The Making of Kerala Antimicrobial Resistance Strategic Action Plan-
[KARSAP]

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AMR Identified as a problem years ago

• Kerala has a higher propensity to consume formal western health care, including inpatient care, than other states.
• High use, misuse and abuse of antibiotics
• Extensive use of antibiotics for growth promotion & for disease prevention in animals, horticulture and fisheries
• High consumption of meat, fish and meat products
• Use of animal manure in soil
• Inadequate treatment of effluents containing antibiotic residue from pharmaceutical industry, farms and health care facilities
The symptoms and response

• Increased incidence of drug resistant infections – longer hospital stay, increased medical cost & higher mortality

• In 2013 surveillance was started in Government Medical Colleges to monitor magnitude of and trend of AMR

• Antibiograms are prepared by Microbiology departments from hospital samples in medical colleges

• Based on these standard treatment guidelines/antibiotic policy was devised for all Medical colleges
Infection Prevention and Control

- In response to increased drug resistance, IPC measures were strengthened in all hospitals.
- HICC constituted in all Government hospitals – mandatory to have HICC meetings at least once in a month.
- Antibiotic stewardship committees constituted in all Government Medical Colleges and General Hospital Ernakulam.
- Sensitization classes for clinicians and students.
- Department of Pharmacology began to collect Antibiotic prescription data.
Work Begins on KARSAP

• In 2017 the need for a systematic response to AMR led to formal consultations with all departments involved in One Health Response

• The effort was done with support of WHO country office and all partner departments

• The effort received a fillip from national consultation held on 24–25 Aug 2017

• The threat perception was strong enough for the Chief Minister to review progress on 11 Oct 2017
The Finishing touches in the State Workshop on AMR 17 Oct 2017

• Participation of all stakeholder departments from human health, animal health, agriculture and environment, research institutions and WHO with focus on ‘One Health’ approach.

• Each shared their activities and results

• Five working groups developed recommendations for future work:
  – (i) communication for awareness and training
  – (ii) surveillance and laboratory
  – (iii) infection prevention and control
  – (iv) optimizing use of antibiotics
  – (v) research and innovation.
The following are the focus areas of the strategic priorities under KARSAP:

1. Awareness & understanding
   - Communication & IEC
   - Education & Training

2. Knowledge & evidence
   - Laboratories
   - Surveillance

3. Infection prevention & control
   - IPC in human health
   - Animal feed & food
   - Environment

4. Optimise use of antibiotics
   - Regulations
   - Hospitals & healthcare
   - Veterinary & aquaculture
   - Surveillance of AM use

5. Research & Innovations
   - Research
   - Innovations

6. Collaborations
   - Public private partnerships
   - Disease control programs

Monitoring and evaluation framework
1. Awareness and Capacity Building

- AMR awareness training is conducted in all Govt and many private hospitals and for veterinarians.

- AMR demonstrations are organized in OPDs to sensitize the patients and bystanders regarding the optimal use of antibiotics.

- Antibiotic Stewardship modules and antibiotic policies are being converted to apps to help optimise the use of antibiotics.

- Standard online surveys to assess the KAP of health workers & vets on AMR
2. Evidence

- An operational plan for AMR surveillance has been developed covering the human health as well as AMR in animals, food & environment.

- Antibiograms for all government medical college, a district hospital and public health labs are collected and collated. Seven district hospitals will be covered this year.

- The Antibiotic policy formulated for the first time in 2013 is revised every year based on the institutional antibiograms.

- KARS-NET involving private hospitals and laboratories is being established to get a more representative antibiogram covering the entire state.
3. Infection prevention & control

- All Govt hospitals have functional IPC committee which meets at least once a month.
- Staff Nurses have been selected and trained on IPC & HAI surveillance & outbreak investigation.
- These nurses were deployed as Link Nurses/ICN in hospitals.
- HAI surveillance data with respect to VAP, CLABSI, CAUTI & SSI are being captured in all the ICUs. In case of clustering outbreaks, process surveillance will be initiated.
- AMR issues incorporated in biosecurity guidance for farms & slaughter houses.
- The compliance of commercial farms with IPC guidelines & good practices are assessed by the department.
4. Optimizing use of antibiotics

• ASP committees are functional in all Govt Medical Colleges, other major hospitals and in all NABH accredited hospitals.

• Pharmacologists from Govt Medical Colleges were trained on Clinical Pharmacology. Plan to make the Clinical Pharmacology play an active role in prescription monitoring and management.

• Antibiotic utilization rates are watched for restricted antibiotics

• State Drug Controller monitors the total antibiotic consumption in the state. He also ensures the quality of drugs and trains retail chemists
5. Research

• Rajiv Gandhi Centre for Biotechnology [ A DBT institute] is our head research institution.
• Other research partners are:

<table>
<thead>
<tr>
<th>Category</th>
<th>Institutions</th>
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<tbody>
<tr>
<td>Fisheries</td>
<td>Central Institute of Fisheries Technology, Kerala University of Fisheries and Ocean Sciences &amp; Dept of Fisheries Kerala.</td>
</tr>
<tr>
<td>Animal Health</td>
<td>Kerala Veterinary and Animal Sciences University, State Laboratory for livestock, marine, and agri products, State Institute of Animal Diseases</td>
</tr>
<tr>
<td>Environment</td>
<td>Kerala State pollution control board, Department of environment sciences MG and Kerala University</td>
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<tr>
<td>Human Health</td>
<td>Medical Colleges, Public Health Laboratory, GH Ernakulam and a consortium of corporate hospitals.</td>
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6. Collaboration

• Expressions of interest were invited from NGOs and Corporates for collaboration with Kerala on AMR.

• CSE works with us on the Integrated surveillance frame work for antibiotic resistance, residues, their use in animal and presence in environment.

• Five corporate partners [Beckman Coulter, Becton Dickinson, bioMerieux, DSM Sinochem Pharmaceuticals, MSD Pharmaceuticals] work on infection prevention and control in hospitals and in capacity building.
Some recent initiatives

• Workshop on research on control bacterial pathogens affecting humans, animal and environment was conducted at RGCB. Information was shared on current work and new collaborative proposals were developed.

• Workshop on role of NGO and corporate sector for AMR containment in Kerala

• Workshop on Integrated Surveillance Framework for AMR for Kerala

• Workshop on Waste Water Treatment to Combat Antimicrobial Resistance

• Meeting of Kerala Antimicrobial Resistance Surveillance Network (KARS-NET)
Kerala Antimicrobial Resistance Surveillance Network (KARS-NET)

• Currently only Government Institutions report on AMR.

• To broaden base reporting Kerala and WHO set up the KARS – NET for the following objectives
  – Standardise, strengthen and expand AMR surveillance in Kerala
  – Analyse and report data to State and Central Governments
  – Regularly estimate extent of AMR in Kerala
  – Detect emerging resistance

• Private Lab Networks (14) and Private Medical Colleges (5) are considering participation
Thank you