Title of PhD project	**Comparing drug-resistant tuberculosis treatment choices**	
Supervisor	Dr Finn McQuaid	LSHTM
Co-Supervisor	Dr Gwen Knight	LSHTM
Brief description of project	With an estimated 30% of AMR-related deaths a result of drug-resistant TB globally, the choice of drugs used for treatment of TB disease is of the utmost importance. However, many cases of TB disease are treated without a complete knowledge of the resistance profile of the underlying bacteria, due to a lack of availability of diagnostic tests. The aim of this project will be to improve the decision-making around such empiric therapy, by using mathematical modelling and quantitative methods to balance and assess the factors contributing to the decision-making process. The intention will be to inform development of treatment guidelines, to ensure that treatment decisions are based on a comprehensive consideration of evidence. The outputs from this project will translate directly into clinical care impact and can support optimised antibiotic usage for TB and other important pathogens globally.	
Skills we expect a student to develop/acquire whilst pursuing this project	Mathematical modelling skills, including coding. Economic evaluation skills, including costing and integration of approaches into transmission modelling. Public health knowledge and communication skills, including with country-level decision-makers and technical assistance organisations.	
Particular prior educational requirements for a student undertaking this project	Undergraduate and/or graduate degree in biological sciences, with evidence of additional quantitative skills OR Undergraduate and/or graduate degree in epidemiology, biostatistics, mathematics, physics, health economics or other quantitative science	
Project key words	Tuberculosis Drug-resistance Modelling Health Economics	

	Empiric antibiotic use
Possible under 1+4 route? Master's options identified.	Yes LSHTM - MSc Epidemiology
MRC Core Skills developed through this project	Quantitative skills
MRC LID themes	Global Health Infectious Disease
Further reading	Clinical perspectives on treatment of rifampicin-resistant/multidrug-resistant TB Treatment of Highly Drug-Resistant Pulmonary Tuberculosis Management of Rifampicin-Resistant Tuberculosis: A Clinical Reference Guide WHO Consolidated Guidelines on Tuberculosis, Module 4: Treatment - Drug-Resistant Tuberculosis Treatment