

ARC-WA



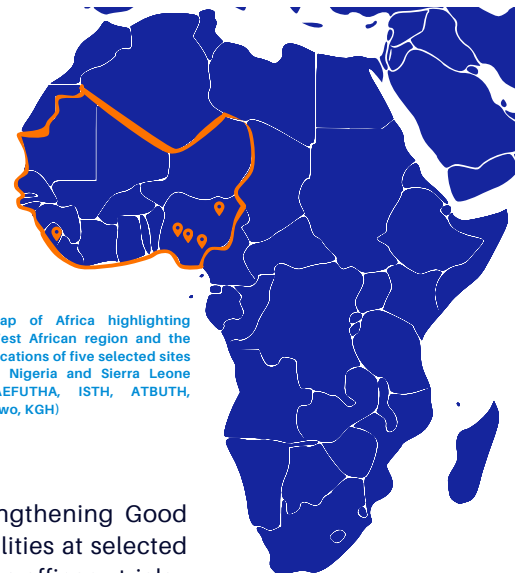
The Journey Toward Sustainable Research Capacity and Emergency Preparedness in West Africa

BUILDING THE FOUNDATION FOR A STRENGTHENED RESEARCH NETWORK

The African continent continues to face some of the world's most persistent and dangerous outbreaks, from smallpox and tuberculosis to Ebola, Lassa fever, Marburg, Mpox, and other high-consequence pathogens. Endemic infectious diseases such as malaria, cholera, and Salmonella infections return year after year, placing immense pressure on public health systems and communities

These repeated health emergencies highlight the urgent need for a coordinated approach that allows Africa to generate rapid, high-quality evidence, especially during outbreaks. Although many important studies have been conducted across the region, a lot of research in Africa to date remains fragmented and isolated, limiting the ability to scale findings, sustain impact, or strengthen long-term preparedness. Strengthening resilient systems and well-coordinated regional networks for clinical research is therefore essential to ensure timely, equitable, and effective responses to future epidemics.

To build on this momentum, the **Advancing Research Capacity in West Africa (ARC-WA)** initiative was launched as part of CEPI's 100-Day Mission to proactively enhance West Africa's capacity to conduct high-quality clinical trials and rapidly generate evidence during health emergencies. Selected sites in West Africa are central to this effort, as the region is a recognized hotspot for emerging and re-emerging infections, including Lassa fever, Ebola, and other viral hemorrhagic fevers. The project aims to reinforce research infrastructure and technical expertise while establishing a sustainable clinical trial ecosystem capable of contributing to global vaccine development within 100 days of pathogen identification.



Map of Africa highlighting West African region and the locations of five selected sites in Nigeria and Sierra Leone (AEFUTHA, ISTH, ATBUTH, Owo, KGH)

ARC-WA is implemented through two complementary tracks:

- **Track A - Clinical Research Preparedness (Routine):** Strengthening Good Clinical Practice (GCP) compliance, infrastructure, and capabilities at selected clinical trial sites in Lassa-endemic countries to support vaccine efficacy trials.
- **Track B - Evidence Generation Readiness (Emergency):** Establishing sustainable frameworks and networks for a rapid clinical research response and real-time data generation during outbreaks.

Jointly led by the International Vaccine Institute (IVI) and the Medical Research Council Unit The Gambia at the London School of Hygiene & Tropical Medicine (MRCG) as Technical Coordinating Partners (TCP), ARC-WA represents a crucial step in developing a research-ready network capable of supporting vaccine research and strengthening regional epidemic preparedness.

This article highlights Track A progress, showing how participating sites have transformed their infrastructure, strengthening governance, expanded workforce skills, and deepened community partnerships. In just 18 months, Track A's achievements have laid the groundwork for a sustainable, high-quality clinical trial network and paved the way for Track B and the next phase of the ARC-WA initiative.

FROM VISION TO REALITY

After 18 months of implementation, ARC-WA has moved from concept to concrete outcomes. Facilities and institutional structures have been upgraded, operational systems strengthened, personnel upskilled, and partnerships with governments and communities have been formed across five sites in Nigeria and Sierra Leone:

- Alex Ekwueme Federal University Teaching Hospital, Abakaliki (AEFUTHA), Nigeria
- Irrua Specialist Teaching Hospital (ISTH), Irrua, Nigeria
- Abubakar Tafawa Balewa University Hospital (ATBUTH), Bauchi, Nigeria
- Federal Medical Center (FMC), Owo, Nigeria
- Kenema Government Hospital (KGH), Kenema, Sierra Leone



500 kva power backup generator delivered to ISTH in Irrua, Nigeria

Working through a structured Capacity Building Plan (CBP) that span a variety of readiness domains and cross-site technical workstreams, each site received tailored but consistent support from workstream experts, focusing on

- Infrastructure and Equipment
- Clinical Operations and Training
- Laboratory and Data Systems
- Finance
- Regulatory Readiness
- Community Engagement and Partnerships



Examples of essential equipment and supplies delivered to the sites

KEY CROSS-SITE ACHIEVEMENTS AT A GLANCE

- Five participating sites achieved “Ready” or “Mostly Ready” status, indicating strong compliance with GCP and Good Clinical Laboratory Practice (GCLP) standards.
- Five Clinical Trial Units (CTUs) and one Mobile Unit were newly constructed or upgraded with essential infrastructure, including consultation rooms, laboratories, pharmacies, and data centers.
- More than 150 new Standard Operating Procedures (SOPs) and Quality Management Systems (QMS) were developed across operational, financial, regulatory, and community engagement domains, guiding daily operations and harmonizing processes across sites.
- Over 250 personnel were trained across 15 different roles in areas from clinical operations and ethics to biosafety, data management, laboratory sciences, and community engagement.
- Community engagements were strengthened through the establishment of Community Advisory Boards (CABs) to increase local awareness, foster trust and transparency, and ensure culturally appropriate engagement.



Advanced life support training at ATBUTH, Bauchi, Nigeria



Main CTU under construction at AEFUTHA, Abakaliki, Nigeria



Community engagement at ISTH, Irrua, Nigeria



Grant management training at FMC, Owo, Nigeria

LESSONS FROM THE FIELD, BUILDING SUSTAINABLE RESEARCH SITES

ALEX EKWUEME FEDERAL UNIVERSITY TEACHING HOSPITAL, ABAKALIKI (AEFUTHA), NIGERIA

At **AEFUTHA** in **Abakaliki, Nigeria**, a brand-new CTU, designed for future expansion, is now equipped with a dedicated trial laboratory. The site is well-positioned for accreditation and quick study startup.

Thanks to its robust SOP system, a fully trained study team with 15 different roles, multiple active CABs, and a recently renewed National Health Research Ethics Committee (NHREC) certification.

Through partnerships with satellite sites, AEFUTHA has also begun to extend a clinical research network, enabling rapid collaboration.



Progression of construction from grass area to a 2-story main CTU building at AEFUTHA, Abakaliki, Nigeria

“The ARC-WA program has been the singular most transformative intervention in AEFUTHA, making our staff to possess cutting-edge skills in clinical trials, revolutionizing our infrastructure, and equipping our laboratories to detecting infectious threats with precision and speed.”

Professor Benedict N. Azuogu, Principal Investigator (PI) at AEFUTHA

IRRUA SPECIALIST TEACHING HOSPITAL (ISTH), IRRUA, NIGERIA



ISTH in **Irrua, Nigeria**, transformed an old isolation ward into a modern clinical research center designed to host Phase 1-4 trials, aligning with the institution’s long-term strategy. Through a broad range of training, more than 70 staff were trained in clinical operations, ethics, finance, and community engagement.

Improved satellite facilities and upgraded internet connectivity enable a decentralized model that links the site with surrounding communities



A satellite site at Sancta Maria with capacity to see 20 participants per day



Community engagement activity with community leaders

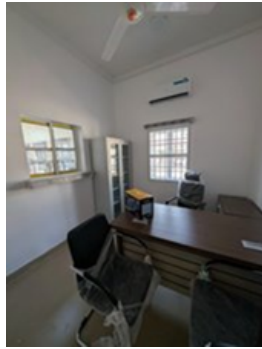
ABUBAKAR TAFAWA BALEWA UNIVERSITY HOSPITAL (ATBUTH), BAUCHI, NIGERIA

ATBUTH in Bauchi, Nigeria completed a two-story CTU capable of handling high daily participant flow. Satellite sites in Kirfi and Takanda extend research coverage to rural communities. Over 100 personnel have been trained across disciplines, supported by a comprehensive SOP system, upgraded laboratories, pharmacy, and digital systems powered by solar energy.

The site's robust governance system, enhanced grant management processes, and active CABs have positioned it as a regional leader in the execution of clinical trials.



The newly constructed CTU building, externally and internally



Tour of the CTU by Federal Minister of Health



External competence assessment of Malaria microscopists



Completion of trainings on biosafety and biosecurity



FEDERAL MEDICAL CENTER (FMC), OWO, NIGERIA

At **FMC Owo, Nigeria**, a new 23-room CTU has been established and designed to ensure smooth participant flow and accessibility. A multi-center model at the site is supported by refurbished satellite sites in Akure and Ijebu.

Laboratory upgrades, secure data management systems, and skilled personnel have further elevated the site's readiness. CABs have been institutionalized as a dynamic bridge to strengthen community trust and participation.



Visit by the Minister of State for Health Nigeria to the constructed CTU and lab



A newly constructed CTU and a molecular lab with aluminum and glass partition

KENEMA GOVERNMENT HOSPITAL (KGH), KENEMA, SIERRA LEONE

KGH in Kenema, Sierra Leone, has enhanced its trial readiness with strategic facility improvements and comprehensive, fully trained multidisciplinary team. The CTU now features dedicated spaces for screening, clinical examination, emergency management, and post-vaccination monitoring, complemented by enhanced laboratory and pharmacy capabilities. Extensive training, covering GCP, GCLP, and emergency care, ensures the team is prepared to conduct studies that are fully compliant with GCP standards.



Clinical trial facility with solar panel, solar batters, and 50 kva generator



Clinical trial simulation conducted through dry run



“ The ARC-WA program has made us better by building the necessary capacity led by us and made us stronger to respond to national epidemic in country. ”
Professor Donald Grant, Principal Investigator (PI) at KGH

A MODEL FOR INTEGRATED AND HARMONIZED RESEARCH CAPACITY

Collectively, these five sites illustrates a model for simultaneously strengthening infrastructure, expertise, governance, and community collaboration. This approach creates a strong, interconnected clinical research ecosystem that is fully equipped to support high-quality trials and respond swiftly, confidently, and collaboratively to emerging health threats.



cross-site upgrades: Fireproof data cabinets, cold-chain pharmacy, inverters, RT-PCR platforms



Different benchmarking visits



LOOKING AHEAD: RAPID EVIDENCE GENERATION IN FUTURE OUTBREAKS

Overall, ARC-WA Track A has achieved more than just building capacity for high-quality vaccine trials. It has transformed these sites into versatile, agnostic research platforms that are flexible, prepared for multi-pathogens, and ready to host diverse studies, foster new partnerships, and enhance readiness for future public health emergencies.

Track A has successfully established the foundation for Track B, which will concentrate on generating evidence during emergencies using a hub-and-spoke model. This model will connect leading institutions (“hubs”) with regional research partners (“spokes”). This next phase is designed to further facilitate rapid trial activation, cross-border collaboration, and real-time data generation to support outbreak response throughout West Africa.