



quarterly **Antimicrobial Resistance (AMR)**
Newsletter

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Volume III



The National Symposium on Antimicrobial Resistance

The National Institute of Health (NIH), in collaboration with the Fleming Fund Country Grant, Pakistan, conducted a two-day 'National Symposium on Antimicrobial Resistance (AMR),' from 19th to 20th August 2020 in Islamabad. The Symposium endorsed the 'One Health' approach in tackling the root causes of AMR across human health, animal health, including the environment and agriculture.

allowed key stakeholders to discuss these issues and necessary changes required in the current antimicrobial use practices in the human, animal and environmental health sectors.



The Executive Director of NIH, Major. General Professor Aamer Ikram, chaired the Symposium. The national and international speakers discussed the clinical, environmental and socio-economic drivers of AMR and the immediate action necessary to reduce its effects in Pakistan. The event



“the Government will play its part in the global disease control programs. AMR is considered a major public health threat; hence funds have been allocated to tackle this issue”

*Dr Nausheen Hamid,
Parliamentary Secretary of Health*

The National Institute of Health of Pakistan

Centre of Excellence

PHLD has served as the only World Health Organisation Collaborating Centre for Research and Training in Viral Diagnostics in Pakistan since 1980. It includes Departments of Virology/Molecular Biology, Microbiology, Hematology, Histopathology, Cytogenetic, Chemical Pathology, Immunology, Electron Microscopy, Reproductive Physiology and Parasitology.

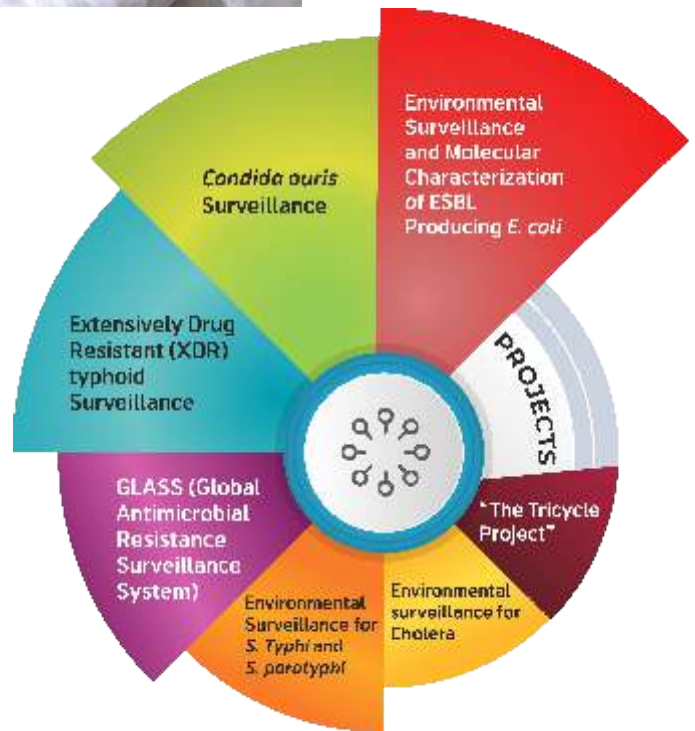
Under the Microscope

The Microbiology Laboratory of NIH conducts routine diagnostics, outbreak investigation and lab-based surveillance of various infectious diseases. Functions include:

- Routine testing for outpatients
- Referral testing services
- Advanced testing which includes **Vitek 2, Vitek MS, molecular testing and whole genome sequencing.**
- Public Health Surveillance and Quality Assurance Schemes:
 - o Lab-based disease surveillance programs and field epidemiology to advise health policy and strategy
 - o NEQAS – proficiency testing for bacteriology for quality assurance services to public and private sectors labs.



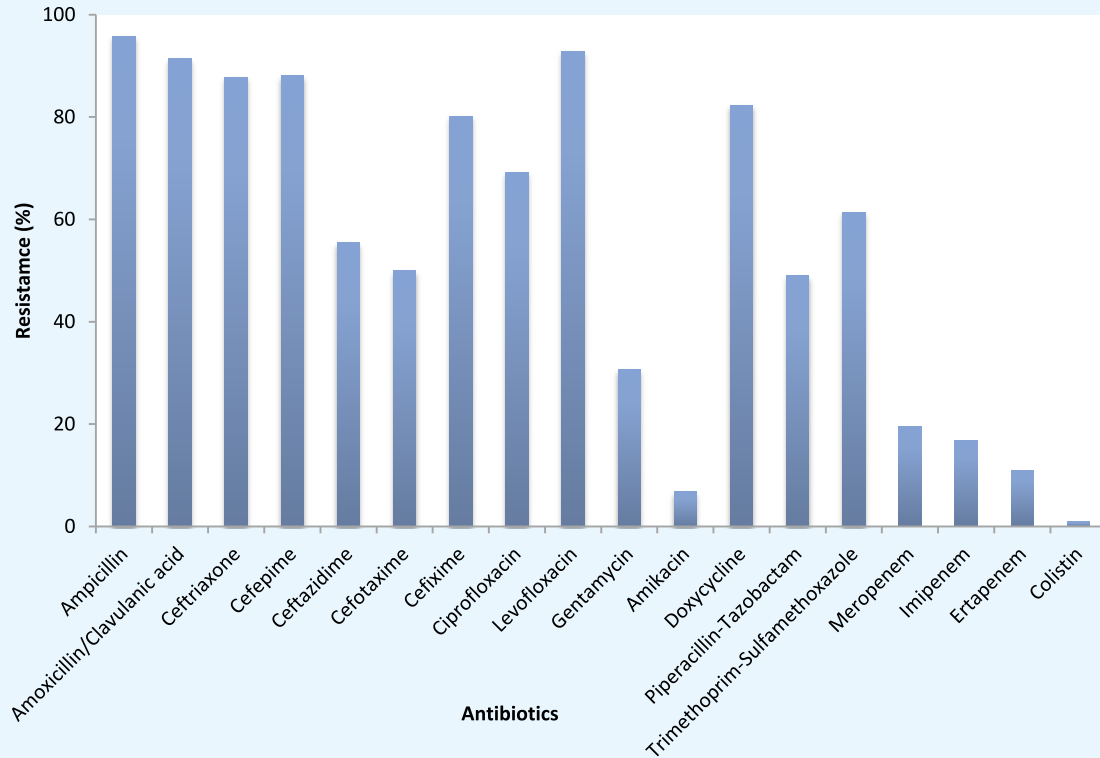
“The NIH has recently been ISO:9001-2015 certified.”



Keeping up with Surveillance

Pakistan Antimicrobial Surveillance System (PASS)

Resistance Profile of *Escherichia coli* in Blood samples



The recent trends show:

- the highest level of resistance is against ampicillin, cephalosporins, quinolones and tetracyclines
- the resistance against meropenem and imipenem remains less than 21% and 16.8% respectively, against *E. coli* in blood samples (Reference: Pakistan Antimicrobial Surveillance System (PASS Report))

Pilot *Candida auris* surveillance Project

The Centres for Disease Control and Prevention (CDC) mycotic division provided technical & financial support to NIH Pakistan for laboratory surveillance of the *Candida auris*, a pathogen of global concern. The pilot project is being run in three hospitals of Islamabad Capital Territory (ICT)- Pakistan Institute of Medical Sciences (PIMS), Shifa International Hospital and Armed Forces Institute of Pathology (AFIP), Rawalpindi. Due to the limited testing capabilities, the laboratories are being strengthened to detect *C. auris* and improve their surveillance. The CDC's support for this effort is led by Dr Afreenish Amir with collaboration from Dr Asim Saeed.



Driving the Future of Animal Health

A Statement from the Animal Husbandry Commissioner,
Ministry of National Food Security & Research

It is my immense pleasure to share the contributions of The Animal Health Sector in the current volume of the AMR Quarterly newsletter. I congratulate the NIH for taking a lead in publishing the quarterly newsletter.

Antimicrobial resistance (AMR) is spreading throughout the world, endangering our efforts to achieve the Sustainable Development Goals. In recent decades, the emergence of AMR has accelerated in the world due to the overuse and misuse of antimicrobial agents. Addressing the emerging threat of AMR requires a holistic and multisectoral approach.

The **Animal Husbandry Commissioner of the Ministry of National Food Security & Research (MoNFS&R)** is the custodian of all AMR related activities in the animal health sector across Pakistan. Currently, in Pakistan, antimicrobials are used in food animals for various therapeutic (prevention, control and treatment) and non-therapeutic purposes (growth promotion). Pakistan has an extensive network of government veterinary services; however, the lack of legislation and their implementation allows for over-usage of antimicrobials in food animals, often without professional veterinary oversight.

Currently, surveillance for AMR and antimicrobial use is at a nascent stage in the animal health sector and most of the work is being done for diagnostic purposes. The AHC office in collaboration with the Fleming Fund Country Grant has taken several initiatives to address these gaps such as the development of the **'National Surveillance Strategy for AMR' in healthy food animals**. To support the implementation process in AMR surveillance strategy, a small-scale AMR pilot has been initiated in selected production systems of poultry and large ruminants. Similarly, significant progress has been made on antimicrobial use (AMU) surveillance including mapping the sources of the antimicrobial supply chain, quantities and patterns of antimicrobials used in animals through the commencement of the point prevalence survey for AMU. The animal health sector has already nominated two of its key laboratories, NVL and NRLPD to function as reference laboratories for AMR at the national level.

Similarly, **nine regional laboratories have been assessed for their capacity to work as sentinel sites for AMR**. These developments will be pivotal for the establishment of a strong AMR surveillance network in Pakistan. I'd like to emphasize to all stakeholders that only with the 'One Health' approach, we will be able to combat this threat in the animals as well as in the humans.



Dr. Khurshid Ahmad

*Animal Husbandry Commissioner/OIE Delegate to Pakistan
Ministry of National Food Security & Research
AMR Focal Person AH*

National Reference Laboratory for Poultry Diseases



The National Reference Laboratory for Poultry Diseases (NRLPD) extends referral diagnostic facilities, undertaking surveillance and research activities in the field of poultry health. Under the leadership of Dr Naila Siddique, the NRLPD is currently working to upgrade its capacity for bacterial isolation, identification and antimicrobial susceptibility testing.

Reaching New Heights

The NRLPD is an internationally accredited (ISO/IEC-17025:2017) laboratory and supporting the expansion of ISO/IEC-17025:2017 with the Fleming Fund Country Grant. Established in 2004 as a federal coordinating unit, it expanded to become a permanent department of the NARC.

The NRLPD's National Program for the Control and Prevention of Avian Influenza (NPCPAI) led to Pakistan having the 'bird flu-free' status in 2008.

The NRLPD has now established a strong national poultry disease surveillance network. The laboratory has state of the art research and diagnostic facilities for serology, bacterial & viral isolation, molecular diagnostics, genome sequencing, virulence & pathogenicity testing and antimicrobial susceptibility testing. They also host national and international researchers for poultry disease surveillance.

International Collaboration

The Food and Agriculture Organization of the United Nations as the SAARC Regional Leading Diagnostic Lab (RLDL).



The China Agriculture University (CAU) Beijing and Foshan University China as the "China Pakistan Agricultural Science and Technology Innovation and Excellence Centre".

The Fleming Fund Country Grant as the National Reference Laboratory for AMR in Poultry.



The Office International des Epizooties (OIE) as a reference laboratory in their lab twinning program.

The National Institute of Health, Pakistan for zoonotic disease surveillance under the One Health Umbrella.



Learning. Improving. Growing.

AMR Basics I Training

29th June to 3rd July 2020

AMR Basics I was designed to strengthen the microbiology laboratory capacities at the sub-national levels. 70 participants were trained from 22 laboratories in both human and animal health sectors.

Skills developed:

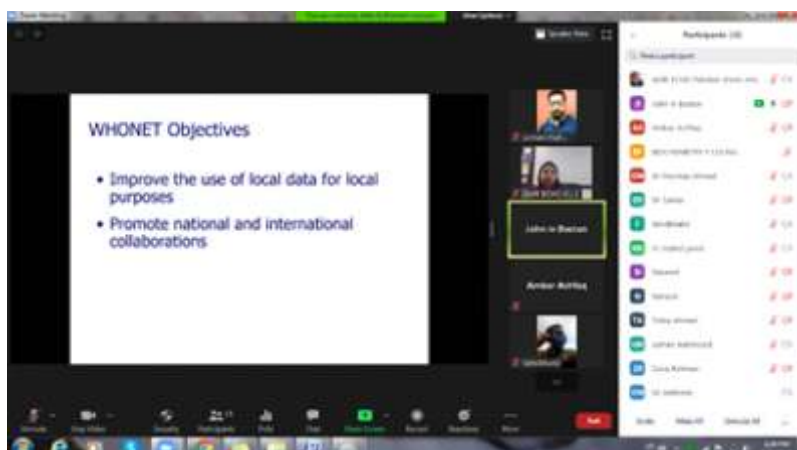
- Improved AMR detection and reporting
- Sample selection, packaging and transportation
- Culture media and preparation
- Contamination control and sterilization
- Bacterial isolation for Antimicrobial Susceptibility Testing (AST)

WHONET Training

On-site training was conducted for the animal health sector. 5 sentinel sites were trained with the support of The Fleming Fund Country Grant: Provincial Disease Diagnostic Laboratory Lahore, Disease Investigation Laboratory Peshawar, Poultry Research Institute Karachi, Central Veterinary Diagnostic Laboratory Tandojam and Disease Investigation Laboratory Quetta.



Virtual training was conducted for 7 human health sites with the Centres for Disease Control and Prevention (CDC) support. The participating sites included: the Fauji Foundation Hospital Rawalpindi, Nishtar Hospital Multan, Combined Military Hospital Multan, Jinnah Hospital Lahore, Abbas Institute of Medical Sciences Muzaffarabad.



Covid-19 Insights: The damaging effects on AMR



An international webinar titled “Swaying with COVID-19: Approaches and tactics towards COVID-19 emerging scenarios” was organized from 28th - 29th July 2020 by the Centre for Occupational and Patient Safety (COPS) at the NIH.

Two sessions specifically focused on the link between AMR and COVID-19, presented by members of the NIH team. The speakers highlighted the virus' impact on AMR due to the overuse of antibiotics. The need for data on nosocomial superinfections to limit broad-spectrum antimicrobial use in hospitalized patients was also discussed.

Cleaning Dirty Water

The National Strategic Framework for Containment of AMR, 'objective three' highlights the need for effective sanitation and hygiene to reduce the incidence of infections. Only a third of the Pakistani population is considered to have access to safely managed water services. Polio transmission, stunted growth in children and as a result dropping out of school is directly linked with poor water, sanitation and hygiene (WASH) conditions. The growing demand for fresh water supplies and rapidly changing patterns of production and consumption are directly linked to ground and surface water contamination as well.

The Ministry of Climate Change (MOCC) with the support of KOICA (Korea International Cooperation Agency) has developed the water quality monitoring and surveillance PC-1. Under the PSDP project, a total of 1,127 million PKR has been approved with a focus to uplift the infrastructure and capacity building on water quality monitoring and surveillance. The project covers the environmental pillar of the 'One Health' concept and also touches the key aspects of drinking water being contaminated with wastewater.



The
Fleming Fund

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AMR Membership Network NIH

Please click on the link for AMR
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<https://www.nih.org.pk/amr-membership/>

