University of Massachusetts

Optimizing Handheld Sequencing Technology for Rapid Detection of AMR for Clinical Decision Making

Antimicrobial resistance (AMR) is considered by many to be one of the most serious pandemic health risks today. There is a particularly acute problem in the Latin American and Caribbean regions (LAC), where access to diagnostic tools may be limited or non-existent. Advances in miniaturization of sequencing tools and ultra-fast bioinformatics analysis provide new opportunities to develop rapid, accurate, reproducible and actionable monitoring tools for both pathogen detection and the presence of genes that convey antibiotic resistance. We propose the development of a handheld diagnostic tool that combines "state-of-the-art" technologies with some of the most advanced bioinformatics tools available today for rapid clinical decision-making, that is both applicable for use in a fully equipped clinical laboratory and in a LAC rural, mobile or backpack clinic.