World Health Organization India

sameeksha

ANTIMICROBIAL RESISTANCE (AMR) | Volume 46 | 25 June 2026

AMR *Sameeksha**

Highlights

- Eastern Mediterranean Health Journal – special issue on AMR
- Strengthening clinical diagnostic stewardship in the Western Pacific Region – a practical manual
- Guidelines for the prevention of healthcare associated infections with the use of central venous catheters
- Guidance for the knowledge and skills required for antimicrobial stewardship leaders
- MetaAMRSpotter – a shell-scripted workflow for the detection of AMR hotspots in metagenomes
- From dialogue to progress – evolving the role of ministerial meetings in the global AMR governance system

Quotable quote

Improvements in clinical diagnostic stewardship will save lives by promoting accurate and timely diagnosis, leading to better individual patient management and outcomes, better-quality AMR surveillance data and reductions in low-value health care.

– Dr Saia Ma'u Piukala,
WHO Regional Director for the Western Pacific
Right test, right time, right action saves lives: WHO's clinical diagnostic stewardship manual strengthens AMR response

***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

Eastern Mediterranean Health Journal: special issue on AMR

- Synthesizes evidence on AMR in the Eastern Mediterranean Region including from operational research under SORT-IT program – highlighting overuse of "Watch" antibiotics, less than adequate laboratory and surveillance systems, and conflict-driven vulnerabilities.
- Highlights the need for strengthened stewardship, investment in diagnostics and infrastructure, more operational research and coordinated One Health approaches to curb rising AMR burden in the Region.

WHO Regional Office for the Eastern Mediterranean | Journal – special issue on AMR | May 2026 | Online link

Primary caregivers' practices and perceptions on antibiotic use and resistance: a one health qualitative study in rural South India

- A qualitative One Health study used focus group discussions with rural Indian caregivers to assess knowledge, attitudes, and practices related to antibiotic use and antimicrobial resistance.
- Findings showed widespread self-medication, poor adherence, environmental and animal exposure pathways, indicating interconnected drivers of AMR and the need for integrated, community-level stewardship and public health interventions.

BMJ Open | Original research | 12 May 2026 | Online link

Awareness, attitude, and practice regarding antimicrobial resistance among patient bystanders in central Kerala, India

- A cross-sectional study among 300 patient bystanders in central Kerala found low awareness, poor attitudes, and unsafe practices regarding antimicrobial resistance.
- Nearly half had poor knowledge, few showed positive attitudes, and many misused antibiotics (e.g., incomplete courses, over-the-counter access). Findings highlight the need for targeted community education and stewardship interventions.

Discover Public Health | Article | 14 June 2026 | Online link

Collection on antibiotic resistance

- Focuses on AMR mechanisms, evolution/spread, integrating molecular, ecological, and systems-level insights while highlighting genetic drivers – mutations, horizontal gene transfer, and complex resistance networks.
- Highlights genomics analysis, infection burden, emerging therapies, and One Health approaches, showcasing the research driving progress toward more effective and sustainable interventions.

iScience and Cell Reports Medicine | Curated collection | 2022–2026 | Online link

2) Strengthen laboratory capacity

Strengthening clinical diagnostic stewardship in the Western Pacific Region: a practical manual

- Explains clinical diagnostic stewardship, its importance, steps that can be taken to strengthen clinical diagnostic stewardship practices and illustrates key learning points through a series of clinical case studies.
- Intended as a practical, facility-oriented resource for capacity-building in low- and middle-income countries.

WHO | Manual | 8 June 2026 | Online link

Guidelines for establishment of biorepositories in ICMR institutes

- Standardizes the establishment and management of biorepositories across ICMR institutes to ensure high-quality biological specimen preservation.
- Defines strict protocols for quality assurance, ethical governance, data management, and material transfer to support impactful medical research.

ICMR | Guideline | 29 May 2026 | Online link

A diagnostic stewardship bundle approach to facilitate same-day optimal antimicrobial therapy in gram-negative sepsis: a quasi-experimental study

- A quasi-experimental study evaluates a diagnostic stewardship bundle to enable same-day optimization of antimicrobial therapy in gram-negative sepsis, integrating rapid diagnostics and clinical decision processes.
- The intervention improved timeliness of appropriate therapy, supporting diagnostic stewardship as an effective strategy to accelerate targeted treatment and strengthen antimicrobial stewardship in resource-constrained settings.

Scientific Reports | Article | 12 April 2026 | Online link

Direct MALDI-TOF MS identification from positive blood culture bottles: a time-saving approach to reduce diagnostic delays

- This prospective study evaluated direct MALDI-TOF MS for identifying pathogens from positive blood cultures to reduce diagnostic delays in bloodstream infections.
- The method showed high accuracy (~89%) across bacteria and fungi and enabled faster pathogen identification, supporting timely antimicrobial therapy and improved stewardship compared to conventional culture-based methods.

JIDC | Original article | 31 May 2026 | Online link

Early antifungal resistance prediction based on MALDI-TOF mass spectrometry and machine learning

- This study combined MALDI-TOF mass spectrometry with machine-learning approaches to enable early prediction of antifungal resistance, analysing spectral patterns to classify resistant versus susceptible strains.
- Results indicate rapid, accurate resistance detection is feasible before conventional testing, supporting integration of AI-enhanced diagnostics to accelerate targeted therapy and improve antimicrobial stewardship.

Scientific Reports | Article | 2 June 2026 | Online link

Virulence determinants, antifungal resistance, and genotype-phenotype associations in Candida bloodstream isolates: a three-year surveillance study from Northern India

- This study analyses *Candida* bloodstream isolates in Northern India, showing predominance of non-albicans species, especially *C. tropicalis*, with widespread virulence genes and biofilm-forming capacity.
- Multidrug resistance, notably in *C. auris*, and associations between virulence traits and antifungal susceptibility highlight the need for integrated surveillance to improve management of invasive candidiasis.

Science Reports | Article | 11 June 2026 | Online link

Uropathogenic profiles and antibiotic resistance in gynecological cases: a microbial surveillance study from Northeast India

- Cross-sectional study characterized uropathogens, risk factors, and AMR patterns in gynecology patients – showing high prevalence of multidrug-resistant pathogens and diverse bacterial profiles
- Highlights significant treatment challenges and underscores the need for improved surveillance, targeted therapy, and strengthened antimicrobial stewardship in urinary tract infections.

Scientific Reports | Article | 18 June 2026 | Online link

A deep learning system for bacterial identification and resistance prediction from MALDI-TOF data

- A deep learning system (termed "ANTIBIOTIC") was developed to analyse MALDI-TOF mass spectrometry data for simultaneous bacterial identification and antimicrobial resistance prediction.
- The model showed accurate, rapid detection capabilities, indicating that AI-enhanced diagnostics can extract additional clinical value from routine data and improve early, targeted antimicrobial therapy and stewardship.

NPJ Digital Medicine | Article | 8 June 2026 | Online link

Multiplex qPCR for the early detection of sepsis pathogens and its impact on antimicrobial therapy in critically ill patients

- This prospective study compared multiplex qPCR with blood culture for detecting sepsis pathogens in ICU patients – qPCR showed higher sensitivity and significantly reduced time to appropriate antibiotic therapy.
- It also improved targeted treatment, reduced ICU stay and mortality, and detected resistance genes, supporting its role as a rapid adjunct diagnostic tool despite lower specificity.

Iranian Journal of Microbiology | Original article | May 2026 | Online link

Genomic characterization of multidrug-resistant *Klebsiella pneumoniae* clinical isolates from India

- A genomic study characterized multidrug-resistant *Klebsiella pneumoniae* clinical isolates from a hospital in Pune, using sequencing and bioinformatics to identify resistance genes, virulence factors, and strain diversity.
- Findings show coexistence of resistance and virulence determinants, highlighting potential for high-risk clones and underscoring the need for genomic surveillance to inform infection control and antimicrobial stewardship.

Scientific Reports | Article | 4 June 2026 | Online link

3) Reduce Incidence of Infection

Guidelines for the prevention of bloodstream infections and other infections associated with the use of intravascular catheters: part 2: central venous catheters

- Provide evidence-based recommendations for the prevention of bloodstream infections and other infections associated with the use of central venous catheters across health care settings.
- Presents recommendations and good practice statements on pre-insertion, insertion, maintenance, access, replacement and removal, as well as site selection and additional preventive measures.

WHO | Guideline | 28 May 2026 | Online link

Effectiveness of infection prevention and control interventions in reducing health-care-associated infections in long-term care facilities for older people: a systematic review

- Synthesized 25 studies evaluating IPC interventions in long-term care facilities, assessing their impact on health-care-associated infections and AMR.
- WHO multimodal improvement strategies showed effectiveness, but evidence was limited by heterogeneity and bias, indicating the need for context-adapted, higher-quality studies to guide AMR and IPC strategies.

The Lancet Healthy Longevity | Review | 16 June 2026 | Online link

Infection prevention and control guideline for Ebola and Marburg diseases

- Provides public health advice on multisectoral actions to support the social and economic protection of communities affected by Ebola and Marburg disease outbreaks.
- Outlines approaches to community social protection, emphasizing coordinated multisectoral action to mitigate vulnerability and ensure equitable access to essential services.

WHO | Guideline | 17 May 2026 | Online link

WHO guideline on public health and social measures for mitigating the risk and impact of epidemic and pandemic influenza

- Outlines a set of evidence-based recommendations on the use of PHSM – including both recommendations supporting and discouraging specific measures depending on their effectiveness and context.
- Covers five main domains – personal protection measures, environmental interventions, case-finding and contact management, social measures, and travel-related actions.

WHO | Guideline | 23 April 2026 | Online link

Preparedness and response to bacterial meningitis outbreaks: toolkit for frontline healthcare workers

- Translates evidence-based recommendations into practical job aids to support frontline healthcare workers in the preparedness and response to outbreaks.
- Includes guidance on early recognition, initial assessment, referral and diagnostic procedures, antibiotic therapy, adjunctive treatments, supportive care, IPC measures, and post-exposure prophylaxis.

WHO | Guidance (normative) | 28 April 2026 | Online link

4) Optimise use of antimicrobials

Guidance for the knowledge and skills required for antimicrobial stewardship leaders: an update from SHEA, IDSA, PIDS, and SIDP

- Updated guidance by a multidisciplinary expert panel defines core knowledge and skills for antimicrobial stewardship leaders, structured across basic to advanced competencies for diverse healthcare settings.
- Highlights the complexity of stewardship programmes, emphasizing leadership, data use, and interdisciplinary expertise as critical to optimizing antimicrobial use and addressing rising AMR and reporting demands.

Antimicrobial Stewardship & Healthcare Epidemiology | Original article | 11 May 2026 | Online link

Reducing inappropriate antibiotic prescribing behaviour among dental practitioners in a south Indian City through an educational intervention – a mixed methods feasibility study

- This mixed-methods feasibility study evaluated an educational antimicrobial stewardship intervention for dentists, which significantly improved knowledge and willingness to reduce inappropriate antibiotic prescribing, although barriers such as clinical norms and external pressures remained.
- Highlights the potential of educational intervention as a practical approach to improve prescribing practices.

BMC Public Health | Article | 29 May 2026 | Online link

Factors associated with severity in *Klebsiella pneumoniae* community-acquired pneumonia: a retrospective cohort study from South India

- This retrospective study of 105 patients with *Klebsiella pneumoniae* community-acquired pneumonia in South India identified severity predictors – alcohol use, bacteraemia, leucocytosis, and ceftriaxone resistance.
- High resistance rates highlighted limitations of standard empiric therapy and the need for risk-based, region-specific antimicrobial strategies.

New Microbes and New Infections | Article | June 2026 | Online link

Interventions to reduce antimicrobial use in livestock: a systematic review and evidence map

- Reviews government policy interventions aimed at reducing veterinary antimicrobial use and antimicrobial resistance in animal production systems.
- Highlights geographical/evidence gaps and underscores the need for more rigorous and transparent evaluations to support evidence-informed One Health policies to address AMR.

Bulletin of the World Health Organization | Systematic review | 30 March 2026 | Online link

The role of pharmacovigilance database in identifying antibiotic resistance and inappropriate use: an analysis of VigiBase reports from lower-middle-income countries

- This study evaluates pharmacovigilance (PV) databases to detect antibiotic resistance, ineffectiveness, and misuse in lower-middle-income countries using VigiBase reports.
- Analysis of 1,570 reports showed off-label use and drug ineffectiveness were most common, demonstrating PV data's value in identifying early resistance signals and improving antimicrobial stewardship.

Pharmacoepidemiology and Drug Safety | Original article | 8 June 2026 | Online link

Analysis of infection types, pathogens, antimicrobial treatment, and clinical outcomes data in hospitalised patients: Comprehensive Online Database for Antimicrobial Resistance (CODAR) retrospective pilot study

- This multinational retrospective CODAR pilot study analysed over 7,400 hospitalised patients to evaluate infection types, pathogens, antimicrobial use, and outcomes across five countries, including India.
- Urinary tract infections were most common, while bloodstream and respiratory infections had lower survival; findings highlight variation in treatment patterns and the importance of surveillance to guide antimicrobial stewardship and improve clinical outcomes.

Journal of Epidemiology and Global Health | Article | 21 May 2026 | Online link

Current access, availability and use of antibiotics in primary care among key low- and middle-income countries and the policy implications

- This review examines antibiotic access, availability, and use in primary care across low- and middle-income countries – highlighting widespread inappropriate antibiotic use – often for minor infections.
- Antibiotic use is driven by patient demand, limited stewardship, and substandard medicines – emphasizing the need for stronger policies, improved access, and effective antimicrobial stewardship to combat AMR.

Expert Review of Anti-Infective Therapy | Review | 15 April 2026 | Online link

Impact of a structured urine culture request form on antimicrobial stewardship in urinary tract infections at a tertiary care hospital in India

- This prospective interventional study evaluated a structured urine-culture request form to improve antimicrobial stewardship in urinary tract infections.
- The intervention significantly reduced unnecessary antibiotic use and improved guideline-compliant prescribing, demonstrating a simple, scalable strategy to enhance diagnostic accuracy and patient outcomes.

Frontiers in Antibiotics | Original research article | 1 June 2026 | Online link

5) Promote research and innovations

MetaAMRSpotter: a shell-scripted workflow for the detection of AMR hotspots in metagenomes

- A computational workflow (MetaAMRSpotter) was developed to detect AMR hotspots in metagenomic datasets, enabling systematic identification of resistance genes and patterns across complex microbial communities.
- The approach improves scalable AMR surveillance in environmental and clinical samples, supporting early detection and data-driven strategies to monitor resistance emergence and inform public health interventions.

BMC Methods | Article | 11 June 2026 | Online link

The role of the gut microbiome in antibiotic-driven antimicrobial resistance

- This review examines how antibiotic use disrupts microbial balance in the human gut microbiome, enabling the gut "resistome" to spread resistance genes via horizontal transfer, contributing to antibiotic-driven AMR.
- Highlights host factors, diagnostic tools, and microbiome-targeted therapies, emphasizing restoration of gut microbiota as a key strategy for controlling AMR.

Frontiers in Microbiology | Review article | 3 June 2026 | Online link

Risk factors for multidrug resistance and mortality in healthcare-associated neonatal gram-negative bloodstream infections

- This retrospective NICU study (197 neonates) in a tertiary care hospital in Turkey found high multidrug resistance (57.9%) in gram-negative bloodstream infections, mainly *Klebsiella* and *Acinetobacter* spp.
- Mechanical ventilation, prior carbapenem use, and older age increased MDR risk – mortality (42.1%) was linked to illness severity, not MDR. Appropriate empirical antibiotics significantly improved outcomes.

European Journal of Clinical Microbiology and Infectious Diseases | Research | 9 June 2026 | Online link

6) Strengthen governance, coordination and collaborations

From dialogue to progress: evolving the role of ministerial meetings in the global AMR governance system

- Analyses global AMR governance, highlighting fragmented structures and evaluating the evolving role of ministerial meetings in strengthening accountability, coordination, and political commitment across sectors.
- Concludes that formalizing ministerial mechanisms, integrating monitoring frameworks, and strengthening financing and One Health coordination are essential to translate political commitments into global AMR action.

ReAct | Policy brief | 20 May 2026 | Online link

Mind the governance gap: a one health scoping review of national AMR performance indicators

- Synthesizes 3,700+ indicators from academic and policy sources to map how national AMR performance is measured across human, animal, and environmental sectors within a One Health framework.
- Shows strong emphasis on surveillance, IPC and stewardship metrics but critical gaps remain in accountability, transparency, and equity – highlighting governance weaknesses and the need for more balanced, comprehensive AMR monitoring systems.

NPJ Antimicrobials and Resistance | Article | 13 May 2026 | Online link

The WHO costing and budgeting tool for national action plans on antimicrobial resistance – a review and assessment of impact in Africa

- A multi-country survey assessed the WHO AMR costing and budgeting tool across 15 African countries, using questionnaires from national focal points to evaluate its impact on planning and financing of NAP-AMRs.
- It improved evidence-based budgeting, funding mobilisation, and policy use, but revealed persistent financing gaps and misalignment with donor priorities, highlighting resource constraints in AMR implementation.

JAC – Antimicrobial Resistance | Journal article | 30 May 2026 | Online link

Antimicrobial Resistance Multi-Partner Trust Fund: annual report 2025

- Summarizes the activities and achievements of the Antimicrobial Resistance Multi-Partner Trust Fund (AMR MPTF) in 2025, highlighting progress in implementing multisectoral One Health responses to AMR.
- Describes how the Fund supported national projects in Bangladesh, Madagascar, Mongolia, Senegal, Tunisia and Zimbabwe, alongside global initiatives aligned with the 2024 UNGA Political Declaration on AMR.

WHO-FAO-UNEP-WOAH | Report | 28 May 2026 | Online link

Antimicrobial resistance in India's dairy value chain: an investigation of risk factors in Haryana and Assam, India

- This cross-sectional study of milk samples from Assam and Haryana found very high antimicrobial resistance (90%) and considerable multidrug resistance (48%) across India's dairy value chain.
- No consistent farm-level predictors were identified, indicating complex transmission pathways and highlighting the need for larger studies and improved antimicrobial stewardship in dairy systems.

One Health | Article | June 2026 | Online link

The missing thread of One Health efforts: improper drug disposal as an overlooked driver of antimicrobial resistance

- This article highlights improper disposal of unused or expired antibiotics in households – leading to pharmaceutical residues in the environment – as an overlooked driver of AMR in the One Health framework.
- The selective pressure on microbes promotes resistance spread through ecosystems and food chains, emphasizing the need for safe disposal practices and environmental monitoring.

mSphere | Minireview | 13 April 2026 | Online link