ISSUE #5

AMR ALERT

A Quarterly Bulletin on AMR Surveillance in Nigeria

Theme: Mentorship, Systems, and Data: Powering Nigeria's AMR Surveillance Ecosystem

BY: Management Sciences for Health

September 2025

TABLE OF CONTENTS

About AMR Alert

AMR Alert is a quarterly newsletter highlighting antimicrobial resistance (AMR) surveillance efforts in Nigeria led by Management Sciences for Health (MSH) in collaboration with key government stakeholders across the One Health sector and funded through the Fleming Fund Country Grant Cycle II. This edition showcases significant progress across the One Health spectrum, from strengthening laboratory quality systems and building research capacity to establishing comprehensive surveillance frameworks spanning human, animal, and environmental health sectors. Through strategic partnerships with the Nigeria Centre for Disease Control and Prevention (NCDC), federal ministries, teaching hospitals, and diverse stakeholders, MSH has facilitated critical advances in surveillance infrastructure, data management systems, and stewardship programme development. The initiatives featured in this bulletin represent some of the ongoing coordinated, multi-sectoral approaches to combating AMR, ensuring that Nigeria's surveillance and response systems capture the full complexity of antimicrobial resistance across all sectors where antimicrobials are used and resistance develops.

Highlights from Quarter Five

Laboratory QMS Mentoring Program (April to June 2025)

From April to June 2025, MSH provided targeted QMS mentorship across 10 sentinel sites and 5 active sites in Kano, Taraba, Lagos, Abuja, Osun, Ibadan, Calabar, Ilorin, Enugu, and Osogbo, as well as Maiduguri, Owerri, Sokoto, Benin, and Port Harcourt, respectively. The goal was to strengthen laboratory capacity for sustainable Quality Management System (QMS) implementation toward achieving ISO 15189:2022 accreditation, ultimately leading to the production of quality-assured Antimicrobial Resistance (AMR) data across Nigerian sentinel and active site laboratories. Activities included:

- On-site and virtual mentorship through physical visits, group sessions, and remote coaching
- Document development and review of SOPs, quality manuals, safety manuals, and assessment tools
- Root Cause Analysis (RCA) using Five WHYs methodology for persistent non-conformities
- Capacity building covering internal auditing, biosafety, personnel competency, and customer service
- Stakeholder engagement with hospital leadership to ensure resource allocation and buy-in

Based on the mentoring support, the 15 sites were able to identify and resolve nonconformities, while also developing over 220 quality documents based on the unique needs of each of the sites/facilities, to enable them to produce quality laboratory data on AMR surveillance. The QMS mentorship significantly enhanced quality management systems across Nigeria's AMR laboratory network, strengthening ISO 15189 readiness and improving national AMR surveillance infrastructure.

Environmental Health AMR Active Surveillance

MSH also conducted Nigeria's first nationwide environmental antimicrobial resistance (AMR) active surveillance between June 16 and 26, 2025. This historic initiative marked the first large-scale, field-deployed AMR surveillance in environmental hotspots across Nigeria, applying a One Health approach in collaboration with the animal health sector. The overall goal was to generate high-quality, representative data on antimicrobial resistance from environmental sources across six Nigerian states to inform policy, improve risk assessment, and guide AMR mitigation strategies. The participating states included Akwa Ibom, Kaduna, Bauchi, Osun, Kogi, and Sokoto, with sampling activities conducted across three senatorial districts in each state.

Before field deployment, a one-day national orientation and refresher training were conducted to prepare surveillance teams. The training covered surveillance protocols, biosafety and biosecurity practices, sample collection techniques, and data management procedures. Over 80 surveillance personnel were actively engaged throughout the exercise, including Environmental Health Officers, veterinarians, animal health officers, technologists, and data managers. Field teams collected environmental samples from high-risk AMR hotspots, including abattoirs, hospitals, farms (poultry and cattle), wastewater discharge points, pharmaceutical sites, animal markets, and environmental clusters. Sample types included manure, wastewater, effluent, soil, and compost. Between 100 and 130 samples were collected per state using standardised procedures, with each sample GPS-tagged for traceability and transported under cold chain conditions to designated laboratories.

In total, over 600 environmental samples were collected across all six states, with metadata appropriately captured on sample logs. Six supporting laboratories in Port Harcourt, Zaria, Sokoto, Vom, Nsukka, and Ibadan processed the samples with onsite and remote mentorship from Quality Management System (QMS) experts. Laboratory analysis involved microbial culture, biochemical characterisation, and antimicrobial susceptibility testing (AST) using the Kirby-Bauer disk diffusion method following Clinical and Laboratory Standards Institute (CLSI) guidelines.

Target pathogens included Escherichia coli, Salmonella spp., Enterococcus spp., and Staphylococcus aureus, selected for their global priority status and prevalence in environmental and zoonotic AMR transmission.

Data management was conducted using the WHONET platform, standardised reporting templates, and physical sample logs. All states adopted the harmonised data tools with standardised sample identification formats and complete metadata capture. Real-time coordination was maintained through communication platforms, enabling technical support and troubleshooting throughout the sampling window.

Despite notable progress, some challenges were encountered, including delays in sampling material arrival, difficult terrain access in certain areas, insecurity issues such as kidnapping and banditry in some locations, and delays in laboratory processing due to the unusually high volume of samples received. These challenges were addressed through pre-deployment checklists, real-time communication platforms, and continuous mentorship support.

This activity represents a significant milestone in Nigeria's journey toward institutionalising AMR surveillance in the environmental health sector, demonstrating the country's growing capacity to generate quality AMR data for policy development and public health risk assessments under the One Health framework.


GPS Map Camera
Lokoja, Kogi, Nigeria
Rmj6+gf8, Lokoja, Kogi 264103, Nigeria
Lat 7.832818° Long 6.662165°
17/06/2025 12:32 PM GMT +01:00


RICHTASTE CHICKENS
GPS Map Camera
Osogbo, Osun, Nigeria
18 Temidire Estate Rd, Osogbo 230284, Osun, Nigeria
Lat 7.79322° Long 4.526438°
16/06/25 12:21 PM GMT +01:00
Google

Laboratory Quality Management System Mentorship Program in the Animal Health Sector

A comprehensive Quality Management System (QMS) mentorship program across animal health laboratories in Nigeria was conducted between April and June 2025. The overall goal was to strengthen veterinary laboratory capacity for sustainable implementation of QMS in alignment with ISO 17025 standards, ultimately enabling the generation of quality-assured AMR surveillance data to support evidence-based interventions in the livestock sector and contribute to Nigeria's One Health response to antimicrobial resistance.

The program consisted of two main components. First, baseline assessments were conducted at eight facilities using a tailored version of the WHO-AFRO SLIPTA checklist alongside the Fleming Fund Laboratory Needs Assessment Tool to identify non-conformities across the 12 Quality System Essentials. Second, a structured mentorship program was rolled out in collaboration with NVRI Consult Ltd to guide laboratories in addressing identified gaps and supporting their progression toward ISO 17025 core competencies.

The supported facilities included six sentinel sites and two active laboratories. The six sentinel sites were University of Ibadan Veterinary Teaching Hospital, with 42 non-conformities identified, Ahmadu Bello University Zaria Veterinary Teaching Hospital, NVRI Central Diagnostic Laboratory at Vom, University of Ilorin Veterinary Teaching Hospital, University of Maiduguri Veterinary Teaching Hospital, and University of Nigeria Nsukka Veterinary Teaching Hospital.

The two active sites were Usmanu Danfodiyo University Veterinary Teaching Hospital in Sokoto and Animal Care Services Consult AMR Laboratory in Asaba, Delta State.

Mentorship activities included hands-on guidance on document development and revision of laboratory standard operating procedures (SOPs), quality manuals, internal audit schedules, biosafety documentation, and laboratory workflow guides. Laboratories received targeted training on QMS principles, biosafety practices, data documentation, and WHONET data entry protocols. In several sites, quality improvement teams were formed or revitalized, and management buy-in was actively pursued to address institutional gaps such as staffing, logistics, and infrastructure.

Key achievements across all sites included the development of over 100 quality documents including quality manuals, safety manuals, SOPs covering pre-analytical, analytical, and post-analytical phases, and various quality assurance tools such as internal audit checklists, document trackers, incident logs, and client feedback forms. Baseline assessments revealed non-conformities, with common gaps identified in impartiality and confidentiality documentation, structural requirements including organizational charts and job descriptions, resource requirements particularly equipment calibration and personnel competency documentation, process requirements especially standard operating procedures and sample handling protocols, and management system requirements including internal audits and management reviews.

The mentorship team, comprising experienced veterinary laboratory scientists and QMS professionals coordinated through NVRI Consult Ltd, worked closely with laboratory staff and management teams to prioritise actions, advocate for operational support, and initiate improvements, with a growing sense of ownership and commitment observed among laboratory personnel and facility leadership signalling improved prospects for sustainability.

Data Quality Assessment Across Five Nigerian AMR Surveillance Sites

In June 2025, MSH conducted its third round of Data Quality Assurance (DQA) across five supported sites in Nigeria, in line with FFCG II. The exercise followed earlier WHONET trainings held in August and October 2024, with a mop-up session in January 2025, and aimed to strengthen AMR data quality, improve documentation, and verify progress on previous DQA recommendations.

The DQA covered four human health facilities—Babcock University Teaching Hospital (Ogun State), Mother of Christ Specialist Hospital (Enugu), University of Osun Teaching Hospital (Osogbo), and University of Ilorin Teaching Hospital (Kwara State)—as well as one animal health site, the University of Ilorin Veterinary Teaching Hospital. Assessments focused on 10 core data quality dimensions: availability, reliability, integrity, completeness, timeliness, accuracy, validity, precision, internal consistency, and archiving/backup systems.

Overall, three facilities were rated “Good” and two “Very Good.” Key findings showed that 4 of 5 sites had complete data for the last three months, and 4 of 5 maintained functional archiving systems. However, gaps persisted in the private facilities, particularly the absence of monthly AMR summary forms and limited WHONET proficiency. Warehouses were generally well-organised, with proper ventilation, security, and pest control, though UniOsun lacked an accessible emergency exit.

Across sites, challenges included limited staff capacity and equipment maintenance needs. Targeted next steps, including refresher trainings, improved inventory management, and follow-up visits, were scheduled for the next quarter (July–September 2025) to strengthen AMR surveillance and ensure high-quality data for national decision-making.

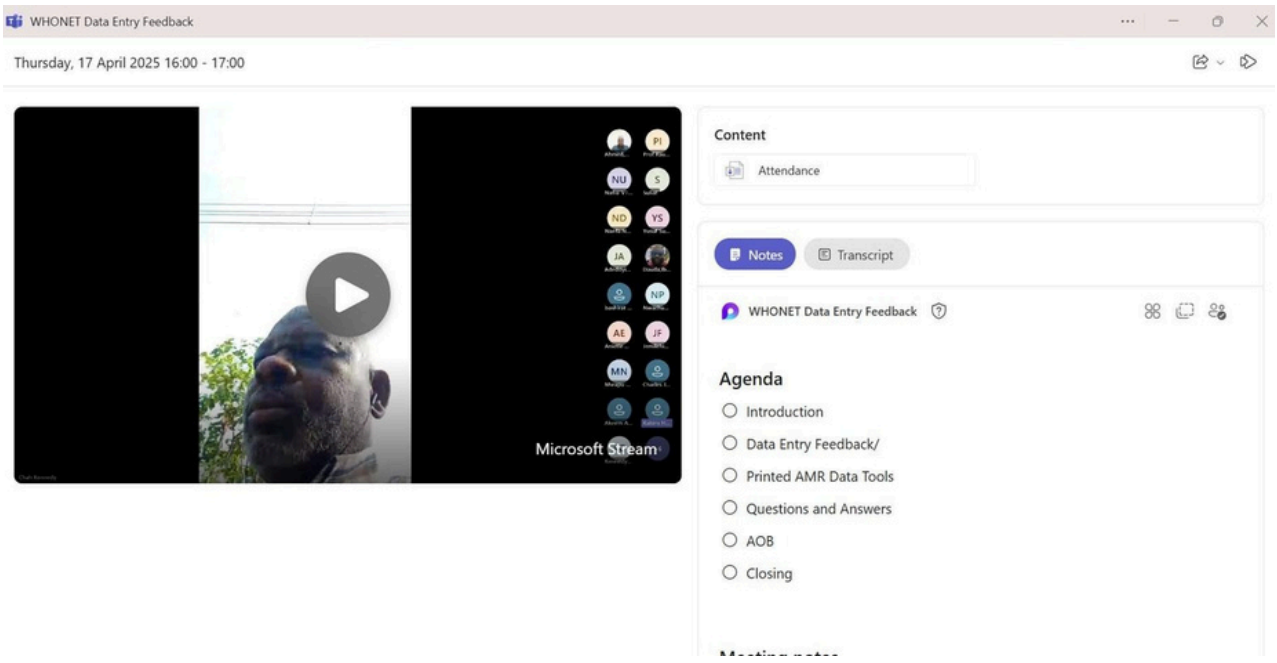

HEALTH
NCDC
HUMAN HEALTH SECTOR
Facility Name:
MONTHLY SUMMARY TESTS
msh

National AMR Data Officers Receive Targeted Mentorship to Strengthen Reporting into GLASS

MSH, in collaboration with the Antimicrobial Resistance Coordinating Committee (AMRCC) at NCDC, and the Federal Ministry of Livestock Development (FMLD), convened a virtual mentoring workshop for AMR data officers across human and animal health facilities. The session aimed to strengthen national antimicrobial resistance (AMR) surveillance by improving the quality, timeliness, and standardisation of data submitted to the national repository feeding into the Global Antimicrobial Resistance and Use Surveillance System (GLASS).

More than 15 facility-level data officers participated in the workshop, which combined presentations, data reviews, and interactive feedback discussions. Key presentations included sector-specific AMR surveillance updates from the Animal Health AMR Focal Person and a comprehensive performance analysis by the MSH MEL Specialist covering sample volumes, positivity rates, WHONET submissions, and reporting gaps.

Participants highlighted several operational challenges affecting data quality, including delays in second- and third-line MDR testing, high patient costs for blood culture diagnostics, and shortages of antibiotic discs and laboratory consumables, amongst others.



The workshop produced clear action points: NCDC and MSH committed to finalising and distributing essential commodities within one week; facilities agreed to transition fully to WHONET SQLite for standardised isolate matching; NCDC pledged to engage hospital management on potential subsidies or insurance coverage for blood culture testing; and technical teams will develop clearer guidance on reporting timelines and supplementary submissions.

The session reinforced the importance of high-quality AMR data for national decision-making and sustainability beyond donor funding. Stakeholders emphasised continued mentorship, improved data governance, and stronger feedback loops between facilities and national AMR structures. Follow-up actions and quarterly mentorship sessions are planned to ensure full adoption of recommendations and sustained improvement in AMR surveillance across Nigeria.

Building Nigeria's Environmental AMR Surveillance Backbone

In June 2025, targeted mentoring and technical support were provided to the National Environmental Reference Laboratory (NERL) located at the NESREA zonal office in Port Harcourt, Rivers State, Nigeria, under FFCG II. The overall goal of the engagement was to strengthen NERL's capacity to generate high-quality environmental antimicrobial resistance (AMR) surveillance data and formally integrate the laboratory into Nigeria's national AMR surveillance system in line with the One Health approach.

By 30 June 2025, approximately 60% of activities outlined in the laboratory improvement action plan had been completed. Key achievements included the extension of laboratory operational hours through shift-based scheduling, the redeployment of three qualified microbiologists, and the appointment of AMR and biosafety focal persons. The laboratory successfully commenced AMR data generation and reporting, marking its formal inclusion in the national AMR surveillance framework.

Significant infrastructure and systems improvements were also recorded.

These included the repair of air-conditioning units, installation of a functional solar power system, deployment of an inventory management system, and repair and allocation of autoclaves, all of which contributed to improved workflow, reduced contamination risks, and a more stable laboratory environment.

Data management capacity was strengthened through the provision of a dedicated computer and high-speed internet, improving AMR data reporting and coordination.

A major component of the engagement was progress on the development of a Quality Manual aligned with ISO/IEC 17025:2017. Through structured quality management meetings, laboratory staff and mentors collaboratively developed key Clause 7 process requirements, including method selection and validation, sampling, technical records, measurement uncertainty, reporting of results, handling of non-conforming work, complaints management, and data control.

Environmental AMR surveillance activities were structured across Obio Akpor and Port Harcourt City LGAs, with monthly sampling of wastewater, soil, river water, air, and canal effluents at sites such as Woji Slaughter, University of Port Harcourt Teaching Hospital (UPTH), Bonny Waterfront, and Ikokwu Canal.

Despite progress, there are still areas for improvements, including the absence of fire-rated doors, chemical-resistant bench tops, biosafety classification, and water quality testing equipment. Continued support from NESREA, MSH and partners will be critical to achieving full accreditation and sustaining Nigeria's environmental AMR surveillance efforts.

Cross-Sector Teams Trained for Integrated AMR Surveillance Study Under Fleming Fund Phase

From 30 June to 3 July 2025, MSH, in collaboration with NCDC, FMLD, FMAFS, FMoH, FME, and WHO, convened a 4-day Integrated Surveillance Study (ISS) Workshop in Enugu State. The workshop brought together multidisciplinary teams from three pilot states—Enugu, the Federal Capital Territory (FCT), and Oyo—to operationalise Nigeria's ISS protocol under the One Health framework.

The training aimed to strengthen national AMR surveillance by harmonising methodologies across human, animal, and environmental health sectors. Participants engaged in plenary sessions, sector-specific breakout discussions, and hands-on practical exercises. A major focus was standardising Standard Operating Procedures (SOPs), aligning sampling methodologies, and building capacity for high-quality field implementation. Practical training on REDCap equipped participants with skills for real-time data capture, validation, and troubleshooting, while group exercises supported state-level mapping of sampling sites and quantification of consumables needed for fieldwork.

Technical sessions delivered by WHO and academic experts reinforced biosafety, IPC, and contamination-control practices essential for maintaining sample integrity. A field visit to the University of Nigeria Teaching Hospital (UNTH) provided an opportunity for advocacy and engagement with facility leadership, resulting in commitments to support upcoming surveillance activities.

The workshop achieved several key outcomes: refinement of the ISS protocol, development of sector-specific SOPs, strengthened cross-sector coordination, improved readiness for field deployment, and enhanced understanding of data management tools. Over 60 participants from the HH, AH, and EH sectors contributed to the development of harmonised implementation plans. Challenges identified included internet limitations affecting REDCap demonstrations, concerns about consumable availability, and anticipated community engagement barriers. To address these, the team outlined actions such as deploying offline REDCap backups, pre-positioning buffer stocks, strengthening stakeholder engagement, and establishing flexible field coordination mechanisms.

The workshop concluded with clear next steps, including finalising SOPs, commencing integrated field sampling, and instituting weekly and monthly coordination meetings to ensure smooth implementation.

Quarterly Antimicrobial Stewardship Engagements to Advance Rational Antimicrobial Use Across FF-Supported Facilities

Quarterly antimicrobial stewardship (AMS) engagements across Fleming Fund–supported facilities brought together clinicians, pharmacists, microbiologists, and AMS champions to strengthen rational antimicrobial use and reinforce Nigeria's response to antimicrobial resistance (AMR).

Held between April and July 2025, these meetings served as practical platforms for reviewing prescribing practices, discussing Point Prevalence Survey (PPS) findings, and refining facility-specific stewardship strategies.

Across the sessions, healthcare teams examined PPS results that highlighted antimicrobial use patterns, quality indicators, and priority areas for intervention. Facilities also prepared for the follow-up PPS scheduled for 14 July 2025, identifying data collectors and aligning with hospital management to ensure smooth execution. Discussions extended to antibiograms, resistance trends, diagnostic stewardship, and the integration of AMS with infection prevention and control (IPC) activities.

A notable highlight was the recognition of Antimicrobial Stewardship Ambassadors in several facilities, where clinicians received badges and certificates—an approach that boosted engagement, peer influence, and ownership of stewardship practices. Public AMR messaging also expanded beyond facility walls, with media outreach in Sokoto reaching more than 50,000 viewers through NTA/Rima TV.

The meetings recorded several achievements, including increased awareness among house officers and junior residents, strengthened collaboration between laboratories and clinical teams, improved understanding of diagnostic stewardship, and renewed commitment to evidence-based prescribing. Facilities also advanced plans for antimicrobial guidelines and AMS clubs, particularly within UBTH training schools.

Challenges such as limited human resources, supply chain gaps, and delayed laboratory turnaround times were openly discussed. In response, facilities committed to continuous training, integrating AMS with IPC, optimising pharmacy stock, improving diagnostic capacity, and advocating for dedicated AMS budget lines.

Overall, the quarterly AMS meetings deepened multidisciplinary collaboration, strengthened stewardship structures, and advanced national efforts to curb AMR through more responsible antimicrobial use.

Contact:

For more information on AMR surveillance efforts, contact:
Management Sciences for Health (MSH), Nigeria
Email: conwuliri@msh.org
Website: www.msh.org