World Health Organization India

sameeksha

ANTIMICROBIAL RESISTANCE (AMR) | Volume 48 | 27 August 2026

AMR *Sameeksha**

Highlights

- Factsheet on antimicrobial resistance (AMR) for veterinarians
- Understanding antimicrobial resistance phenotype in Indian clinical isolates through genomic lens
- WHO position paper on typhoid vaccines
- Audit and feedback to improve antibiotic prescribing among community physicians in India
- Expedited research and approval of medicines for drug-resistant bacterial infections in children
- Advice for stakeholders involved in food safety, regarding antimicrobial resistance

Quotable quote

AMR is a silent, slow-motion pandemic.

– Hon'ble Mia Amor Mottley
Prime Minister of Barbados, and former Chair, Global Leaders Group on AMR
Best-dos Santos Laboratory designated PAHO/WHO-CC for AMR Surveillance

***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

Factsheet on antimicrobial resistance (AMR) for veterinarians

- Explains how it differs from antibiotic-related issues, and why it is a growing threat to animal and public health.
- Outlines the main types and drivers of AMR and highlights key actions veterinarians can take to promote responsible antimicrobial use and help reduce the spread of resistance.

FAO | Fact sheet | 19 March 2026 | Online link

Evaluation of Global Health Days (2019-2023)

- World AMR Awareness Week (WAAW) effectively raised global awareness of antimicrobial resistance, strengthened advocacy efforts, and fostered partnerships that mobilized action across sectors and countries.
- However, the evaluation highlighted the need for improved coordination, targeted engagement, stronger monitoring and impact measurement, and sustainable funding to enhance long-term effectiveness.

WHO | Publication | 26 May 2026 | Online link

Knowledge, attitudes, and practices regarding antimicrobial use and antimicrobial resistance among medical students and house surgeons in India

- Study of 414 medical professionals found moderate knowledge of AMR (69%), generally positive attitudes, but important gaps in understanding and practice, with only 21% having received formal AMR training.
- Calls for earlier integration of AMR education, antimicrobial stewardship, and rational prescribing training into medical curricula to strengthen future prescribing practices and combat resistance.

Frontiers in Public Health | Original research article | 31 July 2026 | Online link

2) Strengthen laboratory capacity

Understanding antimicrobial resistance phenotype in Indian clinical isolates through genomic lens

- Analysed 871 genome-linked clinical bacterial isolates from India and found high resistance to WHO Watch antibiotics, indicating increasing dependence on last-resort treatments.
- Identified dominant resistance genes and frequent co-occurrence of multiple resistance mechanisms, highlighting the complexity of AMR and the need for standardized genomic surveillance and reporting.

Biochemical and Biophysical Research Communications | Article | 27 August 2026 | Online link

Laboratory methods for the diagnosis and surveillance of meningitis caused by *Neisseria meningitidis*, *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Streptococcus agalactiae*

- Provides standardized laboratory methods for meningitis caused by four main pathogens, supporting the WHO "Defeating Meningitis by 2030" roadmap.
- Covers phenotypic, molecular, and genomic techniques, specimen handling, antimicrobial susceptibility testing, and quality management to strengthen laboratory capacity and global meningitis surveillance.

WHO | Publication | 11 August 2026 | Online link

A mobile based antimicrobial susceptibility testing device – prototype development and validation

- Researchers developed and validated a low-cost smartphone-based antimicrobial susceptibility testing (AST) application that measures inhibition zones and automatically interprets results using CLSI guidelines.
- Testing 1,000 antibiotic disks showed 90% agreement with manual readings, no very major errors, and <1% major errors – showing its potential as a reliable, time-saving tool for resource-limited microbiology labs.

Indian Journal of Medical Research | Original article | 1 August 2026 | Online link

Molecular epidemiology and drug resistance of extraintestinal pathogenic *Escherichia coli* bloodstream isolates from adults worldwide (2011–2023)

- Analysed 10,098 extraintestinal pathogenic *E. coli* (ExPEC) bloodstream isolates from 26 countries and found that serotypes O25, O2, O6, and O1 were the most common worldwide.
- Multidrug resistance varied substantially across countries, with the highest rates in India (83.3%), while the O25-ST131 lineage emerged as the dominant multidrug-resistant clone.

Clinical Infectious Diseases | Journal article | 3 August 2026 | Online link

Genetic diversity and clinical spectrum of *Mycobacterium abscessus* complex in India

- Multicentre Indian study analysed 50 *Mycobacterium abscessus* complex isolates from 10 states using WGS and MLST, revealing substantial genetic diversity, with 40% representing previously unreported sequence types.
- *M. abscessus* subsp. abscessus predominated (76%), extrapulmonary infections were common, and findings highlight the need for strengthened genomic surveillance and improved diagnosis of drug-resistant infections.

IJID Regions | Article | 12 August 2026 | Online link

Interdisciplinary insights on selection, surveillance and mitigations of antimicrobial resistance dynamics on a UK dairy farm with relevance to other one health sectors

- This study found that AMR patterns are shaped by antibiotic use, co-selection from metals such as copper and zinc, and clonal bacterial expansion rather than extensive horizontal gene transfer.
- Recommends long-term surveillance, reduced antibiotic and metal selection pressures, avoidance of critically important antimicrobials, and improved slurry management to mitigate AMR across One Health sectors.

Frontiers in Veterinary Science – One Health | Perspective article | 4 August 2026 | Online link

Analytical performance of a multi-target open real-time PCR assay for simultaneous detection of tuberculosis, non-tuberculous mycobacteria, and drug resistance in a high-burden setting

- Evaluated a multiplex open real-time PCR assay for simultaneous detection of *Mycobacterium tuberculosis* complex (MTBc), non-tuberculous mycobacteria (NTM), and rifampicin/isoniazid resistance, in India.
- Assay showed 100% sensitivity and specificity for MTBc and isoniazid resistance, 96% sensitivity for rifampicin resistance, and 70% sensitivity for NTM detection, showing strong potential as a comprehensive diagnostic tool.

Microbiology Spectrum | Research article | 15 August 2026 | Online link

Global genomic surveillance of *Salmonella* in the environment: assessing virulence and antimicrobial resistance at scale

- Analysed 1,399 environmental *Salmonella* genomes, including India, and showed that environmental reservoirs harbour diverse multidrug-resistant and virulent lineages with extensive plasmid-mediated gene exchange.
- Identified early circulation of colistin-resistance genes and highlighted water and soil as important reservoirs for emerging antimicrobial resistance, supporting environmental surveillance as a key One Health strategy.

mBio | Research article | 22 June 2026 | Online link

3) Reduce incidence of infection

WHO position paper on typhoid vaccines

- Updates global guidance on typhoid vaccination, emphasizing typhoid conjugate vaccines (TCVs) in light of new evidence showing sustained protection, effectiveness after country introductions, and benefits of booster strategies.
- Highlights the growing threat of antimicrobial-resistant Salmonella Typhi and reinforces TCVs as a key tool for typhoid prevention and control worldwide.

WHO | Weekly epidemiological record | 18 August 2026 | Online link

Severe health-care-associated infections and antimicrobial resistance in an Asian Surveillance Network (ACORN-HAI): a multicentre, prospective cohort study

- Study of 9,496 patients with bloodstream infections or ventilator-associated pneumonia found that nearly three-quarters of infections were caused by antimicrobial-resistant bacteria, with especially high mortality from carbapenem-resistant *Acinetobacter* and Enterobacterales.
- The findings show that AMR substantially increases deaths and worsens quality of life, highlighting the urgent need for improved surveillance, antimicrobial stewardship, and access to effective treatments across Asia.

The Lancet Infectious Diseases | Article | 21 August 2026 | Online link

Multidrug-resistant bacterial contamination of healthcare workers' mobile phones, decontamination efficacy, and potential implications for hospital-acquired infections

- Study found 90% of healthcare workers' mobile phones were contaminated and 60% carried MDR bacteria, including MRSA, ESBL-producing, and carbapenemase-producing organisms, with the highest burden in ICUs.
- Sodium hypochlorite wipes reduced bacterial contamination by 96.5%, and routine phone disinfection significantly lowered MDR carriage, supporting incorporation of mobile phone hygiene into IPC programs.

Scientific Reports | Article | 8 August 2026 | Online link

Preoperative chlorhexidine mouthwash to prevent postoperative infections in low-risk elective abdominal surgeries: a double-blind RCT from North India among patients with poor oral hygiene

- Preoperative 0.2% chlorhexidine mouthwash in 228 patients significantly reduced postoperative sore throat, bacterial colonisation, surgical-site infections, inflammatory markers, and hospital stay compared with saline.
- Findings suggest that a simple, low-cost oral hygiene intervention can improve surgical outcomes and may be incorporated into routine perioperative care, particularly in resource-limited settings.

BMJ Global Health | Original research | 29 July 2026 | Online link

Screening for multidrug resistance carriage and appropriate initial antibiotic treatment of intensive care unit–acquired bloodstream infections

- In this international cohort of 1,800 ICU-acquired bloodstream infections, patients admitted to ICUs with routine multidrug-resistant organism (MDRO) screening were significantly more likely to receive appropriate empirical antibiotic therapy within 24 hours than those in non-screening ICUs.
- Findings suggest that regular MDRO screening can improve early antibiotic decision-making and optimize treatment of serious bloodstream infections in critically ill patients.

Clinical Microbiology and Infection | Original article | 2 August 2026 | Online link

Environmental emergence and dissemination of clinically relevant multidrug-resistant bacteria and resistance genes in sewage and aquatic ecosystems

- A study of sewage, river, and marine ecosystems in South Gujarat (India) found that 80% of bacterial isolates were multidrug-resistant, with clinically important pathogens carrying resistance genes, biofilm-forming ability, and carbapenemase activity.
- The findings identify interconnected aquatic environments as major reservoirs for antimicrobial resistance transmission and underscore the need for One Health surveillance and control strategies.

Osong Public Health and Research Perspectives | Original article | 23 July 2026 | Online link

Assessment of the role of handwash basins in the airborne transmission of multi-drug-resistant organisms in clinical and non-clinical settings

- This study found that operating handwash basins can aerosolize viable MDROs from sink drains in both hospital and non-clinical settings, with several resistant pathogens detected in air samples during faucet use.
- Findings highlight handwash basins as a potential source of airborne transmission and support incorporating sink design, maintenance, and aerosol monitoring into infection prevention strategies.

The Journal of Hospital Infection | Full length article | August 2026 | Online link

4) Optimise use of antimicrobials

Audit and feedback to improve antibiotic prescribing among community physicians in India

- A quasi-experimental study among community physicians in Tamil Nadu (India) found that audit-and-feedback interventions significantly improved knowledge and perceptions about antibiotic use and increased adherence to the WHO AWaRe classification.
- The intervention promoted more rational antibiotic prescribing, particularly for respiratory infections, showing a practical and cost-effective approach to strengthening antimicrobial stewardship in primary care.

Journal of Education and Health Promotion | Original article | 31 July 2026 | Online link

Guideline on doxycycline post-exposure prophylaxis for sexually transmitted infections among men who have sex with men and transgender women

- Recommends offering doxycycline post-exposure prophylaxis (PEP) to men who have sex with men and transgender women as part of a comprehensive sexual health package to prevent bacterial STIs.
- The guidance emphasizes careful implementation, equitable access, and ongoing monitoring of antimicrobial resistance while identifying key research gaps to inform future policy.

WHO | Guideline | 14 July 2026 | Online link

Artificial intelligence and antimicrobial stewardship: from clinical decision support to public health action

- Review how AI can strengthen antimicrobial stewardship by improving diagnosis, supporting prescribing decisions, optimizing antimicrobial use, and enhancing AMR surveillance and public health responses.
- Emphasizes that AI should complement, not replace, stewardship expertise, while addressing challenges related to data quality, bias, governance, equity, and implementation, particularly in low- and middle-income countries.

Journal of Global Antimicrobial Resistance | Review | 6 August 2026 | Online link

Western Pacific Regional Antimicrobial Consumption Surveillance System manual on the surveillance of antimicrobial consumption at the national level

- WHO manual provides standardized guidance for countries to establish and strengthen national antimicrobial consumption surveillance, enabling consistent collection, analysis, and reporting of antimicrobial use data.
- Supports evidence-based antimicrobial stewardship and policy development through the regional antimicrobial consumption surveillance system, helping countries monitor and reduce inappropriate antimicrobial use.

WHO Regional Office for the Western Pacific | Publication | 31 July 2026 | Online link

Impact of repeated auditing in antimicrobial stewardship programs on prescribing appropriateness: a ten-year observational cohort study of a national surveillance program

- This 10-year Australian national cohort study found repeated antimicrobial prescribing audits and feedback improved prescribing appropriateness across hospitals.
- Analysis of 276,212 prescriptions showed overall appropriateness of 73.7%, with lower performance in Access antibiotics, regional/remote hospitals and surgical prophylaxis.

Clinical Microbiology and Infection | Original article | 28 May 2026 | Online link

Understanding antibiotic access in the WHO African Region: results of a multicountry survey and stakeholder roundtables

- Survey of 25 African countries found that while Access antibiotics such as amoxicillin and nitrofurantoin were generally prioritized, supply, availability, and diagnostic challenges persisted, particularly for nitrofurantoin.
- Significant barriers including high costs, registration gaps, and supply chain issues limited access to Watch and Reserve antibiotics, highlighting the need for regulatory, procurement, and stewardship reforms.

WHO | Report | 30 July 2026 | Online link

5) Promote research and innovations

Expedited research and approval of medicines for drug-resistant bacterial infections in children

- The article argues that children face dangerous delays in access to new antibiotics for multidrug-resistant infections because paediatric approvals often occur years after adult approvals.
- Recommends faster, more streamlined drug development and regulatory pathways, including greater use of adult safety and efficacy data, to ensure timely access to life-saving treatments for children.

WHO Bulletin | Article – policy and practice | 27 May 2026 | Online link

Recent advancements in artificial intelligence applications for the mitigation of antimicrobial resistance: challenges and opportunities

- AI is increasingly being applied to AMR through rapid diagnostics, drug discovery, surveillance, predictive modelling, and antibiotic stewardship, improving the ability to detect and respond to resistant infections.
- Classical machine learning remains dominant, but broader clinical adoption will require stronger data quality, validation, transparency, and regulatory support.

JAC – Antimicrobial Resistance | Journal article | 10 August 2026 | Online link

Transmission pathways in emerging infections: linking clinical presentation, epidemiology, and outbreak potential in humans

- Shows that transmission pathways are key determinants of how emerging infections present clinically, spread through populations, and generate outbreaks – affected by climate change, urbanization, and human mobility.
- It proposes a framework linking transmission routes to surveillance, diagnostics, prevention, and response strategies to improve preparedness for future infectious threats.

Clinical Microbiology and Infection | Narrative review | 21 July 2026 | Online link

Phage therapy against *Klebsiella pneumoniae* infections: integrating host-phage immune interactions, therapeutic strategies, and clinical translation

- Identifies bacteriophages as a promising alternative to antibiotics for MDR *Klebsiella pneumoniae* infections, emphasizing importance of host-phage immune interactions, optimized delivery, and phage-antibiotic synergy.
- Highlights emerging tools such as AI-assisted phage discovery and precision phage therapy to support successful clinical translation and combat antimicrobial resistance.

Frontiers in Microbiology | Review | 7 August 2026 | Online link

Low-power NIR-mediated photothermal and photodynamic therapy as a synergistic strategy against superbugs

- Highlights low-power near-infrared (NIR) photothermal and photodynamic therapy as a promising antibiotic-free approach against drug-resistant bacteria, using heat and reactive oxygen species to kill pathogens while reducing the risk of AMR.
- Combining both therapies improves efficacy, and NIR-II technologies enable deeper tissue penetration for treating difficult, deep-seated infections with less damage to healthy tissue.

Frontiers in Microbiology | Mini review article | 28 July 2026 | Online link

6) Strengthen governance, coordination and collaborations

Advice for stakeholders involved in food safety, regarding antimicrobial resistance

- Explains how antimicrobial misuse and poor disposal practices in agrifood systems can contribute to foodborne antimicrobial resistance, threatening food safety, public health, animal health, and livelihoods.
- Urges stakeholders across the food chain to adopt evidence-based practices, strengthen food safety measures, and support coordinated action to reduce the spread of AMR.

FAO | Information leaflet | 17 June 2026 | Online link

Antimicrobial resistance in plant-associated microbial communities: mechanisms, ecology, and one health implications

- Highlights how the use of antimicrobials in crop production can drive AMR in plant-associated microbial communities, promoting the spread of resistance genes across soil, water, plants, and food systems.
- Emphasizes a One Health approach, strengthened surveillance, and sustainable alternatives such as phage therapy, microbiome engineering, CRISPR technologies, and RNA-based biopesticides to curb resistance.

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

A framework for antimicrobial resistance risk assessment, monitoring, and risk-reduction practices along the reused water–soil–crop–human continuum

- Proposes a framework to assess, monitor, and reduce antimicrobial resistance risks associated with using reclaimed water for crop irrigation, tracing contamination pathways from water to soil, crops, and humans.
- Identifies key risk points, monitoring indicators, and treatment interventions to support safe water reuse while protecting food security and public health.

Environmental Science and Technology | Review | 9 July 2026 | Online link