WHO AMR Surveillance and Quality Assessment Collaborating Centre Network

Collaborating Centres’ activities to support GLASS
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**AUS-72:** WHO Collaborating Centre for Sexually Transmitted Diseases  
*Contact:* Prof Monica Lahra  
*Institution:* Department of Microbiology, South Eastern Area Laboratory Services (SEALS), The Prince of Wales Hospital, Sidney, Australia

The WHO CC provides reference level diagnostic services, technical training and support nationally and internationally, and coordinates laboratory surveillance networks for Neisseria Gonorrhoeae AMR for the Western Pacific and South East Asia WHO Regions. In recent years the WHO CC has collaborated to develop molecular methods to detect *Neisseria Gonorrhoea* AMR, which are now in routine use in remote Australia. To support GLASS, the WHO CC is jointly leading the review of benefits, costs and drawbacks of existing molecular methods and their application to support AMR surveillance. Pilot testing of application of selected molecular methods is planned.

**CHN-120:** WHO Collaborating Centre for Infectious Disease Epidemiology and Control  
*Contact:* Professor Gabriel Leung and Dr Wing-hong Seto  
*Institution:* School of Public Health, the University of Hong Kong, Hong Kong, China  
*Region:* WPR

**DEN-52:** WHO Collaborating Centre for Antimicrobial Resistance in Foodborne Pathogens and Genomics  
*Contact:* Rene Hendriksen  
*Institution:* Division of Microbiology and Risk Assessment, National Food Institute, Technical University of Denmark, Copenhagen, Denmark

The WHO CC supports WHO in building capacity of national surveillance and response systems for foodborne diseases (FBD), including in their ability to implement next generation sequencing as a diagnostic tool. Activities also include improving the capacity of international and national/regional laboratories as well as strengthening knowledge and implementing guidance on AMR in FBD. The WHO CC is supporting the Network and the development of GLASS by co-leading activities to develop technical guidance for the detection and reporting of colistin resistance and by leading the creation of a Network of supranational laboratories able to provide reference testing of unusual AMR.

**DEU-135:** WHO Collaborating Center for Emerging Infections and Biological Threats  
*Contact:* Prof Guido Werner and Dr Tim Eckmanns.  
*Institution:* The Robert Koch Institute (RKI), Berlin, Germany

The WHO CC supports WHO and its Member States as part of an international cooperation for preparing for and responding to emerging infections and biological threats. The WHO CC is a cooperation between the Centre for Biological Threats and Special Pathogens (ZBS), the Department of Infectious Disease Epidemiology and the Department of Infectious Diseases and is
involved in Network activities related to support the identification of AMR mechanisms and the development of national AMR surveillance systems participating in GLASS.

**IND-99** WHO Collaborating Centre on Reference and Research on Fungi of Medical Importance

**Contact:** Prof Arunaloke Chakrabarti  
**Institution:** Mycology Division, Department of Medical Microbiology, Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India

**IRA-18:** WHO Collaborating Centre for Tuberculosis Education  
**Contact:** Dr. Parissa Farina  
**Institution:** National Research Institute of Tuberculosis and Lung Diseases (NRITLD), Shaheed Beheshti University of Medical Sciences & Health Services, Tehran, Iran

The WHO CC will support WHO to build technical capacity of researchers from the countries through research courses and technical assistance for operational research. It will contribute with its long term experiences on tuberculosis research. NRITLD is the WHO Collaborating Center for Tuberculosis Education in Easter Mediterranean Region. The institute is equipped with advanced system for recording, reporting and monitoring of patients with lung diseases. This system stores and analyses information on pathogenic resistance within the country. The WHO CC contributes to the Network with experiences from training and education and information dissemination, in the development and implementation of GLASS.

**NET-42** WHO Collaborating Centre for Risk Assessment of Pathogens in Food and Water  
**Contact:** Prof Ana Maria de Roda Husman, Dr Heike Schmitt  
**Institution:** Laboratory for Zoonoses and Environmental Microbiology, National Institute for Public Health and the Environment (RIVM), Bilthoven, Netherlands

**NET-71** WHO Collaborating Centre for Reference and Research on Campylobacter  
**Contact:** Prof Jaap A. Wagenaar  
**Institution:** Department of Infectious Diseases and Immunology, Faculty of Veterinary Medicine, University of Utrecht, Utrecht, Netherlands

**NET-89:** WHO Collaborating Centre for Antimicrobial Resistance Epidemiology and Surveillance  
**Contact:** Dr Tjalling Leenstra  
**Institution:** Centre for Infectious Disease Control, Centre for Infectious Diseases Epidemiology and Surveillance, National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands

The WHO CC supports the establishment and strengthening of national AMR surveillance networks in WHO Europe Member States by providing technical advice on surveillance methodology as well as technical support on the management, analysis and interpretation of AMR surveillance data. It coordinates and supports the Central Asian and Eastern European Surveillance of Antimicrobial Resistance (CAESAR) network and provides technical support to the development of the GLASS IT-platform. It participates in developing protocols for proof of principle (PoP) studies and Infection Prevention and Control (IPC) module. For the Network it also collaborates to develop IT and data management tools and training.

**RUS-126:** WHO Collaborating Centre for Capacity Building on Antimicrobial Resistance Surveillance and Research  
**Contact:** Prof Roman Kozlov
Institution: Institute of Antimicrobial Chemotherapy of Smolensk State Medical University, Smolensk, Russia.

The WHO CC supports WHO’s in strengthening AMR surveillance in Russian-speaking Member States by providing laboratory training and Russian-speaking facilitators, mentors, or consultants for their implementation of CAESAR and Global AMR surveillance as well as for the implementation of EUCAST standards, Laboratory SOP and quality assurance. In the WHO CC Network the Centre is co-leading the work to provide technical support for the development of guidance on the use of molecular methods to foster surveillance implementation, and to develop the framework for early detection and information sharing of unusual types of AMR.

SOA-43: WHO Collaborating Centre for Antimicrobial Resistance
Contact: Prof Olga Perovic
Institution: Antimicrobial Resistance Laboratory, Centre for Opportunistic, Tropical and Hospital Infections (CHARM), National Institute for Communicable Diseases, Johannesburg, South Africa

The WHO CC strive towards improving public health and mainly combating AMR. Activities include containment of AMR among hospital pathogens, hospital associated infections and fungi. The WHO CC will support the Centres network by leading the work on Technical assistance for laboratories to low income countries. The WHO CC will be providing technical support for developing functional and integrated laboratory quality system and ultimately provide training in AMR detection and surveillance for GLASS organisms; providing strains that are characterized in-house at National Stock Culture Collection and; providing technical guidance and expert opinion to standardize antimicrobial susceptibility testing.

SWE-62: WHO Collaborating Centre for Gonorrhoea and other sexually transmitted infections
Contact: Prof Magnus Unemo
Institution: National Reference Laboratory for Pathogenic Neisseria, Department of Laboratory Medicine, Microbiology, Örebro University Hospital, Örebro, Sweden

The main objectives of the WHO CC include to support WHO with; enhancing the AMR surveillance in Neisseria gonorrhoeae in the WHO global Gonococcal Antimicrobial Surveillance Programme (GASP); expertise regarding STIs, by assisting in laboratory issues, training and research (diagnostics, treatment, typing and surveillance of AMR and treatment); update the WHO N. gonorrhoeae reference strains for quality assurance of diagnostics and typing, including AMR testing. The WHO CC contributes with this technical assistance to the network and is also promoting the development of GLASS, including the implementation of GASP in the GLASS module.

SWE-66: WHO Collaborating Centre for antimicrobial resistance containment
Contact: Dr Malin Grape, Dr Sonja Löfmark
Institution: Unit for Antibiotics and Infection Control, Department of Monitoring and Evaluation, Public Health Agency of Sweden, Stockholm, Sweden

The WHO CC will contribute with its extensive knowledge and long term experience in the work on AMR surveillance, rational use of antibiotics and infection prevention and control. The WHO CC supports WHO and GLASS in ensuring that Member States are committed to global AMR surveillance and that they have the capacities needed to participate, by providing technical knowledge and human resources. The long term aim is to promote a One Health approach, to include work towards monitoring the use of antibiotics and to stimulate rational use. The WHO CC is leading the work on technical assistance to low income countries.
SWI-60: **WHO Collaborating Centre on Patient Safety**  
**Contact:** Prof Stephan Harbarth  
**Institution:** Infection Control Program, Department of Internal Medicine, Hôpitaux Universitaires de Genève, Geneva, Switzerland

The WHO CC will contribute with its expertise on the development of control and prevention of healthcare-related infections and AMR programmes. The Collaborative Centre supports WHO in determining evidence-based elements for antibiotic stewardship and control of antimicrobial resistance, with particular focus to multiresistant Gram negative bacteria. The WHO CC provides its support to the network by leading the work on developing protocols for the assessment of the health-economic impact of AMR to be applied in sentinel sites in all regions.

THA-71: **WHO Collaborating Centre for Antimicrobial Resistance Surveillance and Training**  
**Contact:** Ms Wantana Paveenkittporn  
**Institution:** Department of Medical Sciences, Miscellaneous Bacteriology Section, National Institute of Health, Ministry of Public Health, Nonthaburi, Thailand

The WHO CC assist WHO in providing technical support to development and operation of national reference laboratories through tutoring and the implementation of international EQA program and quality management. It supports the WHO CC network in the area of capacity building/technical support on microbiology laboratory by providing assistance to microbiology laboratories in training on performing AMR laboratory testing, as well as reporting and interpretation of AMR results.

THA-76: **WHO Collaborating Centre for Antimicrobial Resistance (AMR) Prevention and Containment**  
**Contact:** Dr Visanu Thamlikitkul  
**Institution:** Clinical Epidemiology Unit, Department of Research and Development, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand

The WHO CC will support WHO and the Network on training on AMR laboratory testing and reporting-interpretation of AMR results; organizing the training on use of molecular methods to foster AMR surveillance implementation; reviewing current methods for detection of colistin resistance; developing a framework to guide the investigation of colistin resistance; assisting WHO with systematic reviews of impact of selected types of AMR, identification of research gaps, development of models to assess impact and development of generic surveillance protocols to assess impact; and developing generic protocols for proof of principle studies in limited resource settings, including diagnostic stewardship, different surveillance approaches.

**Contact:** Prof Neil Woodford, Dr Nandini Shetty  
**Institution:** Antimicrobial Resistance and Healthcare Associated Infections (AMRHAI) Reference Unit, Public Health England, London, UK

The WHO CC is working actively with other WHO CCs to support delivery of the Area of Work “Capacity building/technical support: microbiology laboratory” by co-leading activities to develop technical guidance for the detection and reporting of colistin resistance and on the use of
molecular methods to foster surveillance. The WHO CC is supporting implementing microbiology laboratories in low income countries, building up a network of supranational laboratories for AMR testing and defining the minimal requirements for NRL for limited resource settings. It is also supporting GLASS by participating at developing the framework for emerging AMR reporting.

USA-281: WHO Collaborating Centre for International Monitoring of Bacterial Resistance to Antimicrobial Agents
Contact: Dr Jean Patel
Institution: National Center for Emerging and Zoonotic Infectious Diseases, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention (CDC), Atlanta, USA

The WHO CC contributes with both technical and programmatic antimicrobial resistance capacities. With expertise in reference antimicrobial susceptibility testing, the WHO CC co-leads the work with evaluating methods to detect colistin resistance. CDC will extend activities within the Transatlantic Task Force on Antimicrobial Resistance (TATFAR) on the international communication of emerging antibiotic resistance to a WHO global communication mechanism. The WHO CC has been continuing to assist other countries to strengthen national reference laboratory capacity and participate in GLASS. The WHO CC is also involved in the development of the framework for early detection and information sharing of unusual types of AMR.

USA-417: WHO Collaborating Centre for Surveillance, Epidemiology and Control of Salmonella and other Foodborne Diseases
Contact: Dr Tom Chiller
Institution: Division of Foodborne, Waterborne and Environmental Diseases, at the National Center for Emerging Zoonotic and Infectious Diseases, Centers for Disease Control and Prevention (CDC)

Fungal diseases are important causes of illness and death worldwide and antifungal-resistant infections are increasingly detected. The recent and rapid emergence of Candida auris, a multidrug-resistant fungus that spreads in healthcare settings, highlights the threat posed by such infections. However, no robust surveillance exists globally to track this problem. The WHO CC has been supporting GLASS by developing a framework to address antifungal resistance on a global scale by

- review current methods for detection of antifungal resistance in invasive fungal disease
- assess the landscape of fungal disease surveillance around the world
- map public and university laboratories with capacity to assist and support antifungal susceptibility testing

SAA-23 WHO Collaborating Centre for Infection Prevention and Control and Anti-Microbial Resistance
Contact: Dr Hanan Balkhy
Institution: Infection Prevention and Control Department, King Abdulaziz Medical City Hospital, Riyadh, Saudi Arabia