

Project proposal MathSys MSc

Project title:

Real-time decision making and adaptive management for African sleeping sickness elimination strategies

Main supervisor:

Kat Rock

Second supervisor:

Mike Tildesley

Possible additional support:

Ben Atkins

Project outline

Gambiense African sleeping sickness (human African trypanosomiasis, gHAT) is a vector-borne, neglected tropical disease (NTD) targeted for elimination of transmission by 2030. Large biting flies, called tsetse, transmit infection between people. Historically there were over 50,000 cases of gHAT each year, but thanks to a variety of medical and vector interventions, there are now fewer than 1000 cases. With infection remaining in small geographical pockets, there is a challenge to identify which regions may need to intensify interventions to meet the goal and of what these interventions should comprise.

In this project the goal is to assess whether vector control should be deployed in regions which have not previously had any, taking into account (a) the uncertainty in effectiveness of the intervention in reducing tsetse populations, (b) different objectives such as achievement of local elimination of transmission by 2030 and/or costs of interventions, and (c) the time points at which decisions to stop or start interventions can be made.

This project links to the HAT MEPP group in SBIDER (<http://go.warwick.ac.uk/hatmepp>) of which there are weekly group meetings. There is potential for this MSc project to continue as a PhD.

Please email Kat Rock or Mike Tildesley for more project details.