

AMR Sameeksha*

Highlights

- World AMR Awareness Week 2025 events
- Innovative approaches to AMR education: evaluating the impact of gamification on ASHA workers
- Prevalence of multidrug-resistant gram-negative bacilli causing neonatal sepsis
- IPC Sameeksha volume 24
- Pattern of antibiotic prescribing practices at primary health settings in India
- Phage-antibiotics synergy and nanotechnology interventions for management of bacterial drug resistance
- Acanthamoeba as a microbial trojan horse for multidrug resistant bacteria

1) Awareness and understanding

World AMR Awareness Week 2025 events

- Details of highlighted events planned before and during the World AMR Awareness Week (WAAW) 2025
- Events are organized by WHO and various partners including the AMR Quadripartite, WHO Regional offices, ReAct, European Society of Clinical Microbiology and Infectious Diseases, Global AMR Media Alliance, AMR Industry Alliance, etc.

WHO | WAAW Events | 30 October – 30 November 2025 | [Online link](#)

Innovative approaches to AMR education: evaluating the impact of gamification on empowering ASHA workers' knowledge and engagement in Mysuru, India

- Compares gamified and conventional teaching methods to improve AMR knowledge among 73 ASHA workers.
- Both groups improved, but gamification achieved significantly higher post-test scores, proving to be a scalable, low-cost strategy for enhancing AMR knowledge among community health workers.

BMC Medical Education | Research | 4 November 2025 | [Online link](#)

Awareness of antibiotic resistance among medical professionals in Kerala, India: a cross-sectional study

- Assesses antibiotic resistance awareness among 345 healthcare professionals using a validated 23-item scale, with modules on demographics, formal training, and workplace factors.
- Shows moderate to high overall AMR awareness along with significant disparities by profession, training level, and practice setting, underscoring the need for targeted educational programs and integrated stewardship curricula and resource strengthening.

Cureus | Original article | 23 October 2025 | [Online link](#)

2) Laboratories and surveillance

Prevalence of multidrug-resistant gram-negative bacilli causing neonatal sepsis: a retrospective study in a tertiary care hospital from Eastern India

- Determines prevalence and AMR patterns of MDR gram-negative bacilli in neonates with sepsis.
- Shows that *K. pneumoniae* and *A. baumannii* were predominant isolates, with high MDR rates, highlighting the need for IPC and antibiotic stewardship in NICUs.

Cureus | Original article | 29 September 2025 | [Online link](#)

One Health surveillance of multidrug-resistant diarrheagenic *Escherichia coli* in Northeast India

- Assesses AMR genes and mobile genetic elements in *Escherichia coli* from poultry farms in India.
- Highlights poultry as a significant reservoir for multidrug-resistant *E. coli*, posing risks for zoonotic transmission and emphasizing the need for antibiotic stewardship in agriculture.

Frontiers in Microbiology | Original research article | 13 October 2025 | [Online link](#)

Pathogenic potential of amoxicillin-clavulanic acid resistant *Klebsiella pneumoniae* isolated from aquatic environment: a study of multidrug resistance and virulence

- Assessed MDR and virulence traits of amoxicillin-clavulanic acid-resistant *K. pneumoniae* aquatic isolates.
- Shows that isolates exhibited extensive resistance and strong biofilm formation, suggesting aquatic environments as reservoirs for MDR, virulent *K. pneumoniae*.

BMC Infectious Diseases | Research | 4 November 2025 | [Online link](#)

Gram-negative uropathogens in diabetic patients: a study of ampicillinase cephalosporinase, extended-spectrum beta-lactamases, and metallo beta-lactamases producing phenotypes

- Identifies Gram-negative uropathogens producing ESBL, metallo-beta-lactamases, and AmpC enzymes in diabetic patients.
- Shows that *E. coli* and *K. pneumoniae* predominated, with high resistance to fluoroquinolones and beta-lactams, emphasizing the need for AMR surveillance, tailored treatment and infection control in diabetics.

Journal of Pharmacy and BioAllied Sciences | Original research | 21 August 2025 | [Online link](#)

Genomic surveillance of *Streptococcus pneumoniae* in India: vaccine-driven serotype shifts, antimicrobial resistance, and emerging clonal lineages

- Retrospective genomic epidemiology study analyses 617 *S. pneumoniae* isolates from the Global Pneumococcal Sequencing project.
- Shows that vaccine-type serotypes declined while non-vaccine types rose and resistance to cefotaxime and erythromycin surged.

Journal of Applied Microbiology | Journal article | 29 October 2025 | [Online link \(abstract\)](#)

Unveiling meropenem resistance and co-resistance patterns in *Klebsiella pneumoniae* and *Acinetobacter baumannii*: a global genome analysis using ML/DL and association mining

- Analyzes 2,411 *K. pneumoniae* and 375 *A. baumannii* isolates using whole-genome sequencing, machine learning/deep learning models, and association mining.
- Highlights key resistance genes and complex multidrug resistance pathways.

BMC Microbiology | Research | 29 October 2025 | [Online link](#)

Isolation, functional characterization and antibiofilm properties of a lytic Enterococcus phage RG1 against multidrug resistant *E. faecium*

- Characterizes a novel lytic phage, RG1, from the Ganga river against *E. faecium* ATCC 35667 and assessed their efficacy against several clinical isolates of *E. faecium*.
- Highlights the therapeutic potential of the phage RG1 against the MDR *E. faecium* under clinical scenarios.

Scientific Reports | Article | 29 October 2025 | [Online link](#)

Evaluation of the present scenario of last resort antimicrobial resistance with special emphasis on colistin at a tertiary care hospital in India

- Observational study in a Kolkata hospital evaluates resistance to last-resort antibiotics, focusing on colistin, among Gram-negative isolates from critically ill patients.
- Shows rising trends of colistin resistance, and co-resistance to tigecycline and aminoglycosides was common, highlighting limited therapeutic options and the urgent need for strict stewardship and surveillance.

Indian Journal of Medical Microbiology | Original research article | 16 October 2025 | [Online link \(abstract\)](#)

3) Infection prevention and control

Sameeksha – Infection Prevention and Control | volume 24

- Infection risk of peripheral intravenous catheters
- Genome sequencing to prevent HAI caused by Carbapenem-resistant *Acinetobacter baumannii*
- Data analysis of infection control awareness and practices among healthcare workers
- Knowledge gaps and research priorities to understand transmission of TB and other airborne infections
- Enhancing hand hygiene compliance in healthcare environmental services staff
- Tools to plan, prepare, prevent and protect against illnesses caused by infectious diseases in the workplace

WCO India | Newsletter | October-November 2025 | [Online link](#)

4) Optimise use of antimicrobials

Pattern in the antibiotic prescribing practices at primary health settings in India: a systematic review and meta-analysis

- Evaluate antibiotic usage in Indian PHCs for prevalence, antibiotic type, and AWaRe guidelines compliance.
- Broad-spectrum "Watch" antibiotics were used more, with suboptimal usage of "Access" (31.6%) antibiotics, highlighting the need for rational antibiotic use policies at the primary care level.

Cureus | Review article | 4 October 2025 | [Online link](#)

Co-producing an intervention to reduce inappropriate antibiotic prescribing among dental practitioners in India

- Reports the co-development of a computer-based stewardship educational intervention with Indian stakeholders to reduce inappropriate antibiotic prescribing by primary care dental practitioners.
- The tool includes three components: a one-page chairside guide on dental antibiotic use, a training module and a patient information sheet to facilitate dentists' communication with patients.

MDPI Antibiotics | Article | 30 September 2025 | [Online link](#)

Role of point-of-care C-reactive protein testing on antibiotic prescription in febrile children: a randomized controlled trial

- Evaluates whether point-of-care C-reactive protein (CRP) testing reduces unnecessary antibiotic prescriptions in febrile children at primary health centers in India.
- Shows that CRP testing is an effective tool to promote rational antibiotic use in pediatric febrile illness, but its use alone did not reduce overall antibiotic use, highlighting the need to integrate it in clinical algorithms.

Cureus | Article | 18 September 2025 | [Online link](#)

5) Research, innovations and finance

Phage-antibiotics synergy and nanotechnology interventions in the management of drug resistance among bacterial pathogens: a scoping review

- Reviews phage-antibiotic synergy (PAS) and nanotechnology-based interventions for managing multidrug-resistant bacterial infections.
- Shows that PAS enhanced antibiotic efficacy and reduced resistance emergence, while nanotechnology improved phage delivery, stability, and targeted action, highlighting these as promising adjuncts to conventional therapy.

Indian Journal of Pharmaceuticals | Review | 26 October 2025 | [Online link](#)

Using fungi to combat drug-resistant *Candida*: methods to increase the possibility and reduce the cost and time for finding new antifungal compounds

- Explores fungi from less studied and extreme habitats and varying the culture conditions to increase the chance of finding novel anti-*Candida* drugs.
- Focuses on crowd sourcing models including students, faculty and research labs to reduce the time and cost of discovering novel drugs.

Journal of Pathology, Microbiology and Immunology | Original article | 5 November 2025 | [Online link](#)

Expanding antimicrobial chemotypes: indole-based DNA gyrase inhibitors with potential dual mechanism against multidrug-resistant bacteria

- Describes the designing and synthesis of indole-based compounds targeting bacterial DNA gyrase, aiming for dual inhibitory mechanisms.
- Several indole derivatives showed potent DNA gyrase inhibition and broad-spectrum activity, including efficacy against resistant strains, paving way for next-generation antimicrobials to combat multidrug resistance.

Bioorganic & Medicinal Chemistry | Article | 22 October 2025 | [Online link](#)

6) Collaborations

The microbial trojan horse and antimicrobial resistance: Acanthamoeba as an environmental reservoir for multidrug resistant bacteria

- Examines the role of Acanthamoeba as an environmental reservoir for MDR bacteria.
- Shows that Acanthamoeba shelters resistant bacteria within its trophozoites and cysts, facilitating persistence and horizontal gene transfer, highlighting its significance as a “microbial Trojan horse,” for AMR dissemination.

Environmental Microbiology | Research article | 29 October 2025 | [Online link](#)

Phenotypic and molecular characterization of multidrug-resistant mastitis causing pathogens in dairy cattle

- Characterizes multidrug-resistant pathogens causing bovine mastitis
- Shows that isolates exhibited high resistance to beta-lactams and tetracyclines, with ESBL and virulence genes, strong biofilm formation, indicating significant treatment challenges and the need for antimicrobial stewardship in dairy farming.

International Journal of Environmental Health Research | Research article | 20 October 2025 | [Online link](#)

Ecotoxicity assessment and detection of antimicrobial compounds in urban environments and AMR hotspots

- Assesses ecotoxicity and occurrence of antimicrobial compounds in urban environments and AMR hotspots.
- Highlights urban ecosystems as critical reservoirs for AMR, emphasizing the need for wastewater treatment upgrades and environmental monitoring.

Scientific Reports | Article | 31 October 2025 | [Online link](#)

Resistome profiling and bacterial community structure of semi-urban gutter ecosystems of India

- Evaluates antibiotic-resistant bacterial populations across six gutter ecosystems in Roorkee, Uttarakhand.
- Finds abundance of antibiotic resistance genes and plasmid markers, suggesting that urban gutter water is a reservoir of AMR bacteria with genes for antibiotic resistance, posing a potential risk to public health and environmental ecosystems.

Scientific Reports | Article | 31 October 2025 | [Online link](#)

Drinking water quality assessment through multivariate statistical approach and formulated PCA-based contamination index

- Assesses drinking water quality in urban and peri-urban areas and develops a contamination index for comprehensive water quality evaluation.
- The formulated PCA-based index effectively classified water quality, highlighting critical hotspots and the need for targeted interventions to ensure safe drinking water.

Journal of Contaminant Hydrology | Article | 27 October 2025 | [Online link](#)

Quotable quote

Act Now: Protect Our Present, Secure Our Future.

*AMR is already harming our health, food systems, environment and economies.
It's not a future challenge. It is happening now. Drug-resistant infections are
increasing, yet awareness, investment and action are still falling short.*

— [WAAW 2025 Campaign Guide](#)

**Sameeksha* is a Hindi word, meaning "review". Publications and resources on AMR (with a bulleted summary and online link) are compiled 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.