Genomic surveillance of antimicrobial resistance

Faculty:

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Project Description:

Antimicrobial resistance (AMR) is an increasing threat to public health, where the rising prevalence of multidrug-resistant pathogens including carbapenem-resistant gram-negative bacteria (*Pseudomonas aeruginosa* and Enterobacterales) and tuberculosis thus compromise effective treatment, leading to increased mortalities and morbidities in populations. Epidemiological and clinical data, coupled with omics (genomics, proteomics, transcriptomics etc) data on antimicrobial-resistant pathogens can be used to improve surveillance and thus inform strategies for addressing AMR.

Projects are thus available on a range of topics, including

- Algorithms/software for improved characterisation of drug-resistant pathogens from omics data
- Algorithms/software for integrating epidemiological, clinical and molecular data of drug-resistant pathogens for surveillance (local/national/regional)
- Health Technology assessment considerations for routine use of high-throughput technologies for genomic surveillance of AMR

Students are welcome to contact for discussion on specific projects related to bioinformatics and epidemiological studies of AMR.