

Antimicrobial Resistance – A Silent Pandemic

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Dear Editor,

Antimicrobial resistance (AMR) has emerged as a serious and major challenge to human health due to worrying levels it has reached throughout the world. This issue if not handled will move us to the pre antibiotic period with no drug left in choice to treat serious life consuming infections.

Current statistics reveal around 1.3 million deaths annually are due to antimicrobial resistance which is more than due to HIV/AIDs or Malaria. It is predicted AMR might consume 10 million lives by 2050.¹ We are already close to the predicted number. Besides this it also poses a serious socio-economic burden globally. The World Bank has cautioned that, by 2050, burden posed by drug resistance would be higher than that caused by 2008 financial crisis and 24 million people will succumb by 2030 due to the impact of AMR on economy and health.² To control and contain AMR we need a joint action from variety of sectors. In many countries, antimicrobials have become over the counter (OTC) drugs, India being no

exception. India rates of drug resistance are the leading in the world. In spite of being the largest producer and exporter of drugs, AMR is high due to lack of effective drug surveillance system. Policies have been formulated at National level but what is needed is policies at local community level for effective and justifiable use of antimicrobials to withhold and curtail the emerging resistance. Children under 5 are most vulnerable to AMR.

Data from CDC reveals 30% of antibiotics being prescribed are unjustifiable or unnecessary. From being a submerged and unaddressed problem, a clearer picture of the AMR burden has emerged. Superbugs are the outcome of our prolonged failure to preserve antibiotics.⁴ Study from WHO and Lancet reveals drivers of AMR to be multifaceted indicating the need for one health initiative saying human health is directly related to animals and environment.⁵ WHO has released the priority pathogens list in 2017 as a result of evolving resistance.⁶ Table 1 shows the WHO list of priority pathogens.

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Table 1: WHO list of priority pathogens.⁷

Priority list	Organism	Resistant Antibiotic
Critical Priority	Acinetobacter	Carbapenem
	Pseudomonas	Carbapenem
	Enterobacterales	Carbapenem, 3 rd generation cephalosporin
High Priority	Enterococcus	Vancomycin
	Staphylococcus	Methicillin
	Helicobacter	Clarithromycin
	Campylobacter	Fluoroquinolone
	Salmonella	Fluoroquinolone
Medium Priority	Neisseria gonorrhoea	3 rd generation cephalosporin, Fluoroquinolone
	Streptococcus pneumonia	Penicillin
	Haemophilus influenza	Ampicillin
	Shigella species	Fluoroquinolone

Carbapenem resistance in India is 20 times more common than in U.S. ICMR revealed 85% resistance of *Acinetobacter spp* to carbapenems, genus contributing to 20% of admissions in ICU setting.⁷ Data from GLASS study revealed MRSA rates to be 25%, *E.coli* resistance to 3rd generation cephalosporins as 36.6% and alarming level of carbapenem resistance in *Acinetobacter* ie.,65%.⁸ Common infections could once again become deadly killers if we are unable to treat them with antimicrobials.

Development and spread of resistance far exceed our innovations and developments. In the past 3 decades we have developed only 2 new classes of drugs for Gram positives with no developments for drug resistant Gram-negative bacteria.⁹ We need to strengthen our funds on vaccines and drugs to combat the death due to AMR. Adequate surveillance at community level through epidemiological and microbiological tools are needed to analyse the situation and to fill the gap in knowledge on microbes.

What can be done at hospital level is adoption of Infection control measures and antimicrobial stewardship through regular training of health care professionals and prescriptions audits. We need to watch antimicrobial use in food animals by strengthening veterinary medicine.

To conclude, antimicrobial resistance is a multifaceted problem which if not taken actions can have a devastating health, social and economic impact.

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