



Bangladesh AMR Newsletter

National AMR Coordination Centre

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Training on Sample Collection and Transportation in Animal Health Sector

A three-day long hands-on training on “Sample Collection and Transportation in Animal Health Sector” was held at the Chattogram Veterinary and Animal Sciences University (CVASU) from October 28-30, 2021 with the support from the Fleming Fund Country Grant for Bangladesh (FFCGB). The aim of the training was to introduce AMR surveillance at the sentinel laboratories in the Animal Health sector. Dr Paritosh Kumar Biswas, Animal Health Laboratory Capacity Building Lead, FFCGB and Professor, CVASU was the coordinator of the training program.



Professor Goutam Buddha Das, VC, CVASU inaugurated the training session



Demonstration on bacterial pre-enrichment from collected samples

A total of 15 trainees from the Department of Livestock Services (DLS) attended the training. Prof. Goutam Buddha Das, Vice-Chancellor, CVASU inaugurated the training as the Chief Guest. The training was mainly based on 14 hands-on sessions, such as collection of samples from poultry farm and live bird market (LBM), ruminant and pet animals, including proper transportation and storage of samples collected for bacteriological investigations followed by antimicrobial sensitivity testing (AST) as part of AMR surveillance in the country.

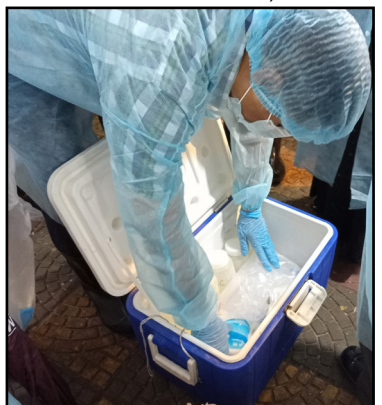
Dr Paritosh Kumar Biswas, CVASU



Collection of ano-rectal swab from cattle



Collection of nasal swab from dog



Packing of samples collected from LBM in a cool box

Editorial

Adopting a One Health approach to contain AMR is the objective of the Antimicrobial Resistance (AMR) Containment Program of the CDC, DGHS. To achieve this objective, the program is not only coordinating with the Human Health, Animal Health, and Aquaculture sectors, but also prioritizing public and private partnerships, especially among laboratories. The private laboratories need to share the findings with the public sector, so that the overall AMR situation in the country becomes visible. Also, the laboratory personnel as well as the clinicians need to work closely for better utilization of the laboratory data. The program is now emphasizing data utilization through clinical engagement.

Prof. Dr Md. Nazmul Islam
Chief Editor

Director, Disease Control and Line Director, CDC



Meeting on “Diagnostic Stewardship and Clinical Engagement: An Initiative of Human Health Sectoral Working Group” at IEDCR

The Sectoral Working Group in the Human Health Sector of the Antimicrobial Resistance Containment Program organized a Diagnostic Stewardship and Clinical Engagement meeting. The meeting was attended by around 40 microbiologists, clinicians, and hospital directors at the Institute of Epidemiology, Disease Control and Research (IEDCR) with support from the Fleming Fund Country Grant for Bangladesh (FFCGB) on September 27, 2021. The meeting was chaired by Prof. Dr Tahmina Shirin, Director, IEDCR. Prof. Dr Md. Nazmul Islam, Director, Disease Control and Line Director, CDC, DGHS was the Chief Guest.

Microbiologists, clinicians, and hospital directors from Dhaka Medical College Hospital (DMCH), Mymensingh Medical College Hospital (MMCH), Rajshahi Medical College Hospital (RMCH), and Uttara Adhunik Medical College Hospital participated in the discussions in the meeting. There was a lively discussion on identifying gaps and planning to implement Diagnostic Stewardship and Antimicrobial Stewardship through clinical engagement.



Prof. Tahmina Shirin,
Director, IEDCR



Prof. Md. Nazmul Islam,
Director, Disease
Control and LD, CDC



Brigadier General
Dr Muhammad Fazlul
Kabir, Director, MMCH



Prof. Mohammad Robed
Amin, Line Director,
NCDC, DGHS



Brigadier General
Dr Md. Nazmul Haque,
Director, DMCH



Prof. K.M. Shahidul Islam,
Head of Microbiology
(Retd.) DMCH



Prof. Fahmida Begun,
Uttara Adhunik Medical
College Hospital



Prof. Rubina Yasmin,
Mugda Medical College



Dr Farhana Matin Iti,
Microbiology, RMCH



Dr Aninda Rahman,
DPM, CDC, DGHS



Prof. Dr Nitish C. Debnath,
Team Lead, FFCGB

Sectoral Working Group (SWG) Meeting for Animal Health at DLS



The second meeting of the Animal Health Sectoral Working Group was held on September 22, 2021 at the Department of Livestock Services (DLS). Organized by DLS in collaboration with the Fleming Fund Country Grant for Bangladesh (FFCGB) the meeting was held with the agenda of sharing the progress on the decisions of the 1st SWG meeting held on June 21, 2021 and sharing the Point Prevalence Survey (PPS) findings on antimicrobial use (AMU) in commercial chickens, and discussing on the progress of incorporating AMR/AMU data into the Bangladesh Animal Health Intelligence System (BAHIS). Chaired by Dr Monjur Mohammad Shahjada, Director, Administration DLS, Dr Shaiqur Rahman, Director DLS was the chief guest.

Sharing the Findings of PPS on AMU in

Dr. Sukanta Chowdhury, Principal investigator of the study presented the findings of PPS on antimicrobial use in commercial chicken. He informed that the study was conducted at 20 selected upazilas in 5 Districts of Bangladesh. The Sillient findings of the study showed that antibiotics were used more often in broiler and sonali chickens in comparison to layers. Usage of antibiotics were higher in the farms with sick chickens than in the farms with healthy chickens

Usage of antibiotic as a growth promoter was not substantiated through this study. The meeting emphasized the need for continuous monitoring of AMU in the poultry and dairy farms.

Point Prevalence Survey of Antimicrobial Use in Human, Commercial Chicken and Aquaculture Using One Health Approach in Bangladesh

Sharing the Progress of Incorporation of AMR/AMU Data into BAHIS



To share the progress of incorporation of AMR data into BAHIS Dr T.A.B.M. Muzaffar Goni Osmani, Epi Unit, DLS, delivered a talk under the title “Sharing the Progress of Incorporation of AMR/AMU Data into BAHIS and Finalization of AH Sector Data Management using the BAHIS Platform”.

The presentation showed how antimicrobial use (AMU) and antimicrobial consumption (AMC) data collected at the farm level is incorporated into the Bangladesh Animal Health Intelligence System (BAHIS). The finalization of AMR component of BAHIS is in progress. Once incorporated into BAHIS, AMR data platform may be used for data flow from surveillance sites, academia and private sector.

Training on AMU Data Collection

Collection of AMU data from commercial farms

Sample of AMU data collection forms (Chicken)

AMU data				B. Name and address of farm		
Day	Tentative diagnosis/ Prophylaxis	Treatment (Brand, Quantity used, Route)	Vaccination (type and route)	Feed (Category)	Water (liters)	Mortality

A. Farm Demographic data		C. Farm characteristics	
A. Correspondent/Data Collector		Name of breed reared	
Name		Farming type	Controlled, Semi controlled, Open
Designation		Flock size (Number of chicks in a flock)	
Contact number		Average length of production cycle (days)	
E-mail address		Flock reared per year	
Education		Average mortality per flock	
Farming experience (Years)		Average final weight per birds	

Collection of AMU data from commercial farms

Sample of AMU data collection forms (Dairy)

AMU data						B. Name and address of farm	
Date	Herd ID	Tentative diagnosis	Treatment (Brand, Quantity used, Route)	Vaccination (type and route)	Feed?	Water?	

A. Farm Demographic data		C. Farm characteristics	
A. Correspondent/Data Collector		Type of animal kept	
Name		Name of breed kept	Exotic, local, crossbreed
Designation		Farming type	Open, others
Contact number		Herd size	Lactating – Heifers – Calves – Total –
E-mail address		Average milk prod per cow (liter)	
Education			
Farming experience (Years)			

Organized by DLS with the support from FFCGB the training program titled “Antimicrobial Use (AMU) Data Collection at Farm Level of Bangladesh” was held in the same venue at DLS following the Animal Health Sectoral Working Group meeting. This training was organized to help develop the capacity of DLS staff in data collection, surveillance, monitoring, and quantification of antimicrobials use at the farm level in commercial poultry and dairy farms.

Around 44 participants attended the training. Along with

the scientists and veterinarians from the Epi Unit, the Central Disease Investigation Laboratory (CDIL) of DLS, as well as academics and researchers from universities and research organizations, the participants also included the 20 Upazila Livestock Officers from the upazilas where the above mentioned PPS on AMU in Commercial Chicken study was conducted. The training was divided into two modules of Selection of farms and collection of AMU data from the selected farms and Calculation of the amount of antimicrobials used in the selected farms.

Fleming Fund Fellow

Dr S. M. Sabrina Yesmin, Assistant Director, DGDA. She is a Fleming Fellow of the AMU/AMC Surveillance Fellowship - Human Health (Directorate General of Drug Administration (DGDA). She started her Fellowship in February 2021. She has been working for the Directorate General of Drug Administration (DGDA), Ministry of Health and Family Welfare, Bangladesh.

Her mentors are Dr Majda Attauabi and Dr Anders Rhod Larsen from the Statens Serum Institut, Denmark. In her Fellowship, she will participate in different on-line courses like the WHO ATC/DDD course, Statistical Analysis with R for Public Health Specialization, AMR: a Multidisciplinary Approach from the London School of Hygiene and Tropical Medicine, the 31st ECCMID, etc. She will coordinate AMC/AMU surveillance in Bangladesh conducted by DGD, and will act as a focal point of DGD for collaboration with One Health Bangladesh.



Directorate General of Drug Administration (DGDA): National Regulatory Authority of Drugs



DGDA distributed 1 lac leaflets to pharmacies

To ensure Good Pharmacy Practices, DGDA started the Model Pharmacy and Model Medicine Shop initiatives in 2016 and has since established 385 Model Pharmacies and 32,535 Model Medicine Shops. Retail sales of drugs are prohibited without a prescription from registered physicians/veterinarians.

The proposed Drug Act highlighted that selling antibiotics without prescription is a punishable offence, with a fine of 20,000 BDT (the Act is now in the Cabinet for final approval). The DGDA conducts market surveillance

and pharmacovigilance activities to ensure the safe and effective use of antibiotics.

DGDA has a pharmacovigilance cell to monitor Adverse Drug Reactions (ADR) and has developed an app, "DGDA Drug Verification" to report ADR, identify coun-terfeit medicines, and regulate the over-pricing of drugs. To ensure Good Manufacturing Practices (GMP), DGDA inspects regularly. The Taskforce in 2019 deregistered/cancelled the registration of some veterinary and human Fixed-Dose antibiotic combinations. Every year, DGDA conducts AMR awareness programs all over the coun-try. DGDA also conducted AMC surveillance for the years 2016 to 2018.



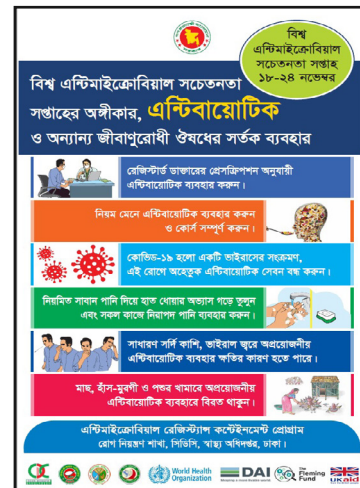
AMR Awareness Program

Spread Awareness, Stop Resistance



"Spread Awareness, Stop Resistance" is the theme of the World Antimicrobial Awareness Week (WAAW) 2021. The Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (OIE), and the World Health Organization (WHO) have been jointly observing WAAW since 2015 to improve awareness and understanding of antimicrobial resistance through effective communication, education, and training. This global event has been celebrated from 18 to 24 November every year and it is one of the most important

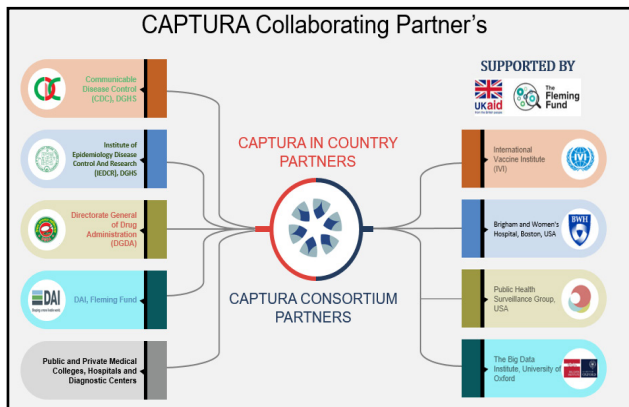
events in the United Nations calendar. This year's campaign will encourage stakeholders, including policymakers, physicians and practitioners in the Human and Animal Health sectors, farmers, and the general public, to act as AMR awareness champions.



Campaign Poster

Capacity Development on AMR Data Management

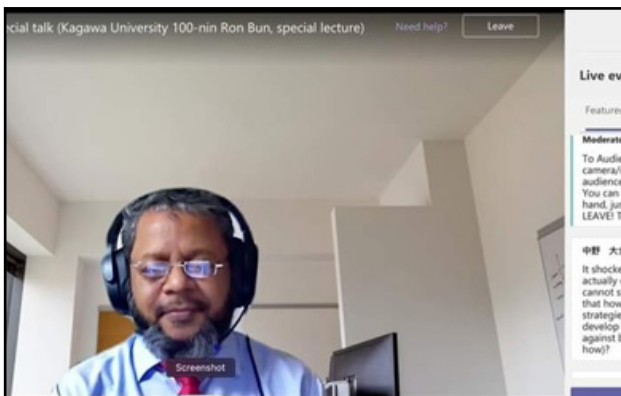
CAPTURA (Capturing Data on Antimicrobial Resistance Patterns and Trends in Use in Regions of Asia), a Fleming Fund Regional Grant, continues to support Bangladesh's AMR containment efforts through collaboration with stakeholders including DGHS, DGDA, and the Fleming Fund Country Grant for Bangladesh.



Hands-on Training on the WHONET Software

Through the collaboration, 161 microbiology laboratory staff representing 36 private and public health facilities were provided on-site WHONET training to enhance capacity for AMR data management and analysis. Similarly, 34 laboratories and 5 pharmacies were brought together and shared three-year retrospective AMR/U data to create a national baseline to be used for future planning and policy development AMR containment in the country.

Antibiotic Resistance: An Overview, Current Situation and Beyond !

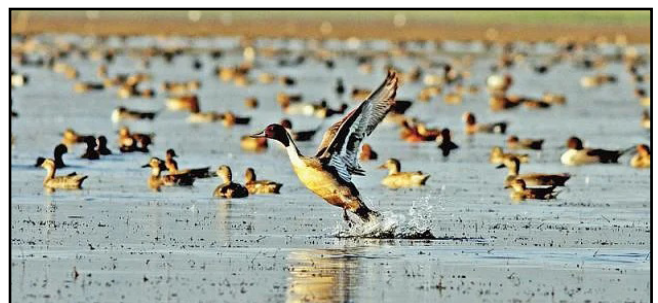


Antimicrobial resistance is a global health crisis. It affects all the components of One Health. AMR also has a negative impact on SDG. More people will die from AMR-related complications than any other disease if the issue is not addressed adequately. Prof. Dr. Md. Tanvir Rahman from the Department of Microbiology and Hygiene, Bangladesh Agricultural University, recently gave a talk as an invited speaker at Kagawa University, Japan on AMR, entitled: "Antibiotic Resistance: An Overview, Current Situation and Beyond!" Prof. Rahman discussed AMR, its mechanism, impact on One Health components, overcoming the AMR-related hazards. He also focused on some of the critical findings of AMR-related works describing the potential role of migratory birds and flies in disseminating AMR in Bangladesh.

For further detail, please get in touch with tanvirahman@bau.edu.bd

Migratory Birds as the Potential Carrier of ESBL Producing *E. coli* in Bangladesh

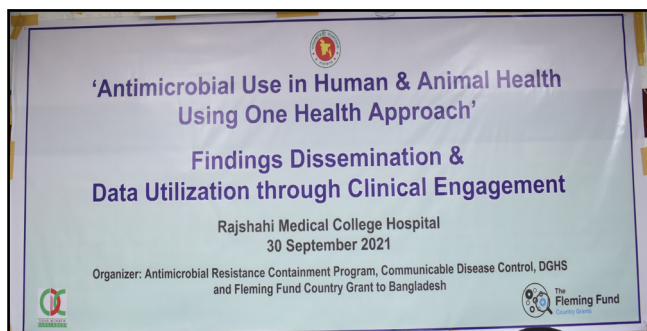
With ample water bodies and comfortable weather, Bangladesh attracts millions of migratory birds, mainly during winter every year. These migratory birds can carry and contaminate the water bodies with various pathogens, including antibiotic-resistant bacteria, via their fecal droppings. Prof. Dr. Md. Tanvir Rahman and his team from the Department of Microbiology and Hygiene, Bangladesh Agricultural University, are working to reveal the role of migratory birds in AMR in Bangladesh. Their recent study has shown that migratory birds traveling to Bangladesh carry ESBL producing *E. coli* that can potentially contaminate the water bodies they are inhabiting.



Reference: Islam, M.S., Sobur M.A., Rahman, S., Ballah, FM, Levy, S., Siddique, M.P., Rahman, M., Kafi, M.A., and Rahman, M.T. (2021). Detection of blaTEM, blaCTX-M, blaCMY, and blaSHV genes among extended-spectrum beta-lactamase producing *Escherichia coli* isolated from migratory birds traveling to Bangladesh.

<https://link.springer.com/article/10.1007/s00248-021-01803-x>

Dissemination of Findings on “Antimicrobial Use in Human and Animal Health Using One Health Approach” and “Data Utilization Through Clinical Engagement” at Rajshahi Medical College Hospital (RMCH)



On September 30, 2021, the Antimicrobial Resistance Containment Program, Communicable Disease Control (CDC), DGHS, with Fleming Fund Country Grant for Bangladesh (FFCGB), organized a meeting. Director of the RMCH, Brigadier General Md. Shameem Yazdany chaired the meeting, and Dr Aninda Rahman, DPM, CDC, DGHS, moderated the sessions. Participants included clinicians and faculty from all disciplines of the RMCH, colleagues from CDC, FFCGB, IEDCR, and icddr,b. A very lively discussion on AMR and data utilization took place in the meeting.



Dissemination of Findings on “Antimicrobial Use in Human and Animal Health Using One Health Approach”



Data Utilization through Clinical Engagement meeting at RMCH



Dr Zakir Hossain Habib, PSO, IEDCR and Dr Khaleda Islam, FFCGB



Dr Mahbubur Rashid, icddr,b shared the findings

Editorial Board

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Prof. Dr Md. Nazmul Islam, Director, Disease Control and LD, CDC

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 Prof. Nitish C. Debnath, Fleming Fund Country Grant Bangladesh

Managing Editor

Dr Aninda Rahman, DPM, CDC, DGHS

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Contributors (Not according to seniority)

Dr A.S.M. Alamgir, Principal Scientific Officer, IEDCR
 Dr Zakir Hossain Habib, Principal Scientific Officer, IEDCR
 Dr Mohammed Abdus Samad, Principal Scientific Officer, BLRI
 Dr Md. Abu Sufian, Principal Scientific Officer, DLS
 Dr Koly Mustafa, Upazila Livestock Officer, DLS HQ
 Dr S.M. Shahriar Rizvi, Evaluator, CDC, DGHS
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 Dr Arif Hussain, icddr,b, Fleming Fund Country Grant Bangladesh

Technical Advisor

Dr Khaleda Islam, Fleming Fund Country Grant Bangladesh

Design and Composition

Maksudur Rahman, Fleming Fund Country Grant Bangladesh

Contact: Dr Aninda Rahman, DPM, CDC, DGHS

Mobile: +880-1817541797 Email: dr.turjossmc@gmail.com