Title of PhD project	**Multi-level modelling of international variations and time trends in asthma and allergic diseases in children and adults**
Primary Supervisor	**Prof Neil Pearce**, LSHTM
Associate Supervisor	**Prof David Strachan**, SGUL
Brief description of project	Phase III (2001-2002) of the International Study of Asthma and Allergies in Childhood (ISAAC) collected information by questionnaire on symptoms and risk factors for asthma, rhinoconjunctivitis and eczema from 1,187,496 children in 237 centres in 98 countries. Phase I (1992-1995) involved 721,602 children in 155 collaborating centres in 56 countries (http://isaac.auckland.ac.nz/story/). These surveys form a complex multi-level dataset which has yet to be fully exploited with state-of-the-art statistical modelling techniques. The Global Asthma Network (GAN) will use the ISAAC methodology during 2016-17, and extend data collection to include parents (http://www.globalasthmanetwork.org/). To date, 45 centres have registered for GAN, including 16 former ISAAC centres. Registration is ongoing. This PhD fellowship will provide the opportunity to combine substantive research into asthma causes and time trends with complex statistical analysis. The student will be responsible for assembly of a multi-level dataset from GAN suitable for an integrated analysis with the ISAAC dataset. From the start, there will be opportunities for methodological development to handle the complexities of multiple exposures, ages, centres, regions and time points. The student will have the opportunity to develop and test multi-level modelling strategies (and produce publications) using the existing ISAAC dataset, and then later to apply these to the GAN dataset.
Particular <u>prior</u> educational requirements for a student undertaking this project	MSc in bio/medical statistics or epidemiology
Skills we expect a student to develop/acquire whilst pursuing this project	Experience with collating, harmonising and analysing data from a large international project, including multi-level modelling of complex data structures, with 3 levels (country, centre, person), 3 age groups (6-7, 13-14, adult) and 2 time points (~15y apart).