

# PREDICTION OF ANTIMICROBIAL RESISTANCE USING AI

## Addressing the Global Healthcare Crisis



The ability of microorganisms like fungi, bacteria, or viruses to prevent the effect of antimicrobial drugs is a global threat and requires immediate attention. Antimicrobial Resistance or AMR is on the radar of WHO and has been stated as one of the top 10 global public health threat. While overdosage of antimicrobials is one of the key reasons for AMR, other reasons include lack of clear water and sanitation, poor access to effective and efficient medicines.

The inability to respond to the drugs adds several challenges for both the providers and the patients. Infection prevention and diagnostic testing are just the tip of the iceberg. While you dig deep you realise there are bigger challenges that need to be addressed, like:

- Due to the ability to nullify the effect of the drugs, the AMR leads to longer hospital stays leading to additional cost.
- Lack of prediction tool to identify diseases in patient to harbour resistant bacteria can lead to complicated outcomes, delay in therapy and increased mortality.
- Delays in AMR legislation.
- Lack of new antibiotics makes it difficult to conduct an effective treatment.

As per a report, unsuccessful treatment due to AMR claims at least 700,000 lives per year across the globe; to add, by 2050 it is projected to take the lives of 10 million people per year. Some reports also suggest that the increased use of antibiotics to treat COVID-19 is going to promote AMR. There is a need for new antibiotics and to change the way antibiotics are consumed, to prevent any further damage. Today, one needs effective tools for adequate and improved treatment and downsize the risk associated with the treatments.

### Handling AMR with AI

Tech Mahindra is betting big on the NXTGen technologies, with a focus on AI, 5G, BlockChain and Cybersecurity. Its Anti-Microbial Resistance tool is an AI-based platform that helps clinicians “weigh the probability of patients to harbour a resistant strain” without performing any clinical investigations and can suggest effective antibiotic treatment options. The solution also helps in picking up the right data points from the available information from patient history to understand whether the bacterial strain is antibiotic-resistant or sensitive. The prediction tool aids in making the initial choice of antibiotics, and in referring to worse cases to specialist care. The tool helps to provide the right drug at the right time and helps to enhance the patient outcome.

In the end, we aim to provide an automated, and reliable tool for actionable insights to provide the right kind of care and efficiently deal with the global health crisis.

Challenges related to AMR are seeing an exponential rise, which will be difficult to deal with unless global efforts are made to handle AMR. Finally, the clock is ticking and one needs to identify and build new strategies to overcome the occurrence of AMR.



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