



Setting the context

**National Workshop on Development and Implementation
of State Action Plan on Antimicrobial Resistance**

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Thiruvananthapuram, Kerala

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Antimicrobial resistance, a huge public health crisis

- **Antimicrobial resistance (AMR) – antibiotic resistance (ABR)** in particular – arises when bacteria survive exposure to an antibiotic that would normally kill them or stop their growth
- Accelerates by **antibiotic misuse** and **overuse in humans and animals**
- **No new class of antibiotics** discovered since 1980s
- **Consequences**
 - Difficulty in treating common infections
 - Common antibiotics becoming ineffective; last resort antibiotics being used
 - Uncertainty in success of high-end procedures
 - Longer hospital stays and more expensive treatments



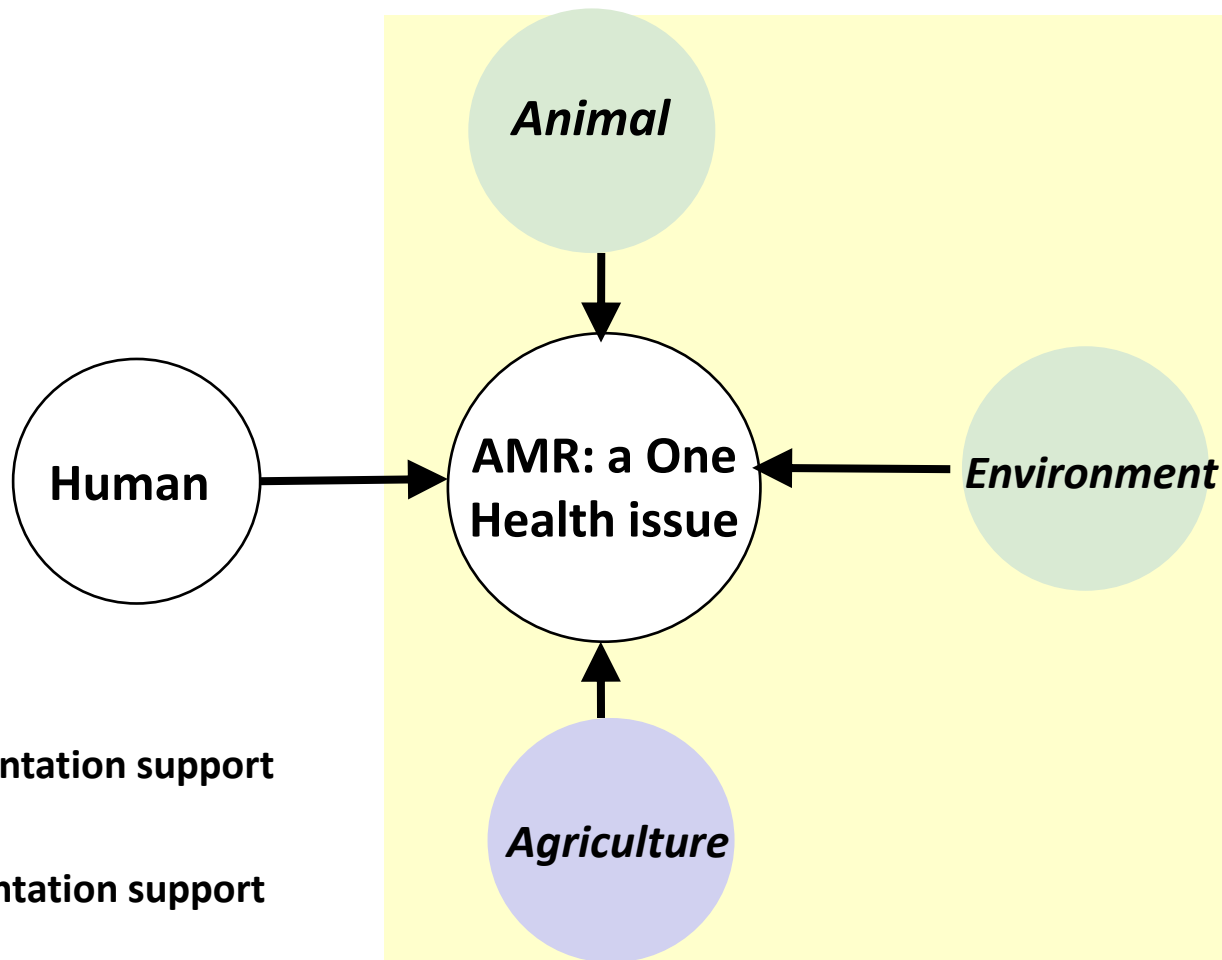
AMR impacts

- Huge **health** and **economic impact** on individuals and nations
 - By 2050, AMR estimated to lead to **10 million deaths per year** and **lost output worth US \$ 100 trillion** globally – post-antibiotics world
 - By 2050, annual global GDP estimated to **fall by 3.8%** in the high-impact AMR scenario
- Impact on **food safety, nutrition security, livelihood** and **growth**
- Difficulty in achieving **sustainable development goals**





Key contributors to AMR



CSE areas of focus:

- Policy research and lab studies
- NAP development and implementation support (India, Zambia)
- SAP development and implementation support (Kerala, MP, Delhi)
- National Advocacy –health, food, drug, animal husbandry, environment ministries/departments
- Global advocacy –WHO-FAO-OIE tripartite, IACG



Why India needs a stronger action?

Human health sector

- **High prevalence of bacterial infections**
 - Tropical climate, developing sanitation systems, weaker infection prevention and control
- **Inadequate and weaker health systems** to tackle growing infection burden
- **High burden of drug-resistant TB infections**
 - Risen significantly from 37.7% to 46.1% in last two decades in India
- As per a 10 hospital study, conducted across 581 patients, the **overall mortality rate of patients** with infections from multi-drug resistant pathogens was **13.1%** (published in Clinical Infectious Diseases, 2018)
- Study conducted on 207 stool samples in Chandigarh revealed antibiotic resistant organisms were present in the digestive tracts of **two out of every three healthy persons** (published in ACS Nano, 2019); Maximum resistance in **cephalosporins, fluoroquinolones**



Why India needs a stronger action?

Animal sector

- **Food animal sector known to be a key contributor to AMR**
- **Big sector in India; increasing intensive production and consumption of animal protein**
- **India among top producers of dairy, fish, poultry**
- **Much higher levels of antibiotic used in animals**
 - Non-therapeutic use: disease prevention and growth promotion
 - Regulations not adequate
- **Inadequate farm biosecurity and sanitation at farm level**
- **Strong evidence emerging**
 - Antibiotic misuse in poultry and aquaculture, antibiotic residues in chicken meat (CSE)
 - Unregulated use of antimicrobials in Indian broiler and layer farms leading to AMR (Environment Health Perspectives, 2017)
 - Chicken liver, meat, eggs from Mumbai found to contain multi antibiotic resistant bacteria (Acta Scientific Microbiology, 2019)



Why India needs a stronger action?

Environment sector

- **India: pharmacy of the world**
 - One of the largest antibiotic **manufacturers**, as well as **consumers** of antibiotics
 - Key **manufacturing hubs in India** (Andhra Pradesh, Gujarat, Maharashtra, Himachal Pradesh)
 - Numerous **medium** and **small scale manufacturers** over and above large players
 - **Untreated and improper** effluent discharge from antibiotic manufacturers
- **Improper waste management in farms, factories, households, hospitals**
- Traditional **sewage treatment plants** acting as a **AMR hot-beds?**
- **Antibiotic use in crops**, a route for antibiotic residues into environment
- **Limited guidance** on environmental **surveillance** and setting **discharge limits of AMR** in waste



So what should we do?

- Indian National Action Plan (NAP) comprehensive and aggressive; **calls for development of State Action Plans**
- **Onus of effectively implementing the Indian National Action Plan lies on States**
- States have key role in policy formulation and enforcement
 - **Federal structure** of the country
 - Health, agriculture, water etc. are **state subjects**
 - States have **better understanding** of **on-the-ground realities**
 - **Varying priorities, challenges, issues, solutions** etc. across states

**India's NAP outlines the need to “establish AMR as a state level priority”
States must come forward to develop and implement multi-sectoral State
Action Plan on AMR**



Strategic priority 6 of India's NAP-AMR

Strengthen India's commitment and collaborations on AMR at international, national and sub-national levels

Objective 6.4

Strengthen sub-national collaborations to tackle AMR

Strategic interventions and activities

6.4.1. Establish AMR as a state-level priority

6.4.1.1. Convene state-level advocacy meetings to prioritise action against AMR with One Health approach (**NACA**, **MoHFW**, MoAFW, National Health Mission (NHM), MoEFCC, MoDWS, WHO, FAO) **S-M-L**

6.4.2. Develop State Action Plans on Containment of Antibiotic Resistance (SAP-CAR) aligned to NAP-AMR

6.4.2.1. Convene regional stakeholder workshops to develop SAP-CAR (**NACA**, **MoHFW**, MoAFW, MoEFCC, MoDWS, WHO, FAO) **S-M-L**

6.4.2.2. Organize a stakeholder consultation on SAP-CAR in selected states (in first phase) (**State Governments**) **S**

Key output

- SAP-CAR developed – in 5 selected states in first phase – and subsequently in all States/UTs



Government of India

Delhi Declaration on Antimicrobial Resistance *– an inter-ministerial consensus*

Reaffirm that the roadmap for containment of AMR in India is the National Action Plan on Antimicrobial Resistance with its six strategic priorities that are aligned with the Global Action Plan on AMR:

1. Improve awareness and understanding of AMR through effective communication, education and training;
2. Strengthen knowledge and evidence through surveillance of antimicrobial resistance in human, animal, food and environment sectors with focus on strengthening laboratories;
3. Reduce the incidence of infection in health care, animal health, community and environment settings through effective infection prevention and control;
4. Optimize the use of antimicrobial agents in human health, animals and food with focus on strengthening regulations, access and surveillance of antimicrobial use and antimicrobial stewardship in human/animal health and agriculture;
5. Promote investments for AMR activities, research and innovations with focus on development of new antibiotics; innovations in diagnostics, vaccines and alternatives and sustainable financing for AMR; and
6. Strengthen India's leadership on AMR with focus on international, national and state/district level collaborations.



Points to be considered while developing a State Action Plan on AMR

- **Multi-sectoral** in nature, reflecting greater ownership and commitment across stakeholders
- Minimise overuse and misuse of antibiotics in humans and animals
 - Antibiotics were **designed for treatment** (last resort) and not prevention or growth promotion
 - **Non-therapeutic use** in non-human sector should be phased out
- **Alternatives to antibiotics**, along with appropriate **environmental measures**, should be promoted
- All **AMR pollution causing sources** leading to spread of resistant bacteria, genes or antimicrobial residues **should be addressed**
- **Data on AMR or antimicrobial use surveillance should be published annually**
 - Importance of **baseline data** for effective surveillance (disease and resistance trends, number of labs, lab capacity or infrastructure etc.)
- AMR containment efforts should also focus on the **domestic sector**; not just exports



Expected outcome from this workshop

- **DAY 1**

- States develop a better understanding on how to develop and implement State Action Plan on AMR

- **DAY 2**

- Discussion towards development of a roadmap to phase-out the use of antibiotics for non-therapeutic use (growth promotion and disease prevention), and use of critically important antibiotics for therapeutic use in poultry in Kerala



“The time may come when Penicillin can be bought by anyone in the shops. Then there is the danger that the ignorant man may easily underdose himself and by exposing his microbes to non-lethal quantities of the drug make them resistant”.

Alexander Fleming’s Nobel Prize Lecture, 1945.



Thank you

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