Predicting Anti-Microbial Resistance using Artificial Intelligence [†]

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Abstract: Antibiotics have been one of the inevitable in modern medicine. They are used to treat several bacterial pathologies. In recent times, the illegitimate use of these antibiotics has caused the grave threat of Anti-Microbial Resistance (AMR). This led to increased drug resistance in the community and alarmed the emergence of Super-resistant bacteria. The financial burden due to AMR is estimated to be over $100 Billion by the year 2050. The proposed model aims at predicting Anti-Microbial Resistance using Artificial Intelligence Techniques. The survey of AMR severity in various populations would be mapped, facilitating mitigatory activities. The dataset of the common bacterial pathologies like Urinary Tract Infections caused by *E. coli* in a community during the past few years would be collected. This dataset would include the patients basic and demographic information, Medical history, the drugs he/she has consumed, and their dosage. This would be patterned for resistance against any particular antibiotics. In this case, the common antibiotics used against *E. coli* include trimethoprim and nitrofurantoin. Analyzing association patterns of the pathology dataset with resistance to common antibiotics will give us an idea about the extent of Anti-microbial Resistance. This could be used to develop an AI-based AMR prediction model that alerts the population of a particular demographic cohort about the risks associated with undue usage of some antibiotics.

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Conflicts of Interest

The author declares no conflicts of interest.