

AMR *Sameeksha**

Highlights

- PM Modi's health warning that every Indian must take seriously
- The National Action Plan on Antimicrobial Resistance (2025-2029)
- AMR profile of catheter-associated and non-catheter urinary tract infections in trauma patients
- IPC *Sameeksha* volume 25
- A rapid bacterial labelling method for phenotypic antimicrobial susceptibility testing
- AMR in India – integrating the response into health systems for universal health coverage

1) Awareness and understanding

Household knowledge of clinical risks, storage, and disposal of leftover antibiotics: a multinational study in seven developing countries

- Examines knowledge-practice gaps regarding antibiotic use and handling among individuals with prior self-medication with leftover antibiotics in seven developing countries, including India.
- Found that higher AMR knowledge was associated with poorer disposal practices, suggesting that awareness alone cannot drive behavioural change in management of antibiotics.

Antibiotics | Article | 2 December 2025 | [Online link](#)

Social science contributions to the global action plan on antimicrobial resistance

- Proposes application of three social science concepts – AMR as socio-ecological dynamics, antimicrobials as essential infrastructure, and AMR as collective action problems – during revision of the global action plan on AMR.
- Understanding and integration of these social concepts shall facilitate more equitable, sustainable and multisectoral interventions to address the threat of AMR.

Bulletin WHO | Perspectives | 1 January 2026 | [Online link](#)

2) Laboratories and surveillance

Multicentre epidemiology of *Stenotrophomonas maltophilia* bloodstream infections in Indian ICUs: building digital surveillance network

- Studies seven years of geospatial epidemiology, clinical features, treatment patterns and AMR trends of *Stenotrophomonas maltophilia* bloodstream infections in Indian ICUs in a national HAI surveillance program.
- Highlights the importance of strengthening antimicrobial stewardship and genomic surveillance.

Frontiers Microbiology | Original research article | 4 December 2025 | [Online link](#)

Emergence of carbapenem-resistant *Salmonella* Typhi harbouring blaNDM-5 in India: genomic evidence from a multicentre study

- Reports a multi-centre outbreak of carbapenem-resistant *S. Typhi* in India and study its phenotypic/genomic epidemiology, resistance mechanisms, and evolutionary origins.
- Highlights the need for genomic surveillance to track AMR and its transmission, antibiotic stewardship policies and deployment of typhoid vaccine to reduce disease burden and antimicrobial use to address the emergence of high-risk *S. Typhi* clones.

Frontiers Microbiology | Original research article | 3 December 2025 | [Online link](#)

Epidemiological and antimicrobial resistance profile of catheter-associated and non-catheter urinary tract infections in trauma patients (2017–2024)

- Studies the epidemiology, microbiological profile, AMR patterns, and clinical outcomes of CAUTIs and non-CAUTI urinary tract infections at a Level 1 Trauma Centre in India over seven years.
- Highlights the importance of CAUTI burden and the high levels of AMR in various pathogens causing it.

BMC Infectious Diseases | Article | 30 December 2025 | [Online link](#)

Biomarkers innovation in urinary tract infections: insights into pathophysiology, antibiotic resistance, and clinical applications

- Reviews diagnostic application of urinary biomarkers to identify infection severity, organ dysfunction, and antibiotic resistance in UTI.
- Highlights the importance of validating and standardizing biomarker-based diagnostics using biosensors to detect antibiotic resistance at the point of care – to support fast, accurate, and cost-effective UTI management.

World Journal of Nephrology | Minireview | 25 December 2025 | [Online link](#)

Molecular characterization of carbapenemases in Gram-negative bacilli infections: a 5-year, retrospective, observational study at a tertiary care centre

- Retrospectively study of carbapenemase genes in Gram-negative bacilli over 5 years at a tertiary care hospital in South India observes a shift toward NDM and NDM + OXA-48 genotypes.
- Proposes rapid molecular diagnostics support for optimizing treatment and antimicrobial stewardship for managing high-risk carbapenemase resistant Gram-negative infections.

Annals of African Medicine | Original article | 31 December 2025 | [Online link](#)

3) Infection prevention and control

Sameeksha – Infection Prevention and Control | volume 25

- Primary bloodstream infections (not associated with central lines) in a network of Indian hospitals
- Artificial intelligence for detecting and predicting healthcare-associated infections
- Effect of SMSs on improving nurses' hand hygiene behaviour
- *Candidozayma auris* – review of evidence, guidance for healthcare settings and information for everyone
- Wastewater and environmental surveillance for AMR

WCO India | Publication | 12 January 2026 | [Online link](#)

4) Optimise use of antimicrobials

WHO definitions for reserve antibiotics

- Reviews the elements of the 2025 essential reserve antibiotic definition where changes are possible and proposes development of consensus to refine the definition of MDR in gram-negative bacteria.
- Broad stakeholder consultation to review AWaRe categories is needed to revise the reserve antibiotic definition, and listed reserve antibiotics, by the essential medicines list expert committee in 2027.

Bulletin WHO | Perspectives | 12 November 2025 | [Online link](#)

Effectiveness, safety, and feasibility of outpatient parenteral antimicrobial therapy in a resource-limited setting: a pilot longitudinal study

- Evaluates the feasibility and role of out-patient antibiotics in antimicrobial stewardship at a tertiary care hospital in India.
- Finds that antibiotics given at home or an OPD clinic/centre support antimicrobial stewardship by effectively reducing hospital stay by two weeks, and thereby prevent hospital associated infections.

World Journal of Methodology | Prospective study | 20 December 2025 | [Online link](#)

Plazomicin in multidrug-resistant complicated urinary tract infections: a scoping review

- Review on Plazomicin (a new aminoglycoside) shows high microbiological eradication and comparable clinical cure rates versus meropenem in complicated urinary tract infections caused by multidrug-resistant organisms, with generally favourable safety and potent activity against Enterobacteriaceae.
- Demonstrates synergy with other antibiotics and broad MDR efficacy, but data from low- and middle-income settings remain limited, highlighting the need for real-world studies.

Therapeutic Advances in Infectious Diseases | Research article | 24 December 2025 | [Online link](#)

Combining an antibiotic stewardship program with a 15-pathogen viral panel to reduce inappropriate antibiotic prescribing

- Evaluates integration of an antibiotic stewardship programme with a rapid 15-pathogen viral diagnostic panel for patients with acute upper respiratory tract infections in outpatient care, could reduce unnecessary antibiotic prescribing, which is common in these viral illnesses.
- Finds reduction in inappropriate antibiotic use for ARIs, suggesting that point-of-care viral diagnostics plus stewardship support can improve antibiotic prescribing practices in outpatient settings.

Microbiology Spectrum | Research article | 28 November 2025 | [Online link](#)

Real-world use of molecular point-of-care testing for sexually transmitted infections (STIs) in the emergency department: why it matters for acute care management

- Real-world quasi-experimental implementation study in an emergency department comparing traditional central laboratory STI testing versus a rapid molecular point-of-care PCR test for *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, and *Trichomonas vaginalis* in adult female patients.
- Integrating point of care molecular testing for STI significantly reduced patient length of stay and lowered rates of overtreatment, while enabling more targeted antibiotic use compared with standard lab testing.

Open Forum Infectious Diseases | Journal article | 12 December 2025 | [Online link](#)

Inventory of survey instruments for monitoring antimicrobial use in primary care settings in low- and middle-income countries: a narrative review

- Reviews 42 survey instruments from 450 studies used to monitor antimicrobial use in primary health care in LMICs – mainly capturing agent type, prescription status and reasons for antibiotic use.
- Authors call for broader scope of tools with digital systems, standardized indicators, analysis and inclusion of AWaRe categories to strengthen monitoring of antimicrobial use.

Antibiotics | Review | 15 November 2025 | [Online link](#)

Rule-breaking and rulemaking: governance of the antibiotic value chain in rural and peri-urban India

- Maps how antibiotics flow through fragmented rural and peri-urban value chains in West Bengal, revealing overlapping formal and informal actors (wholesalers, medical reps, informal providers) whose incentives and weak regulation drive inappropriate use.
- Effective antimicrobial stewardship must target governance across the entire chain – including upstream influencers like wholesalers and marketing networks – not just frontline informal providers.

Antibiotics | Article | 15 December 2025 | [Online link](#)

Determinants of infection for antibiotic initiation at pediatric emergency admission: a prospective observational study

- Prospective study developed the Children's Antibiotic Requirement Evaluation Score (CARES) using clinical signs (fever, abnormal colour, fluid overload, altered sensorium, cellulitis), prior antibiotic use, and CRP to guide timely antibiotic decisions in pediatric emergency admissions.
- CARES showed moderate accuracy in identifying infection determinants, aiming to reduce irrational antibiotic use and improve early sepsis care.

World Journal of Clinical Pediatrics | Observational study | 9 December 2025 | [Online link](#)

The effectiveness of a hospital-based antimicrobial stewardship program: a three-year observational study

- Multidisciplinary hospital antimicrobial stewardship program in an Indian tertiary care centre was linked to reduced antibiotic use, better surgical prophylaxis selection, lower resistance trends, and a significant drop in standardized mortality ratio over three years.
- Policy compliance varied, de-escalation gains were inconsistent, and readmissions/ICU transfers rose, highlighting the need for sustained intervention and risk-adjusted evaluation.

Medical Principles and Practice | Research article | 2 December 2025 | [Online link](#)

Overview of methods for assessing antimicrobial use in outpatient settings in high-income countries: a narrative review

- Narrative review maps the monitoring of outpatient antibiotic use, focusing on data sources and their relevance for stewardship and surveillance, since 80-90% antibiotics are used in OPD settings.
- Surveillance databases remain the primary method for tracking outpatient AMU in HICs, and reporting by WHO's AWaRe antibiotic categories is increasing.

Antibiotics | Review | 16 November 2025 | [Online link](#)

5) Research, innovations and finance

A rapid bacterial labelling method for phenotypic antimicrobial susceptibility testing

- Bacteria Labelling Antibiotic Susceptibility Test (BLAST) using metabolic labelling and click-chemistry can test the antibiotic susceptibility of both Gram-negative and Gram-positive strains of bacteria known to cause UTI.
- BLAST delivers accurate MIC results in about 6 hours for multiple antibiotics –offering a rapid, scalable AST workflow to improve clinical decision-making and antibiotic stewardship.

Diagnostic Microbiology and Infectious Disease | Original article | 7 November 2025 | [Online link](#)

Novel lytic phages improve the antibiofilm activity of dalbavancin, daptomycin, and fosfomycin against vancomycin-resistant enterococci

- Evaluates two novel lytic phages, alone and combined with last-line antibiotics, for their ability to eradicate VRE biofilms in vitro.
- Phage-antibiotic combinations were found to markedly enhance antibiofilm activity, with some combinations completely eradicating biofilms that antibiotics alone could not suppress.

Microbiology Spectrum | Research article | 19 November 2025 | [Online link](#)

Eradication of *Pseudomonas aeruginosa* using fixed-dose combination of probiotics and bacteriophages: development of an inhalable powder

- Explores in-vitro synergistic interaction of probiotics and bacteriophages in a fixed-dose combination of inhalable powder against *P. aeruginosa*.
- Offers a novel therapeutic approach against resistant *P. aeruginosa* infections, to improve treatment options for respiratory infections.

International Journal of Pharmaceutics | Article | 22 November 2025 | [Online link](#)

Chemical probe design strategies to detect carbapenemase-producing organisms

- Outlines the design principles and recent advances in chemical probes – including fluorogenic, chemiluminescent, and redox-activatable reporters – for rapid, sensitive, and specific detection of carbapenemase-producing organisms.
- Enhanced chemical probes could enable rapid clinical diagnostics, guiding timely antimicrobial therapy, limiting spread of carbapenem resistance, and improving antibiotic stewardship.

European Journal Medicinal Chemistry | Review article | 17 October 2025 | [Online link](#)

Nanomedicine for phage therapy: encapsulation strategies for enhanced antimicrobial efficacy

- Discusses advanced nanomedicine-driven encapsulation strategies – like polymeric nanoparticles, liposomes, hydrogels, nanofibers, inorganic nanocarriers – to improve bacteriophage stability, delivery, and therapeutic effectiveness against multidrug-resistant bacterial infections.
- Nanotechnology-based phage delivery platforms could overcome key limitations in phage therapy, offering more reliable and potent alternatives or complements to conventional antibiotics to treat resistant infections.

International Journal of Antimicrobial Agents | Article | 23 November 2025 | [Online link](#)

Essential oils as antimicrobial agents against WHO priority bacterial pathogens: a strategic review of in vitro clinical efficacy, innovations and research gaps

- Systematically reviews in-vitro evidence on plant-derived essential oils against priority bacterial pathogens, highlighting broad-spectrum antimicrobial actions – disrupting biofilms, quorum sensing, efflux pumps – and innovative analytical and delivery approaches supporting their activity.
- These potential alternatives to antibiotics need further clinical validation, standardization, and safety evaluation.

Antibiotics | Review | 10 December 2025 | [Online link](#)

6) Collaborations

Antimicrobial resistance in India: integrating the response into health systems for universal health coverage

- Reviews AMR in India – finding gaps in enforcement, data fragmentation and limited awareness, despite progress in AMR policies and lab networks.
- The authors call for stronger governance, integrated One Health surveillance, adoption of artificial intelligence, and embedding AMR strategies into universal health coverage.

Journal of Global Antimicrobial Resistance | Review | 10 January 2026 | [Online link](#)

An economic framework for One Health investment: a critical tool for decision makers

- Proposes a conceptual economic framework based on six principles to guide investment decisions in One Health initiatives, showing through case studies (including AMR and leptospirosis) how targeted investments can improve efficiency, health outcomes, and cross-sector benefits beyond collaborative efforts alone.
- Applying economic reasoning helps policymakers justify and prioritize One Health funding, emphasizing that adequately resourced animal and environmental health sectors are essential for effective AMR control and broader health security.

Preventive Veterinary Medicine | Article | 12 December 2025 | [Online link](#)

Influence of anthropogenic inputs on microbial risks and resistance genes in a riverine environment

- Using metagenomic analysis of river water affected by agricultural, hospital, domestic, and treated wastewater discharges, the study found diverse multi-drug-resistant pathogenic microbes and antibiotic resistance genes (ARGs), especially in hospital and wastewaters.
- Results highlight serious public health risks from anthropogenic discharge, emphasizing the need for stricter wastewater treatment, regulation, and monitoring to curb dissemination of resistant microbes and ARGs.

International Journal of Hygiene and Environmental Health | Article | 27 October 2025 | [Online link](#)

Strengthening antimicrobial resistance governance in Europe: a coordinated one health approach

- Reviews the current state of AMR governance in Europe, emphasizing persistent gaps in surveillance, stewardship, and policy implementation despite existing strategies.
- Authors call for strengthened, harmonized governance mechanisms, better data integration, investment in stewardship, and cross-sector collaboration to curb the AMR burden.

The Lancet Regional Health – Europe | Viewpoint | 18 November 2025 | [Online link](#)

National Action Plan on Antimicrobial Resistance (2025-2029)

- Launched on 18 November 2025, NAP-AMR 2.0 includes operational plans of key departments and ministries, with strengthened governance systems and 14 key performance indicators for monitoring and evaluation.
- The 'One Health' approach is strongly embedded with sectoral action as the foundation of intersectoral collaboration and coordination among human, animal, agriculture, environmental and other relevant sectors over the next 5 years.

Government of India | NAP-AMR | 18 November 2025 | [Online link](#)

Antibiotic contamination and antimicrobial resistance dynamics in the urban sewage microbiome in India

- Metagenomic and genomic analyses of 381 urban sewage samples from six Indian states, the study measured antibiotic residues, microbial diversity, and ARGs, and found antibiotics from seven classes, >2000 bacterial variants, 82 ARGs linked to 80 mobile elements, and strong genetic similarity between sewage isolates and clinical multidrug-resistant pathogens, highlighting sewage as a major AMR reservoir.
- The dipstick assay developed for ARG detection offers a practical surveillance tool for low-resource settings to monitor resistance prevalence and guide public health interventions.

Nature Communications | Article | 29 December 2025 | [Online link](#)

Quotable quote

Health warning that every Indian must take seriously

"Mann Ki Baat" provides us with a wonderful opportunity to discuss important topics related to the welfare of society. Today, I want to address one such issue that has become a matter of concern for all of us.

The ICMR (Indian Council of Medical Research) recently released a report. It states that antibiotics are proving ineffective against many diseases like pneumonia and UTI. This is a matter of great concern for all of us. According to the report, a major reason for this is people's indiscriminate use of antibiotics. Antibiotics are not medicines that should be taken mindlessly. They should be used only on the doctor's advice. Nowadays, people have started believing that just taking a pill would cure all their problems. This is the reason, diseases and infections are proving to be too strong for these antibiotics. I urge all of you to refrain from using medicines at your own discretion. This is especially important when it comes to antibiotics. I would simply say: Medicines require guidance, and antibiotics require doctors. This practice will prove to be very helpful in improving your health.

– Mr Narendra Modi
Hon'ble Prime Minister of India
Mann ki Baat 28 December 2025

***Sameeksha** is a Hindi word, meaning review. This is a compilation of open access publications and resources on One Health containment of AMR (along with a brief summary) – grouped according to the strategic priorities of India's National Action Plan on Antimicrobial Resistance. Kindly note, inclusion of publications and resources in this review/compilation does not imply an endorsement by WHO.