Antimicrobial Resistance at human-animal interface in the Asia-Pacific Region

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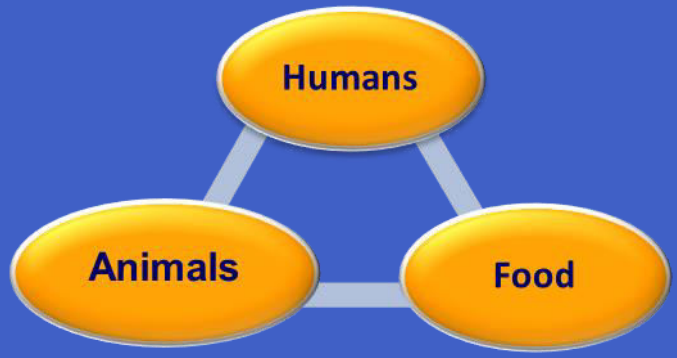
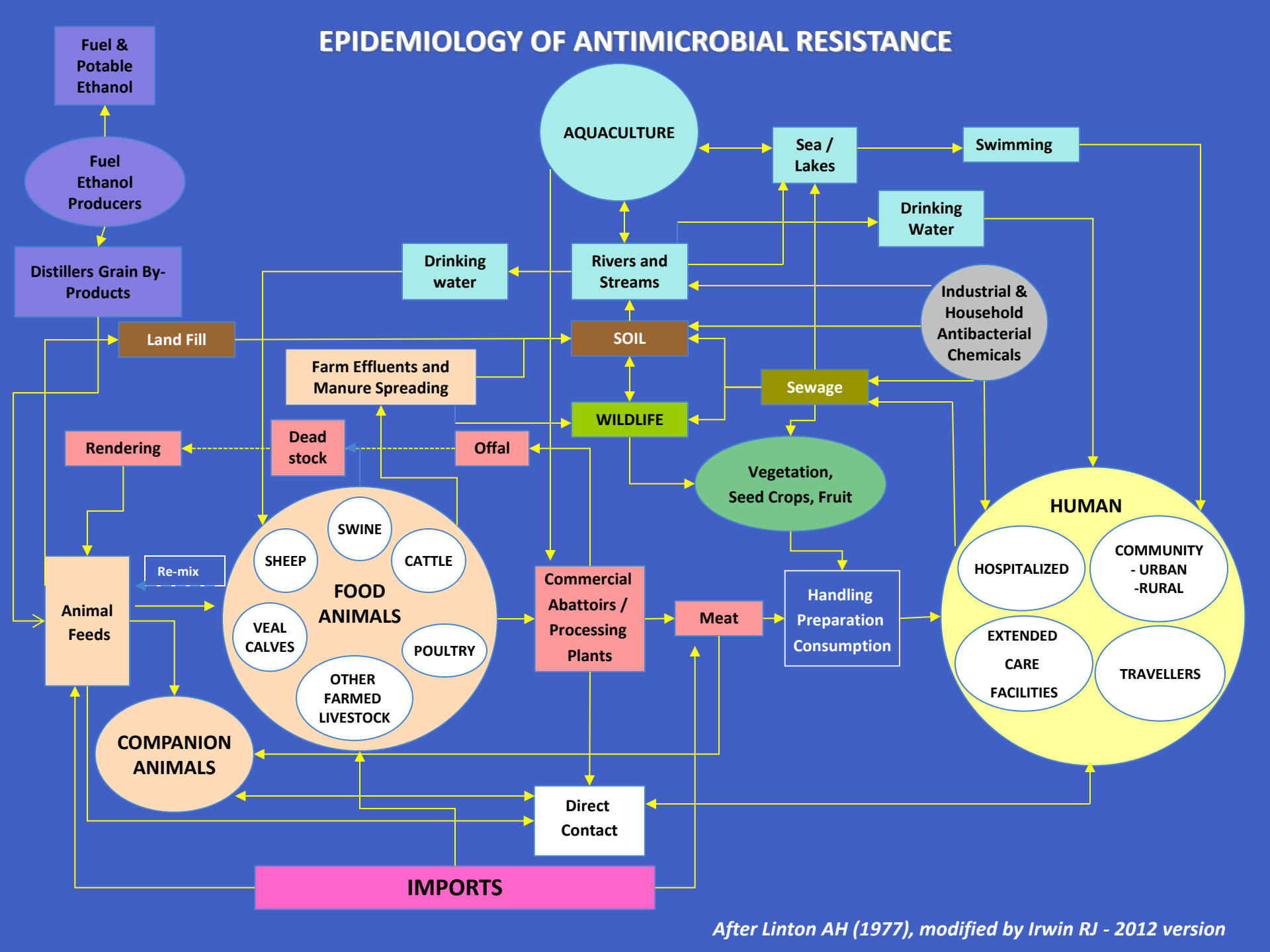
Outlines

- Introduction
- Situation analysis
- Issue and challenges
- Policy disconnect
- International partnership
- Key messages

Introduction

- Antibiotics are used in many settings
- Clinical medicine, communities, animal husbandry/aquaculture, horticulture
- Same classes of antimicrobial agents are used in different sectors
- Any use will select for resistance
- **Resistant bacteria and resistant genes do not recognize geographic or ecologic borders**




EPIDEMIOLOGY OF ANTIMICROBIAL RESISTANCE
Fuel & Potable Ethanol
Fuel Ethanol Producers
Distillers Grain By-Products
Land Fill
AQUACULTURE
Sea / Lakes
Swimming
Drinking Water
Drinking water
Rivers and Streams
Industrial & Household Antibacterial Chemicals
SOIL
Farm Effluents and Manure Spreading
Sewage
WILDLIFE
Rendering
Dead stock
Offal
Vegetation, Seed Crops, Fruit
HUMAN
HOSPITALIZED
COMMUNITY - URBAN -RURAL
EXTENDED CARE FACILITIES
TRAVELLERS
Re-mix
Animal Feeds
SWINE
SHEEP
CATTLE
FOOD ANIMALS
VEAL CALVES
POULTRY
OTHER FARMED LIVESTOCK
Commercial Abattoirs / Processing Plants
Meat
Handling Preparation Consumption
COMPANION ANIMALS
Direct Contact
IMPORTS
After Linton AH (1977), modified by Irwin RJ - 2012 version

Resistance: Biological phenomenon

- Antibiotics promote resistance
- The antibiotics also kill innocent bystanders bacteria which are non-pathogens
- The use of antibiotics also promotes antibiotic resistance in non-pathogens too
- These non-pathogens may later pass their resistance genes on to pathogens

Human health vs animal health

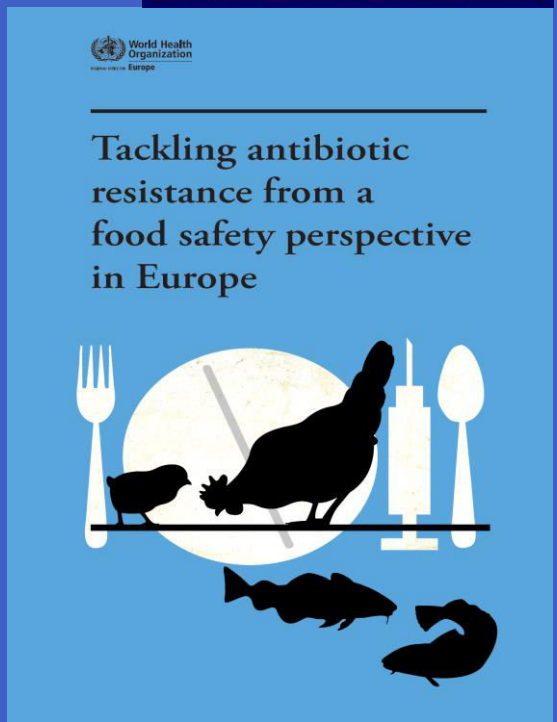
1. Self-medication
2. Patient compliance, i.e. under dose vs overdose
3. Antibiotic sensitivity test
4. Over the Counter Sale
5. Use of new and expensive drug
6. Life , duration of illness
7. Counterfeit drugs-Major issue

1. Use of antibiotic as growth promoters
2. Withdrawal period or milk discard time –Food safety
3. Only for companion animals
4. Same problem in animal health sector
5. Economic factor plays a role in selection of antibiotics
6. Trade, production and food security
7. Minor issue- Cost factor

AMR is a food safety concern?

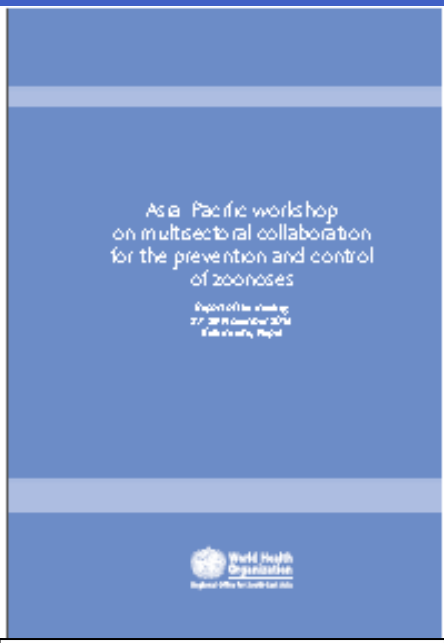
- Antibiotic use in food animals – for treatment, disease prevention or growth promotion – allows resistant bacteria or genes to spread from food animals to humans through the food-chain

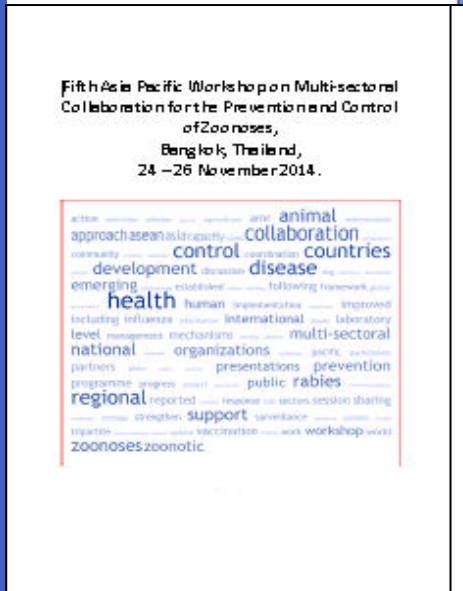
- Increased awareness and specific policy guidance on containing antibiotic resistance from a food safety perspective



Policy advocacy in regional platforms

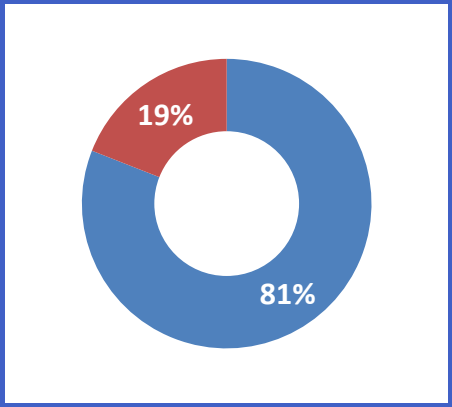
- Tripartite coordination mechanism (FAO/OIE/WHO)
- Advocacy for One Health
- Operationalization of One Health
- Avian influenza, rabies and AMR – Priority areas for operationalization of OH
- GAP on AMR



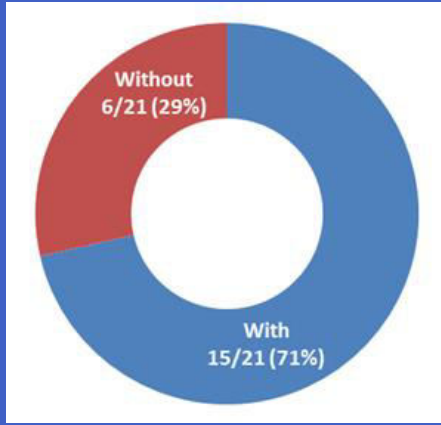


AMR situation in the Asia Pacific Region

A total of 21 (91.3%) of the 23 participating countries responded to the questionnaire

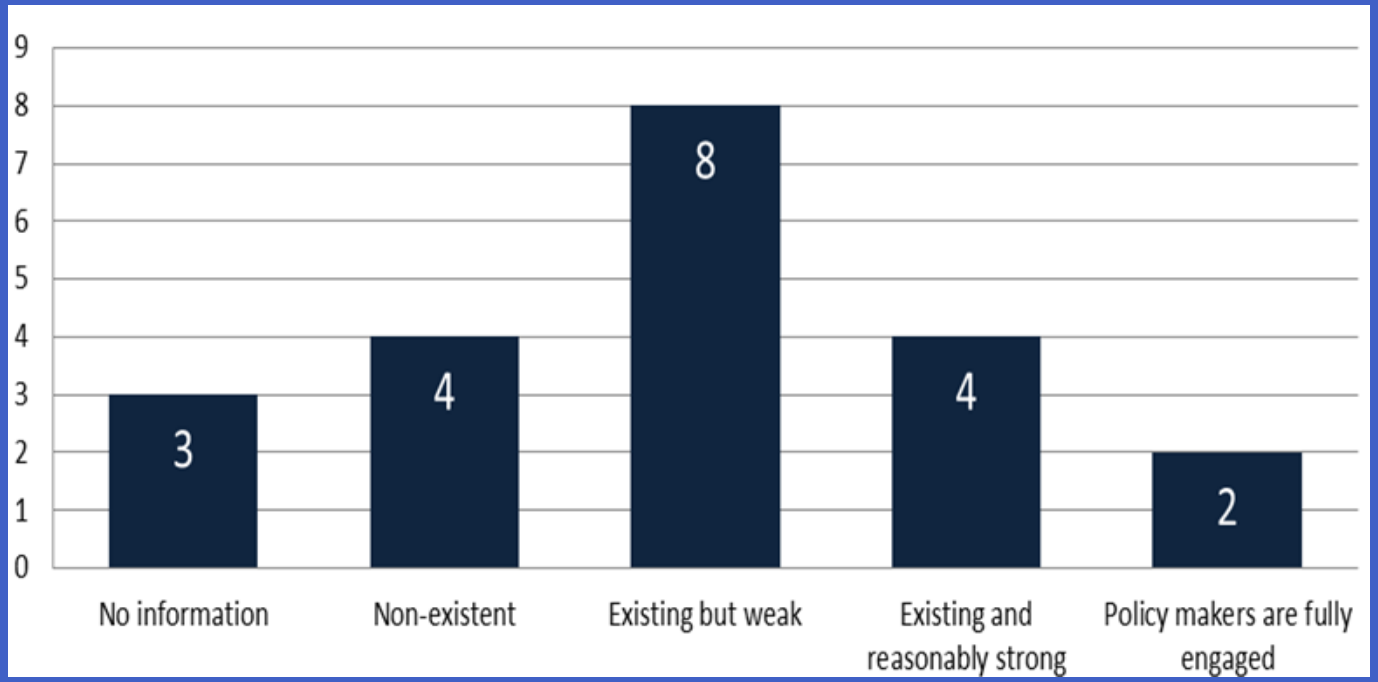


AMR is presently a recognized issue at the human-animal interface



Existing laws or policies specific to AMR mitigation

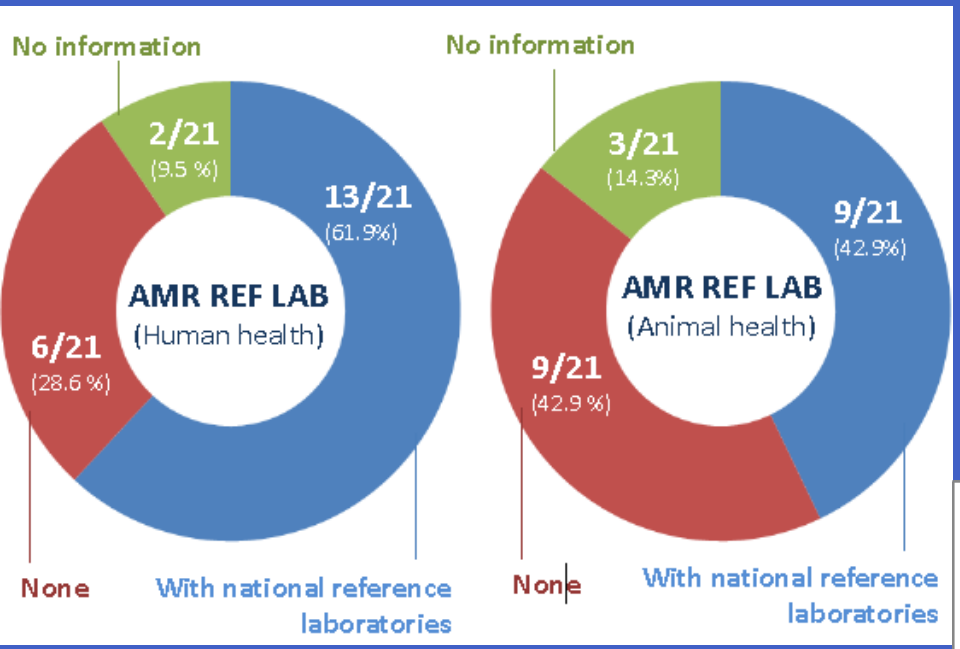
(1) governance, legislation and political support on AMR issues;
(2) capacity related to AMR surveillance and mitigation;
(3) existing Inter-sectoral collaboration in addressing AMR in the country



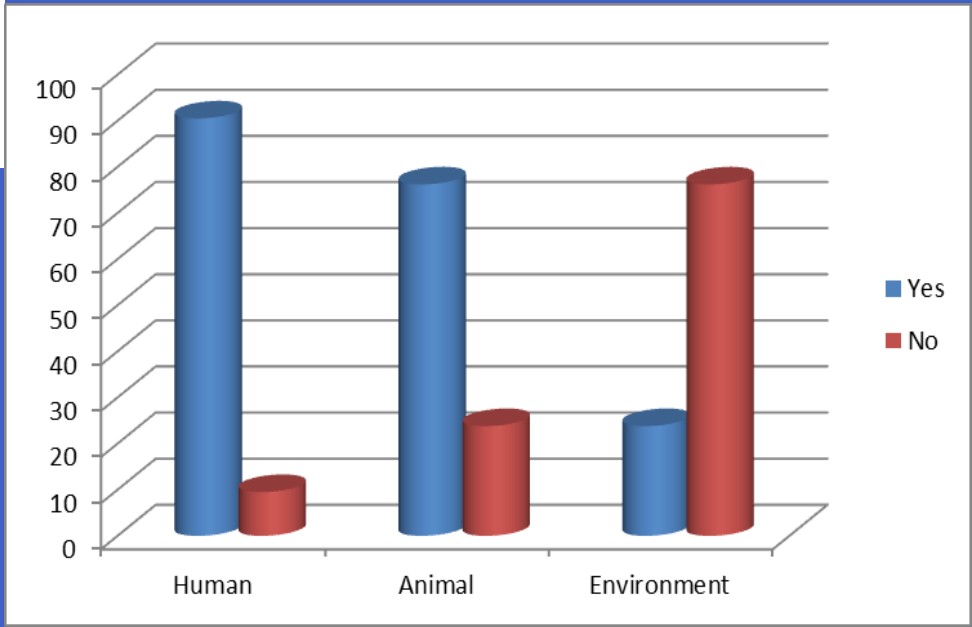
Policy engagement in the countries related to AMR Mitigation

AMR situation in the Asia Pacific Region

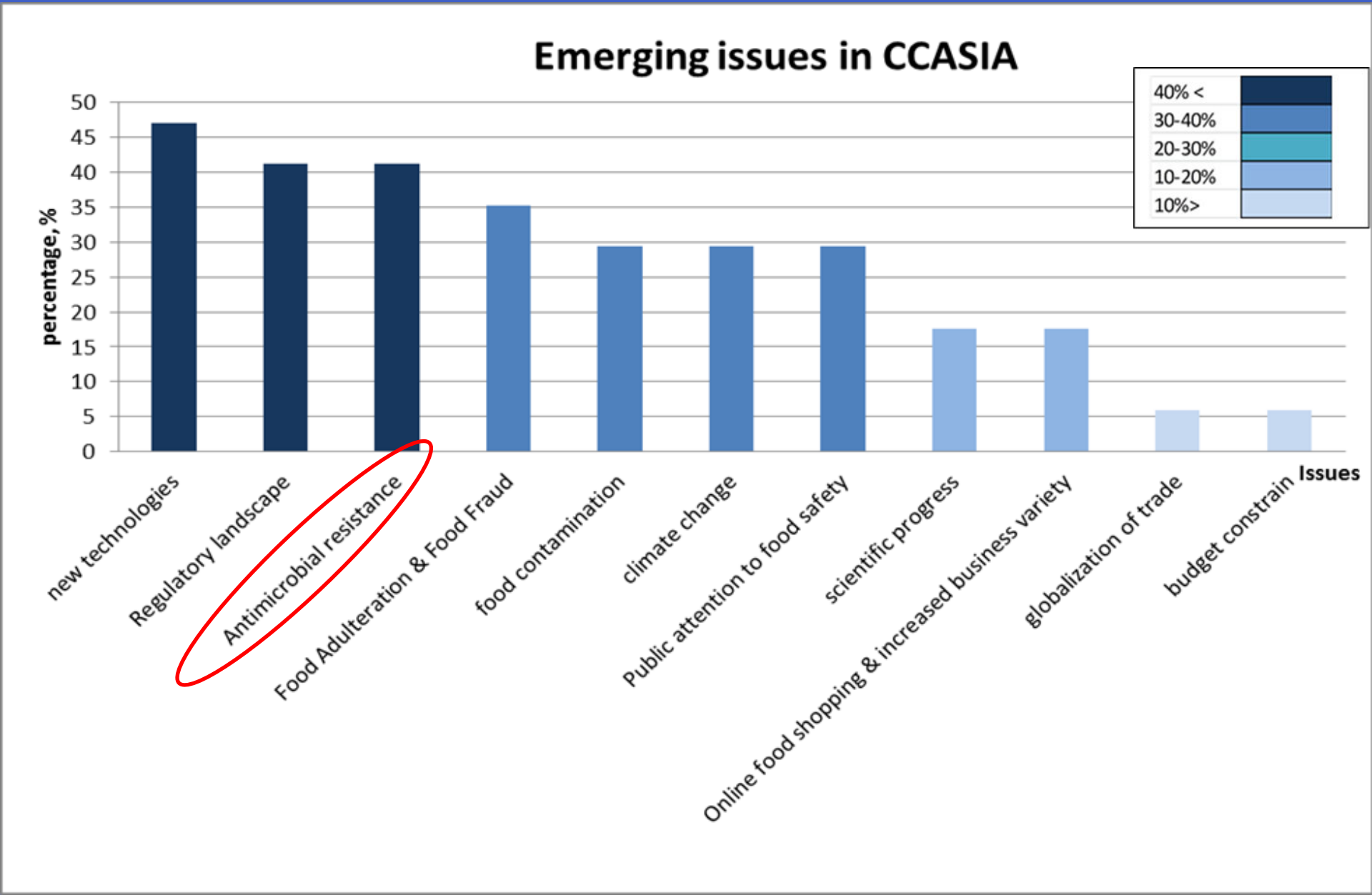
Recognized institution involved in AMR surveillance



AMR surveillance in human, animal and environment



CCASIA Meeting, New Delhi, October 2016

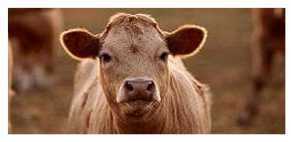


Priority areas for strengthening surveillance and containment of AMR

1. **Policy advocacy for legal framework, multisectoral collaboration and public private partnership**
2. **Financial and technical support for development and implementation of NAP on AMR**
   - **Human resource development**
   - **Strengthening laboratory-based AMR surveillance**
   - **Research capacity development**
3. **Networking and coordination at the regional and national levels**

Lack of coordination: Policy disconnect!





According to a report by the Global Antibiotic Reporting Partnership, the amount of antibiotics sold in India increased 40% between 2005 and 2009 (Ganguly et al., 2011).

Unlike the US and many European countries, there are limited regulations and lack of information on antimicrobial use in food animals raised for domestic consumption in India (Ganguly et al., 2011).

Finally, antibiotics bar on food-producing animals

Kounteya Sinha | TNN

New Delhi: India has finally clamped down on indiscriminate pumping of antibiotics into food producing animals.The Union health ministry has inserted a new rule in the country's Drugs and Cosmetics Act that for the first time has quantified the withdrawal period — the timeframe that these animals or marine products have to be kept off antibiotics before they enter food chain.

The addition to Rule 37 of the 1945 act, which came into force from January 17, says, "Containers of medicine for treatment of food producing animals shall be labeled regarding withdrawal period of drugs for species on which it is intended to be used."

The new insertion says the withdrawal period "shall be less than seven days for eggs and milk, 28 days for meat from poultry and mammals, including fat and offal, before they enter the human food chain. In case of fish meat, it is specified as 500 degree days (taken into account both temperature of water and number of days.)"

Antibiotics withdrawal period for:

Egg and milk	7 days
Meat from poultry and mammals	28 days
Fish	500° days

A ministry official said, "Earlier, the rules didn't even quantify how much antibiotics can be used in animals and till when. Now that it has been inserted into the act, states will start clamping down on food producers who fail to adhere to the withdrawal time."

Professor Randeep Guleria, AIIMS, said, "Antibiotics are used by farmers to prevent infection in fish or poultry. However, till now there was no limitation. We didn't want such fish or meat to enter the food chain and lead to the emergence of antibiotic resistance in humans who eat it."

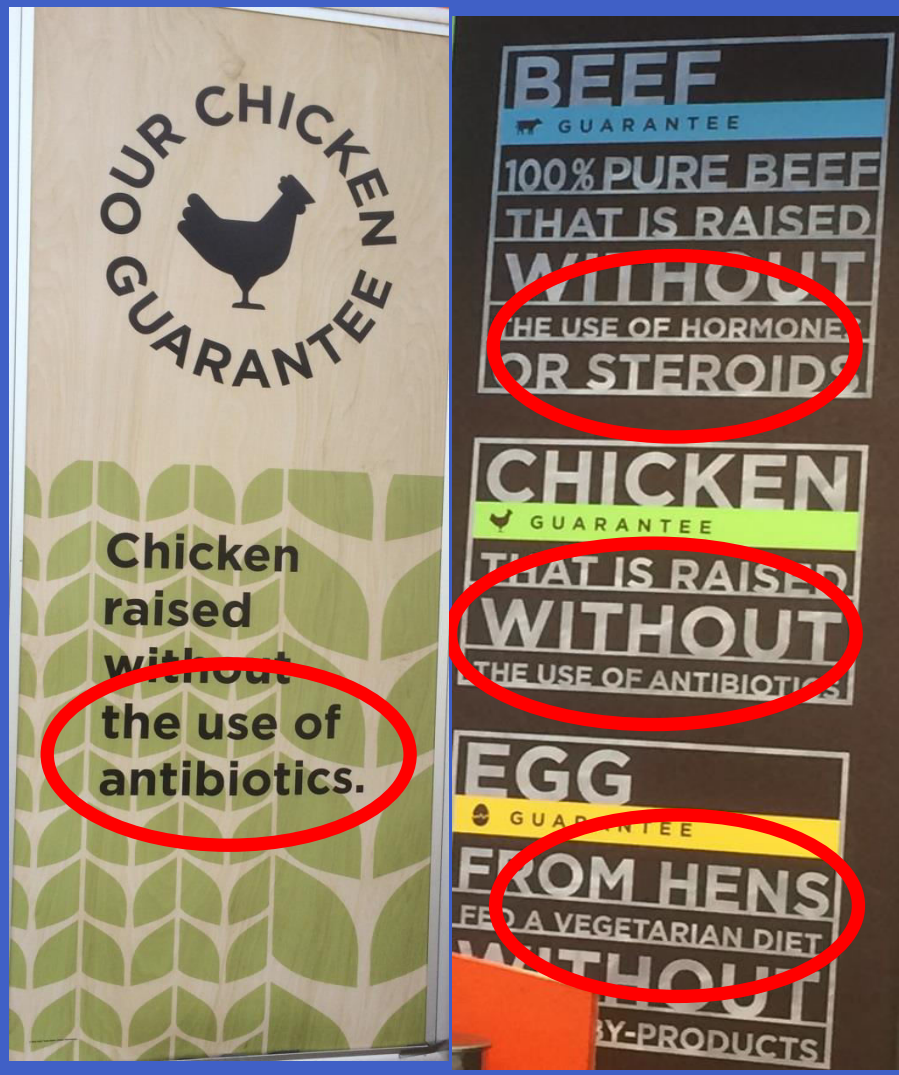
There is increasing proof confirming that non-therapeutic use of antibiotics to make chickens fatter and shrimps larger are making humans resistant to antibiotics. Some experts say antibiotics are eight times more likely to be used for non-therapeutic purposes than for treating a sick animal. Scientific evidence shows that long-term administration of antibiotics in animal creates an optimal environment for antibiotic resistance genes to multiply.

Risk mitigation measures

- Withdrawal period and milk discard time are recommended when used in food animals
- Ban on use of selective antibiotics such as vancomycin, chloramphenicol in food animals
- Alternative to antibiotics, i.e. probiotics,
- Prophylactic vaccination
- Good farming practices and application of biosecurity measures
- Trade incentives, i.e. export to EU, Japan

Can we ignore consumers?

- Advocacy, awareness and education: Whole of the society approach
- Consumer right to information
- Farmers/producers are first hand consumer!
- Consumer can be a game changer



International partnership is key

- Joint FAO/OIE/WHO Expert meetings
  - Non-Human Antimicrobial Usage and Antimicrobial Resistance, 2003 and 2004
  - Antimicrobial Use in Aquaculture & Antimicrobial Resistance, 2006
  - Critically Important Antimicrobials, 2008
- FAO and OIE participate in WHO Advisory bodies on AMR and have been key partners in the development of the **WHO Global Action Plan**
- AMR has been selected as a priority topic for the Tripartite (FAO/OIE/WHO)
- FAO, OIE and WHO will work in close collaboration in the implementation of the GAP

Key messages

AMR is a natural phenomena and it has biomedical and socio-cultural dimension

Window of opportunity

- Increased level of awareness and engagement
- Global Action Plan galvanizes partners around common goals

Challenges

- **Lack of** effective/simple **communication**
- Not one single disease nor pathogen

Lack of capacity, particularly in low resource settings

- Diagnostic, quality assurance, regulatory, and surveillance capacity
- Prevent and control spread of drug resistant pathogens
- Control over how antimicrobials are obtained and used

- Multiple partners/sectors and **Lack of coordination**

✓ Demands holistic, multidisciplinary approach, ONE HEALTH approach

Enough time has been wasted issuing warnings about antibiotic resistance

The moment has come to do something about it