World Health Organization India

sameeksha

ANTIMICROBIAL RESISTANCE (AMR) | Volume 43 | 25 March 2026

AMR *Sameeksha**

Highlights

- From advocacy to action: accelerating the fight against AMR in Asia-Pacific
- First report of OXA-484 carbapenemase harbouring clinical isolate of *Escherichia coli* ST2099 in India
- APSIC revised guidelines for prevention of CLABSI
- Antibiotic use and gut microbiome composition links from individual-level prescription data
- Vaccines and antimicrobial resistance: from science to policy
- The AMR footprint proposed as an integrative indicator in the global response to AMR

Going forward, IPC Sameeksha will be an integral part of AMR Sameeksha (as strategic objective 3), instead of a standalone publication.

Quotable quote

... Together, we have the power to change the trajectory of AMR and safeguard the health of future generations.

– Dr Catharina Boehme
Officer-in-Charge, WHO South-East Asia
Tokyo AMR One Health Conference

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 objectives of India's National Action Plan on Antimicrobial Resistance 2.0. Kindly note, inclusion of publications and resources in this review/compilation does not imply an endorsement by WHO.

1) Improve awareness and understanding

From advocacy to action: accelerating the fight against AMR in Asia-Pacific

- Op-Ed by the heads of WHO Regional offices for the Western Pacific and South-East Asia highlights the variability in AMR burden across countries in both regions, with gaps in access to timely care and inequities linked to socioeconomic and health-system factors.
- Highlights the need for context-specific health system strengthening, improved data systems, and targeted policies to reduce inequities, enhance timely care delivery, to contain AMR in the Asia-Pacific region.

The Lancet Regional Health | Comment | 9 March 2026 | Online link

Factsheet on antimicrobial resistance (AMR) for veterinarians

- Highlights AMR as a major One Health threat impacting food safety, livelihoods, and economies, requiring coordinated One Health, multisectoral action and responsible antimicrobial use.
- Guides use of antibiotics with a "as little as possible, as much as necessary" approach in veterinary practice – stopping antibiotic use for growth promotion, client education, outcome monitoring and infection control.

FAO | Factsheet | 1 March 2026 | Online link

Barriers and facilitators to the implementation of antimicrobial stewardship in veterinary education: A scoping review

- Scoping review finds limited integration of AMS in veterinary education, with gaps in curricula, insufficient teaching time, weak linkage between theory and practice, and lack of systems to monitor antimicrobial use.
- Key facilitators include multidisciplinary collaboration, leadership, and One Health approaches, while barriers include resource constraints and weak policy support, highlighting need for curriculum reform and training.

Journal of Global Antimicrobial Resistance | Review | 2 March 2026 | Online link

Garrod lecture: achieving the UNGA AMR mortality reduction goals

- Proposes a four-box framework to achieve the United Nations General Assembly's goal of reducing global AMR mortality by 10% by targeting populations with the highest unmet needs.
- Emphasizes preventing infections through vaccines and sanitation, improving stewardship, expanding access to existing antibiotics, and developing new drugs tailored specifically for Global South markets.

Journal of Antimicrobial Chemotherapy | Journal article | 11 March 2026 | Online link

2) Strengthen laboratory capacity

First report of OXA-484 carbapenemase harbouring clinical isolate of *Escherichia coli* ST2099 in India: genome characterization using whole genome sequencing

- Researchers from ICMR-NIRBI report the first identification in India of *E. coli* ST2099 carrying OXA-484, a variant of OXA-48-like carbapenemase, highlighting emergence of a difficult-to-detect resistance mechanism in clinical settings.
- Whole-genome sequencing shows the resistance gene located on mobile plasmids, indicating high potential for spread and underscoring the need for improved detection and surveillance of carbapenem-resistant pathogens.

Infection Genetics and Evolution | Article | 15 February 2026 | Online link

Genomic landscape of antimicrobial resistance in India: findings from a multi-species surveillance study

- Genomic mapping of 266 isolates shows that genomic predictions often overestimate resistance, while some phenotypic resistance remains unexplained – highlighting gaps in current gene catalogues.
- Underscores the need to integrate genomics with lab testing to improve diagnostics, surveillance, and antibiotic stewardship, supporting development of more accurate DNA-based tools for AMR control in India/LMICs.

npj Antimicrobials and Resistance | Article | 16 February 2026 | Online link

Antimicrobial resistance in bacterial meningitis caused by *Streptococcus pneumoniae*, *Neisseria meningitidis*, or *Haemophilus influenzae* (2010–24)

- Provides evidence that meningitis caused by antibiotic-resistant bacterial pathogens, especially *Streptococcus pneumoniae,* poses challenges for effective treatment and outbreak response.
- Highlights urgent need for stronger surveillance and tailored treatment guidelines to achieving the goals of WHO's roadmap to defeat meningitis.

The Lancet Microbe | Article | 27 January 2026 | Online link

Phenotypic and genotypic characterization of antimicrobial-resistant uropathogens in community settings of India: a multicentric cross-sectional study

- Identifies a high prevalence of multidrug-resistant organisms, including globally recognised high-risk clones, with diverse resistance genes contributing to limited treatment options for UTI in community settings in India.
- Highlights growing AMR beyond hospitals, stressing the need for strengthened community surveillance, stewardship, and targeted interventions to curb spread and guide empirical therapy.

Journal of Global Antimicrobial resistance | Article | 10 December 2025 | Online link

Metagenomic profiling of antimicrobial resistance in wastewater from metropolitan cities of India

- Metagenomic analysis of wastewater from four Indian cities shows high diversity and abundance of AMR genes (ARGs), with many novel microbial genomes and strong city-specific microbial patterns.
- ARGs (especially for tetracyclines and β-lactams) are frequently linked to mobile genetic elements, enabling rapid spread across microbes, highlighting wastewater as a key environmental reservoir requiring surveillance.

Nature Communications | Article in Press | 17 March 2026 | Online link

Molecular detection, serotyping, cytotoxicity, and antimicrobial resistance of STEC and EPEC isolated from milk and milk products in northern India

- Study of milk and dairy products in northern India identifies Shiga toxin-producing and enteropathogenic *E. coli* with multiple virulence genes and diverse serotypes, highlighting foodborne public health risks.
- Many isolates showed multidrug resistance, underscoring contamination risks in the dairy chain and the need for improved hygiene, surveillance, and antimicrobial stewardship to limit transmission and protect consumers.

Frontiers in Microbiology Food Microbiology | Original research article | 18 February 2026 | Online link

3) Reduce incidence of infection

APSIC revised guidelines for prevention of central line associated bloodstream infections (CLABSI): a summary and position statement

- Updated Asia-Pacific guidelines emphasize using quality improvement approaches to reduce infections, with practical adaptations and implementation checklists and a goal of achieving near-zero CLABSI rates.
- Recommend continuous surveillance to monitor outcomes and compliance with bundles, and data-driven feedback, with additional targeted measures where infection rates remain high, to strengthen infection prevention systems.

Antimicrobial Stewardship & Healthcare Epidemiology | Guidelines | 3 February 2026 | Online link

Customizing infection prevention and control modules for combating healthcare-acquired infections in low-resource hospitals or resource-constrained healthcare settings: a local and global approach

- Multicentre quality improvement study in 11 Indian hospitals shows a customised, WHO-aligned IPC model significantly improved hand hygiene and care bundle compliance.
- Despite improved processes, HAI rates remained stable, highlighting variability across hospitals and the need for continued standardisation, surveillance, and scaling of IPC programmes for sustained impact.

Antimicrobial Resistance & Infection Control | Article in Press | 11 March 2026 | Online link

Surveillance of central-line-associated blood stream infections (CLABSI) in intensive care units of a tertiary care center in Western India

- Prospective ICU study in India reports high CLABSI incidence (~11–15.6 per 1,000 line-days) with nearly 50% mortality, predominantly caused by multidrug-resistant Gram-negative bacteria.
- Findings highlight urgent need for continuous surveillance, strict infection-control practices, and antimicrobial stewardship to reduce device-associated infections and resistance in critical care settings.

GMS Hygiene and Infection Control | Research article | 6 February 2026 | Online link

Enhancing hand hygiene compliance to reduce healthcare-associated infections in a coronary care unit: a QI initiative in a tertiary hospital in South India

- A quality improvement (QI) intervention significantly improved hand hygiene compliance.
- Embedding QI capacity-building within national IPC programmes can scale and sustain improvements, supporting reduced healthcare-associated infections and strengthening overall patient safety systems.

BMJ Open Quality | Original research | 19 March 2026 | Online link

4) Optimise use of antimicrobials

Antibiotic use and gut microbiome composition links from individual-level prescription data of 14,979 individuals

- Large population study in Sweden links antibiotic use to long-term gut microbiome disruption, with the strongest reduction in diversity seen within 1 year, and persisting up to 4–8 years, even after a single course.
- Effects varied by antibiotic class – clindamycin, fluoroquinolones, and flucloxacillin showed the greatest impact on microbial composition – highlighting implications for antibiotic stewardship and long-term health risks.

Nature Medicine | Article | 11 March 2026 | Online link

Clinical outcomes of multidrug-resistant organism infections in a tertiary care hospital in India

- Study of ~1600 patients with MDRO infections in an Indian tertiary hospital found high mortality (21%) and substantial ICU use, with significantly prolonged ICU and hospital stays, indicating major clinical burden.
- Found no mortality difference with isolation but longer stays and wide interdepartmental variation in antibiotic use highlight gaps in infection control and stewardship, underscoring need for targeted interventions to optimize treatment and reduce resistance.

World Journal of Clinical Cases | Observational study | 16 February 2026 | Online link

Prevalence of pre-hospital antibiotic exposure and its associated factors among pediatric population: a cross-sectional study

- Cross-sectional study (India; 774 children) found ~21% received antibiotics before hospital visits, via empiric prescriptions (83%) and self-medication.
- Pre-hospital antibiotic use – commonly with co-amoxyclav, cefixime, and azithromycin – was linked to caregiver and clinical factors, raising concerns about inappropriate use.

BMC Pediatrics | Article | 6 February 2026 | Online link

Safe disposal of unused medicines – a One Health approach for national systems

- Aims to strengthen the implementation of national systems for safe disposal of unused medicines with four key pillars – waste prevention, comprehensive take-back schemes, legal and policy frameworks, and awareness-raising across critical sectors.
- Provides actionable, evidence-based insights to implement effective, context-specific strategies for prevention, reduction and environmentally sound management of unused medicines and its associated impacts.

UNEP | Guidance materials | March 2026 | Online link

5) Promote research and innovations

Vaccines and antimicrobial resistance: from science to policy – summary and outcomes

- Reviews how vaccines reduce antimicrobial resistance by preventing infections, lowering antibiotic use, and limiting resistance emergence, using a One Health approach across human and animal health.
- Emphasizes policy priorities – accelerate vaccine development, improve equitable global access, strengthen evidence, and integrate vaccines into AMR strategies ahead of global policy processes.

Philosophical Transactions B | Review article | 19 February 2026 | Online link

Target product profile to guide development of next generation diagnostic test for *Salmonella enterica:* responding to the crisis of drug resistant typhoid

- Defines a target product profile for next-generation typhoid diagnostics prioritizing rapid, point-of-care tests that accurately detect *Salmonella* Typhi/Paratyphi and include antimicrobial susceptibility testing to guide treatment in LMICs.
- Highlights limitations of current antibody tests and emphasizes molecular methods (e.g., CRISPR, LAMP, PCR variants) for higher accuracy, alongside integrating AMR markers to improve detection, surveillance, and management of drug-resistant typhoid.

Journal of Infection and Public Health | Original article | 14 February 2026 | Online link

Breaking the matrix: Novel phages disrupt resilient *Pseudomonas aeruginosa* biofilms and enhance chemical disinfection on ICU surfaces

- New bacteriophages isolated from sewage effectively target *Pseudomonas aeruginosa* on ICU surfaces, showing strong inhibition of planktonic bacteria (≈80–100%) and biofilms (≈43–79%).
- Sequential application of phages followed by chemical disinfectants significantly enhances biofilm disruption compared to either alone, suggesting a synergistic strategy for surface decontamination and infection control.

Environmental Technology & Innovation | Article | 26 January 2026 | Online link

Global research agenda on knowledge translation and evidence-informed policy-making: prioritizing research for better decision-making

- Identifies 19 priority research areas on improving evidence use, understanding barriers, and strengthening methods – focused on what works, what enables or hinders evidence use, and how methods and tools can be improved.
- Serves as a practical guide for researchers, policy-makers, funders and partners to align efforts and translate evidence into effective, equitable health policies.

WHO | Publication | 11 March 2026 | Online link

Target product profiles for new antibacterial agents

- Presents target product profiles (TPPs) for new antibacterial agents for treatment of severe infections caused by multidrug-resistant Gram-negative bacteria, antibiotic-resistant Gram-positive infections in immunosuppressed and critically ill patients, and community-acquired and health care-associated bacterial meningitis.
- Aligns product development with WHO bacterial priority pathogens list (2024) and evidence from WHO antibacterial pipeline analyses, prioritizing syndromes with high morbidity and mortality and emphasizing needs in LMICs.

WHO | Global report | 11 March 2026 | Online link

Beyond antibiotics: the expanding horizon of microbial natural products

- Microbial natural products (from bacteria, fungi, algae) offers alternative to antibiotics as antibacterial, antifungal, antibiofilm, and immunomodulatory effects, and the ability to reshape microbial communities.
- These compounds have broad applications – including food preservation, agriculture and aquaculture – though challenges in discovery, standardisation, and translation remain for large-scale AMR solutions.

Frontiers in Antibiotics | Mini review article | 26 February 2026 | Online link

6) Strengthen governance, coordination and collaborations

The AMR footprint: an integrative indicator in the global response to antimicrobial resistance

- Proposes an "AMR footprint"– like the carbon footprint – to integrate and track multisectoral indicators (human, animal, environment) against national baselines, enabling clearer measurement of progress on AMR.
- Embedding it in monitoring and accountability frameworks could shift AMR action from aspirational targets to measurable progress, improving benchmarking, transparency, and sustained financing for global response.

JAC-Antimicrobial Resistance | Journal article | 25 February 2026 | Online link

Regional roadmap to accelerate actions on antimicrobial resistance in the human health sector in the South-East Asia Region (2025–2030)

- Outlines a regional roadmap to guide countries in upgrading their AMR responses, grounded in local data, health system capacity and principles of WHO's people centred approach to AMR.
- Provides a stepwise method to improve implementation, prioritize action, and track progress – towards stronger health systems and reduced AMR impact by 2030.

WHO SEARO | Publication | 14 October 2025 | Online link

Inclusion of antimicrobial resistance in a pandemic agreement: why it matters and what comes next?

- Inclusion of AMR in the pandemic agreement recognizes it as a major global health threat, but current provisions are limited, and evidence guiding policy remains scarce, with only minimal empirical data available.
- Key barriers (inequity, weak governance, and inadequate financing) may outweigh enabling factors; effective implementation requires stronger global coordination, equity, and access to health resources to meet AMR targets.

Health Affairs Scholar | Journal article | 28 February 2026 | Online link

Gender and other intersecting factors in antimicrobial resistance for infectious diseases of poverty: a systematic evidence gap analysis in low- and lower-middle-income countries

- Finds major evidence gaps on gender and AMR in LMICs, with all studies focused only on tuberculosis and little use of intersectional analysis e.g., socioeconomic status, or ethnicity.
- Evidence shows gendered vulnerabilities: men have poorer treatment retention and ~4× higher mortality risk, while women face treatment delays and rely more on informal antibiotics – highlighting need for intersectional, equity-focused AMR research and policy.

BMC Public Health | Systematic review | 16 March 2026 | Online link

Evaluation of antimicrobial resistance governance across 193 countries to inform the 2026 Global Action Plan update

- This global longitudinal study developed an AMR governance index across countries (2017–2022) and linked stronger governance – especially early adoption of national action plans – to reductions in antimicrobial use and resistance trends, though progress varied widely.
- Despite policy advances, implementation, monitoring, and public awareness remain weak, highlighting the need for sustained investment and stronger systems to translate governance into real-world AMR control.

Nature Medicine | Article | 3 March 2026 | Online link

Summary report of the IPEA UN Member States consultation

- Documents the written consultation with United Nations Member States on the first draft of the Founding Document of the Independent Panel on Evidence for Action against Antimicrobial Resistance (IPEA)
- Includes drafts of complementary documents related to its operationalization.

Quadripartite | Meeting report | 5 March 2026 | Online link