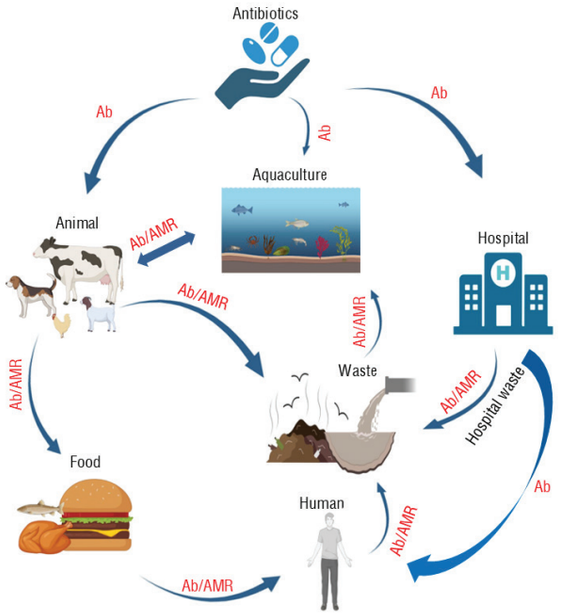
HOW TO PREVENT AMR IN AQUACULTURE

- Use antibiotics only when necessary with the advice of aquaculture professionals
- Implement alternative disease management strategies such as vaccination, probiotics, phage therapy, good water quality and bioremediation
- Monitor and improve hygiene and sanitation in farming systems
- Follow international guidelines and local regulations on antibiotic use in aquafarms



Spread of AMR in Aquaculture

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The Director
ICAR-CIBA

Prepared by

Sudama Swain
T. Bhuvaneswari
Vidya Rajendran
P. Ezhil Praveena
S.K. Otta
M. Shashi Shekhar
Kuldeep K Lal

Aquatic Animal Health and Environment Division

ICAR – CENTRAL INSTITUTE OF BRACKISHWATER AQUACULTURE

No.75, Santhome High Road, MRC Nagar
Chennai, Tamil Nadu - 600 028.
Phone: +91 44 24618817 / 2461 6948
Web: https://ciba.icar.gov.in/

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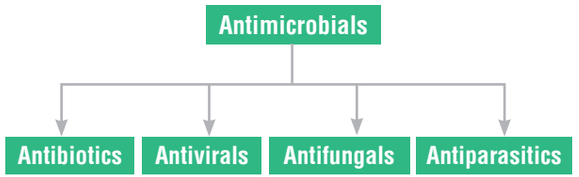
ANTIMICROBIAL RESISTANCE (AMR) IN AQUACULTURE AND ITS MITIGATION STRATEGIES

2024

ICAR – CENTRAL INSTITUTE OF BRACKISHWATER AQUACULTURE

WHAT IS ANTIMICROBIALS?

Microbes are very small organisms that can only be observed through a microscope. They include bacteria, viruses, fungi and micro parasites which cause infections in humans, terrestrial animals, aquatic animals and plants. Medicines used to prevent and treat these microbial infections are called antimicrobials.

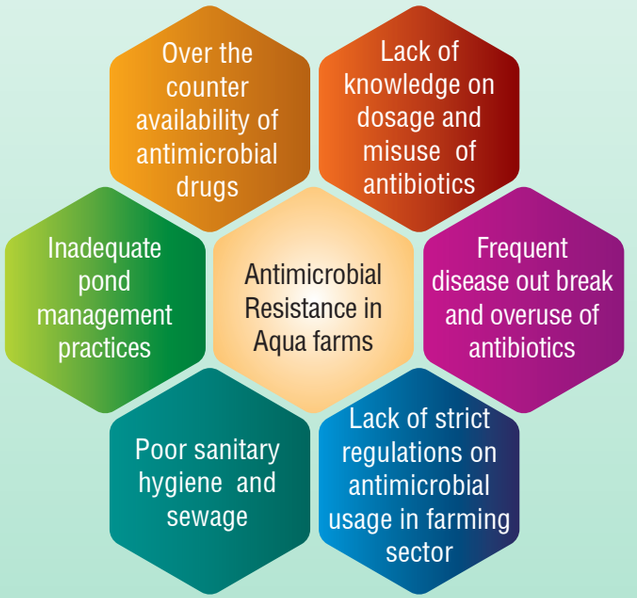


WHAT IS ANTIMICROBIAL RESISTANCE (AMR)?

- Antimicrobial resistance (AMR) occurs through genetic changes in microbes
- AMR microbes share specific genetic material with other microbes and increase the spread of resistance genes across bacterial populations in the environment
- Improper use of antimicrobials can accelerate AMR in bacteria with selective pressure on resistance traits to survive and to infect humans, animals, aquatic animals and plants
- AMR microbes are resistant to currently available medicines and very difficult to treat infections

AMR IN AQUACULTURE

- More than half the quantity of antimicrobials used in aquatic animals/ fish is excreted as waste contaminating soil, water and the environment affecting the natural microflora of pond



- The misuse and overuse of antimicrobials are the main drivers in the development of drug-resistant pathogens in aquafarms
- Poor water quality and unsanitary conditions leading to increased disease outbreaks and increase in AMR microbes
- AMR microbes in aqua pond will make disease treatments ineffective, increase the severity of the disease, reduces productivity and leads to economic losses

THE IMPACT OF AMR

- Harmful to fish health, animal health, human health, and the environment
- AMR can spread from fish and animals to humans through food consumption
- World health organization (WHO) estimated that bacterial AMR was directly responsible for 1.27 million global deaths in 2019 and indirectly contributed to 4.95 million deaths
- The World Bank predicts that by 2050, AMR could reduce global livestock production by 7.5% and decrease global exports by 3.8% with adverse long-term economic impact on fish farming industries