

The current state of AMR research activities including Alternative to antimicrobials (ATA) and collaboration opportunities in Bangladesh
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Background on AMR research in Bangladesh

Current Surveillance status of AMR research

Nature of activity	Area covered	Laboratories/ Organizations Involved
Establishment of 2 (two) National Reference Laboratories for AMR Surveillance and Research	-	1. Central Disease Investigation Laboratory (CDIL) - National AMR Reference Laboratory (Surveillance), Department of Livestock Services (DLS), Bangladesh. 2. National AMR Reference Laboratory (Research), Bangladesh Livestock Research Institute (BLRI), Bangladesh.
AMR Surveillance (sentinel sites) funded by Fleming Fund Country Grant, Bangladesh (FFCG,B)	Feni, Joypurhat and Barishal	CDIL - NRL (AMR Surveillance), DLS NRL (AMR Research), BLRI Poultry Research and Training Centre (PRTC), CVASU Field Disease Investigation Laboratory (FDIL), DLS: Feni, Barishal and Joypurhat
Sink Surveillance in the wet bird market- Co-ordinated by FAO	Dhaka and Chattogram city corporation area (Sink area of major metropolitan cities)	CDIL, BLRI, PRTC, Field Disease Investigation Laboratory (FDIL): Chattogram
Integrated (Human, animal and environment) AMR surveillance (Tri cycle, Pilot) funded by Gov and Co-ordinated by ICDDR, B	Chattogram and Mymensingh	ICDDR, B, CDIL, BLRI, FDIL (Chattogram)

Central Disease Investigation laboratory, Department of Livestock Services, Bangladesh
 (National Reference Lab for AMR Surveillance in Animal Health)



Behavior Change communication (BCC)

- AMR Sectoral Working Group (SWG) under DLS includes stakeholders from the government, academia (13 Universities) and the private sector (AH CAB, BPICC, FIAB)
- Meeting held at quarterly.

ATA Research Focus

Research on ATA in Bangladesh

- The Livestock Research Institute (LRI), DLS produces 17 different vaccines prevent infectious diseases to reduce antibiotic use in small and medium scale farms.
- Imported vaccines are used in commercial medium and large-scale poultry and livestock farmers for immunization purposes.
- BLRI developed 2 vaccine (LSD, Avian Influenza H9N2) and BAU developed 2 vaccine (Brucella, Mastitis) which is under trial.
- Probiotics, prebiotics, enzymes, amino acids, organic acids, phyto-genic additives etc. as ATA is increasing in veterinary practices.



Regulatory or practical barriers to developing ATA-based treatments in Bangladesh

- The Fish & Animal Feed Act, 2010 prohibits the use of antibiotics, growth hormones, steroids or other harmful chemicals in animal feed.
- Animal Disease Act, 2005 and Animal Disease Role, 2008.
- In 2019, DGDA banned 34 antibiotics in veterinary use that are critically important for human use as an initiative to curb antimicrobial resistance associated with animal health sector of Bangladesh
- Import Policy Order 2021-24 highlights such barriers.
- Lack of confidence among Veterinarians in using ATA
- Lack of awareness, evidence based promotional activity.

Challenges & Solutions

Challenges related to AMR/ATA research

- Imprudent antibiotic usage, including self-medication by farm owners, over-the-counter sales, and promotional selling by dealers.
- Donor dependent AMR surveillance.
- Skilled workforce shortage at sentinel surveillance sites.
- Intensive marketing strategies employed by pharmaceutical companies.
- Weak biosecurity measures in animal farming.
- Poor coordination among agencies involved in antimicrobial regulations

Solutions

- Development of National Antibiotic Policy for veterinary use
- National Action Plan (surveillance of AMU and AMR)
- Scaling up the enforcement of legislation in compliance with the rational use of antimicrobials
- Strengthening biosecurity throughout the food chain
- Scaling up nationwide multi-sector 'Integrated AMR Surveillance (TRI cycle)'
- Integrated database systems across sectors, including One Health (OH) data dashboards and BAHIS (Bangladesh Animal Health Intelligence System).

Collaboration opportunities:

Do you have any requests for collaboration with or support from other countries on specific topics?

- Collaboration opportunity with countries excelling in Alternative Therapeutic Approaches (ATA), such as phage therapy and Antimicrobial Peptides (AMPs).
- Exchange of knowledge, research findings, and joint initiatives to combat AMR.
- Strengthening research capacity through global partnerships in the field of-
 - Development of innovative vaccines.
 - Advancement of phage therapy techniques.
 - Investigation of the therapeutic potential of AMPs.

Strategic Sectoral Cooperation (SSC) government to government Project between Denmark and Bangladesh.