

INFECTIOUS DISEASES

ANTIMICROBIAL RESISTANCE IN INDIA

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Abstract: Antimicrobial resistance is projected to kill 10 million people by 2050. The biggest driver of antimicrobial resistance is irrational/unrestricted use of antimicrobials in humans and animals. Antimicrobial resistance is a problem in all types of pathogens including bacteria, mycobacteria, viruses, fungi and parasites in both India and in the world. However the biggest concern for India is the resistance in gram negative pathogens and *Mycobacterium tuberculosis*. The alarming rate of extended spectrum beta lactamase production in enterobacteriaceae in both community and health care associated infections is driving carbapenem use. Rates of carbapenem resistance are now significantly high in health care associated gram negative pathogens including *E. Coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii* with associated mortality rates of 50%. The epidemic of multidrug resistant and extremely drug resistant tuberculosis in India is a public health calamity. The key solution to this antimicrobial resistance crisis lies in promoting rational antimicrobial therapy and exercising antimicrobial stewardship.

Keywords: Antimicrobials, Resistance, India, Stewardship

Points to Remember

- *Antimicrobial resistance compromises treatment of infections and is associated with increased morbidity, mortality, adverse effects and cost of therapy.*
- *AR is fuelled largely by irrational use of antimicrobials in both humans and animals.*
- *AR in gram negative bacteria through production of extended spectrum beta lactamase (ESBL) and carbapenemases is alarming in the Indian health care setting.*
- *AR in *S. pneumoniae* to penicillins and cephalosporins is emerging, forcing change in empiric regimens for acute bacterial meningitis.*
- *MDR and XDR in *M. tuberculosis* is a big hurdle in the elimination of tuberculosis from India.*
- *The impact of resistance in other pathogens including *Candida*, influenza, HIV and malaria should not be forgotten.*

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