eHealth
A F R I C A

Impact Report
2020

www.ehealthafrica.org

Our achievements over
the last decade

We mapped 11
Northern Nigerian
States to ease
immunization
campaign
microplanning

2013

eHA worked in
Guinea, Liberia, Sierra
Leone to support the
Ebola outbreak
response

2014

The Electronic
Integrated Disease
Surveillance and
Reporting (eIDSR)
system was
developed for Sierra
Leone and Liberia

2015

Health Camps
launched in Borno
State to increase the
uptake of polio
vaccines during
conflict

2016

117 Call Center used
for emergency
response during the
2017 Freetown
mudslide.

2017

3m+

3M+ children received
immunization using
vaccines delivered
through VDD

2018

0.5m

Half a million points of
interest mapped in
Nigeria through
GRID3!

2018

Award - winning year
for eHA

2018

Sierra Leone became
the first country in
WHO Africa region to
transition to a
comletely electronic
disease surveillance
and reporting system
using eIDSR!

2019

POLIO FREE

Africa Kicks out Wild
Polio!

2020

POLIO FREE

The World Health
Organization declares
Nigeria polio-free!

2020

eHealth Africa started
in Nigeria

2010

The first of eight polio
Emergency Operations
Centers (EOC) is built in
Nigeria

2012

1.1m

VDD, our 3rd party
logistics service
launched and 1.1M
vaccines delivered.

2014

The Auto-Visual AFP
Detection and
Reporting (AVADAR)
system was launched
to fight polio

2016

We mapped the rest
of Nigeria, through
the GRID3 project.
The largest mapping
project in Nigeria to
date!

2017

We implemented the
CDC Field
Epidemiology Training
Program (FETP) in
partnership with the
Sierra Leone Ministry
of Health and
Sanitation (MoHS)

2017

Our Impact in 2020

POLIO FREE

Nigeria declared polio free in 2020

+6,000

e-learners across Africa

6,065

registered COVID-19 cases identified through the Kano Call Center

7,228

missed settlements identified through the Vaccinator Tracking Systems/IPD Tracking

+29,984

calls made or received at the Kano Call Center for the state Emergency Operations Center. The call center increases the state's capacity to manage incoming reports of COVID-19 cases effectively, this was supported by eHealth Africa

187,148

missed children identified through the eHealth Africa Vaccinator Tracking System

eHA in pictures

"

About eHealth Africa

Our Mission

eHealth Africa's mission is to build stronger health systems through the design and implementation of data-driven solutions that respond to local needs and provide underserved communities with tools to lead healthier lives.

Our Vision

Based in Africa, we establish new standards in health delivery and emergency response through the integration of information, technology, and logistics.

Our Values

Impact and Quality: We push ourselves to maintain high standards ensuring that we produce the most meaningful results in everything we do, no matter how big or small.

Innovative Problem Solving: We maintain a worldview driven by possibilities, not limitations. We take smart risks and foster an environment where creativity and innovation thrive.

Integrity: We are honest and truthful in our work. We always do what is right, even when it is not easy. We put our values into practice and hold each other accountable.

01

Enabling Data-Driven Decision Making

From building context-specific technological tools to enable large-scale data collection to designing mobile friendly data collection forms, we provide data management support to our partners to ensure that decision-makers have access to timely and high-quality data to make decisions that improve public health.

Enabling Data-Driven Decision Making

BISKIT

Timely access to safe blood and blood products is a challenge in many regions globally, including sub-Saharan Africa. One of the major root causes is the inadequacy of the logistics behind vein-to-vein blood management.

The Blood Information System for Crisis Intervention and Management (BISKIT) project in South Africa aims to improve the supply of safe and quality-assured blood and blood products to the country's population, especially during emergencies and after a crisis.

Data Availability

Designing and developing a blood management information system based on existing IT infrastructure and expertise where feasible, crisis management plans and data derived from crisis simulation models ensure that all key stakeholders in the South African blood establishment have access to a central data-driven decision-making tool.

This tool will also be designed to enhance communication strategies that target blood donors and encourage collaboration between the different regional blood services in South Africa.

Data Use

The GIS data, e.g. locations of relevant medical/donation facilities captured by the BISKIT system, will focus on prioritizing and managing the blood supply needs of all stakeholders within the South African blood establishment.

The system will further ensure that planning data on all steps of the blood management process is accessible to secure the consistent availability of safe blood and blood products and minimize wastage.

Outcomes of the utilization of the data gathered on the BISKIT project by South African decision-makers are the improved supply of safe blood in the needed quantity at the right time and ultimately, the resilience of the blood management system in South Africa in the event of a crisis or public emergency.

"The effort and the engagement eHealth Africa has put into the BISKIT-project has been outstanding. They have set up a powerful data infrastructure that we can use for efficient communication in the project team. At the same time, we have all the tools available to collect data remotely and share them between the consortium members located in different parts of Germany. Their work provides us with a strong basis to keep the project going, even in times of travel restrictions"

*- **Alexander Pinz,** Project Manager for Vaccines and Biomedicines Paul-Ehrlich-Institut, Federal Institute*

MN Survey

The National Food Consumption and Micronutrient Survey (NFCMS) is being implemented under the overall leadership of the Federal Ministry of Budget and National Planning, the Federal Ministry of Health, and the Federal Ministry of Agriculture and Rural Development.

The NFCMS was last conducted between 2001 and 2003 using paper-based data collection tools and hand-drawn maps. Although the data recorded significant malnutrition among young children, the report was of poor quality. The data gap over the years meant that decision-makers had limited data to address nutrition challenges in Nigeria.

The new NFCMS's goal is to assess the current micronutrient status and dietary consumption patterns of key population groups. It has several key components: biomarker/anthropometry, dietary consumption, household socio-economic, household line listing, and community sensitization.

432 field teams are working within all components.

There will be multiple streams of data because of the size of the survey. Effective data management is a key factor in the survey's success.

Working closely with the International Institute of Tropical Agriculture, the lead implementing agency, and other stakeholders, we are the lead for field data management.

We play a significant role in the development of tools to support the efficient and effective execution of all components of the survey.

Our field logistics planning and monitoring tool, PlanFeld, automates field logistics. It generates detailed plans using up-to-date maps to achieve the effective allocation of resources, and near real-time monitoring on the field.

We have also customized a technological solution for biological samples temperature monitoring and for an end-to-end cold chain logistics management of over 150,000 processed biomarker samples that are expected.

Data for Action - Resolve To Save Lives

Nigeria has seven Polio Emergency Operations Centers (EOCs) established and managed by the National Primary Health Care Development Agency (NPHCDA) and 21 Public Health EOCs (PHEOC) established and managed by the Nigeria Centre for Disease Control (NCDC) as fragmented networks of Emergency Operations Centers (EOCs). PHEOCs house a dashboard for case-based surveillance used in coordinating responses to disease outbreaks.

However, there is insufficient requisite data infrastructure that makes it possible to integrate and house various sources of data that facilitate early detection and trigger a response for decision-makers.
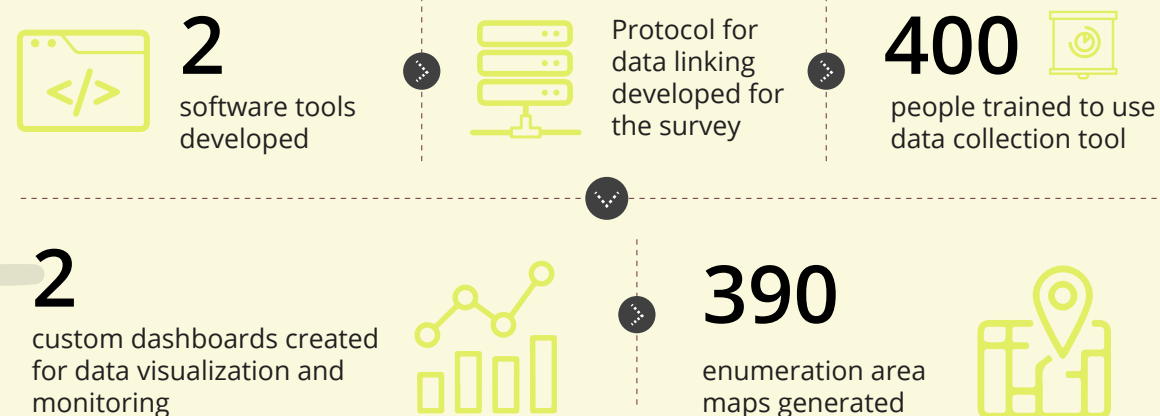
Resolve to Save Lives (RSTL), an arm of Vital Strategies, contracted eHealth Africa to address this challenge in collaboration with NCDC by implementing the Data for Action component of the Sub-National Emergency Preparedness and Response Capacity Building (SERCB) program.

The Data for Action project is a sub-component of NCDC's SERCB program. The project introduces a bottleneck approach to identify critical data needs that enable PHEOCs to detect outbreaks early enough and trigger response action that curtails and lessens the impact of disease outbreaks on vulnerable populations.

A catalytic mini-grant is then provided to target PHEOCs to address the needs identified following the bottleneck assessment. Data for Action engages high-level state health decision-makers to define their data needs and develop the capabilities of the PHEOCs to deliver on new data products that provide these decision-makers with the information needed to take critical outbreak response decisions.

The project leverages the International Health Regulation (IHR) timeliness' metrics to measure beneficiary PHEOC's ability to detect, trigger response, and control outbreaks on time. The overall aim is to support states via PHEOCs to reduce the spread of new or ongoing disease outbreaks.

Project Impact

2 software tools developed

Protocol for data linking developed for the survey

400 people trained to use data collection tool

2 custom dashboards created for data visualization and monitoring

390 enumeration area maps generated

Project Impact

2 bottleneck assessments

completed in Kano and Kebbi states to demonstrate the current response time for outbreak response across the four most prevalent disease outbreaks recorded in the two states

02

Improving Emergency Response During the COVID-19 Pandemic

Because of our extensive experience supporting government and development partners during public health emergencies, in April 2020, we were contracted to provide short-term data and logistics support to Nigeria Centre for Disease Control (NCDC) as part of Nigeria's emergency response to the COVID-19 outbreak in Nigeria.

We provided similar support to the COVID-19 Presidential Task Force and other government partners to ensure that Nigeria could respond adequately to the global pandemic.

Infection Prevention Control eLearning courses for NCDC

The 2020 COVID-19 outbreak caused the immediate need for health workers to learn the effective implementation of infection prevention and control (IPC) measures in health facilities. IPC measures prevent and limit the transmission of diseases.

In partnership with the Nigeria Centre for Disease Control (NCDC), we developed an easily accessible online IPC course for COVID-19 in Nigeria. The course's goal is to educate health workers on disease epidemiology, modes of transmission, screening, and triaging protocols, and IPC measures to break the chain of transmission.

Before the COVID-19 outbreak, most capacity-building efforts were in person, which was more expensive and limited the number of participants. Also, existing training materials were outdated and/or were not engaging.

The COVID-19 IPC eLearning course addressed these limitations. The course has interactive modules on standard and transmission-based precautions, the use of Personal Protective Equipment (PPE), and other essential components of infection control in healthcare. It is currently available on the NCDC's eLearning platform.

Metrics

12 modules developed

6,000+ learners have started the coursework.

Leveraging eLearning solutions for capacity development of healthcare workers on COVID-19 Infection Prevention and Control measures.

Implementing infection prevention and control (IPC) practices at health facilities is a recommended strategy to reduce the incidence of hospital-acquired infections and manage the spread of diseases or outbreaks.

During disease outbreaks such as the ongoing 2019 coronavirus pandemic, large-scale IPC training for frontline health workers needed to be carried out to ensure they had the knowledge and capacity to limit the spread of infection while providing care to infected patients.

As a scientist in the IPC division at the Nigeria Centre for Disease Control (NCDC), Chinedu Okorafor's job entails organizing routine IPC training workshops at health facilities across Nigeria. At the onset of the pandemic, Chinedu and his colleagues had to keep abreast of the latest findings and recommendations for preventing the transmission of the novel coronavirus, and quickly develop training materials for health workers on the COVID-19 IPC measures.

This was a monumental feat, but there was still a major challenge; the usual delivery method for IPC training sessions was through the traditional face-to-face learning method. With the social distancing and lockdown measures enforced throughout the country as a containment measure, this delivery method was no longer workable.

"In-person training was hampered by the high transmissibility of the virus, and it would have been practically impossible to reach the whole frontline health workforce in Nigeria in such a short time."

- **Chinedu Okorafor,** *Junior Scientist NiCaDe-IPC, NCDC*

In partnership with eHealth Africa, we converted the COVID-19 IPC training materials into an eLearning course and developed eleven (11) instructional videos on how to practice IPC measures (e.g. how to practice hand hygiene, how to don and doff PPE, etc).

The course features short eLearning videos and slide decks on important topics such as hand hygiene, standard and transmission-based precautions, and environmental cleaning and disinfection.

To track performance and ensure a thorough understanding of the IPC concepts, participants have to take an assessment test before and after each module. A pass score rate of at

"The eLearning course developed by eHealth Africa, as part of their support to the COVID-19 emergency response efforts has helped to increase awareness of the COVID-19 Infection Prevention Control measures and reduce healthcare-associated infections among our frontline healthcare workers".

- **Chinedu Okorafor,** *Junior Scientist NiCaDe-IPC, NCDC*

least 80% is mandatory for each assessment before progression to the next module. At the end of the course, we provide all successful participants with a certificate of completion.
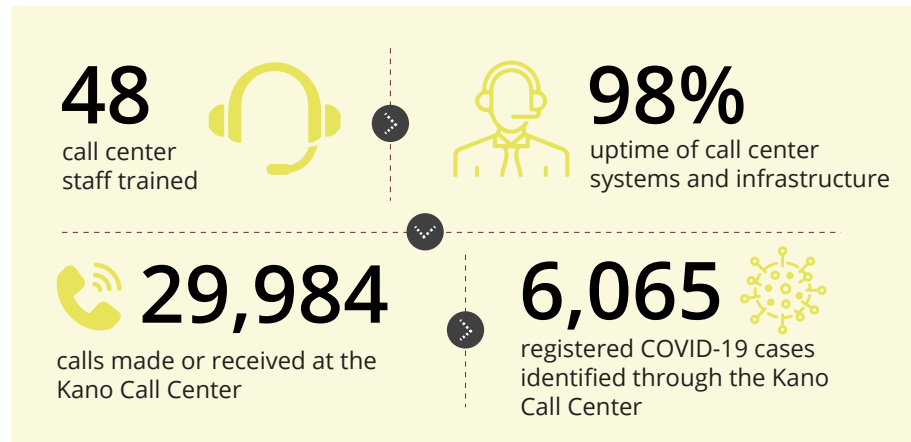
The development of the eLearning course has provided many health workers with easy access to important resources needed to enhance their knowledge to protect themselves and others during triaging and case management processes at health facilities.

"The availability of this online course allowed health workers across the country to register for the course and receive adequate training. Over 6000 persons have taken the course, and this is a breakthrough for healthcare workers' virtual education in Nigeria; I cannot overemphasize its relevance".

- **Chinedu Okorafor,** *Junior Scientist NiCaDe-IPC, NCDC*

Although targeted towards health workers, the course is available to the public through the NCDC's eLearning platform.

Kano Call Center

48
call center
staff trained

98%
uptime of call center
systems and infrastructure

29,984
calls made or received at the
Kano Call Center

6,065
registered COVID-19 cases
identified through the Kano
Call Center

We set up and supported the management of a call center in Kano State, housed at the existing Kano State Emergency Operations Center. The call center increases the state's capacity to manage incoming reports of COVID-19 cases effectively.

The State Task Force receives a list of escalated urgent suspected cases for contact tracing. Finally, it serves as a toll-free hotline to answer COVID-19 related questions.

We procured and installed the equipment at the Call Center and set up and managed the toll-free lines. To ensure the smooth management of the Call Center, we provided training for all assigned agents and supervisors.

We also conducted quality assurance of call center data and developed standard reporting based on it for the Task Force to inform their decision-making, including tracking the time between escalation and response for upward reporting.

Voice Response System

When Nigeria expected the opening of its airports, the NCDC Surveillance team worked with eHealth Africa to develop a Voice Response System (VRS).

The automated VRS enables public health workers to monitor the health condition of People of Interest (POIs) at scale. This intervention has improved the capacity of the NCDC to track, screen, and report COVID-19 cases of inbound travelers. This system automatically calls thousands of POIs daily to verify if they are symptomatic. After initial screening at the airport, asymptomatic contacts are added to a call list that automatically places daily calls to them for 14 days. The Interactive Voice Response (IVR) system detects switched-off phones, hang-ups, and no answers.

It will automatically redial until successful. It asks a series of questions to monitor for the most common symptoms of COVID-19. Call center agents receive a list of POIs with reported symptoms for follow-up.

Data collected through the system is available in real-time through an online reporting dashboard.

LoMIS - Inventory Management

NCDC in partnership with eHealth Africa has deployed the electronic inventory and health commodities management system, LoMIS Stock, to support the COVID-19 response in Nigeria.

We developed this system to support the tracking and monitoring of COVID-19 stock inventory and utilization. It provides data on commodities donated by partners to NCDC's national stockpile and provides visibility through an electronic monitoring dashboard.

Access to this information will enable NCDC and state governments to make informed decisions regarding resource planning and/or distribution through real-time data analysis and visualization reporting.

To date, we have supported the NCDC to import all historical COVID-19 stock data into the system and harmonize this with the physical COVID-19 commodity stock balance.

VRS Project Impact

82,549
calls were made to

13,653
international arrivals
since airports re-opened.

2,360
of these cases were flagged
as 'high-risk' and escalated.

1,238 hours
or 51.5 days (human hours saved
since airports re-opened

The limited availability of sample collection centers and kits are COVID-19 testing barriers that cause difficulties in accurately estimating the infection rate and inefficiencies in limiting the spread of the virus. Through a grant from the Bill and Melinda Gates Foundation, we subcontracted EHA Clinic to collect and test COVID-19 samples in the Federal Capital Territory (FCT) and Kano State.

We aimed to increase COVID-19 screening in Kano and Abuja, FCT., and provide better data for case tracking and management. Since project inception, we have provided sample collection booths in Kano

and Abuja to increase the number of samples collected and tested by Kano State and Nigeria Centre for Disease Control (NCDC). We also acquired additional Polymerase Chain Reaction (PCR) machines to increase testing capacity.

Finally, to increase testing, we donated sample collection kits to Kano State and Abuja, FCT. Present-ly, the team has tested over 4,407 samples of 6,000 sample targets. The goal is to use all donated test kits by the end of Quarter 1 2021.

Risk Communications Support to the Nigerian Presidential Task Force on COVID-19

In March 2020, the President of Nigeria, Muhammadu Buhari, formed a Presidential Task Force (PTF) on COVID-19. The PTF provides overall policy direction and ensures coordination towards a single set of national strategic objectives to address the pandemic.

The PTF also provides continuous support to the National Emergency Operations Centers (EOC) at the Nigeria Centre for Disease Control (NCDC), National Emergency Management Agency (NEMA), and other ministries and government agencies involved in response activities. The NCDC Incidence Management Plan identified risk communications as a key pillar to slow down the spread of the novel coronavirus.

We collaborated with Credo Advisory to provide strategic and technical risk communication support to the PTF to educate the public about preventive and protective measures. Our strategy uses media engagement for awareness creation, appropriate reporting and advocacy for community participation and ownership, active rumor monitoring, and counter misinformation. We develop collateral that is translated into Nigerian languages to complement health-related risk communications that NCDC is leading.

Physical Infrastructure upgrades at the National Reference Laboratory

In May 2020, the Centers for Disease Control and Prevention (CDC) Foundation engaged eHealth Africa to implement recommended infrastructure upgrades to ICT, power, and data systems at the National Reference Laboratory (NRL) and Nigeria Centre for Disease Control (NCDC) after an assessment completed in early 2020.

The scope of work critically ensured that NCDC and its staff could store, manage, access, and analyze Multiplex Bead Assay (MBA) data as part of its Integrated National Serosurveillance in Nigeria project. The work undertaken contributed immensely to the NCDC/NRL'S capacity to conduct an effective response to the COVID-19 outbreak.

Our work included implementing upgrades to Power and IT Infrastructure at the NRL and NCDC, designing and developing a data response system to be deployed at the NRL for people requesting serosurveillance data, and providing training to NRL/NCDC Data, Power and IT teams to enable them effectively manage the upgraded systems.

These upgrades have helped to improve the day-to-day work of NCDC and NRL by increasing server capacity, reducing energy/power consumption and costs, improving safety, and improving the "data approver and requester" experience through the data response system.

It also provided significant support to the ongoing COVID-19 response by improving the consistency of speed and latency of power availability and network capacity and ensuring a 24/7 working environment for the emergency response.

03

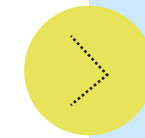## Providing power at the National Reference Laboratory

The findings from an energy audit by eHealth Africa (eHA) at the National Centre for Disease Control (NCDC) and its National Reference Laboratory (NRL) in early 2020 highlighted several challenges with the power systems at both sites.
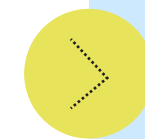

Identified challenges included:

> The lack of a proper earthing system, leaving staff and devices unprotected in cases of short circuits.

> Poor cable sizing causing the overheating of cables and high energy losses.

> The lack of a power distribution panel, state-of-the-art automatic transfer switch, and automatic voltage regulator.

> A substandard electrical power house with a poor cooling system.

John Igwe is a Facility Manager at the National Centre for Disease Control (NCDC) and monitors facility management operations and day-to-day activities. John and his team worked directly with eHA to complete several upgrade and optimization activities to improve the power systems at the NCDC headquarters and the NRL.

We installed an earthing system at the NCDC and NRL and the cables were re-organized and changed to the correct sizes to ensure optimal performance. We also provided additional backup power supply to the server room, which is critical to the functioning of the NCDC/NRL. Other project deliverables included the utilization of spray foam to close

ducts and vents to conserve energy and regulate temperature, and the installation of automatic transfer switches (ATS) with embedded energy monitoring devices.

We also installed Automatic Voltage Regulators (AVR) at the NCDC HQ and NRL to stabilize the power supply from the grid to an acceptable and safe level.

The outputs from the project activities have reduced both costs and energy consumption at the NCDC and NRL by 30%. Based on the feedback from John, the upgraded electrical systems have enhanced productivity at the NCDC and NRL in the aspects of electricity and voltage regulation.

Strengthening Health Delivery Systems Immunization

Much of our work in Nigeria in the past decade has been supporting several routine and supplementary immunization activities. The restrictions put in place to curb the spread of COVID-19 slowed down the demand for immunization services nationwide.

However, the government remained as committed to maintaining or increasing vaccination coverage rates and reaching eligible children.

We continue to work with government partners to support immunization activities aimed at eradicating vaccine-preventable diseases and strengthening health services delivery.

Strengthening Health Delivery Systems Immunization

To address the need to reach and vaccinate all eligible children in security-compromised areas of Borno State that are difficult to access by regular vaccination teams, supplementary immunization activities were launched in 2016 respectively to form part of the larger Global Polio Eradication Initiative (GPEI) program.

eHA uses satellite images, ground-truthing, and software to capture, manage, analyze, and display geographic information necessary to locate hard-to-reach settlements.

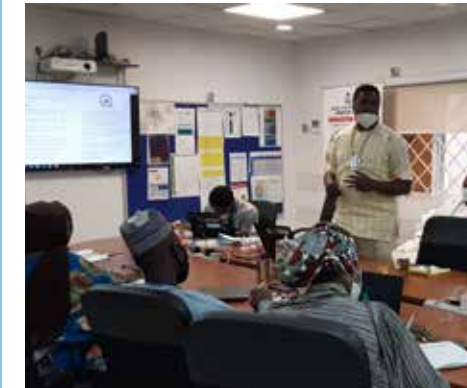This is used to develop up-to-date maps that are used for micro-planning activities by the Borno State Emergency Operations Center and for vaccination activities by field teams. In addition, the tracking of the visitation status of settlements daily is used to identify missed settlements that are immediately resolved during ongoing immunization campaigns. by field teams.

In addition, the tracking of the visitation status of settlements daily is used to identify missed settlements that are immediately resolved during ongoing immunization campaigns.

Immunization Coordination Centers in Africa

We are working with the Voluntary Service Overseas (VSO) to strengthen the ability of governments to combat Circulating vaccine-derived polioviruses (cVDPV2) and other vaccine-preventable diseases in their countries and reduce the spread of these diseases.

To strengthen governments' ability to fight vaccine-preventable diseases, we are upgrading and/or setting up functioning emergency operation centers (EOC). These Immunization Coordination Centers (ICC) will focus on the eradication of polio and providing routine immunization services.

Ensuring the EOCs are functioning requires there to be good operational management and country ownership. We will strengthen existing and set up new Emergency Operations Centers in

nine African countries.

They will ensure effective partner collaboration with federal/local government ownership and commitment.

We have completed the setting up of ICCs in 4 African countries (Burkina Faso, Liberia, Cameroon, and Côte d'Ivoire) as part of the ongoing multi-country project.

The Gates Foundation has funded the project through the Voluntary Service Overseas (VSO).
A part of setting up functioning Immunization Coordination Centers, we also built the capacity of the government staff deployed to the ICCs on how to set up use, and operate their centers.

The staff members are now well-positioned to support the technical working groups in setting up physical and virtual meetings.

The infrastructure and the trained staff will contribute to improved management of public health emergencies in these countries.

Project Impact

126,168
children vaccinated in security challenged areas as of December 2020

71%
vaccination coverage in security challenged areas

495hrs
training conducted for vaccination teams

2,550
vaccinators trained

13,284
settlements on the Master List with coordinates updated on the Geodatabase

04

Improving Polio Response through the Establishment of Immunization Coordination Centres in Africa

The 2020 COVID-19 outbreak challenged the resilience of global health systems. It created global supply chain problems and induced an economic crisis that affected everyone. In Africa, the pandemic contributed to existing public health challenges.

The continent, however, continued its efforts to end polio through continuous strengthening of its surveillance and coordination systems centered on detecting Acute Flaccid Paralysis (AFP). By August 2020, the African Regional Certification Commission certified WHO African region as wild polio free after four years without a polio case.

The Rapid Response Team (RRT) of Global Polio Eradication Initiative (GPEI) sought to improve coordination and coverage of vaccination efforts to tackle the spread of type 2 circulating vaccine-derived poliovirus (cVDPV2). To strengthen immunization coverage, polio eradication efforts focused on establishing Immunization Coordination Centers (ICCs) in high-risk countries. The RRT through the Bill and Melinda Gates Foundation supports Voluntary Service Overseas (VSO) and eHealth Africa to establish ICCs across nine countries more vulnerable to cVDPV2 outbreak. These countries are Burkina Faso, Cameroon, Chad, Republic of Congo, Côte D'Ivoire, Guinea, Liberia, Mali, and South Sudan.

There was a two pronged approach to the implementation. VSO organized the relevant Expanded Program on Immunization (EPI) teams and coordinated all vaccination efforts, while eHealth Africa (eHA) constructed and equipped a fit for purpose center to host coordination activities and interventions. A fully functional coordination center includes a conference room with video conferencing facilities and data dashboard, uninterrupted power supply, internet access, convenience facilities, kitchen equipment that support overnight coordination efforts, security systems and office space for incident management.

The ICC project kicked off in Burkina Faso. eHA conducted facility evaluation and needs assessment to understand the level of work required to achieve a world-class center in the country. By September 2020, renovation works for the ICC center begun. In December 2020, eHA handed over a fully renovated center to the Burkinabe government.

In Côte D'Ivoire ICC project involved the conversion of a disused old facility into a world-class center with requisite data infrastructure and equipment. Because of the dilapidated state of the old facility, partners believed we could only achieve the renovation in four to six months. eHA completed the project in seven weeks. According to Professor Aka Nicaise, the Incident Manager at the new ICC in Cote D'Ivoire, "this level of work would have taken four to six months. They impressed us it took less than two months".

In Cameroon, authorities settled for a disused cold-chain facility to be converted to an ICC after several deliberations. Proper renovation works started on the 13th of October 2020. We completed the work and handed the center over to the Cameroonian government in December 2020.

Work on the ICC facility in Liberia began on the 2nd of November 2020 with stakeholder engagements, facility identification, evaluation and renovation. We completed the project within 8 weeks and handed over to the Ministry of Health in Liberia on the 19th of January 2021. eHA trained personnels on managing the facility and ensuring the full functionality of all the equipment installed.

Amid a very challenging operating environment fraught with political unrest, changes in political leadership in some target countries, insecurity, restrictions in international fund transfer, personnel shortage, consistent change of project scope, a short delivery time, and other challenges posed by the pandemic, eHealth Africa completed the construction of four Immunization Coordination Centers in four countries by the end of December 2020. These are the first immunization coordination centers in most of these countries.

By successfully achieving the construction of these centers in 2020, and with five other countries in the pipeline, eHA has provided a decent, safe space to ensure immunization campaigns are planned and monitored for success, and relevant teams have a conducive operating environment.

Vaccinator Tracking Systems/IPD Tracking

Since 2012, eHA's Vaccination Tracking System(VTS)/ Immunization Plus Days (IPDs) tracking project funded by the Bill and Melinda Gate Foundation (BMGF) has been supporting the government of Nigeria and the Polio Eradication Initiatives (PEI) with the tracking of vaccination activities during IPDs and Outbreak Response (OBR).

The project was designed to contribute to the eradication of polio in Nigeria through the use of geospatial technology through the provision of geospatial data collection and management, technology infrastructure, logistics and implementation expertise, and human capital. The aim is to track vaccination teams to ensure all eligible children are reached and vaccinated during the immunization campaign.

In 2020 the project supported the tracking of five rounds of IPDs and OBRs in Borno, Anambra, Lagos, Sokoto, and Zamfara State. The project also supported the piloting of GIS tracking for four cycles of the Seasonal Malaria Chemo-preventive campaign for the 2020 Round in Borno State.

Project Impact

5 States tracked

122 LGAs tracked

44,704 settlements tracked

7,228 missed settlements identified

187,148 missed children identified (GIS estimation)

Vaccine Direct Delivery

Vaccine Direct Delivery (VDD) is a third-party logistics service that we offer to State Primary Healthcare Development Agencies in Nigeria. This service provides more efficient distribution of vaccines and dry commodities from state cold stores to health facilities at the last mile.

Using our LoMIS app, VDD eliminates the data errors associated with paper- based data collection by automating the vaccine ordering process. The service provides decision-makers with accurate, near real- time visibility of immunization commodities in transit.

This year in Sokoto State, our health delivery officers also collected data on the status of cold chain equipment at each health facility. With the data, stakeholders identified faulty cold chain equipment and make timely repairs.

This access to more real-time data has helped the state improve vaccine stock management, which increased routine immunization coverage.

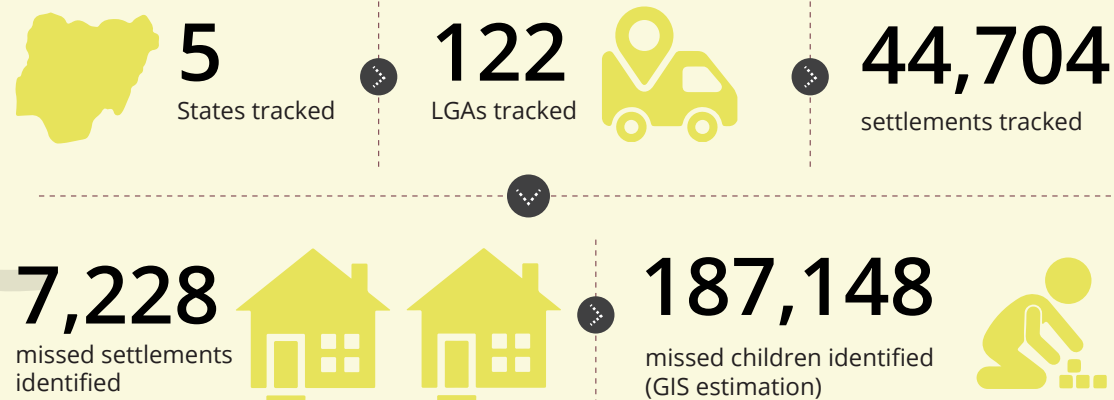**5,126,338** vaccines delivered via VDD

1,393,953 children immunized in Sokoto and Zamfara state

05

Strengthening Health Delivery Systems Logistics, Physical Infrastructure & Operational Support

Borno State Gender Based Violence Call Center

Borno State has been in a protracted crisis since 2009 because of the Boko Haram insurgency. The insurgency has left most people in Borno vulnerable with millions of people displaced from their homes, losing their source of income and with limited food, healthcare and other resources. These challenges have led to an increased risk of gender based violence (GBV). The COVID-19 pandemic further increased the risk of GBV.

To address the growing risk of GBV in Borno, the Borno Gender Based Violence Call Center was created to increase the institutional capacity of the Borno State Government to improve access to Gender Based Violence (GBV) case management for survivors in the state through the Borno Ministry of Women Affairs and Social Development (MWASD) and the Borno State Ministry of Health (SMOH).

The Nigerian Humanitarian Fund (NHF) provided funds for the call center, and we, in partnership with the Norwegian Church Aid (NCA), have set up and will manage a functional state wide GBV case management call center to complement existing efforts for case management across the state which will improve access for survivors.

Remote data collection with Integration GIS

According to the standard for operations in most health centers, the World Health Organization (WHO) states that most health centers require energy for water supply, temperature control, lighting, ventilation, and clinical processes. There is a need to identify the gaps in energy sources of primary health centers in relation to needs/consumption to improve service delivery dependent on energy supply.

The COVID-19 pandemic made traditional in-person surveys impossible, and completing the surveys required an unorthodox method. We worked with INTegration to develop virtual questionnaires and administer the surveys remotely during the two phases of the project. The survey assessment initially piloted in 10 health facilities across seven Local Government Areas (LGAs) in Kano State. And in the second phase it expanded to more health facilities in two states.

Health Telematics Infrastructure - Tanzania

In Tanzania, the detection, diagnosis, treatment and follow-up of infectious diseases such as TB and HIV in rural, remote and resource-limited settings is a major challenge. This ultimately makes most patients incapable of being a part of or drop out of the diagnosis and treatment process or cycle.

With funding from the German Agency for International Cooperation (GIZ) under the scheme "University and Hospital partnerships" and led by Charité–Universitätsmedizin Berlin, eHealth Africa is serving as the IT partner to design and develop a custom-built connector adapted to the Health Telematics Infrastructure to improve HIV and TB diagnosis and treatment in Tanzania.

This model will serve the catchment area/districts around St. Francis Referral Hospital and Ifakara Health Institute, Tanzania and will be later scaled up to similar settings.
The HTI Workflow concept will enable; the electronic registration of patient or disease suspect even within remote settings with low-bandwidth or unstable internet conditions, tracking samples collected from patients, sending test result via SMS to patients and monitoring patients' treatment progress.

This project seeks to improve HIV and TB diagnosis and treatment in rural Africa through the design, implementation and evaluation of a new health telematics system adapted to local healthcare needs in a rural Tanzanian setting.

Warehouses to support Humanitarian partners

We operate warehouses to provide humanitarian logistics and supply chain services to support humanitarian organizations as they work to help those affected by the ongoing insurgency in Northeast Nigeria and work towards achieving the United Nations' Sustainable Development Goals of No Poverty and Zero Hunger.

The warehouses in Kano serve as first-mile, vendor drop-off location for Local purchases and Distribution Center/hub to Borno and Yobe with a combined storage capacity of over 12,000 SQM, from the inception of the project in 2017, the eHealth/WFP warehouse project in Kano have handled over 700,000 Metric Tons of food commodities.

The Ngala Common Storage is a last-mile temporary storage hub for Humanitarian partners who provide humanitarian aid to the Internally Displaced Persons (IDPs) in the host community for storage of relief items temporarily before they are distributed to the beneficiaries. This hub has handled over 2,400 MT (2,300m3) of Non-Food Items (NFIs) from its inception in September 2020. The Ngala Common storage capacity currently managed by eHealth Africa is 880 SQM Mobile Storage Units (MSUs).

Our Partners

Bill and Melinda Gates Foundation (BMGF)

Borno State Primary Health Care Development Agency (BSPHCDA)

Centers for Disease Control Foundation (CDCF)

Centre For Policy Research and Development Solutions (CPRDS)

Charite University of Medicine

Credo Advisory

Development Alternatives Incorporated (DAI)

Free University Berlin, Germany, Institute of Informatics

German Federal Ministry of Education and Research (BMBF)

Integration

Intellectual Ventures/Global Good

International Foundation Against Infectious Diseases in Nigeria (IFAIN)

International Institute of Tropical Agriculture (IITA)

Kano State Government

Kano State Primary Health Care Management Board

Ministry of Health and Sanitation (MoHS)

Muenster University, Germany, Information Systems Department

National Primary Health Care Development Agency

Nigeria Center for Disease Control and Prevention (NCDC)

Norwegian Church Aid (NCA)

Novel-T

Paul-Ehrlich-Institute, German Federal Institute for Vaccines and Biomedicines

Sokoto State Primary Health Care Management Board

South African Health Products Regulatory Authority

South African National Blood Service

Technical University Darmstadt, Germany, Information Systems Department

ThinkMD Inc.

University of Nebraska Medical Center (UNMC)

U.S. Centers for Disease Control and Prevention

Vital Strategies

Voluntary Service Overseas (VSO)

Washington State University (WSU)

World Food Programme (WFP)

World Health Organization (WHO)

The effort and the engagement eHealth Africa has put into the BISKIT-project has been outstanding. They have set up a powerful data infrastructure that we can use for efficient communication in the project team. At the same time, we have all the tools available to collect data remotely and share them between the consortium members located in different parts of Germany. Their work provides us with a strong basis to keep the project going, even in times of travel restrictions

- **Alexander Pinz,** *Project Manager for Vaccines and Biomedicines Paul-Ehrlich-Institut, Federal Institute*

The availability of this online course allowed health workers across the country to register for the course and receive adequate training. Over 6000 persons have taken the course and this is a breakthrough for healthcare workers' virtual education in Nigeria; its relevance cannot be overemphasized.

- **Chinedu Okorafor,** *Junior Scientist NiCaDe-IPC, NCDC*

This level of work would have taken 4-6months. We are impressed it took less than two months.

- **Professor Aka Nicaise,** *Acting Incident Manager, Côte D'Ivoire, Ministry of Health and Public Hygiene*

National Epidemic preparedness and response will be incomplete without the ownership and capacity at the state level. The work being done by eHealth Africa in collaboration with the states is a critical piece in ensuring that subnational preparedness is well defined and prioritized in order to save lives by preventing, detecting, and responding to outbreaks timeously.

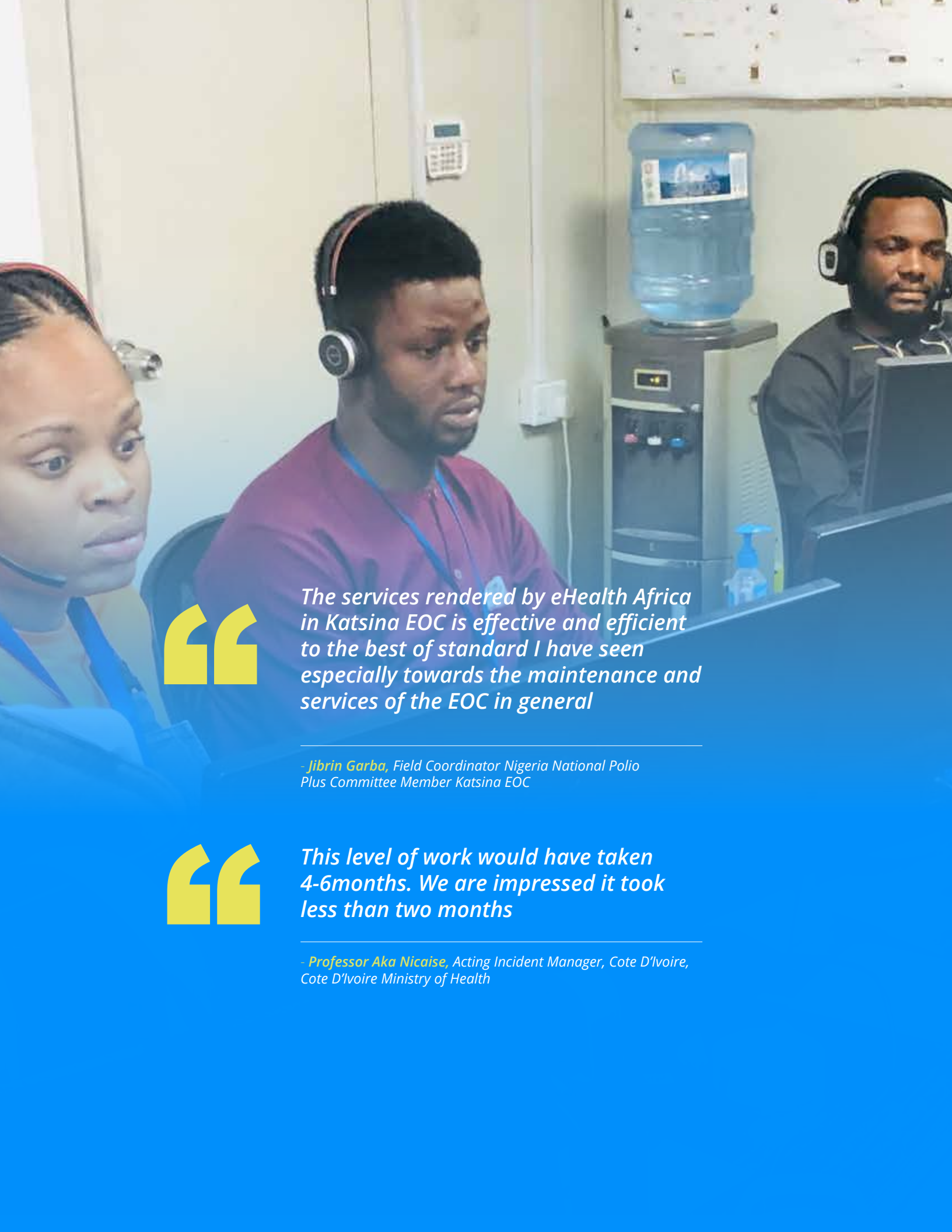- **Dr. Emmanuel Agogo ,** *Country Director, Resolve to Save Lives (RTSL)*

We truly appreciate eHA's key role in providing one of the best EOC facilities used in the Polio eradication initiative coordination and responded to other outbreaks such as Lassa Fever, CSM, Measles, and now Covid-19 Pandemic.

- **Dr. Imam Wada Bello ,** *Director Medical Services, Kano State Primary Health Care Management Board Former Director Public health & Disease Control, State Ministry of Health Former Incident manager, Kano EOC*

In our quest to slow down and stop the transmission of Covid -19 in Nigeria, eHA was excellent in leveraging on the lessons learned in delivering a WPV free Nigeria on the platform of Polio Emergency Operation Centers in Nigeria.

 - **Dr. Usman S. Adamu ,** *Incident Manager, NEOC/Team Lead, COVID-19 Command Centre, National Primary Health Care Development Agency*

The services rendered by eHealth Africa in Katsina EOC is effective and efficient to the best of standard I have seen especially towards the maintenance and services of the EOC in general

- *Jibrin Garba, Field Coordinator Nigeria National Polio Plus Committee Member Katsina EOC*

This level of work would have taken 4-6months. We are impressed it took less than two months

- *Professor Aka Nicaise, Acting Incident Manager, Cote D'Ivoire, Cote D'Ivoire Ministry of Health*

eHealth provides excellent, effective, and efficient services in running the affairs of Katsina EOC. The achievement is made possible by the highly committed, hardworking, and extraordinary professionals staff working for eHA. I always admire the level of professionalism that deserves my admiration and commendation. Thank you eHealth Africa for making our work simple

- **Dr Sulieman Haladu,,** *Team Lead AFENET, Katsina EOC*

GIS tracking in security-challenged areas of Borno was pivotal to the Polio-free Certification of Nigeria. With tracking, it was easy to tell which communities were reached with polio vaccination and those that were not reached

- **Bamusa Bashir,** *Access Consultant, World Health Organization (WHO), Borno*

The services rendered by eHealth Africa in Katsina EOC is effective and efficient to the best of standard I have seen especially towards the maintenance and services of the EOC in general

- **Jibrin Garba,** *Field Coordinator Nigeria National Polio Plus Committee Member Katsina EOC*

The support we've had from eHealth Africa on the creation and sustaining the functionality of the PHEOC was incredible in every meaning of the word

- **Dr. Umar Yahuza,** *Kano PHEOC Call center coordinator &Project coordinator Accelerating Nutrition Results in Nigeria*

This level of work would have taken 4-6months. We are impressed it took less than two months
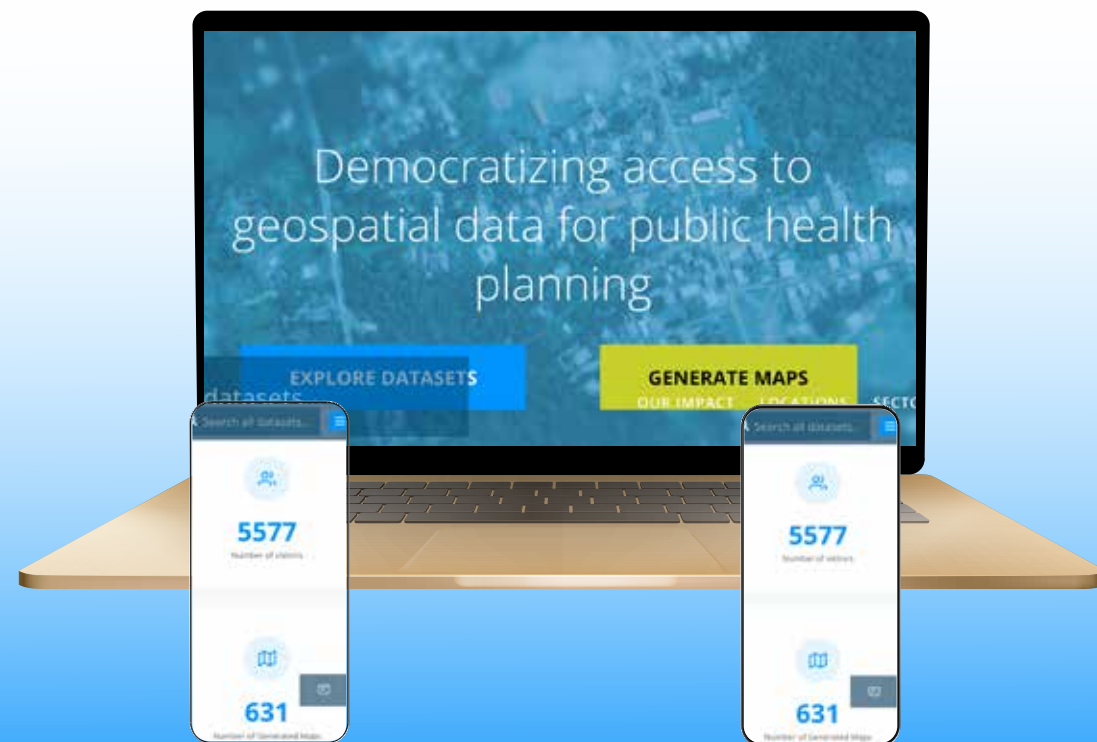
- **Professor Aka Nicaise,** *Acting Incident Manager, Cote D'Ivoire, Cote D'Ivoire Ministry of Health*

La Meilleure Salle De Conférence En Ligne Au Burkina Fas

- **Dr. Balkisa Hama Modibbo,** *GPEI Coordinator / WHO Polio Coordination Burkina Faso World Health Organization (WHO)*
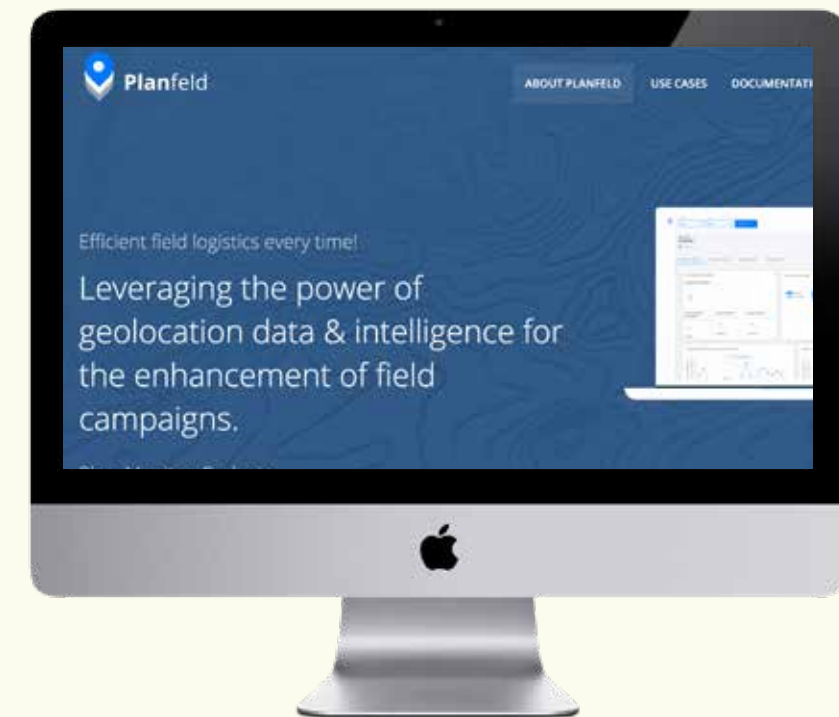
06

Introducing

Data Portal

During the past decade, we collected over **3 million data records** and have stored them in a data portal. This data portal gives free access to geospatial data for public health planning and decision making.

Planfeld

For the past decade, we worked with various partners and stakeholders in West & Central Africa to implement field interventions, especially with polio eradication efforts. We provided technical support with micro-planning and near real-time coverage calculations to increase accountability of vaccinators and provide visibility to decision-makers during immunization activities.

After years of generating similar micro-plans, we knew the process in and out and decided that to make the process easier. Leveraging our experience, our expertise, and the available geospatial data in Nigeria, we developed Planfeld to automate this process. PlanFeld is a web-based application that helps you plan field logistics for public health interventions. It makes all aspects of planning field logistics easier, from planning large-scale data collection exercises to delivering targeted health services.

We designed it with the end user in mind and removed all the technical details that previously required a GIS specialist to complete. Now decision makers can generate robust plans, monitor field interventions, and make improved decisions in near real-time.