analyses for causal and prediction study.

The student is expected to gain experience in climate change research, to understand how epidemiological evidence can be translated into decisions for risk management, and to develop interdisciplinary skills linking health research and public policy.