

Noblis

Bloom filter based AMR detection - Antimicrobial Resistance Diagnostic

Antibiotic resistance (ABR) is a growing national and international concern. It is estimated that 700,000 people will perish in the next year due to infection and complications from resistant organisms. Some estimates project this number growing to 10 million per year by 2050. To combat this development, medical and research communities have increased efforts to identify and understand the genetic basis by which organisms acquire such resistance. The Noblis team proposes using a new computational pipeline—the existing BioVelocity platform used in recent Ebola studies¹⁵. Using innovative read-level analysis of whole genome sequencing (WGS) data, this system decreases the turnaround time for organism and antibiotic resistance identification from days to less than two hours. The proposed pipeline will leverage improvements in sequencing technology and apply Bloom filters to achieve near–realtime analysis of resistance gene profiles in clinical situations. Our analytical approach will enable healthcare providers to efficiently and appropriately select antibiotic treatments based on the specific strain and antibiotic identified by the technology.

Noblis is a science and technology research company based in Reston, Virginia. With over 20 years of experience responding to outbreaks and supporting infectious disease research with innovative bioinformatics, Noblis has become recognized as a leader in high-performance genomic variance and feature analysis.