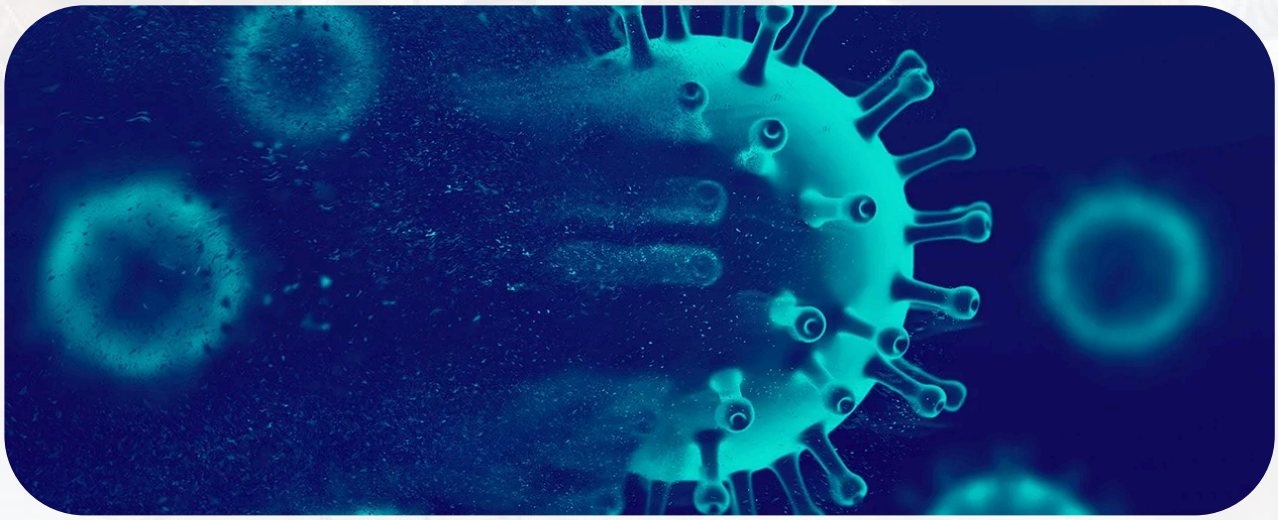
ISSUE #4

AMR ALERT

A Quarterly Bulletin on AMR Surveillance in Nigeria

Theme: Uniting Knowledge and Action to Combat Antimicrobial Resistance in Nigeria



BY: Management Sciences for Health

August 2025

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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.

Highlights from Quarter Four

Building Nigeria's Environmental Defences Against Antimicrobial Resistance

A five-day residential workshop on Active AMR Surveillance in the Environmental Sector was held in Port Harcourt, Rivers State, from 27–31 January 2025. The training, organised by MSH with the support of the FAO and the Federal Ministry of Environment, aimed to strengthen the capacity of environmental health and laboratory professionals to conduct AMR surveillance across key environmental settings.

Thirty-one participants from eight states and federal institutions took part in intensive theoretical and practical sessions covering sample collection, laboratory analysis, data management, and antimicrobial susceptibility testing. The training also operationalised Nigeria's Environmental Health AMR Surveillance Strategy and Protocol, advancing efforts under the National Action Plan for AMR (NAP 2.0).

Through a combination of lectures, group discussions, fieldwork, and laboratory practice, participants gained valuable experience in sampling from environmental sources such as water bodies, waste systems, and agricultural sites. They learned how to isolate and identify resistant bacteria, manage data, and report findings effectively. The workshop concluded with each state developing an actionable AMR surveillance plan to support coordinated implementation across Nigeria.

Pre- and post-training assessments showed remarkable knowledge gains of up to 100%, particularly in the correct use of PPE, identification of AMR hotspots, and selection of culture media. Laboratory skills were significantly strengthened, and participants demonstrated improved understanding of environmental AMR dynamics within the One Health framework.

The workshop's success marks a major milestone in Nigeria's efforts to bridge data gaps in environmental AMR surveillance. It builds the technical foundation for state-led monitoring and response, ensuring that environmental AMR data informs national and global strategies.

Next steps include quality management systems training, provision of solar power for laboratories, procurement of essential supplies, follow-up practical exercises guided by SOPs, and full implementation of state-level AMR surveillance plans by mid-2025. Together, these actions will enhance Nigeria's readiness to detect, monitor, and respond to antimicrobial resistance, especially through the environmental sectors

Nigeria Strengthens AMR Governance and Coordination: Highlights from the Quarterly NAMR TWG Meeting

The National Antimicrobial Resistance Technical Working Group (NAMR TWG) meeting, held from February 25–27, 2025, in Abuja, brought together key stakeholders from the human, animal, plant, and environmental health sectors to review the progress of Nigeria's AMR National Action Plan (NAP 2.0). Organised by the Nigeria Centre for Disease Control and Prevention (NCDC) in collaboration with the Federal Ministries of Livestock Development and Environment and supported by the Fleming Fund Country Grant II implemented by MSH, the meeting focused on strengthening multisectoral coordination, improving data systems, and advancing sustainable AMR interventions.

Participants reviewed sectoral achievements and challenges through plenary sessions, breakout discussions, and technical presentations. Key outcomes included the inclusion of the Plant Health Sector in the AMR governance structure, endorsement of a standardised AMR surveillance framework, and the development of a strategic resource mobilization plan to secure long-term funding. The group also agreed to expand public awareness initiatives, strengthen antimicrobial stewardship (AMS) programs, and develop an AMR burden estimation model to guide evidence-based policymaking.

The meeting also emphasised the importance of harmonised surveillance, stronger laboratory capacity, and improved regulatory frameworks for antimicrobial use. Stakeholders reaffirmed their commitment to the One Health approach, pledging to enhance coordination, promote responsible antimicrobial use, and mobilize resources to sustain AMR mitigation efforts. The outcomes of this meeting represent a critical step toward achieving the goals of NAP 2.0 and building a resilient national AMR response system. Day 1 featured opening remarks by Dr. Tochi Okwor, who reaffirmed Nigeria's leadership in global AMR initiatives and emphasised stronger governance and stewardship. Situation analyses and technical presentations from ASLM, MSH, and WHO highlighted progress in surveillance and data use.

Breakout sessions identified key gaps and proposed mitigation strategies. Day 2 focused on resource mobilization, stakeholder mapping, and the development of actionable recommendations, including quarterly TWG meetings, formation of a burden estimation model committee, and inclusion of new health agencies. Day 3 consolidated sectoral recommendations into a national action plan.

Key challenges identified included limited surveillance capacity, weak infection prevention and control, inconsistent data reporting, inadequate stewardship programs, and weak enforcement of antimicrobial use regulations. Participants committed to addressing these gaps through improved coordination, capacity-building, and policy enforcement to strengthen Nigeria's AMR response.

The February 2025 NAMR TWG meeting produced a comprehensive set of recommendations across the One Health pillars to strengthen Nigeria's AMR response.

Under the Awareness Pillar, stakeholders will translate AMR messages into local languages, conduct annual awareness weeks, and train agricultural correspondents to improve media engagement. The Stewardship Pillar focuses on implementing the National Antimicrobial Stewardship Strategy, establishing stewardship programs in veterinary teaching hospitals, developing prescription policies, and expanding antimicrobial use surveillance. The IPC/Biosecurity Pillar recommended scaling up vaccine production, developing SOPs and policies for vaccination and waste disposal, and procuring incinerators to improve infection prevention.

The Surveillance Pillar called for dissemination of updated protocols, training of lab personnel, procurement of reagents, and strengthening of waste management and residual monitoring systems. The Research Pillar emphasised expanding AMR studies nationwide, identifying antimicrobial alternatives, and mapping AMR research activities. Environmental health recommendations include upgrading laboratories, cascading training to community levels, developing AMR environmental guidelines, expanding IPC programs, and supporting WASH-related entrepreneurship.

Committees were established to develop proposals on estimating Nigeria's AMR burden, enhancing animal vaccine uptake to reduce antimicrobial use, and building capacity in the Environmental Health Sector. The inclusion of NPHCDA and NHIA in TWG activities was also approved to strengthen collaboration. Next steps include sub-national AMR coordination meetings (June–September 2025) to deepen state-level engagement, quarterly publication of the AMR newsletter for stakeholder learning, and the expansion of surveillance sites nationwide by Q4 2025 to improve data-driven decision-making. By 2026, Nigeria aims to implement a national policy regulating antibiotic sales to curb misuse and promote responsible antimicrobial stewardship.

The plenary concluded with a strong call for multi-sectoral action, enhanced surveillance, and policy enforcement to address the health and economic threats posed by AMR. Sustained collaboration between government agencies, academia, the private sector, and development partners was emphasised as key to achieving long-term success and positioning Nigeria as a regional leader in AMR containment.

Strengthening Nigeria's AMR Research Capacity: Burden of Disease Training Workshop

MSH in collaboration with the Nigeria Centre for Disease Control and Prevention (NCDC), successfully conducted a three-day (March 11-13, 2025) intensive Burden of Disease (BoD) training workshop under the Fleming Fund Phase II Country Grant (FFCG II). This strategic capacity-building initiative focused on equipping healthcare professionals with essential skills needed to conduct comprehensive antimicrobial resistance (AMR) burden studies, a critical foundation for evidence-based policy formulation and resource allocation in Nigeria's fight against drug-resistant infections.

With an estimated 1.27 million global deaths attributable to AMR in 2019, understanding the local burden of antimicrobial resistance is imperative for developing targeted interventions. This training directly addresses Nigeria's need for robust AMR surveillance data by building a cadre of skilled researchers capable of conducting high-quality burden of disease studies that will inform national AMR strategies and public health responses.

The workshop brought together a diverse multidisciplinary group of healthcare professionals, including field epidemiologists, clinical microbiologists, medical microbiologists, infectious disease specialists, laboratory scientists, pharmacists, nurses, public health researchers, and data managers actively involved in AMR surveillance activities.

This cross-sector representation ensured comprehensive learning experiences and fostered collaborative approaches to addressing Nigeria's AMR challenges.

The training was structured across three intensive days covering foundational knowledge through advanced implementation strategies. Day one established theoretical foundations through presentations on the global and national burden of AMR, study objectives and rationale, research methodology, including epidemiological study designs, sampling strategies, and analytical frameworks. Real-world case studies and interactive sessions allowed participants to contextualize concepts within Nigeria's healthcare landscape.

Day two focused intensively on practical data collection skills and research ethics, with extensive hands-on training in REDCap (Research Electronic Data Capture) and Google Sheets for data management. Participants learned to design electronic case report forms, manage data entry processes, and utilize security features for protecting sensitive patient information. A comprehensive session on ethical considerations addressed informed consent procedures, particularly for vulnerable populations, including neonates and critically ill patients.

The final day provided immersive hands-on experience through role-playing exercises simulating patient interactions, sample collection procedures, and data entry workflows, alongside sessions on logistics, field operations, workflow mapping, and team coordination strategies.

A rigorous pre- and post-test analysis demonstrated significant training effectiveness:

Quantitative Results:

- Pre-test average score: 78%
- Post-test average score: 98%
- Knowledge improvement: 20 percentage points
- Percentage improvement rate: 25.6%

Participants demonstrated enhanced understanding of research objectives, data collection frameworks, and implementation protocols, with marked proficiency gains in using REDCap and Google Sheets for standardised data entry. Top areas of improvement included study methodology, data collection techniques with digital tools, and ethical research considerations.

Key deliverables from the training included enhanced technical capacity in designing and implementing burden of disease studies, digital data management proficiency through mastery of electronic data capture systems, strengthened ethical research frameworks, particularly for vulnerable populations, and development of a comprehensive operational work plan to guide AMR BoD study implementation. This detailed plan includes stakeholder engagement strategies, data collection protocols, quality assurance mechanisms, field logistics coordination, and specific deliverables mapped to monthly targets with assigned responsibilities.

Empowering Media and Civil Society for Nigeria's Fight Against Antimicrobial Resistance

From February 17–21, 2025, a five-day training in Lagos equipped 32 journalists and civil society/community-based organization (CSO/CBO) representatives with the knowledge and skills to advocate for antimicrobial resistance (AMR) awareness and responsible antibiotic use. Facilitated by experts from Management Sciences for Health (MSH), NAFDAC, National Veterinary Research Institute, and universities, the workshop emphasised the One Health approach, linking human, animal, plant, and environmental health in Nigeria's National Action Plan 2.0 (NAP 2.0, 2024–2028).

The training combined interactive lectures, case studies, group discussions, and role-play exercises to promote practical learning. Day 1 introduced participants to AMR concepts, drivers, and global and national impacts, highlighting Nigeria's high AMR burden and the strategic objectives of NAP 2.0

Sessions emphasised the economic and health consequences of unregulated antimicrobial use, the importance of surveillance across human, animal, plant, and environmental sectors, and the need for private sector engagement in stewardship and infection prevention. Day 2 focused on risk communication and effective messaging. Participants learned to craft data-driven, audience-specific AMR messages for traditional and social media, and developed community mobilization strategies, including engaging traditional and religious leaders, health volunteers, and local influencers. Day 3 emphasised evidence-based advocacy for policy influence and budget allocation, highlighting media and CSOs as critical actors in amplifying AMR issues and driving accountability. Day 4 centered on SMART advocacy, regulatory enforcement, and the use of advocacy toolkits to strengthen national campaigns. NAFDAC outlined its role in safeguarding antimicrobial quality, monitoring distribution, and ensuring responsible use.

Day 5 consolidated learnings, guiding participants in developing a six-month implementation plan to integrate AMR advocacy into ongoing media and community initiatives. Step-down training for wider team members was encouraged to sustain momentum. Participants also shared feedback, reflecting increased knowledge, confidence, and readiness to influence AMR policies and public behaviour.

Pre- and post-training assessments indicated knowledge gains from 86% to 92%, demonstrating the workshop's impact. Participants committed to leveraging their platforms, networks, and partnerships to promote evidence-based AMR messaging, enhance public awareness, and drive policy reforms. This training underscores the pivotal role of media and civil society in Nigeria's AMR response, fostering collaboration, strategic communication, and advocacy to safeguard public health and ensure the effective implementation of NAP 2.0.

AMR Awareness in Animal Health: Sensitization and Engagement of Poultry and Fish Value Chain Operators in Nigeria

From January 27–31, 2025, the MSH worked closely with the Federal Ministry of Agriculture and Food Security (FMAFS), and FAO, to conduct a three-day AMR sensitization and awareness campaign across Akwa Ibom, Anambra, Kano, and Kwara States. Targeting poultry and fish value chain operators and the general public, the workshop engaged 200 participants, equipping them with knowledge and practical skills to promote responsible antimicrobial use (AMU), strengthen biosecurity, and improve disease surveillance.

The campaign addressed Nigeria's growing AMR challenge, highlighting how indiscriminate antimicrobial use in livestock and aquaculture threatens animal and human health, food security, and sustainable livelihoods. Participants were educated on AMR causes, consequences, and mitigation strategies, including biosecurity measures, vaccination, and prudent antimicrobial practices. The program also included questionnaires on knowledge, attitude, and practices (KAP), and AMU data collection tools to support ongoing surveillance and policy planning.

The sensitization and engagement were carried out through combined interactive lectures, case studies, group discussions, and practical demonstrations, fostering active participation and knowledge retention. Sessions emphasised community engagement, real-world experiences, and collaboration, allowing participants to evaluate their practices and understand the importance of responsible antimicrobial stewardship. Advocacy visits to state ministries reinforced stakeholder buy-in and integration of AMR initiatives within local agricultural frameworks.

Key achievements included increased AMR awareness among poultry and fish value chain operators, strengthened knowledge of biosecurity and vaccination practices, establishment of an AMR/AMU stakeholder network, and dissemination of information, education, and communication (IEC) materials. Participants were also introduced to AMR-focused jingles, designed for broadcasting in local and national media to reinforce responsible AMU behaviours.

Challenges were minimal, but recommendations were made to enhance engagement further, including using interpreters for local languages, visual aids, interactive sessions, community leader involvement, and continuous monitoring. Next steps involve cascading training through a training-of-trainers (ToT) approach, extending awareness campaigns to schools, veterinary drug vendors, feed millers, and abattoir workers, creating stakeholder WhatsApp groups, and reviewing progress in six months.

The campaign's findings highlighted significant gaps in knowledge and misconceptions around AMU and AMR. Structured communication strategies, culturally relevant messaging, and mass media interventions were recommended to correct misinformation and promote behavioural change. The integration of jingles and multi-platform outreach is expected to sustain engagement, encourage responsible antimicrobial practices, and mitigate AMR risks in Nigeria's livestock and aquaculture industries.

Overall, the Fleming Fund Phase II AMR campaign successfully strengthened the capacity of poultry and fish value chain operators to adopt best practices, improved stakeholder collaboration, and laid the groundwork for continued public awareness and policy-driven AMR mitigation in Nigeria.

Unmasking a Hidden Threat in AMR: National Analysis Reveals Substantial Burden of Invasive Fungal Infections in Nigeria

Invasive fungal infections (IFIs) remain a largely underrecognized public health challenge in Nigeria, contributing to significant morbidity and mortality, particularly among hospitalised and immunocompromised patients. Historically neglected in national infectious disease programs, these infections have persisted largely undetected due to limited diagnostic capacity, low clinical awareness, and inadequate surveillance infrastructure. The recent integration of fungal disease monitoring into Nigeria's national antimicrobial resistance (AMR) surveillance framework, supported by the Fleming Fund under the National Healthcare-Associated Infections and AMR (HH-AMR) Strategy, represents a landmark advance in national public health preparedness.

Through the Nigeria Fungal Diseases Surveillance and Capacity Building (NIFUSCAB) initiative, coordinated by the Nigeria Centre for Disease Control (NCDC) with technical support from the CDC, Management Sciences for Health (MSH), and other partners, a nationwide network of sentinel sites was established. Over 3,300 suspected cases were investigated, with isolates referred to the National Mycology Reference Laboratory in Lagos for confirmatory testing and antifungal susceptibility assessment. This surveillance effort marks the first large-scale, coordinated national attempt to quantify the burden of IFIs in the general population, excluding HIV-positive cohorts.

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Findings reveal a substantial burden: 1,065 IFI cases were confirmed, yielding a 31.7% positivity rate. Invasive candidiasis emerged as the most prevalent infection, accounting for 66.1% of all cases, with candidemia—a life-threatening bloodstream infection—most frequent among neonates and intensive care patients. Invasive and chronic pulmonary aspergillosis were the next most common infections, particularly affecting post-tuberculosis and immunosuppressed individuals. Although less frequent, cryptococcosis and histoplasmosis were identified in non-HIV populations, underscoring the need for broader diagnostic and screening strategies.

Age and clinical setting influenced infection patterns: neonates exhibited the highest IFI burden, with a striking 91% prevalence in neonatal wards. ICU and high-dependency unit patients were similarly vulnerable, highlighting the critical need for targeted infection control and antifungal stewardship in these settings. While overall prevalence was comparable between sexes, males exhibited higher rates of candidemia, reflecting potential differences in ICU admissions and comorbidities.

The surveillance findings provide the first reliable national estimates, suggesting an annual IFI burden of approximately 38,126 cases in Nigeria, with 25,202 cases of invasive candidiasis and 7,267 cases of candidemia. Aspergillosis, cryptococcosis, and histoplasmosis collectively contribute thousands more infections annually, likely underrepresented due to diagnostic limitations and exclusion of HIV-infected populations.

This analysis demonstrates the feasibility and importance of integrating fungal disease surveillance within AMR frameworks, offering critical insights to inform public health policy, resource allocation, and clinical training. Recommendations include expansion of surveillance to primary and private healthcare sectors, strengthening laboratory infrastructure and reference networks, clinician training, antifungal stewardship, and public awareness campaigns. Sustained investment in diagnostics, workforce development, and national coordination is therefore essential to reduce IFI-related morbidity and mortality and enhance preparedness for emerging fungal threats.

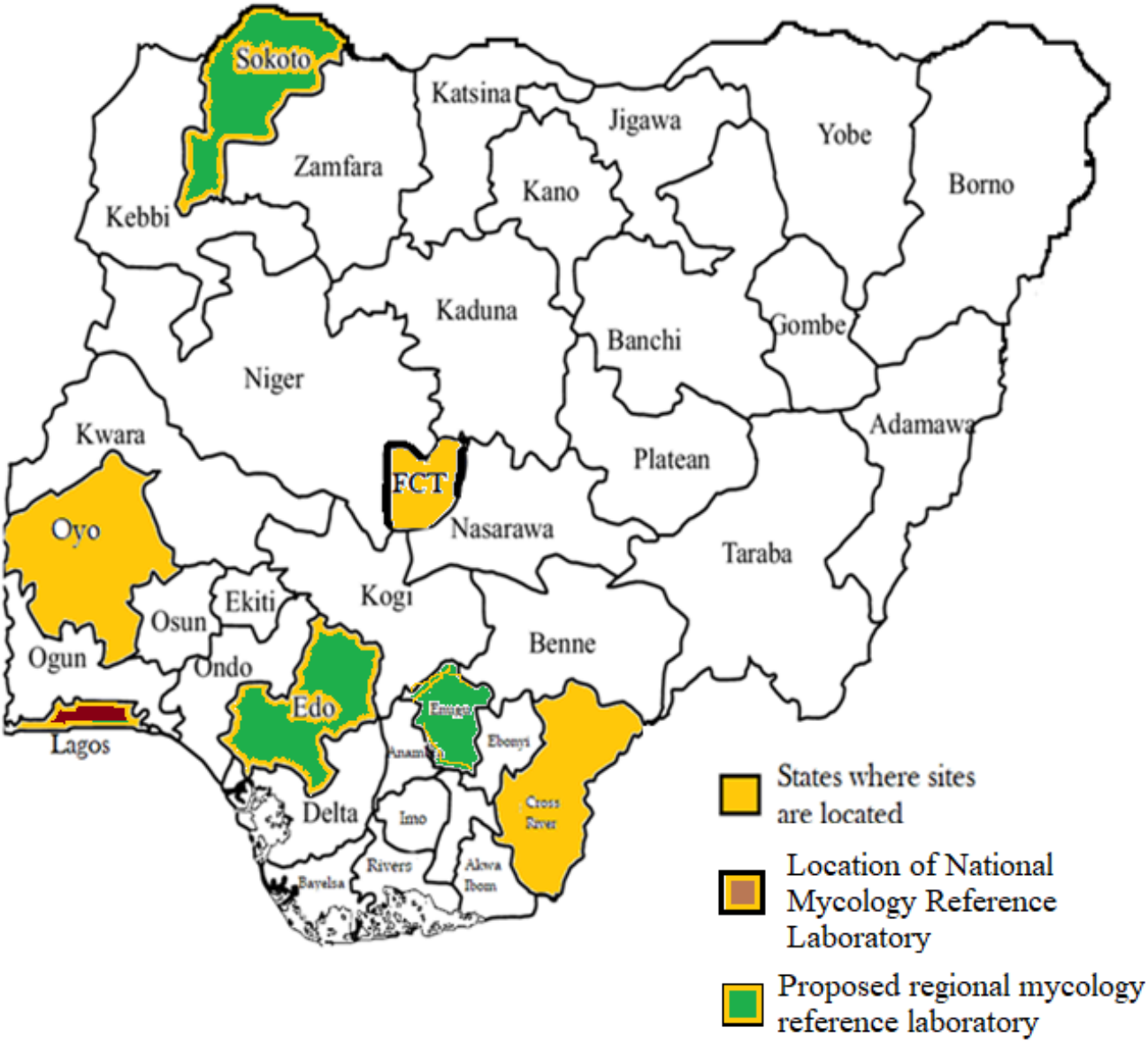
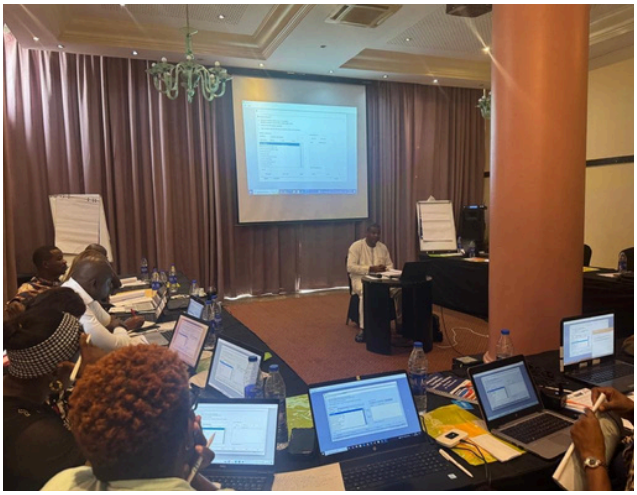


Figure: National Mycology Reference Laboratory and proposed sites to serve as locations for regional mycology reference laboratories.

Empowering NESREA Laboratories: Advancing AMR Detection and Data Excellence through WHONET Integration

MSH, in close partnership with the Federal Ministry of Environment and FAO, successfully convened a 5-day residential training in Port Harcourt to strengthen antimicrobial resistance (AMR) surveillance in Nigeria's environmental health sector. The program brought together 21 laboratory personnel from NESREA laboratories across Kano, Lagos, Abuja, and Port Harcourt, alongside representatives from academia and international organisations. The workshop aimed to enhance laboratory technical capacity, standardise processes, and integrate WHONET software for reliable AMR data management.

Over the course of five days, participants engaged in an intensive blend of theoretical and hands-on sessions covering bacteriology, antimicrobial susceptibility testing (AST), quality management systems (QMS), ISO 17025 compliance, risk assessment, and occurrence management. Special emphasis was placed on WHONET software, enabling participants to perform data entry, analysis, and interpretation for evidence-based decision-making.



Daily practical exercises, including water sample processing, bacterial isolation, sub-culturing, and AST using the streaking and spread plate methods, ensured participants gained direct laboratory experience. Group discussions, SWOT analyses, and workflow mapping strengthened understanding of laboratory operations, data flow management, and AMR surveillance strategies. By the conclusion of the training, participants had developed laboratory-specific action plans aimed at improving SOP harmonisation, quality assurance, and data reporting.

Evaluation of the training demonstrated measurable knowledge gains, with post-training assessment scores showing an overall improvement of 8.4%, reflecting enhanced technical expertise in AMR detection, WHONET integration, and laboratory quality management. Participant feedback highlighted the relevance of WHONET training and AMR-focused practical exercises, while also identifying areas for future improvement, including expanded hands-on sessions and technical support for AMRIS.

- **Key Achievements:**
- Strengthened the technical skills of NESREA laboratory personnel in AMR surveillance, bacteriology, and AST.
- Enhanced proficiency in WHONET data management and integration for evidence-based AMR monitoring.
- Developed actionable laboratory plans to harmonise SOPs, improve quality assurance, and ensure ISO 17025 compliance.
- Positioned NESREA laboratories to provide reliable, high-quality AMR data for national surveillance.

Next Steps:

- Implementation of laboratory-specific action plans and SOP standardisation.
- Continuous capacity-building through follow-up training and technical support.
- Strengthening partnerships with FAO, MSH, and national agencies to sustain AMR surveillance improvements.
- Aligning laboratory operations with international accreditation standards and contributing high-quality data to inform policy and public health interventions.

The training successfully reinforced the foundation for robust, standardised AMR surveillance in Nigeria's environmental health sector. Through ongoing collaboration, capacity-building, and stakeholder engagement, NESREA laboratories are now better equipped to detect, report, and mitigate antimicrobial resistance, contributing to national and global public health efforts.

Sustaining Antimicrobial Stewardship Through Validation of Nigeria's AMC Strategy and Protocol

Antimicrobials remain critical in treating infectious diseases, yet their inappropriate use drives the emergence and spread of AMR, posing a serious threat to public health. Effective surveillance of antimicrobial consumption (AMC) and use (AMU) is essential for evidence-based policymaking and optimised antimicrobial stewardship. Recognizing this need, a five-day national workshop convened AMR and AMC experts from human, animal, and environmental health sectors to review, refine, and validate Nigeria's draft National Antimicrobial Consumption Strategy and Protocol.
The workshop brought together stakeholders from government agencies, regulatory bodies, academia, and development partners to ensure a One Health approach.

Participants reviewed the draft AMC strategy and surveillance protocol, assessing their relevance, practicality, and alignment with international standards while tailoring them to Nigeria's context. The methodology involved group-based review, interactive discussions, and plenary presentations, allowing for rigorous cross-sectoral input. Each group presented recommendations that were subsequently integrated into a strengthened national framework for antimicrobial monitoring and stewardship.

Key outcomes of the workshop included the validation of a comprehensive AMC surveillance strategy and protocol, reflecting global best practices while addressing national priorities. The finalized deliverables provide a standardised approach to data collection, aggregation, and reporting on antimicrobial use, ensuring consistency across sectors. These tools will enable accurate monitoring of antimicrobial consumption patterns, identification of priority areas for intervention, and evidence-based decision-making to curb AMR.

The workshop also highlighted critical insights from existing national data. For instance, six antibiotics—metronidazole, amoxicillin, amoxicillin/clavulanic acid, cefuroxime, and ciprofloxacin—accounted for over 55% of antibiotic use, while the use of WHO "Access" category antibiotics remained below recommended thresholds. Such patterns underscore the urgency of coordinated AMC surveillance to prevent overuse of "Watch" category antibiotics and mitigate resistance. The workshop further emphasised the need for surveillance in hospital settings, where high-density antimicrobial use among vulnerable patients accelerates the development of resistant pathogens.

Challenges identified during the workshop included limited time for data processing and integration, emphasizing the need for proactive data management and timely stakeholder engagement. To address these issues, participants recommended continuous multi-sectoral coordination, periodic capacity-building workshops, and harmonization of AMC protocols with other One Health sector guidelines to ensure alignment with Nigeria's National Action Plan on AMR (NAP 2.0).

Moving forward, the validated AMC Strategy and Protocol will serve as a cornerstone for national antimicrobial stewardship efforts. Key next steps include implementing a robust monitoring and evaluation system, scaling stakeholder engagement to sub-national levels, and sustaining cross-sectoral collaboration. Agencies responsible for implementation include the National One Health AMR Technical Working Group, NCDC, FMAFS, FMoEnv, NAFDAC, and supporting academic and development partners.

Overall, the workshop successfully consolidated national expertise to validate Nigeria's AMC surveillance strategy and protocol, providing a strong foundation for standardised data collection, improved antimicrobial stewardship, and strengthened efforts to combat AMR. Through continued stakeholder engagement, training, and coordinated implementation, Nigeria is now better positioned to optimise antimicrobial use, protect public health, and meet international AMR targets.

National Laboratory Quality Framework Workshop to Advance Laboratory Excellence

A robust Laboratory Quality Management System (LQMS) is critical to ensuring reliable diagnostic testing, which underpins both clinical care and public health. To strengthen laboratory systems across Nigeria, the National Laboratory Quality Framework (NLQF), developed by the African Society for Laboratory Medicine (ASLM) and the Africa CDC, provides guidance for establishing a sustainable National Laboratory Quality Infrastructure (NLQI) aligned with international standards. The NLQF, revised in 2024, integrates practical strategies for policy development, strategic planning, and continuous quality improvement across One Health sectors.

From 25–28 February 2025, a four-day workshop in Lagos capacitated 26 national-level participants to lead the rollout of the NLQF in Nigeria. Attendees represented human, animal, and environmental health sectors, as well as regulatory bodies, academia, and implementing partners.

Facilitated by ASLM experts with relevant support from MSH as an active stakeholder, the workshop aimed to build leadership capacity for developing or amending Nigeria's National Laboratory Policy (NLP) and National Laboratory Strategic Plan (NLSP) to align with NLQF guidance and the One Health approach.

The workshop combined plenary presentations, group exercises, individual assignments, and discussion sessions. Participants explored the distinction between laboratory networks and systems, emphasizing the need for a well-supported system to sustain national laboratory networks. Key elements of the NLQF were presented, including guidance on ISO standards relevant to laboratory quality, such as ISO 9001, ISO 15189, ISO 17025, and ISO 17043, alongside planning tools like the PDCA cycle and SMART operational planning.

Practical sessions guided participants through situational and SWOT analyses, stakeholder mapping, and operational plan development. Participants developed a draft operational plan and Gantt chart simulating the implementation of the NLQF in Nigeria. They also practised formulating a vision, policy statements, and strategic objectives, translating strategic goals into actionable activities to be implemented over defined timelines. These exercises reinforced the application of NLQF principles for sustainable laboratory quality management and informed decision-making.

Key takeaways included the importance of integrating the One Health approach into Nigeria's laboratory policy and strategic plans, establishing a Technical Working Group for NLQF implementation, and ensuring stakeholder engagement across sectors. Participants recognised the need to develop a separate NLQF policy while leveraging existing NLP and NLSP, complemented by annual operational plans and a monitoring and evaluation framework.

The workshop concluded with participants equipped with technical guidance, practical tools, and an operational roadmap for developing Nigeria's NLQF. Certificates with Continuing Education Units were issued to participants, acknowledging their readiness to champion national laboratory quality initiatives. The LQF workshop provided Nigeria with a blueprint for harmonised, sustainable laboratory quality management, through a One Health approach.

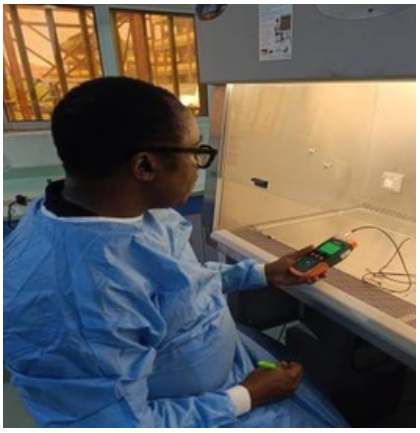
Maintenance and Certification of Biosafety Cabinets in 17 Fleming Fund-Supported Laboratories, Nigeria

Biosafety Cabinets (BSCs) are essential for ensuring laboratory safety, protecting personnel, preventing sample contamination, and supporting high-quality antimicrobial resistance (AMR) surveillance. Recognising the critical need for operational integrity, the Nigeria Centre for Disease Control (NCDC), through Management Sciences for Health (MSH), commissioned Biosafe Equipment Calibrations Limited (BECL) to conduct preventive maintenance and certification of BSCs in 17 Fleming Fund-supported laboratories across human, animal, and environmental health sectors.

These BSCs, installed in 2021, had not been recertified since deployment, potentially compromising laboratory safety and diagnostic accuracy. Over a 10-day period, BECL conducted maintenance and certification following the NSF/ANSI 49:2020 standards. Maintenance activities included surface decontamination, cleaning of work trays and internal/external surfaces, and functionality checks of controls. Certification assessments evaluated operational integrity through primary tests—downflow and inflow velocity, HEPA filter leak, smoke pattern, installation conditions, and alarm functionality—and secondary tests, including light intensity, vibration, noise level, and electrical safety.

All 17 BSCs were successfully maintained and certified, ensuring compliance with international biosafety standards. This intervention restored optimal functionality, reinforced laboratory safety, and enhanced quality assurance in AMR diagnostics. Facility-specific issues, such as non-functional inverters, power supply challenges, and faulty BSC components, were identified and documented, providing actionable insights for system improvements and investment planning. Despite these challenges, certification was successfully achieved in all sites, demonstrating resilience and commitment to maintaining biosafety standards.





Key achievements of this initiative include comprehensive maintenance and certification ensure BSCs operate effectively, protecting personnel and samples during AMR surveillance and diagnostics, and conducting primary and secondary performance tests to support accurate and reliable microbiological diagnostics across multiple laboratories, among others.

Recommendations to sustain these gains include refresher training on BSC use, repair or replacement of faulty inverters and UPS units, and correction of minor equipment defects such as fluorescent tubes and solid-state switches. Timelines for these actions have been set to ensure prompt remediation.

Building Competence in Environmental AMR Mitigation for State and Federal Officers

From February 24 to 28, 2025, a five-day residential training on antimicrobial resistance (AMR) mitigation strategies was held in Abuja, organised by the Federal Ministry of Environment (FMEnv) in collaboration with the Food and Agriculture Organisation of the United Nations (FAO) and Management Sciences for Health (MSH). The workshop brought together 32 Environmental Health Officers (EHOs) and government officers from 12 high-burden states and the Federal Capital Territory. The training aimed to enhance participants' knowledge and practical skills in mitigating AMR in the environment, with a particular focus on waste management, WASH (Water, Sanitation, and Hygiene) interventions, risk communication, community engagement, environmental surveillance, and policy integration.

Throughout the five days, participants engaged in a combination of lectures, case studies, group discussions, and hands-on exercises, learning to implement standardised practices for the management of clinical, pharmaceutical, and animal waste.

The sessions emphasised the environmental drivers of AMR, including open defecation, unregulated antimicrobial use, hospital and industrial wastewater, and zoonotic disease risks. Innovative approaches to waste management were explored, such as waste-to-energy technologies, smart bins for improved segregation, and sustainable recycling practices, all within the framework of Nigeria's regulatory and public health requirements. Training on WASH highlighted the link between inadequate water, sanitation, and hygiene and the spread of AMR, promoting behavioural change and community-led sanitation initiatives, hand hygiene practices, and risk communication strategies.

Stakeholder engagement was also a core focus, equipping participants to mobilize government agencies, local communities, NGOs, private sector actors, and international partners to collaboratively prevent AMR. Participants were introduced to the Integrated National Environmental Health Surveillance System (INEHSS), learning how to monitor environmental AMR and integrate findings into actionable policies and decision-making processes.

The training resulted in notable improvements in participants' knowledge and skills. Pre- and post-training evaluations indicated substantial gains in understanding surveillance methodologies, which improved from 53% to 86%, while other topics such as environmental AMR mitigation, waste management, and One Health approaches showed moderate improvements. Participants developed state-specific AMR action plans, strengthened multi-sectoral coordination, and acquired practical tools for translating knowledge into interventions.

The workshop also identified challenges, including limited laboratory capacity, poor compliance with waste disposal protocols, difficulty integrating AMR data into national surveillance systems, low community engagement in hygiene practices, and resource constraints for state and federal AMR programs. To address these gaps, recommendations included the development of national AMR waste disposal guidelines, the implementation of behavioural change communication campaigns, the expansion of community-led WASH initiatives, the scaling of environmental AMR surveillance to additional laboratories, and the conduct of quarterly progress reviews and refresher training sessions.

The five-day residential training successfully enhanced the capacity of EHOs and government officers to mitigate AMR in Nigeria's environmental health sector. Through a combination of technical knowledge, practical skills, and multi-sectoral collaboration, participants are now better equipped to implement effective interventions, strengthen surveillance, engage communities, and support evidence-based policy enforcement on AMR.

Looking Ahead

Updates in the Next Quarter

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