

*Sameeksha** – Antimicrobial Resistance (AMR)

**Sameeksha* is a Hindi word, meaning review. This compilation of publications and resources (along with a brief summary) aims to review and share information to facilitate containment of antimicrobial resistance in India, 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.

Key highlights of volume 13

- AMR awareness assessment tool for health care professionals.
- AMR in food producing animals in LMICs.
- Two new OpenWHO online courses on surveillance of healthcare acquired infections.
- Gaps and opportunities in NAPs on AMR for optimising antimicrobial use in humans.
- Global trends in antimicrobial use in food producing animals.
- Quadripartite technical group on integrated surveillance on antimicrobial use and resistance.

Strategic priority 1: Awareness and understanding

Awareness of antibiotic resistance: a tool for measurement among human and animal health care professionals in LMICs and UMICs

- The authors designed and tested an AMR awareness assessment tool for human and animal health care professionals (HCPs) to prescribe and dispense antibiotics in six countries.
- AMR awareness was higher among physicians and veterinarians compared to other HCPs, especially in relation to animal health, suggesting the need for One Health training.

Journal of Antimicrobial Chemotherapy | Research article | 26 January 2023 | [Online link](#)

AMR factsheet: why antimicrobial resistance concerns you

- This two page fact sheet provides clear, up-to-date information on AMR and One Health.
- Identifies four pillars (governance, international standards, surveillance and awareness) and existing solutions for fighting AMR in animal health.

World Health Organization for Animal Health | Fact Sheet | 5 January 2023 | [Online link](#)

Perception and determinants leading to antimicrobial (mis)use: a knowledge, attitude, and practices study in the rural communities of Odisha, India

- A cross-sectional study of 1003 community members in Odisha revealed less than 50% respondents had heard of antimicrobials, 15% had bought antibiotics without a prescription and 20% reported not taking antibiotics as advised.
- Highlights the need for targeted AMR awareness and stewardship programs for all stakeholders.

Frontiers in Public Health | Research article | 13 January 2023 | [Online link](#)

Strategic priority 2: Laboratories and surveillance

Antimicrobial resistance through the looking-GLASS

- Highlights key messages from the 2022 GLASS report. Disproportionate burden of AMR in LMICs may be due to data gathered from tertiary healthcare facilities that deal with complex and healthcare associated infections.
- National prevalence surveys along with strengthening of laboratory infrastructure with insurance schemes and digital health tools may help to fill the knowledge gaps in LMICs.

The Lancet Infectious Diseases | Editorial | February 2023 | [Online link](#)

A snapshot survey of antimicrobial resistance in food-animals in low and middle-income countries

- Assessed AMR prevalence in livestock through a Multiple Antibiotic Resistance (MAR) index.
- MAR index was high for India and 6 other countries, indicating importance of surveillance in food animals.

One Health | Research article | 13 January 2023 | [Online link](#)

Geographic patterns of *Acinetobacter baumannii* and carbapenem resistance in the Asia-Pacific region: results from the Antimicrobial Testing Leadership and Surveillance (ATLAS) program, 2012-2019

- Carbapenem resistance rates varied from 2.8% in Japan to over 85% in India and South Korea.

International Journal of Infectious Diseases | Research article | 11 December 2022 | [Online link](#)

Antibiotic concentrations and antibiotic resistance in aquatic environments of the WHO Western Pacific and South-East Asia regions: a systematic review and probabilistic environmental hazard assessment

- Study assessed of antibiotic concentration in aquatic environments and relative contributions of potential sources of antibiotic contamination in waterways.

The Lancet Planetary Health | Research article | January 2023 | [Online link](#)

Strategic priority 3: Infection prevention and control

The elephant in the room: exploring the influence and participation of patients in infection-related care across surgical pathways in South Africa and India

- Ethnographic study of IPC practices in surgery from the perspectives of health care workers (HCWs) and patients revealed critical role of patients/caregivers in antibiotic decision making.
- Highlights the importance of patient-centred care for infection prevention and antimicrobial stewardship.

Health Expectations | Research article | 31 January 2023 | [Online link](#)

Survey of healthcare worker perceptions of changes in infection control and antimicrobial stewardship practices in India and South Africa during the COVID-19 pandemic

- Online survey of 321 HCWs in India and South Africa reported improved IPC measures since the pandemic.
- Antibiotic prescribing increased during the pandemic, but prescribing patterns remained unchanged.

IJID Regions | Research article | 28 November 2022 | [Online link](#)

Health-care associated infection surveillance

- Free online course on the foundations of healthcare associated infections (HAI) surveillance, from planning to execution and evaluation.
- Takes approximately 3.5 hours.

OpenWHO | Online course | 5 December 2022 | [Online link](#)

Bloodstream infections

- Free online course on bloodstream infections (BSIs), BSI surveillance and best practices to prevent BSIs.
- Takes approximately 2 hours.

OpenWHO | Online course | 5 December 2022 | [Online link](#)

Strategic priority 4: Optimise use of antimicrobials

An analysis of existing national action plans for antimicrobial resistance – gaps and opportunities in strategies optimising antibiotic use in human populations

- Reviews 108 national action plans (NAPs) on AMR to assess objectives targeting AMU in human health.
- Highlights gaps, challenges and operationalization of NAPs across various domains.

The Lancet Global Health | Research article | 2 February 2023 | [Online link](#)

Global trends in antimicrobial use in food producing animals: 2020 to 2030

- Global monitoring of antimicrobial use (AMU) in animals is essential to reduce reliance of farming on antimicrobials and identify countries for targeted stewardship activities.
- AMU in animals was estimated to be 99,502 tonnes in 2020 and is expected to increase 8% by 2030.

PLOS Global Health | Research article | 1 February, 2023 | [Online link](#)

Association between antimicrobial stewardship programs and antibiotic use globally a systematic review and meta-analysis

- Study assesses association of ASPs and AMU through a quantitative meta-analysis and found a 10% reduction in antibiotic prescriptions and 28% reduction in consumption rates associated with ASPs.

JAMA Network Open | Research article | 9 February 2023 | [Online link](#)

Antifungal stewardship: what we need to know

- Review the burden of fungal infections, need for antifungal stewardship, prerequisites and current evidence.
- Highlights the need for antifungal stewardship for dermatophytosis also.

Indian Journal of Dermatology, Venereology and Leprology | Review article | January 2023 | [Online link](#)

Strategic priority 5: Research, innovations, and finance

Unmet needs for management of drug-resistant infections: low- and middle-income countries' viewpoint

- Highlights the need for evidence-based clinical strategies to address AMR in India and other LMICs.
- Discusses priority pathogens and conditions which require solutions adaptable to low-resource settings.

Drug Target Insights | Viewpoint | 31 December 2022 | [Online link](#)

Coumarin triazoles as potential antimicrobial agents

- Reviews evidence on coumarin and triazoles derivatives as potential antimicrobial agents; and reports enhanced efficacy of antimicrobial activity.

Antibiotics | Review article | 12 January 2023 | [Online link](#)

Impact of antimicrobial use in dogs on antimicrobial resistance and shared flora with human owners

- Pilot study that detected preliminary evidence of shared enteric flora between 8 pairs of dogs and owners after canine exposure of systemic antimicrobials.

Antimicrobial Stewardship & Healthcare Epidemiology | Research article | 09 January 2023 | [Online link](#)

Strategic priority 6: Collaborations

The Quadripartite organizations established the technical group on integrated surveillance on antimicrobial use and resistance

- The new technical group will advise the Quadripartite and Global Leaders Group on AMR on priorities, scope and structure of integrated surveillance of AMR and AMU across all sectors.

WHO | Press release | 26 January 2023 | [Online link](#)

Bracing for superbugs: strengthening environmental action in the One Health response to antimicrobial resistance

- Provides an overview of environmental dimension of AMR, specifically in three economic sectors – pharmaceuticals and chemicals; agriculture and food; and healthcare.
- Calls for a One Health approach and greater environmental considerations within NAPs, government policies, global actions related to WASH, and surveillance of AMR.

UNEP | Report | 7 February 2023 | [Online link](#)

Measuring the global response to antimicrobial resistance, 2020–21: a systematic governance analysis of 114 countries

- Uses a governance framework with 18 domains and 54 indicators to score NAPs on AMR.
- India's score was 51, while Norway and Micronesia had the highest (85) and lowest (28) scores respectively.

The Lancet Infectious Diseases | Research article | 16 January 2023 | [Online link](#)

How antimicrobial resistance is linked to climate change: an overview of two intertwined global challenges

- Provides an overview of current evidence on the relationship between AMR and climate change, including the influence of COVID-19, with a One Health lens.

International Journal of Environmental Research & Public Health | Review article | 17 January 2023 | [Online link](#)