Society & Social Justice · GS - II

Discuss the public health challenges posed by antimicrobial resistance. Examine how antimicrobial stewardship and diagnostic capacity can help address drug-resistant infections in India.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 27/11/2026	GS - II	Society & Social Justice

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Antimicrobial resistance, inappropriate antibiotic use, biofilms, diagnostic infrastructure, antimicrobial stewardship, infection prevention, One Health approach

Model Answer

Antimicrobial resistance (AMR) occurs when microorganisms develop the ability to survive exposure to medicines that previously inhibited or killed them. It reduces treatment effectiveness and increases the risk of prolonged illness and complications.

1. Factors contributing to AMR

1. **Inappropriate prescriptions:** Unnecessary antibiotic use, self-medication and incorrect drug selection increase selective pressure on bacteria.
2. **Incomplete or inappropriate treatment:** Incorrect dosage, duration or adherence can contribute to treatment failure and resistance selection. Patients should follow prescribed treatment and seek medical advice rather than independently modifying it.
3. **Biofilm formation:** Bacteria embedded in protective biofilms may tolerate antimicrobial exposure, contributing to persistent infections.

4. **Healthcare-associated transmission:** Catheters, hospital environments and inadequate infection-control practices facilitate the spread of resistant organisms.
5. **One Health dimension:** Antibiotic use in humans, livestock and agriculture, alongside environmental contamination, contributes to resistance across interconnected ecosystems.

2. Strengthening India's response

1. **Antimicrobial stewardship:** Hospitals should promote evidence-based prescriptions, antibiotic review and restriction of unnecessary broad-spectrum medicines.
2. **Diagnostic capacity:** Accessible microbiological testing and antibiotic susceptibility testing can help clinicians select appropriate treatment.
3. **Infection prevention:** Hand hygiene, sterilisation, sanitation and catheter-care protocols reduce healthcare-associated infections.
4. **Surveillance:** Integrated monitoring of resistance patterns can guide treatment guidelines and public health interventions.
5. **One Health coordination:** Human health, veterinary and environmental authorities must coordinate surveillance and responsible antibiotic use.

Conclusion: AMR cannot be addressed through new medicines alone. Rational prescribing, reliable diagnostics, infection prevention and coordinated One Health action are essential to preserve the effectiveness of existing antibiotics.

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