



GOING THE DISTANCE

OUR BORNO STORY

2016 - 2019



An accountability officer receiving used vials after a vaccination round

Tama sugo diniabe

Hope is the pillar of the world.

Kanuri Proverb



A baby is vaccinated at the flag-off ceremony of an Immunization Plus Days activity in Maiduguri, Borno State.



Introduction

Nigeria had been polio free for 2 years, (July 2014 to July 2016) when four wild poliovirus type one (WPV1) cases were discovered in Borno State. In response, the Nigerian Government declared the outbreak to be a national public health emergency; and the neighbouring governments of Cameroon, Central African Republic, Chad and Niger declared a regional public health emergency for the Lake Chad sub-region.

Due to the Boko Haram insurgency in Borno, inaccessibility as a result of insecurity poses a great risk and impediment to the global polio eradication efforts. The government of Nigeria, in close collaboration with World Health Organization (WHO), the Bill and Melinda Gates Foundation (BMGF), Center for Disease Control (CDC), UNICEF, eHealth Africa (eHA), Solina Health and other partners, launched robust response strategies to vaccinate eligible children in security compromised areas and this led to the inception of polio interventions in the security challenged areas, in addition to the National Immunization Plus Days (NIPDs) and Sub-National Immunization Plus Days (SIPDs), to reach children in partially and inaccessible settlements respectively with the polio vaccine.

Our Mission

Our 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

Our Vision

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



Debriefing session at Jere Local Government Area, Borno State before the house to house visits during the Immunization Plus Days (IPDs)



eHA's Role in Borno

Since the commencement of our partnership with Borno State, our focus has been on providing accurate, near real-time data to help health system administrators to make timely and impactful decisions for improved health care delivery.

Using our expertise in data management solutions and Geographic Information Systems (GIS), we provide vaccinators and health teams with up-to-date maps so that they can plan and implement health outreaches and campaigns. During Supplementary Immunization Activities (SIAs) such as Immunization Plus Days and Outbreak Responses, we monitor the activities of polio vaccination teams in accessible and security-compromised areas using Geographic Positioning System (GPS)-enabled android phones.

We also collect and analyze geospatial data on the movements of Routine Immunization teams in security-challenged settlements so that we can provide the State Primary Health Care Development Agency with information about settlement reach, and antigen and vial usage. In addition, we provided logistics support to humanitarian efforts by managing food hubs and common storage facilities where partner organizations can store supplies for onward distribution to displaced populations.

To ensure that these interventions are sustainable, we build the capacity of our partners to collect, analyze, utilize and store data for informed decision making.



Children playing in Borno State



Our Impact in Borno



2,474,000

children estimated immunized in both accessible and security-compromised areas



82.9%

targeted settlements reached - 18,713



202+

hours spent in capacity building activities



26,255

(13,240 and 13,015 Master List of Settlements without geocoordinates and Machine name features respectively) settlements named



24,705.47

metric tons of food stored

Health camps boxes being packaged for deployment





Health Camps

Health Camps was a demand creation intervention that was implemented by eHealth Africa (eHA) with funding from the Bill and Melinda Gates Foundation (BMGF). The goal of the project was to fill gaps in access to health services while increasing the overall uptake of Oral Polio Vaccines by supplementing the monthly Immunization Plus Days (IPDs) and other polio interventions targeted at security-compromised areas, with the provision of essential medicines and services. It was also a strategy for addressing cases of refusal of polio vaccines by heads of households.

The prioritized settlements were those which had not been reached by vaccination teams in a long time and those with limited access to health facilities due to insecurity.

eHealth Africa procured, packaged and distributed essential medicines to vaccination teams across the State, utilizing data to ensure optimal distribution in the targeted communities. The essential medicines were identified and approved by the Borno State Primary Health Care Development Agency (BSPHCDA), World Health Organization (WHO), and the United Nations Children's Fund (UNICEF).

1,599,600

patients served during health camps.

155

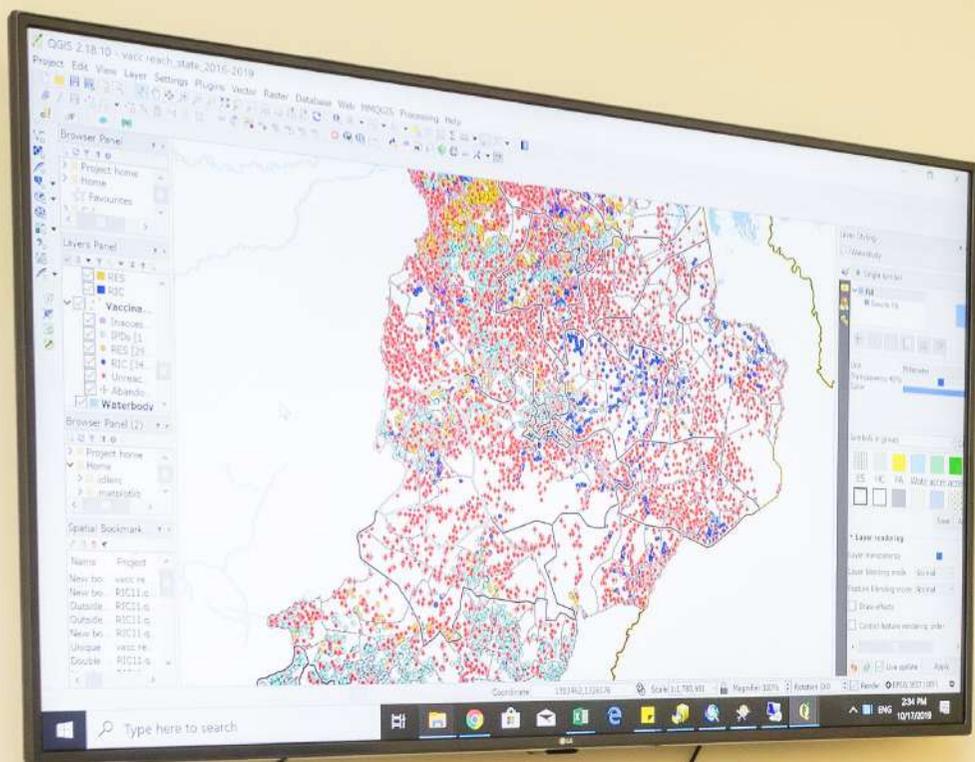
clinicians trained to administer care during Health Camps

17,200

health camp bags packaged and delivered for Borno State Government

10

Local Government Areas in Borno State covered during Health Camps



Members of our Geographic Information Systems (GIS) team in Borno state review a settlement map



GIS Data Collection

Geographic Information Systems (GIS) data provides health systems with accurate location data that can help decision makers and health workers to plan and deliver health interventions efficiently. This is especially vital in emergency situations where insecurity and rapid migration may hinder people from accessing healthcare at health facilities.

Over 26,255 settlement names and geo-coordinates were collected in Borno between 2017 and 2019 as part of data collection efforts to enrich the GIS database and enable more accurate tracking of polio intervention. Data was collected to get names for the machine named settlements already on the geodatabase (GDB) and to collect geocoordinates of settlements on the Master List of Settlements (MLOS).

Data collection was included as a component of all the polio campaigns in both accessible and security-compromised areas as well as dedicated data collection rounds by eHA consultants and field operations staff. Field collected data are processed and validated via a defined GIS algorithm to ensure that the settlement data collected are from the right locations. Verified settlements locations are then added to the Geodatabase (a compendium of all settlements in Borno).

26,255

settlements without geocoordinates or machine-named features collected or named.



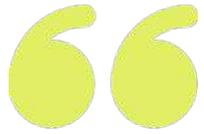
Mohammed Gambo

No Settlement Too Far, Going the Distance to Eradicate Polio

The discovery of the wild poliovirus in July 2016 in the State of Borno, after more than two years without reporting a case, shocked the eradication endeavors in Nigeria. Inaccessibility as a result of insecurity caused by Armed Opposition Groups (AOGs) poses a great risk and impediment to the global polio eradication efforts.

The biggest challenge faced by the Local Government Area (LGA) teams was reaching missed children in the security challenged areas in Borno, mainly because their locations (geo coordinates) were unknown. The lack of distinct ward boundaries, further, exacerbated this issue, as LGA teams were unclear on their areas of coverage and responsibility. Additionally, for the farther and hard to reach settlements, it was logistically impossible to maintain vaccine integrity due to the unavailability of refrigeration units or ice packs.

Mohammed Gambo, the Local Immunization Officer (LIO) in Konduga Local Government Area of Borno State faced these battles regularly as he shouldered the responsibility of planning, implementing and monitoring immunization campaigns across the 11 wards in his LGA.



Before 2016 we didn't have geo coordinates to identify abandoned or inhabited settlements. We were ignorant of geo-coordinates, boundary adjustments and even the numbers of settlements we have. The positive impact of eHA cannot be overemphasized, formerly when we sent out our teams for vaccination, they didn't cover the expected areas, but with the assistance of eHealth Africa, we are able to monitor their movement through the Vaccinator Tracking System. We are now also able to understand coordinates and boundary adjustments.

-Mohammed Gambo

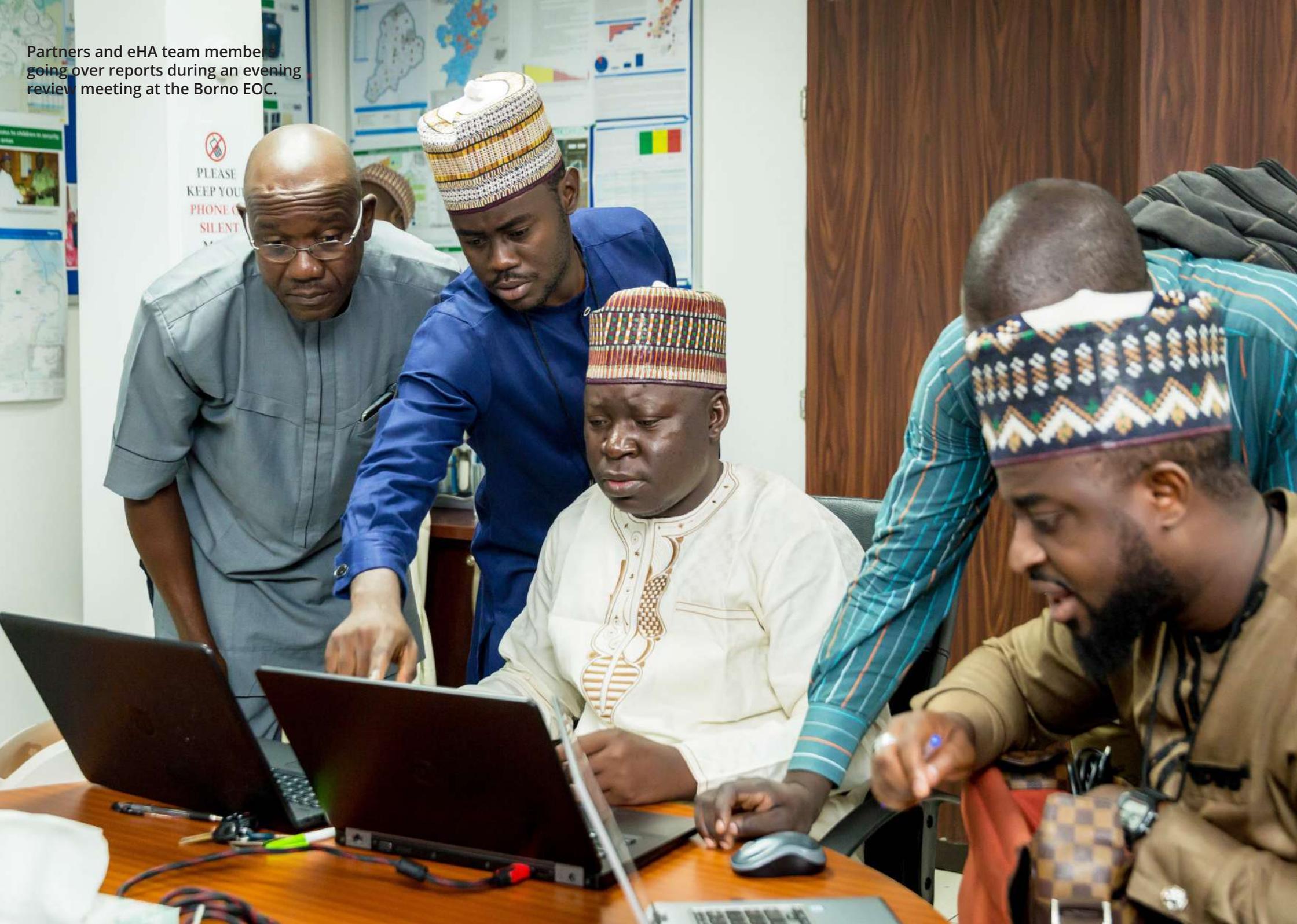
In 2016, eHealth Africa along with other partners such as the World Health Organization (WHO), Bill and Melinda Gates Foundation (BMGF), eHealth Africa (eHA), Solina Health, U.S. Center for Disease Control (CDC), UNICEF collaborated with the government of Nigeria to launch robust response strategies to expand polio vaccination from accessible areas to inaccessible areas in Borno State. eHA provided advanced GIS technology and an able team of field officers to track reached settlements using mobile devices so as to provide geo-evidence of visits by the vaccination teams. eHA consultants also worked closely with the LGA teams to collect geo-location and ever-changing habitation and security information for settlements to enable efficient planning of campaigns across varying accessibilities; thus ensuring that any missed settlements are factored into the next campaign.

Gambo and his team are better able to ensure the accountability of vaccination teams, using mobile applications provided by eHA. The applications help them to track vaccination teams, and to locate hard-to-reach settlements leading to greater immunization coverage in Borno State. In addition, eHA consultants are involved at every stage of the lifecycle of campaigns and provide post-campaign feedback using maps, which allows Gambo to make data-driven and informed decisions about future interventions.

Thanks to the work of eHealth Africa and other partners, more hard to reach settlements are being covered. Since March 2017 over 374,000 children have been vaccinated during the special interventions targeting security-challenged settlements.

The meticulous tracking done on settlement visitation done over multiple campaigns has also led to a dramatic rise in the coverage of settlements during the Immunization Plus Days (IPD) campaigns. This proves beyond any doubt, that we are truly going the distance in our work to eradicate Polio in Borno state and Nigeria.

Partners and eHA team members going over reports during an evening review meeting at the Borno EOC.



Capacity Building

for the Borno State Ministry of Health and Borno State Primary Health Care Development Agency

The Borno State government launched several initiatives to strengthen healthcare delivery which in turn increased the demand for accurate and reliable data from and by all levels of health administration in the state. This data is critical for administrators and policymakers to design and implement impact-driven strategies. eHealth Africa was commissioned by the State Ministry of Health to revamp the Health Data and Information Management System (HDIMS) and build the capacity of relevant personnel to access, manage and utilize the data to improve health outcomes in the State.

To achieve this, eHA carried out a needs assessment exercise at the commencement of the project to identify and understand health data management gaps, needs and challenges in the State. Based on the identified gaps, eHA renovated and equipped a state of the art health data and information office with a 24-hour power supply and internet access for state monitoring and evaluation officers, and data officers.

For four months, eHealth Africa trained relevant personnel of the Borno Ministry of Health (MOH) and Borno State Primary Health Care Development Agency (BSPHCDA) to use computers and to collect, analyze and manage health data in a series of classroom-based, hands-on workshops.

At the end of the classroom engagement, eHA provided an elearning platform so that learning could continue even after the training period.

130

**hours spent in training
over a 4-month period**

22

**staff of Borno MOH and
BSPHCDA trained on data
management for four months**

Vaccinators visit a house for immunization





Polio Interventions

in Security-compromised Areas

The Borno State Government and polio eradication partners launched several strategies targeted at security-compromised areas to complement the routine House to House vaccination campaign (IPDs).

The goal of these initiatives is to expand polio vaccination and surveillance coverage in hard to reach settlements (i.e. security challenged areas) in the state and to ensure that all eligible children under the age of five are immunized.

eHealth Africa provides the Geographic Information Systems (GIS) data that is used to plan and track these interventions for monitoring and reporting purposes. A total of 36 rounds of vaccinations were implemented across security- challenged areas in Borno between 2017 and 2019.

374,000

**Children immunized in
security-compromised
areas**



Expanding Vaccination & Surveillance in Hard-to-reach Areas of Borno State with Geographic Information System

After three years without a reported case of Wild poliovirus, Nigeria is on the brink of being declared Polio free. Polio eradication partners agree that surveillance and vaccination activities need to be expanded and strengthened in order to strengthen herd immunity and completely halt the transmission of the virus. However, the insurgency in Northeast Nigeria—now in its tenth year—has posed a serious challenge to accessing settlements for both polio vaccination and surveillance activities in Borno State. Considering the security risks involved, it was imperative to plan and specifically target hard-to-reach (HTR) areas and, more importantly, provide geo-evidence of reach, which is a requirement for certification.

The World Health Organization (WHO), in collaboration with the Global Polio Eradication Initiative (GPEI) partners and under the aegis of the Polio Eradication Operations Center (PEOC), conceived the idea of employing community informants (CIs) to complement the existing strategies in the HTR areas. Dr. Audu Idowu, the WHO Borno state coordinator, is responsible for overseeing the CI initiative across the state.

This involves developing targets, planning, and overseeing the implementation and monitoring of all aspects of the program from logistics and training of informants to providing tenable evidence of reach in areas visited by the CIs.

Since the last quarter of 2018, eHealth Africa (eHA) has been providing technical support and expertise in geospatial data collection and analysis to the CI initiative in Borno State from the planning phase to the post-implementation phase, thus, creating feedback loops that yield inputs for future implementations.

eHA provides the community informants with mobile devices that use advanced geographic information systems (GIS) technology to passively record reached settlements and, hence, provide geo-evidence of visits. These devices are fitted with GIS tracking apps: a Vaccination Tracking System (VTS) app that automatically registers the location of the carrier and an Open Data Kit (ODK) for active data collection of settlement attributes including geolocation.

Additionally, detailed maps showing points of interests e.g. road, water bodies, health facilities, farms, etc. and settlements reached (from the VTS and ODK) and unreached by CIs are provided on a monthly basis. These serve as feedback maps as well as a planning guide for future implementations and reference points to evaluate the program's impact and coverage, through indicators like the total number of settlements visited and the number of settlements visited for the first time.

The introduction of GIS tracking to the CI initiative has significantly improved the vaccination and surveillance coverage in hard to reach areas and has brought Nigeria a step closer to being certified polio-free.



When the CI initiative first started, it was difficult to measure the progress of the intervention until we collaborated with eHealth Africa. Their technical expertise has significantly contributed to guiding the program's focus on unreached HTR settlements and measuring impact.

- Dr Audu Idowu

As a result of this initiative, polio vaccination and surveillance activities have been conducted in 1772 HTR settlements so far, with 103,473 children vaccinated with the Polio vaccine. 323 of these settlements were reached for the first time with polio vaccination. Additionally, to date, the CI teams have reported 125 suspected cases of Acute Flaccid Paralysis (AFP), a surveillance indicator for the active search of the disease.

These results indicate that GIS technology, when combined with contextual insight and cooperation with local knowledge, offers increased visibility and accountability at the most granular level. This can be extended effectively beyond polio-specific projects to other health interventions, thus ensuring continuity and sustainability of processes put in place for the Polio program and improving health outcomes long after the world is declared polio-free.



The Indigo team making a presentation to the Borno Honorable Commissioner.

Protect your child from deadly diseases:
... your child against measles



Indigo Deployment

A major challenge faced by the immunization programs in Borno is poor access to reliable cold storage for fixed sessions at health facilities without refrigeration equipment and for outreach immunization sessions in communities that are too far for ice-based cold storage. To address these challenges, Global Good worked with eHealth Africa to provide rechargeable and portable vaccine carriers to the Borno State Primary Health Care Development Agency (BSPHCDA) to support polio interventions and routine immunization campaigns.

Indigos, as they are called, reduce the risk of cold chain rupture in the vaccine supply chain by independently maintaining a vaccine compartment at 2-8 temperature for an extended time period with the flip of a switch. Using Indigo, vaccines can be delivered to hard to reach areas and security challenged areas without the need to replenish ice in the field. This reduces the risk of vaccine damage and logistics costs during implementation.

All Indigo deployments and training sessions to vaccination teams are managed and conducted by eHA. eHA also manages a charging facility where the Indigo units can be recharged after deployments.

66

Indigo deployments from Jan to Oct 2019

52

Indigo units provided to Borno State to support Routine Immunization and various polio interventions in Borno State

221

new settlements reached with Indigo as the primary vaccine carrier in 8 LGAs across Borno

12,236

children immunized with vaccines delivered using Indigo



Our GIS team examining a settlement map

Missed Settlement Tracking and Analysis (MISTA)

The volatile security situation in Borno often times leads to changes in the daily implementation plan (DIP) of Supplementary Immunization Activities (SIAs) at the LGA, which leaves a large number of settlements missed at the end of the campaigns. To address this, missed settlements are reported at the end of the campaign period so that they can be scheduled and reached during mop-up days.

Several factors pose challenges to reaching these missed settlements. Apart from the disparity between the lists of settlements used at the state and the local government levels, the number of missed settlements was usually too large to factor into only a few mop-up days.

eHealth Africa developed the Missed Settlement Tracking and Analysis (MISTA) tool to support the Borno State Primary Health Care Development Agency (BSPHCDA) to combine dynamic planning and changes in daily implementation plans (DIPs) at LGA with the daily monitoring of settlement visits. Using the tool, health workers, the government and decision makers can generate and present visitation maps and analyze visitation results during daily review meetings so that they can take prompt actions.

This aids the teams in planning visits to missed settlements on subsequent campaign days rather than waiting till mop-up days. The result is that less missed settlements are carried over into mop-up days, increasing the chances of reaching them and in turn, the coverage rates.

1%

of settlements missed after campaign, reduced from 22%

49%

of missed settlements resolved before the end of campaign, increased from 8%



Dr Aliyu Shettima

Tracking Chronically Missed Settlements in Borno State

Due to the vulnerability in Borno State, the National Emergency Operations Center (NEOC) launched targeted polio immunization activities in the state, to increase herd immunity and stop the transmission of the poliovirus.

The bulk of the work lies on the shoulders of Dr. Aliyu Shettima, the Borno State Incident Manager. He is responsible for translating and adapting the National Polio Eradication Plan to suit Borno's peculiar contexts. In collaboration with partners, he develops targets, plans, implements and monitors immunization campaigns across the state.

Apart from the security risks which made some local government areas (LGAs) in Borno state very hard to reach by vaccinators, tracking missed settlements was another challenge. The number of chronically missed settlements— settlements missed in three consecutive campaigns—was increasing due to the inability to follow up on missed settlements between campaigns. Additionally, the accessibility of settlements was frequently changing and so, Dr. Shettima and his team were faced with the arduous task of constantly adjusting the micro plans for various interventions.



Before 2018, it was very hard to track the settlements that were missed on a daily basis. Another pressing issue was that accessibility to a settlement could change in a matter of days, depending on the security condition and so we always had to adjust the micro plan for our interventions. This made it very difficult to follow up on missed settlements and sometimes, some settlements with eligible children would be missed in three consecutive campaigns. This posed a serious threat to the eradication of polio in Borno state. The MISTA tool was a game-changer because it helped us to know the number of settlements missed on a daily basis, so that they can be visited either during the campaign or scheduled for the next campaign.

- Dr. Aliyu Shettima

Since 2016, eHealth Africa (eHA) and other partners including the World Health Organization (WHO), United Nations Children's Fund (UNICEF), Bill and Melinda Gates Foundation (BMGF), Solina Health, and the U.S. Centers for Disease Control (CDC), have collaborated with the government of Nigeria to launch robust response strategies to expand polio vaccination from accessible areas to inaccessible areas in Borno State. eHA's team of field officers facilitate the provision of devices that use advanced GIS technology to track reached settlements and provide geo-evidence of visits by the vaccination teams.

In November 2017, eHealth Africa introduced the Missed Settlement Tracking and Analysis (MISTA) tool in Borno state to solve the persistent challenge of missed settlements.

MISTA tracks the visitation status of settlements based on a daily implementation plan. eHA consultants use the tool to generate the visitation analysis based on the geo-evidence (tracks) collected by field officers during campaign activities. The analysis is then presented at the evening review meetings at the LGAs.

The results of the analysis provide the Borno state IM with the real-time, accurate data which he needs to provide oversight to the LGAs so that they can plan for missed settlements while the campaign is still ongoing, rather than at the end. eHA consultants also work closely with the LGA teams to collect geolocation data, security information, and information on the dynamic habitation patterns of settlements to enable efficient planning of campaigns irrespective of changes in settlement accessibility. Using this information, Dr. Shettima and the Borno State data team can update the master list of settlements, thereby ensuring their inclusion in future micro plans.

The introduction of MISTA has completely transformed settlement tracking in Borno state and now the number of chronically missed settlements is dropping. Missed settlements have dropped from 11% to less than 1% in two years from November 2017 to October 2019 and coverage has increased from 81% to 99.3%. This dramatic improvement in the coverage of settlements makes us closer to a Polio-free Borno and, hence, a Polio-free Nigeria.



Bags of grain being loaded onto trucks at a WFP warehouse.



World Food Programme (WFP) and Logistics Sector, Nigeria Warehouses

Throughout 2017 and 2018, WFP assistance reached 1.2 million people every month. Part of this food assistance includes the provision of specialized nutritious food for children under 5, pregnant and lactating mothers.

WFP also supports other humanitarian actors working in Nigeria by addressing operational challenges including logistics and storage in implementation sites. WFP partnered with eHA to set up and manage warehouse facilities in Borno state to enhance effective food aid supply across the Northeast region.

eHA's understanding of the local context was instrumental in assisting WFP to identify local food suppliers and suitable warehouse facilities. eHA upgraded these warehouse facilities to WFP standards and managed WFP food and common storage facilities in some of the toughest parts of Borno State - Ngala and Rann. These deep field storage locations help ensure the program is able to deliver food to the most vulnerable populations.

24,705

metric tons of food items handled

2,880

square meters of warehouse space in Borno

60+

laborers were employed directly from the host communities and paid daily wages

Soba tsirebe musko ndin tei

Hold a true friend with both thy hands.

Kanuri Proverb

Partner Spotlight

Borno State Primary Health Care Development Agency (BSPHCDA)

Borno State Primary Health Care Development Agency (SPHCDA) is an autonomous bureau of Borno State Government, responsible for improving the quality of primary health care delivery and formulation of strategic public health policies for the State.

The BSPHCDA works with the Local Government departments of Primary Health Care and International/National Healthcare agencies/partners to deliver quality healthcare services across the state.

Since 2016, eHA and other Global Polio Eradication Initiative partners under the aegis of the Polio Eradication Center (PEOC) have been working closely with the agency to plan, execute and monitor polio vaccination campaigns in accessible and inaccessible areas of Borno state, and towards the expansion of surveillance and Routine Immunization activities (RI) in hard to reach areas of the state.



Dr. Sule Meleh, the Executive Director of the Borno State Primary Health Care Development Agency at an Immunization Plus Days Evening review meeting.

Partner Spotlight

The World Health Organization (WHO)

The World Health Organization (WHO) is a leading partner in the efforts for the global eradication of poliomyelitis. Since the start of our project operations in Borno state, eHealth Africa has worked very closely with WHO in several working groups and platforms to support the Borno State Primary Healthcare Development Agency (SPHCDA) in delivering impactful polio vaccination campaigns and to expand the coverage of AFP surveillance activities.

Their technical support has been invaluable in the:

- Execution of polio vaccination campaigns in accessible and inaccessible areas in Borno.
- Expansion of vaccination and surveillance efforts in hard to reach areas of the State.



WHO team at the IPD flag off

OUR PARTNERS

Bill and Melinda Gates Foundation (BMGF)
Borno State Government
Borno State Ministry of Health
Borno State Primary Healthcare Development Agency
Center for Disease Control (CDC)- Atlanta
Intellectual Ventures/ Global Good
National Stop Transmission of Polio Program (NSTOP)
Nigeria INGO Forum
Novel-T
REACH Initiative
Rotary International
Solina Health
United Nations Children's Fund (UNICEF)
United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)
World Food Programme (WFP)
World Health Organization





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