



Public Health Initiatives

APIN iCARES Project

**Turning the Tide of HIV Epidemic and
Saving Lives in Benue State**



2017 - 2022



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Executive Summary

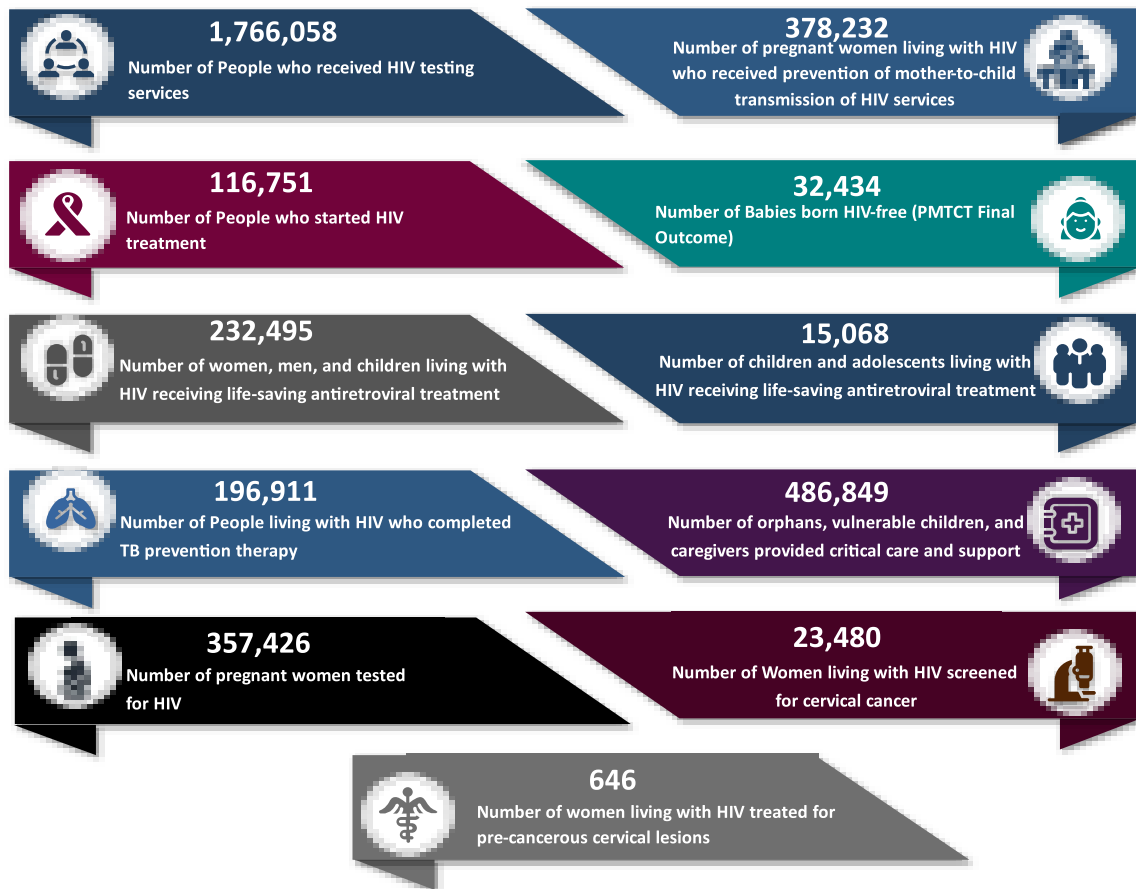
Benue State is located in Northcentral Nigeria and had an estimated population of 5,741,815 in 2018. With an estimated 184,745 people living with HIV (PLHIV) in 2018, Benue State has the second-highest number of HIV among Nigeria's 36 states. The HIV prevalence in the state is 4.3% and varied considerably among its 23 local government areas (LGAs), from 1.45% in Ado LGA to 6.14% in Ukum LGA. The GH1753 (iCARES) Project aimed at accelerating progress toward the achievement of the UNAIDS 95-95-95 targets in Benue State. At the onset of the project in October 2017, APIN took over the management of **141,019** clients on antiretroviral therapy from three CDC/PEPFAR implementing partners with an additional **13,475** PLHIV on ART transitioned from Global Fund to PEPFAR support in January 2021.

During the five-year project implementation, APIN worked with diverse stakeholders in HIV response in the state to implement innovative, evidence-based, quality, efficient, tailored integrated facility and community-based interventions to address unmet treatment needs amongst the PLHIV. APIN implemented multi-pronged approaches to ensure continuous engagement of patients in care, providing optimum quality care and monitoring treatment outcomes with routine viral load tests. There was a scale-up of evidence-based combination HIV prevention interventions, including PrEP for at-risk and vulnerable populations and prevention of mother-to-child transmission. At the end of the 5-year project in September 2022, the program supports **232,495** People living with HIV on treatment across **252** public, private, and faith-based health facilities throughout the 23 LGAs. The achievement represents a net growth of 78,001 PLHIV receiving sustained life-saving antiretroviral treatment, remarkably closing the HIV unmet treatment needs gap and placing Benue State on the path to HIV epidemic control.

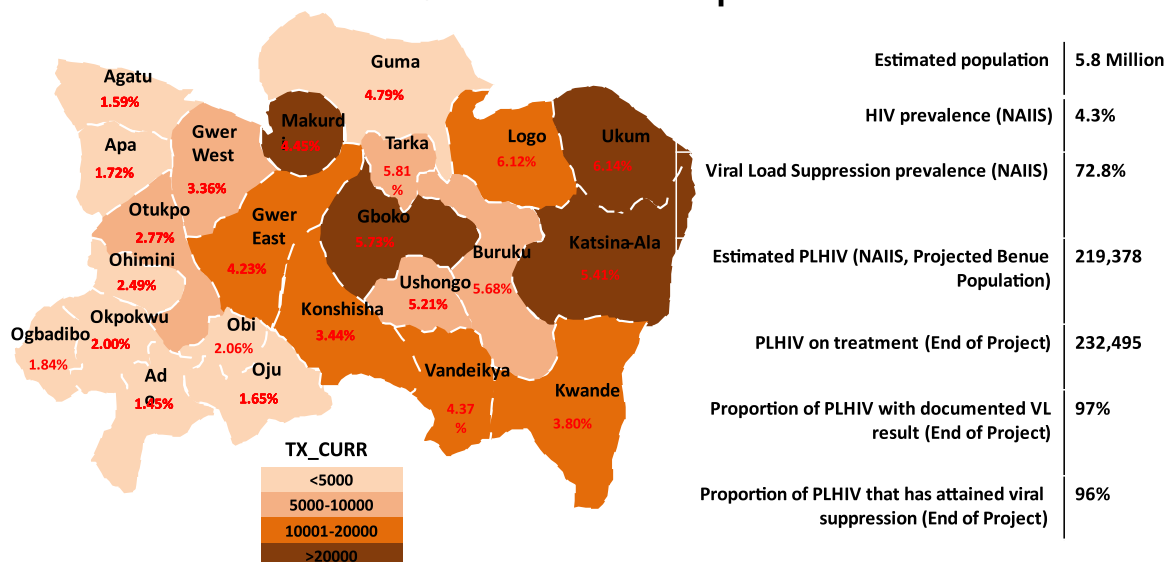
By the end of the iCARES project, Benue State has the highest number of PLHIV on care and treatment among states in Nigeria, accounts for 20% of PLHIV on treatment receiving support from US Centers for Disease Control and Prevention (CDC)-Nigeria. Sixty-five supported health facilities in the program have ≥ 1000 PLHIV in their comprehensive HIV prevention, care, and treatment, with the biggest HIV treatment center serving over 10,000 PLHIV. The Benue State HIV program has achieved a significant increase in viral load coverage from 36% in 2018 to 97% in 2022, with a corresponding sustained increase in viral load suppression amongst PLHIV on treatment from 88% to 96% within the same period. The project fully deployed and implemented an open-source electronic medical record system (the NMRS) that synchronises well with the National Data Repository (NDR) across 252 supported treatment sites for the capture, analysis, and dissemination of quality data for patient management and program improvement. The NMRS captured patients' biometrics, synchronized with client records across supported sites for real-time patient matching and deduplication at the point of client testing/enrolment, and thus contributed to improved patient care, transparency in programming, and accountability to donors.

Achievements on key GoN/PEPFAR Indicators: 1st October 2017 – 30th September

2022:



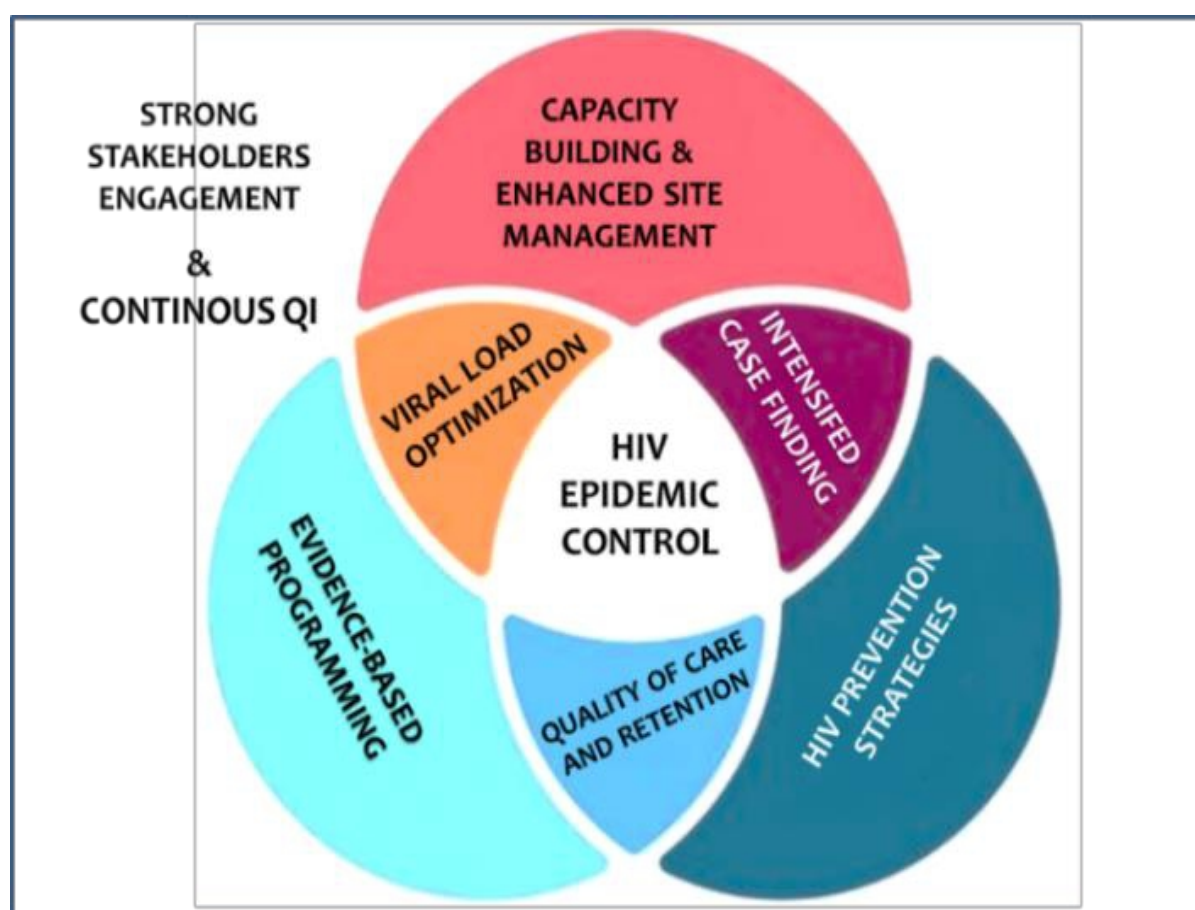
State of the HIV Epidemic



Chapter 1:

State Profile, Overview of Program Approach

The iCARES Project aimed to implement evidence-based, client-centric facility and community-based strategies to reduce HIV disease incidence below mortality by getting 90% of people living with HIV to know their HIV status, 90% of those with known HIV positive status to receive sustained antiretroviral therapy (ART) and become virally suppressed (UNAIDS 90:90:90 target) in Benue State. Following, the release of the Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) report, the project target was moved to the UNAIDS 95:95:95 to accelerate the state to HIV epidemic control. To achieve the goals, APIN employed proven and context-specific multi-pronged approaches, including intensified HIV case finding, optimized quality of care and retention, viral load optimization, HIV prevention services, capacity building of Government of Nigeria (GoN) stakeholders and healthcare workers, enhanced site management, and evidence-driven programming anchored on strong stakeholders engagement and continuous quality improvement.



Stakeholders Engagement: Partnerships and Collaborations

The program developed strategic partnerships and Memorandum of Understanding (MoU), and sub-awarded activities to relevant institutions and group in Benue State to collaborate in the HIV service delivery through a network of their health facilities. The institutions included the Benue State Ministry of Health and Human Services and her agencies – the Primary Healthcare Board and Hospitals Management Board – and the faith-based health commissions (the Catholic health commissions of Makurdi, Gboko, Otukpo, and Kastina-Ala dioceses and the NKST health commission). The stakeholders were meaningfully engaged in the design, delivery, and monitoring of HIV program implementation during the five-year project cycle. The partnership engagement forums included start-up meetings at the beginning of each fiscal year and quarterly program review meetings. The accelerated HIV treatment saturation response in Benue State had buy-in from the political and religious leaders of the state. In February 2020, the Executive Governor of Benue State, Dr Samuel Ortom, flagged off the Benue ART Surge and U=U Campaign with high-level representations from the US Government led by the Deputy Chief of Mission (DCM) and US CDC Nigeria, Country Director to secure strong political support for the accelerated ART scale-up and get a commitment on the abolition of user fees for HIV services. An ART Surge steering consortium was formed, consisting of a coalition of government, private sector, FBOs, and CSOs stakeholders to address program-level barriers such as service user fees and stock-out of RTKs to improve access to HIV services.

The high-level advocacy resulted in the abolition of user fees for all HIV-related services in government-owned health facilities and the support of the Surge program with 70,000 Determine and 39,000 Unigold test kits. APIN supported the sub-national unit's (SNUs) structures such as State implementing teams (SIT) and Local implementing teams (LIT) to conduct joint supportive supervision (JSS) for the monitoring of the program. The program also provided technical support for mentoring and capacity building of government officials. APIN partnered with twenty-two community-based organizations in the orphans and vulnerable children (OVC) programs for a wider reach and follow-up of our younger clients on treatment. As part of the effort to promote PLHIV involvement, APIN engaged model patients (Mentor Mothers, Peer Retention Champions, and OTZ Champions) in program implementation where they excelled in peer health education and defaulter tracing using peer networking. At the donor level, APIN collaborated with subject matter experts from the US CDC who regularly provided guidance on program implementation and enhanced site management through supervisory site visits and virtual meetings.



The Executive Governor of Benue State, Deputy Governor of Benue State, Charge d' Affaires US Mission in Nigeria, UNAIDS and CDC Country Directors, and APIN CEO at the Launch of the ART Surge and U=U Campaign.



Conferment of Honorary Benue Citizenship on The Charge d' Affaires US Mission in Nigeria, CDC Country Directors, and APIN CEO in Appreciation of the PEPFAR/CDC Support in HIV Response in Benue State.



Former HIV Care and Treatment Branch Chief, CDC Atlanta, Dr. Tedd Ellerbrock, interacting with PLHIV at GH Wannune on their quality of care



Courtesy Call to the Executive Governor of Benue State to Solicit Support for the ART Surge and Abolition of User Fees for HIV Services

3.1 Training

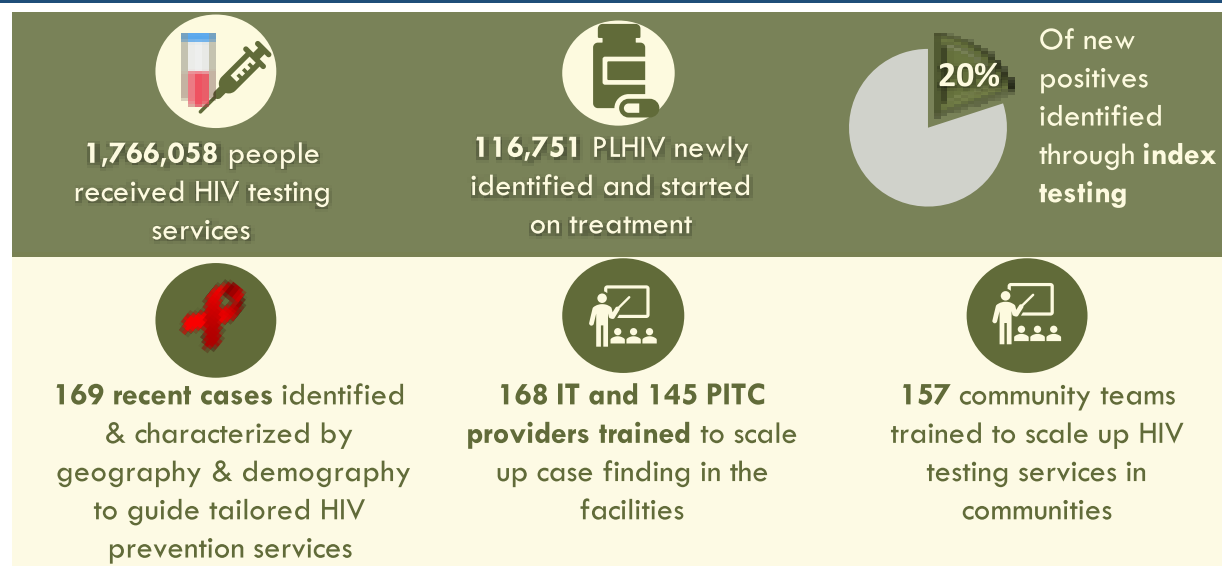
APIN is a provider of Continuing Medical Education (CME) accredited by the Medical and Dental Council of Nigeria (MDCN) and the Medical Laboratory Science Council of Nigeria (MLSCN). Under iCARES project (2017 - 2022), APIN trained 15,987 service providers of various cadres to deliver quality HIV service delivery in the different program areas. These included HIV testing services; prevention of mother-to-child transmission of HIV (PMTCT); antiretroviral therapy; and, intensive case finding (ICF), isoniazid preventive therapy (IPT), and infection control (“Three I’s”) for TB prevention and control among persons living with HIV. Other program areas included differentiated care, continuity of treatment, monitoring and evaluation (M&E), health informatics, key population, cervical cancer screening, and Continuous Quality Improvement (CQI). The database of the trained HCWs is warehoused on the APIN Training System Monitory and Reporting Tool (TrainSMART), a training repository of healthcare workers (HCWs) whose capacities were built. The database is used as an advocacy instrument to the government to guide the equitable selection of HCWs for training and transfer of healthcare workers across supported sites.

3.2 E-Learning Platforms

The program deployed and installed IT equipment to capacitate **sixty-five** high-volume treatment sites, twenty-two supported CBOs, the Ministry of Health, and Benue State Agency for the Control of AIDS (BENSACA), to participate in the Federal Ministry of Health–led SPiCE ECHO telemedicine/teleconferencing via zoom technology. The weekly SPiCE ECHO sessions were used to facilitate clinical mentorship by subject matter experts, case-based learning, and sharing of best practices among healthcare workers in HIV management. The program has leveraged ECHO/zoom equipment to conduct online training of healthcare workers, provide remote technical assistance, facilitate peer learning, and fast-track exchanges of programmatic progress and lessons learned at supported sites, especially at the peak of COVID-19 lockdowns in the country. Overall, the programme was aimed at improving the skills of primary providers over a range of chronic medical conditions including HIV with funding from PEPFAR/CDC.

Chapter 4:

Leaving No PLHIV Behind: The Benue HIV Case-Finding Journey



4.1 Background

The history of the Benue ART Surge response would be incomplete without highlighting the central contribution of HIV case finding to the achievement of the UNAIDS 95:95:95 targets. Despite the efforts of previous programs where over 140,000 PLHIV were identified and initiated on the lifelong ART program in Benue State (before the commencement of the iCARES grant in October 2017), the NAIS survey of 2018 showed some gaps in case finding especially in local government areas previously classified as “sustained support.” Programming in a region classified as having high treatment coverage and low unmet need was indicative of the need to be intentional and to design tailored interventions to address the peculiar needs in Benue State. With an HIV prevalence of 4.3% (three times higher than the national HIV prevalence), high treatment saturation, and low unmet treatment needs, more precise and targeted strategies were needed to reach the undiagnosed PLHIV and put the state on the pathway to HIV epidemic control.

4.2 Getting Started...

The team set out with a clear focus on the goal of the PEPFAR program, which is to increase case finding and increase treatment saturation by age and sex groups with the aim of achieving at least 95% treatment coverage by the end of the grant. Understanding the scope, context, and dynamics of HIV transmission in Benue State was pivotal to the use of multi-pronged approaches deployed to ensure no positive client was left behind.

As the bedrock of the PEPFAR ART surge response, HIV case finding rightfully took the centre stage and received the desired multi-layered support and commitment from relevant stakeholders at all levels.

With the stage of the epidemic in the state, it was clear from the onset that case finding was going to be an uphill task, owing to the risk of unnecessary retesting of the previously known HIV-positive. However, APIN met the challenge using innovative and evidence-informed approaches that were firm but flexible enough to adapt to the dynamics of HIV programming.

4.3 Instituting the ART Surge Incident Command Structure

The ambitious goal of closing the unmet treatment needs gaps in Benue State was driven by central and state *ART surge incident command structures* working closely with the state and LGA multidisciplinary teams. The multidisciplinary teams were composed of staff members of varied technical competencies and backgrounds. These program operational structures coordinated the implementation of ART Surge across supported sites and communities to drive intensive case finding, linkage, retention, viral load (VL) uptake and suppression and ensured daily and weekly reporting and granular monitoring of the program. The LGA multidisciplinary teams ensured the close and continuous monitoring of HIV program implementation, as well as implementing strategies that are data-driven and tailored to local context across thematic areas at supported facilities and community platforms using the enhanced site management concept. The tier 1 and 2 sites, which contribute about 80% of the client load received intensified technical support; CQI initiatives to generate site-level solutions with promising best practices which were scaled up to tier 3 sites by the site mentors.

4.4 Engagement of Human Resources & Capacity Building:

To augment the human resources needed to drive intensified HIV case finding, APIN engaged and trained a total of 168 index testing, 145 PITC, and 540 community providers to support case finding at facilities and communities. These Ad hoc staff benefitted from a range of capacity-building sessions including general HTS, safe and ethical Index testing, and recency testing. Refresher training was also conducted to strengthen capacities and provide updates on evolving trends and priorities of the program. The facility PITC and IT providers complemented the other HTS providers who are primarily government employees to ensure the provision of risk-based HTS at every service entry point at supported health facilities. The community HTS providers were organized in teams of two community testers per team, with 2-3 teams linked to one community mobilizer/linkage coordinator and a community monitoring and evaluation (M&E) assistant and overseen by a supervisor. The teams undertook community mobilization and targeted risk-based community HTS and linkage of HIV positives to supported health facilities through accompanied referrals for retesting and ART initiation. The 23 LGAs in Benue State were classified into high, medium, and low-priority LGAs using a triad of NAIIS data, Small Areas Estimates, and hotspot locations generated by the *Geographic Information System (GIS) mapping* of newly identified HIV positives. The prioritization guided the deployment of the community teams for targeted HTS, with one community team assigned to each ward in high-

priority LGAs and one community team assigned to 2 wards and 5 wards in medium and low-priority LGAs respectively.



Recency testing training and providers taking the oath of confidentiality after HTS/IT training

4.5 Game-Changing Approaches

Small Area Estimation (SAE): This was used to identify LGA-level ART gaps for targeted HIV response. SAE is a model-based estimation that uses other pre-existing survey data such as NAHS and program data. Analyses of these gaps indicated that the Benue State ART gap was not evenly distributed, and more than 50% of the state HIV treatment gap is attributable to just eight of the 23 LGAs. SAE helped prioritize LGA-level testing and resource allocation.

Three-Tiered Facility Management Approach: A volume analysis and tiering of facilities providing HIV services was conducted to map facilities to enhance optimal performance in case finding within the communities they serve. Tier 1 facilities were those facilities contributing 80% of the number of current PLHIV receiving ART but poor performing. Tier 2 were facilities contributing 80% of the number of current PLHIV receiving ART and performing, while Tier 3 were facilities contributing the balance of 20% of the number of current PLHIV receiving ART. The programmatic implication/assumption for Tier 1 sites was that they were yet to reach their peak in identifying PLHIV within the communities they served. Thus, more support was provided to help the Tier 1 facilities to attain their full potential in case finding. Tier 2 facilities reached their peak in identifying PLHIV within the communities they serve; thus, opportunities to increase their yield still suffice to optimize HIV case finding.

Risk-Based Facility Testing: To improve case findings, the HIV risk stratification tool (HRST) was deployed across different testing streams within the facility to assess HIV infection risk and to increase

the likelihood of identifying PLHIV. Testing eligibility requires individuals to answer “yes” to at least one question assessing HIV risk. The HRST was developed and tested by Nigeria HIV Prevention Task Team and included in the package of National HTS data collection tools. This was instrumental in improving positivity yield and testing efficiency and consequently, ensuring judicious utilization of rapid testing kits and consumables.

Index Testing: This is an approach whereby the exposed contacts (i.e., sexual partners, biological children, injecting drug users) of an HIV-positive person are elicited and offered HTS. This approach was scaled-up across all APIN-supported facilities with well-trained providers in activated service delivery points. To achieve the desired results, index testing services were offered to newly initiated clients on ART and clients on ART who are virally unsuppressed to break the chain of further transmission. Other strategies were also deployed such as facility-led outreaches, reverse mapping (mapping newly identified PLHIV by residential address to identify potential hotspots for targeted testing), and HIV recency testing/surveillance. The recency surveillance also provided additional insight into locations where active HIV transmission is occurring, which further informed priority locations for HIV prevention and case finding.

Expansion of Targeted Community-Based Testing: Dedicated community teams were engaged, trained, and deployed to conduct demand creation interventions, mobilization, screening, counselling, and testing in the communities to support the scale-up of case finding which could not be met solely by testing and diagnosis of PLHIV seeking care in health facilities. Wrap-around services such as malaria and hepatitis were used to support HTS uptake. Testing positivity yield was maintained through the use of an HIV risk stratification tool focusing on higher-prevalence and unsaturated communities as suggested by epidemiologic and program data, as well as community implementation of index testing. The program designed the approach of performance-based incentives to ensure the optimal performance of all testers.

Review Meetings with Providers: To ensure that all thematic areas were on track toward achieving set targets, monthly/quarterly program review meetings were conducted with providers. During the meetings, processes for HIV program activities and source documents were reviewed and data validated. During these meetings, successes, lessons learned, and implementation challenges from various facilities/communities were discussed. The meeting outcomes guided the implementation and development of improvement plans to help meet project targets. These platforms were also utilized for hands-on mentoring and discussion of program priorities.



Targeted Community testing among adults and adolescent clients; leaving no case behind!

4.6 Road to HIV Epidemic control in Benue State: The Role of HIV-1 Recent Infection Surveillance

As countries move closer to epidemic control, real-time monitoring of recent HIV infections will allow targeted public health response to locations and sub-populations where high levels of transmission is occurring. Thus, Rapid Test for Recent Infection (RTRI) is an approach that distinguishes recent HIV infection from long-term HIV infection. A recent infection is any infection acquired in the last 12 months. HIV recent results are confirmed with a corresponding viral load of ≥ 1000 copies/ml, indicating a heightened risk of transmitting HIV. The goal of recent infection surveillance in Nigeria is to provide continuous epidemiologic data on the person, age (15 and above), place, and period of diagnosis, to inform HIV prevention and control strategies to accelerate progress toward HIV epidemic control.

The preparation for the implementation of HIV recency surveillance commenced with the training of five Master Trainers by the CDC and the integration of the recency testing into the in-country HIV program implementation in October 2020. Step-down training was conducted in four batches where 213 service providers from multidisciplinary backgrounds were certified to implement recency testing at 55 supported health facilities across 15 LGAs. There was a follow-up on-site activation of the 55 sites for recency testing, monthly/quarterly hands-on mentoring, weekly monitoring of test kits utilization, quality control and proficiency testing of the testers. The project also undertook the tracking of the viral samples and results of the RTRI cases, and weekly RTRI data analysis for program decision making. The program used the weekly data of confirmed recent cases to characterize the demographics (age, sex, socioeconomic status) and to generate GIS heat maps to guide geographic prioritization of HIV case finding and prevention services. Since the inception of the HIV recency surveillance project, 169 confirmed recent cases have been detected and linked to treatment.

Breath of Life

Sabo Gideon is a 30-year-old man who is the only surviving son of his father. Gideon was ill in January 2022; he complained of weakness, joint pains, waist pain, fever, cough, and general body weakness. Before his contact with the Community HIV testing team, Gideon had never tested for HIV. Assuming he was down with malaria and with the little money he had, he opted for self-medication; he took his medications without any significant improvement. In March 2022, a team of community testers providing HIV Testing Services (HTS) screened Gideon using the HIV risk stratification tool, Gideon was eligible and was tested and diagnosed with HIV. Gideon was accompanied by his mother and the community testers to Bishop Murray Medical Center where he was confirmed positive for HIV. The doctor's pre-enrolment assessment revealed that Gideon had symptoms of TB, he was later confirmed to be TB positive, got enrolled into care, and placed on TB treatment. Antiretroviral therapy was commenced two weeks later. Although Gideon was unable to pay his hospital bills after being discharged from the hospital, he benefitted from the benevolence of philanthropic community testers that found him. Three months on, Gideon is now on ART, and adhering to his medication. He is healthy, happier, and boisterous. In his words; *“since I started taking my drugs I am getting stronger and stronger every day, I am now fine; I can run, jump, walk for a long distance, and do my farm work, I now have a breath of life”*.

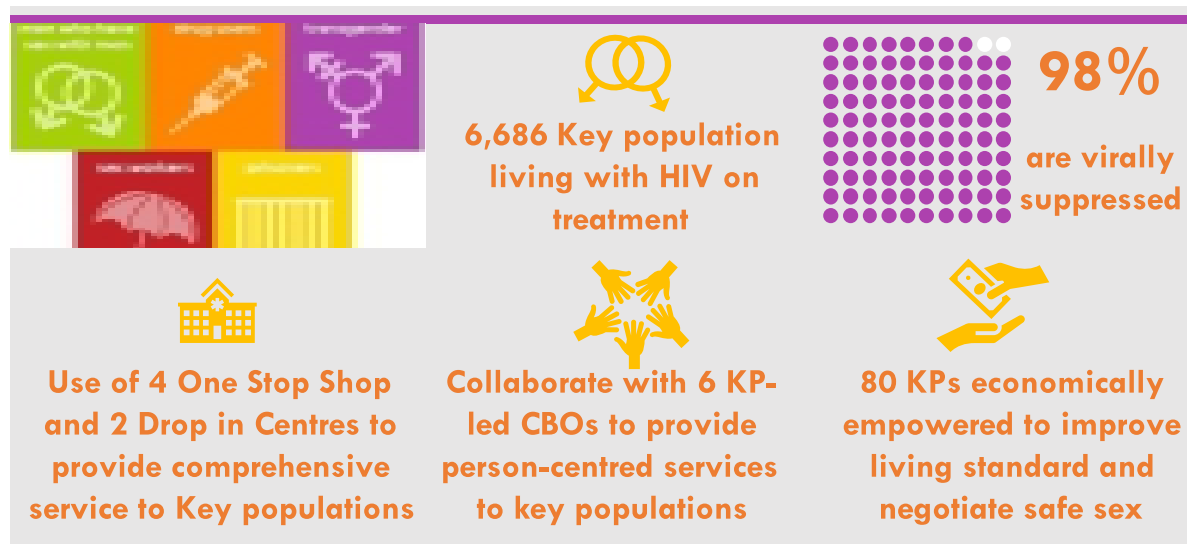


Gideon in March 2022



Gideon in July 2022

4.7 Case Finding Among Key Population



The iCARES project for the Key populations in Benue State targeted 5 key population (KP) subtypes: female sex workers (FSW), men who have sex with men (MSM), persons who inject drugs (PWID), transgendered persons (TG), and persons in custodial spaces. Based on UNAIDS 95:95:95 goals, the iCARES project worked to ensure that 95% of key populations living with HIV know their HIV status; 95% of KPs who know their status are placed on treatment, and 95% of KPs on treatment attain viral suppression.

APIN partnered with the key population-led and competent organizations to deliver results on the first 95 while working directly with KP One-Stop Shops (OSS) and Drop-in Centres (DiC) to link key populations to treatment and provide sustained ART for enhanced viral suppression. In line with this, sub-awards were given to 6 community-based organizations (CSOs), 4 key population-led and 2 key population-competent groups, to test, find and link new cases of HIV among key populations to ART. Of the 6 CSOs engaged, 4 were FSW-led and focused, 1 PWID-led, and 1 MSM/TG-led and focused. These organizations were engaged to focus on finding new cases of HIV among their peers. While one of the KP competent organizations engaged focused mainly on finding new cases of HIV among FSW the other CBO with comparative advantage and experience in interventions within custodial settings was engaged to intervene with PIs within custodial settings in addition to working with all other KP typologies including FSW, MSM, PWID, and TG.

The program used the 2018 KP mapping and site estimates (KPMSE) report as a baseline to inform KP community mapping and validation of hotspots based on the location of KPs, by typology, hotspots, and size estimates. The program also utilized the 2017 and 2020 HIV/STI Integrated Biological and Behavioural Surveillance Survey reports as a reference for planning and implementation.

Key strategies utilized during the iCARES grant include; snowballing and testing in untapped communities, distribution of HIV prevention commodities and HIV testing at KP hotspots, incentivized social networks strategy, index testing, moonlight testing, partnership with institutions (custodial

settings) for the provision of HIV testing services, use of PrEP and screening of sexually transmitted infections (STIs) as entry points for HIV testing services. In all, testing teams were assigned targets, monitored, and provided routine feedback to keep them on track. Where the team was not performing, a gap analysis was conducted with improvement plans developed and implemented to optimize achievements across KP indicators.

4.7.1 KP Gender Program

APIN integrates gender within the program cascade to enhance the access of clients to the minimum package of services within the continuum of care, respond to issues around intimate partner violence (IPV) and adverse events during index testing, care and treatment service provision, and promote drug adherence, retention, and treatment to accelerate the achievement of 95:95:95 goals and relevant sustainable development goals (SDGs).

Within the period under review, APIN partnered with 6 KP CSOs, 4 KP OSS, and 3 DiCs to address issues of gender-based violence among KPs. The program integrated gender across the HIV prevention, care, and treatment cascade to improve program participants' health outcomes. KP CBOs monitored, reported, and worked with APIN to address cases of emotional, physical, and sexual gender-based violence (GBV) found the key populations' communities. Gender officers from KP CBOs provided first-line support to survivors of GBV and referred those who were sexually abused to access clinical post-GBV care services at KP OSS. Services accessed at the OSS included screening and management of STIs, pregnancy tests and emergency contraception, wound treatment, HIV counselling and testing, and provision of PEP based on minimum standards for HIV-negative clients. The program also facilitated access to services offered *pro bono* for KPs requiring access to justice and worked through KP treatment support group platforms to facilitate access to information on gender norms, to address harmful gender norms that hinder KPs from adhering to treatment and attaining viral suppression.

The program through the *Gender community of practice*, built synergies to strengthen community GBV response and clients' access to justice in addition to improving access to a wide range of gender-related services. The forum also created an enabling environment for the implementation of KP programs in the state.

4.7.2 KP Ancillary Services

4.7.2.1 Management of Anal and Vaginal Warts using Cryotherapy

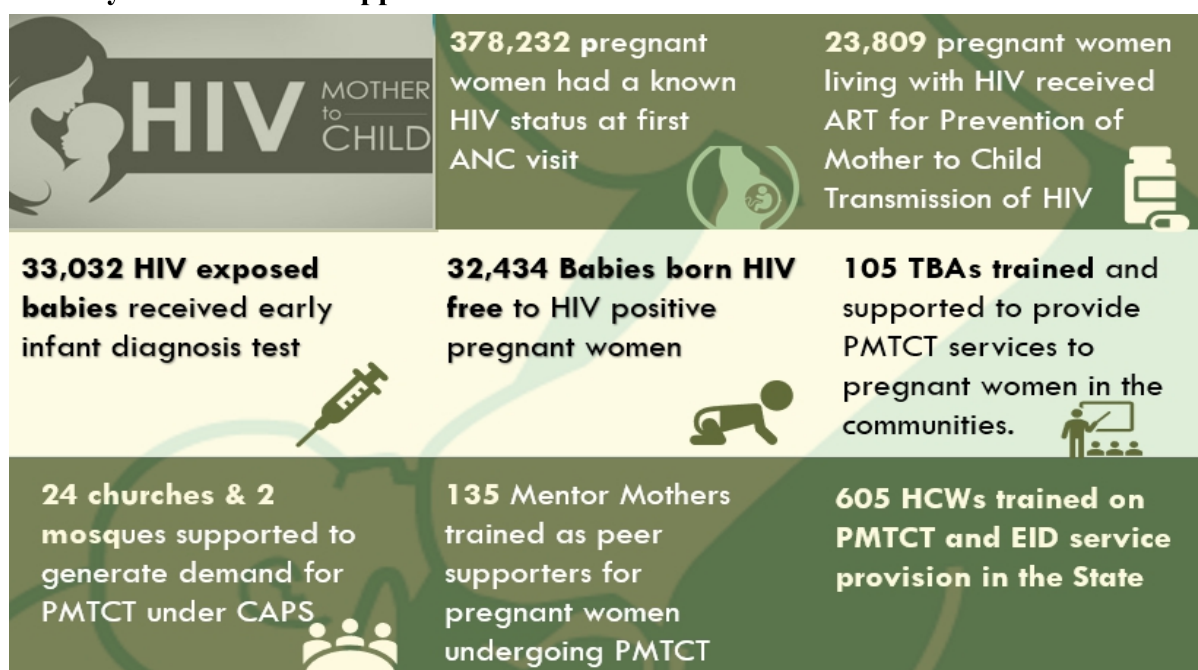
The program supported the management of perianal warts for both female sex workers (FSWs) and men who have sex with men (MSM) using cryotherapy at the KP Center of Excellence (CoE) OSS. The CoEs also provided management for precancerous lesions among FSWs and female persons who inject drugs who had cervical cancer screening. A total of 40 clients comprising of 21 MSM and 19 FSWs were managed for anal and vaginal warts using cryotherapy. Twenty-seven of the clients got enrolled for the service through the ART channel while 13 came through the PrEP channel. Clients have received

multiple sessions of treatment totalling 51 sessions and have responded well to the treatment. APIN plans to scale up this service to other OSS within Benue State.

4.7.2.2 Management of Sexually Transmitted Infections among Key Populations

With the incidence of sexually transmitted infections (STIs) higher amongst the key populations compared to the general population, APIN ensured the screening of KPs living with HIV for STIs during their drug refills. STI services was also provided for walk-in clients who identify as KPs. Treatment was provided for 5,110 cases of STIs (1,204 males and 3,906 Females) within the KP program from January 2020 to June 2021.

4.8 Towards the Elimination of Mother-to-Child Transmission of HIV (EMTCT) - The Facility and CPMTCT Approach



Prevention of mother-to-child transmission of HIV is a key program area that received priority attention within the GH1753 grant cycle. In this regard APIN, in partnership with the state government and community stakeholders, implemented some innovative interventions. The program supported health facilities and community platforms to strengthen systems and enhance PMTCT service delivery in 272 sites across the 23 LGAs in Benue State. Institutional and human capacity as well as service delivery processes were assessed/reviewed to determine their preparedness to support the implementation of PMTCT programs in Benue State. Based on the identified capacity building, 605 healthcare workers were trained on PMTCT/EID service provision, with interpersonal communication skills and social behavioral change communication integrated. The training aimed to equip healthcare workers with knowledge and skills to generate demand creation for antenatal care services (ANC) at the facilities and community settings. The program expanded/decentralized services to communities to meet the peculiar needs of the women and address some context-specific issues associated with poor access to ANC, such as high user fees, poor attitude of some health workers, and low knowledge of the benefit of ANC. This community-focused approach resulted in the cPMTCT program where community platforms were identified, assessed, and supported to provide basic testing and associated services to pregnant and breastfeeding women. The cPMTCT program collaborated with formal and informal HCWs such as traditional birth attendants (TBAs) as well as privately owned facilities. The program also collaborated with faith-based organizations through the Congregational Approach to optimize PMTCT services (CAPS) program. The cPMTCT initiative improved the demand for ANC and increased uptake of HIV services among pregnant women and their partners to improve PMTCT outcomes among female PLHIV. Furthermore, the program trained TBAs, assigned testers, and CAPS implementers on the basics of HTS, HIV care and treatment as well as maternal and child health care issues such as ANC, labor and delivery, and post-natal care.

A total of 105 TBAs and 26 faith-based institutions (24 churches, 2 mosques) received support from APIN to provide HIV testing services to pregnant women under the cPMTCT program with the linkage of the identified new positive pregnant women to supported health facilities for antiretroviral drugs using the hubs and spoke model. The program provided fast-track viral load monitoring to HIV-positive pregnant women as part of the PMTCT services at 36 weeks, with enhanced adherence counseling for women with unsuppressed viral results and dual infant prophylaxis for the HIV-exposed infants of the mothers.

4.8.1 Hand-holding to HIV-free Generation: The Role of Mentor Mothers

The Mentor Mothers played a key role in the success story of PMTCT in Benue State. These women provided peer mentoring and psychosocial support to PMTCT clients using their previous successful PMTCT experiences as evidenced by their negative babies. They also double as case managers, following up with positive pregnant women by sending appointment reminders (via SMS, phone calls, home visits) for their drug pick-ups, and laboratory appointments (Viral load, EID, final rapid test for the exposed infants). The mentor mothers, in addition, offered counseling and adherence services, acting as linkage coordinators to other packages of care, and assist in tracking back clients who miss their appointments. In all, the capacities of 135 women living with HIV was built on basic facts around HIV, modes of transmission, prevention approaches, counseling, and psychosocial support. The full disclosure of the positive HIV status of the mentor mothers in their local communities helped to demystify HIV and reduce the associated stigma of HIV infections. They have also helped in improving male involvement in PMTCT/ANC, thus inevitably contributing to the giant strides recorded in the PMTCT program.

4.8.2 PMTCT Milestones

Within the grant cycle, a total of 378,232 pregnant women had their HIV status known at the first antenatal care visit with 23,809 pregnant women receiving antiretroviral therapy for the prevention of mother-to-child transmission. A total of 33,032 HIV-exposed infants had early infant diagnosis, with 32,434 (98%) babies confirmed to be free of HIV after completion of the PMTCT program, and 811 diagnosed of HIV from the early infant diagnosis and linked to treatment. All infected babies were linked to HIV treatment as well as the OVC program to improve their quality of care.

Pre- Exposure prophylaxis (PrEP) Roll-out: In the last two years of the project, the program trained service providers to offer oral PrEP as part of the package of a combination of HIV primary prevention services for persons at substantial risk of the infection, particularly key populations, and sero-discordant couples. The peer-to-peer model (P Square model) was utilized to drive PrEP uptake among the key population. Under this model, KP peers were recruited to create demand for PrEP through PrEP messaging; clients who opted in for PrEP were tested for HIV. Thus, through this model, new HIV cases were also identified and linked to care.

4.9 Blood Transfusion Safety

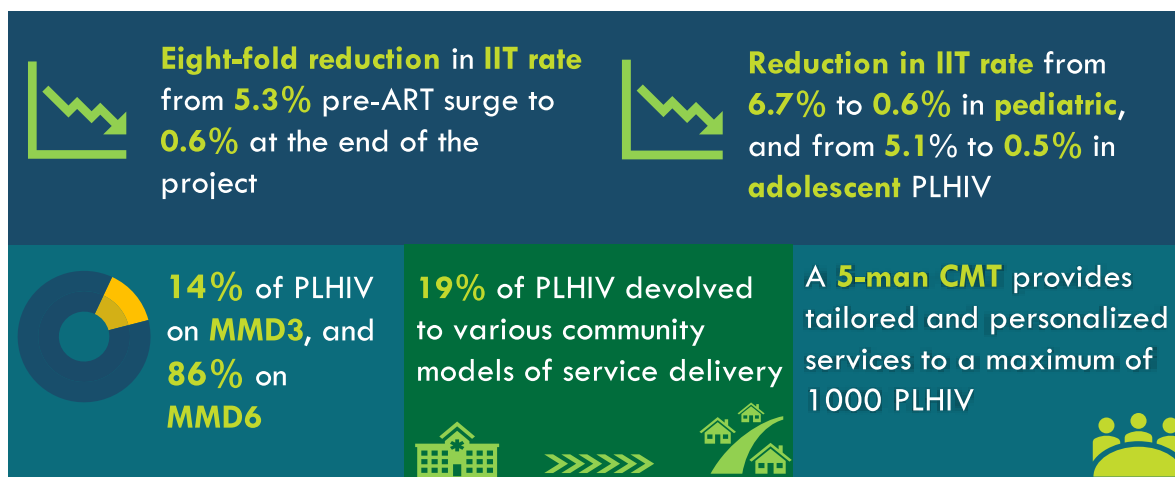
APIN, with funding from PEPFAR/CDC, supported Benue State University Teaching Hospital (BSUTH) with a full complement of equipment to provide sustainable access to affordable and timely supplies of safe and quality-assured blood and blood products. These equipment included Enzyme-linked immunosorbent assay (ELISA) reader/washer, incubating microplate shaker, laboratory refrigerator and blood bank, Haemoglobinometer analyser and ELISA reagents. Before the provision and installation of the ELISA equipment at BSUTH, healthcare facilities in Benue State could only source safe blood services from the North-central zonal Centre of the National Blood Transfusion Service in Jos. Since the commencement of operations at the Safe Blood Centre at BSUTH in April 2019, 1,384 units of safe blood have been provided to linked healthcare facilities. The state government's continued support is required to create greater linkages between the centre and healthcare facilities across the state to increase access to safe blood as a key component of effective health systems.

Enzyme-linked immunosorbent assay (ELISA) Equipment installation and training in



BSUTH Blood Bank Unit.

Optimizing Quality of Care and Continuity of Treatment



The GH1753 (iCARES) grant aimed to lower mortality and improve the quality of life of people living with HIV by ensuring that PLHIV have sustained antiretroviral therapy, achieve long-term continuity of treatment, and receive the best possible quality of care tailored to their unique needs and preferences to achieve sustained suppression of plasma viremia.

5.1 ART Optimization

One of the major achievements of the APIN Benue program was the successful transitioning of all eligible patients to TLD and DTG-based regimens in line with the updated WHO and national guidelines. The guidelines recommend TLD regimen for all adults and adolescents weighing ≥ 30 kg and DTG-based regimen for infants, children, and adolescents weighing 3 – 29.9 kg. These optimal ARV regimens have the advantages of higher efficacy, low toxicity, high tolerability, ease of taking the drug, durable/high genetic barrier to resistance, and better sequencing/switching and cost reduction.

The key strategies used to transition clients fully, actively, and rapidly to the optimal ARV regimens included engagement with stakeholders on the rollout plan with a buy-in of the PLHIV communities, client sensitization and education, and capacity building of health care workers to provide optimal ART regimens. Other key strategies included periodic and monthly stock level assessment to ensure commodity availability at all times, aggressive weekly fold audit and data triangulation with the electronic medical record (EMR) across facilities to ensure accurate data capturing and quarterly review meetings to assess progress. Active pharmacovigilance was set up to monitor and report adverse drug reactions experienced by clients as they commence the ARVs.

With the transition to TLD and DTG-based regimens, the program recorded an increase in the viral load suppression of clients on treatment from 86% to 96% among adults, and from 65% to 90% among children and adolescents living with HIV. Other benefits of the ART optimization included a noticeable drop in the frequency of adverse drug reactions (ADRs), most commonly the CNS-related effects such

as drowsiness. The occurrence of gynaecomastia, a commonly reported ADR among male clients on TDF/3TC/EFV600mg was also drastically reduced with transition to TLD.

Dolutegravir (DTG), The Game Changer!

In the words of Dr. Dike Agnes the pediatrician in charge of the pediatric clinic at Federal Medical Centre, Makurdi, *“Regimen optimization has made a lot of impact in terms of acceptability, tolerability, taste, and ease of taking the drugs, which have translated to improved adherence across all group of patients... Patients are doing so well in terms of weight gain, a critical component in pediatric care management. Virologically the patients are doing well. It is a whole lot of success story.”*

G. M, a 21-month-old girl presented to the clinic at an APIN-supported health facility at 6 months of age severely malnourished (weight of 4.5kg, birth weight was 3.4kg), with oral sores and drooling. She had, among others, a total loss of her hairs and white patches in the oral cavity that extended to the oropharynx. A diagnosis of esophageal candidiasis with severe acute malnutrition was made. Investigations showed the child was RVST positive at stage 4 WHO pediatric HIV staging with a viral load of 2,990,543. The esophageal candidiasis, an opportunistic infection was treated, nutritional rehabilitation commenced, and the child was initiated on ART regimen of pDTG + ABC/3TC. The child had recorded steady weight gain; she weighed 8.5kg at 12 months of treatment and her hair has also re-grown. Her viral load about a year (374 days) of initiating treatment was 25,388.

Non-suppression in viral load is yet to be achieved due to adherence issues as the mother admitted she forgets sometimes to administer the baby’s drug to her but has now adjusted the timing to enable her to cope with schedule as she is bogged with other family challenges, including caring for her husband who has a major health challenge. Her mother and uncle remarked that *“this child is a miracle”*; they had given up the hope of survival of the child before her initiation on the more taste-friendly, acceptable, tolerable pDTG-based regimen.



Before ART Initiation



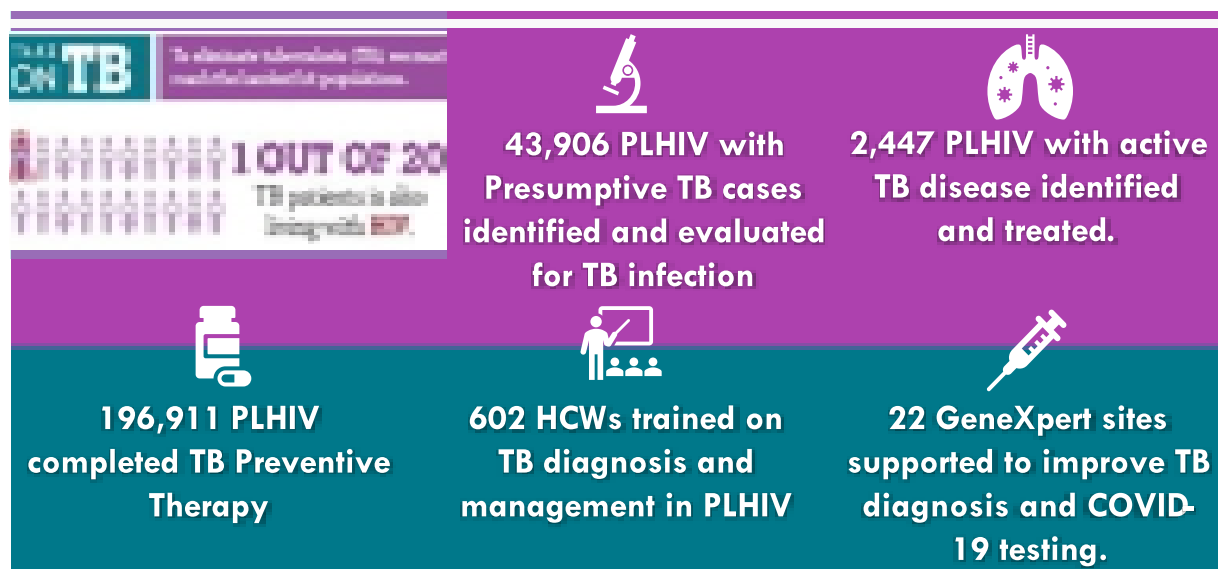
After ART Initiation

Hope rekindled! Benefits of the TLD Transitioning Experience in Benue State

Mr. Clement sat quietly in the corner of the hospital lounge, doing his best to hide his bulging chest while awaiting his turn to collect his new medication from the pharmacy. It had been mentioned during the health talks that a new, more effective ARV medication was available, and during the consultation, the clinician had informed him that on account of the gynecomastia he has developed as an adverse reaction from his HIV drugs, he would be moved to the new one (TLD). While on his old regimen, he had been battling with severe depression, a situation reported by 42 other patients in the program in Benue State 2018; *“I had contemplated suicide at some point,”* he said.

As he started on his new medication, his first impression was the noticeably smaller size, making it easier to swallow. In addition, the troublesome drowsiness associated with his previous drug reduced significantly. Though the gynecomastia has not fully regressed, no increase in size is being recorded and his suicidal ideations has ceased. In addition, he is virally suppressed, has no other ADR, and experiences a better quality of life. Four year since the change to TLD, he feels he has a new lease of life, a case of *“hope rekindled.”*

5.2 IMPROVING THE TB/HIV INTEGRATION



TB remains the most common cause of death among people living with HIV. Hence, one of the cardinal goals of the grant was to improve the TB/HIV collaborative activities through intensified TB case-finding. The case-finding aims to ensure that all PLHIV are clinically screened for TB at every clinic encounter and presumptive clients linked to appropriate diagnostic evaluation, TB/HIV care and treatment is promptly optimized if co-infected with TB disease, and TB preventive therapy provided for clients without active TB (if eligible). In addition, APIN implemented measures to institutionalize TB infection prevention control at supported facilities. With the advent of the COVID-19 pandemic. The scope of APIN’s infection control efforts further expanded with the TB/COVID pilot project. The pilot project entailed a bi-directional screening, and diagnostic evaluation of clients who are

presumptive TB or COVID-19 or both, leveraging on existing Gene-Xpert laboratories at 20 health facilities in Benue State.

5.2.1 Intensified TB case finding

The iCARES grant prioritises human capacity strengthening as a critical factor towards ensuring that all clients received high-quality screening for TB symptoms at every clinical encounter of care and those presumptive of having TB linked for diagnostic evaluation. The program conducted tailored TB/HIV training to build the capacities of 602 service providers on TB/HIV collaboration as part of comprehensive ART training for healthcare workers. The service providers were also supported with ongoing on-site mentoring. The program supported free chest X-ray screening for adults and adolescents with newly diagnosed PLHIV at 16 high-volume sites as an adjuvant for clinical screening to improve TB case finding amongst new clients. APIN also conducted a pilot study on TB/COVID-19 integration at 20 supported health facilities over an 18-month period for the provision of bi-directional screening, and diagnostic evaluation of PLHIV and non-PLHIV for TB/COVID-19 infection.

5.2.2 Improving Tuberculosis Diagnosis

The program provided infrastructural, training, and technical support to 22 GeneXpert sites across 14 of the 23 LGAs of Benue for effective processing and assay of TB samples and also leveraged on the equipment for assay of COVID-19 samples. Over a one-year period between 2021 and 2022, the program supported the use of urine lipoarabinomannan (LF-LAM) assays to optimize TB diagnosis amongst the PLHIV presenting with advanced HIV Disease.

5.2.3 TB Clinic-Laboratory Interface Continuous Quality Improvement (TBCLICQI) Project

This CQI project used the Plan-Do-Study-Act (PDSA) cycle approach to institute and implement interventions to enhance the clinical and laboratory interface in the TB/HIV diagnostic cascade and linkage to treatment using a standardized tool, diagnostic cascade evaluation (DICE), to assess the pre- and post-intervention periods. The project was piloted in 10 supported health facilities in Benue State and post-intervention assessment showed significant improvements in the TB/HIV cascade processes and quality of client care.

5.2.4 Optimized TB/HIV care and treatment

APIN provided facilitated linkage of clients diagnosed with HIV/TB diseases to prompt appropriate TB treatment at DOTS centres co-located at ART sites or the DOTS centres preferably near to the clients and ensure ART initiation at an appropriate time interval and dosing in line with national guidelines.

5.2.5 Results

At the end of the project, 43,904 presumptive TB cases (4,962 new on ART, and 39,212 already on ART) were identified and immediately linked to the DOTS units by the TB/HIV case workers for appropriate diagnostic evaluation, with 2,532 identified presumptive cases diagnosed with active TB and 2,447 treated for HIV/TB co-infection.

5.2.6 Infection Prevention Control

Infection prevention and control (IPC) initially concentrated on TB across 44 implementing sites at the beginning of the project in Benue State. However, with the COVID-19 pandemic, IPC implementation was scaled across other supported facilities with an expanded scope to cover other public health diseases. The baseline assessments of IPC measures at supported health facilities were conducted, and the facilities supported to develop a site-specific IPC plan and establish IPC teams, and supplies of the appropriate of personal protective equipment (PPE), with ongoing mentoring and quarterly assessments. APIN also partnered with the Nigeria Centre for Disease Control and prevention (NCDC) to implement full-scale IPC at 15 pilot sites mentored to become centres of excellence in infection prevention and control under the orange network program.

5.3 Tuberculosis Preventive Therapy

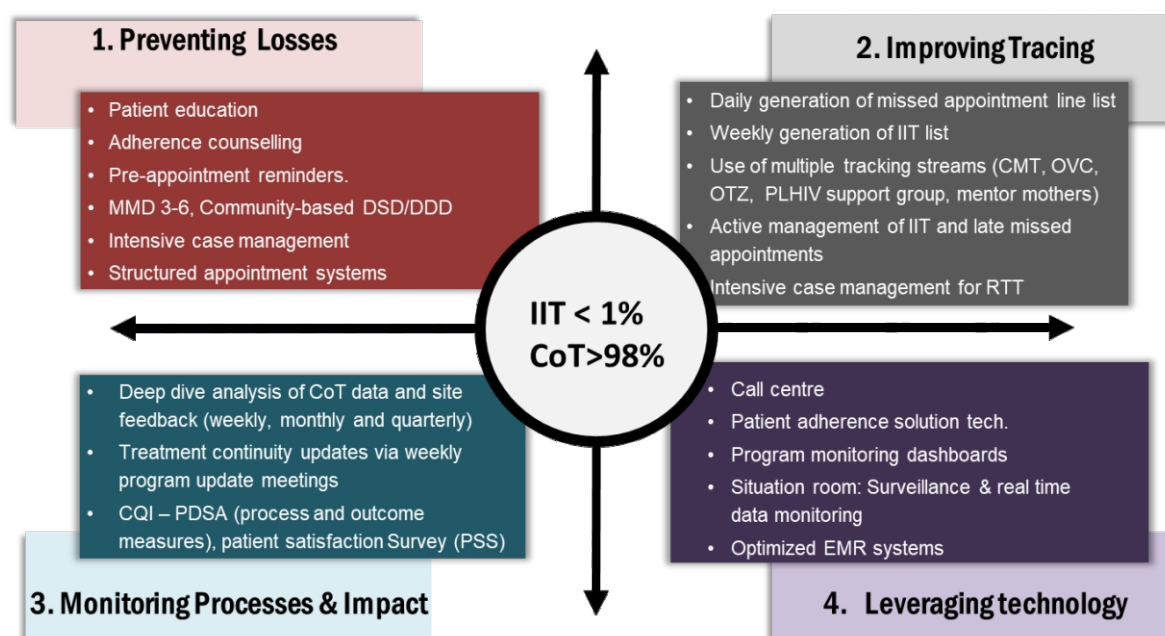
APIN, at the inception of the iCARES program in Benue State, encountered several barriers to achieving a sustainable implementation of Tuberculosis Preventive Therapy (TPT), including poor knowledge of healthcare workers and patients on the importance of TPT, inadequate supply of Isoniazid (INH) and poor documentation of TPT data. An overall assessment of the TPT program at inception recorded only 7,000 clients on TPT across all the APIN assigned facilities in Benue State, which constituted a considerable challenge to meeting the annual targets. During the project implementation, APIN strengthened the systems and processes that drive TPT uptake and completion in its supported facilities and engaged in an aggressive screening and enrolment initiative for all eligible PLHIV to be on the standard 6-month course of TPT. The efforts resulted in accelerated coverage, with 196,911 PLHIV completing the 6-month course of TPT.

5.4 Continuity of Treatment

5.4.1 Strategies and Innovations

Continuity of treatment is key to achieving favorable treatment outcomes, epidemic control and ending the HIV/AIDS pandemic. Clients experiencing an interruption in treatment (IIT) or who are caught in the cycle of interruptions and return to ART (CIRA) are at risk of unsuppressed viral load which drives the spread of new infections. Initially, a high proportion of clients under the program were not consistently receiving antiretroviral therapy following enrollment due to interruptions in treatment. The reasons for the interruption varied widely and included stigma, poverty, poor quality of care, treatment

fatigue, and competing life priorities amongst many others. As a result, APIN implemented a mix of proven and innovative strategies to ensure at least 98% of PLHIV were retained in care and less than 1% experienced any form of treatment interruption. The approach adopted involved a multidimensional model that addressed every stage of the treatment continuum at which a client might experience an interruption in treatment. Periodic patient satisfaction surveys (PSS) were conducted to understand the challenges to the continuity of treatment from the patients' perspective. The feedback from the surveys helped to inform and refine the interventions to be better targeted and client centered. The multi-pronged approaches emphasized preventing losses; improving defaulter tracing; leveraging technology; and monitoring processes and impact.



Schema of strategies and interventions implemented to optimize continuity of treatment

In the iCARES project, APIN implemented a structured scale-up for multi-month dispensing of 3-6 months of ARVs (MMD3 and MM6) to clients, and this was intensified with the advent of the COVID-19 pandemic. As a result, out of the 232,495 PLHIV on APIN's treatment program, 14% were on MMD3, and 86% on MMD6. This intervention reduced the frequency of clinic visits by clients, decongested the clinics, and reduced the workload of HCWs. In addition, APIN implemented various models of decentralized drug delivery (DDD) such as peer-led or HCW-led ART groups, community ART pharmacies, ART decentralization, and adolescent-friendly health services models to customize ARV refills. The models also served as a mechanism to tailor service provisions to the client's needs, preferences, and peculiarities, and to better meet the different needs of adolescents, men, working clients, migrant workers and farmers and clients living in security prone areas. Through its Greener Life Program (GLP), APIN supported pre-emptive programming for migrants, taking into account the nuances surrounding their planting and harvesting seasons as it relates to the ease of access to ART

services to avoid interruption in treatment. As part of the efforts to strengthen the quality of care for clients, the program implemented the Case Management Team (CMT) initiatives, whereby a multi-disciplinary team of 5 care providers with varying expertise offered tailored services to a maximum of 1000 clients per team. The CMT promoted the provision of personalized care to the patients and team accountability.

To adapt and improve interventions, CQI initiatives were implemented in selected facilities based on site-specific challenges. These initiatives included QI collaborative on the reduction of patient waiting time, pre-appointment reminders, excess antiretroviral pills, missed appointment/IIT tracing, and data quality management. Successful interventions are reviewed and scaled up to other sites. Ineffective interventions are either adapted or discarded for more effective ones. These combinations of client-centric services with enhanced monitoring of patient retention, and data quality audits resulted in an eight-fold reduction in the IIT rate; from 5.3% pre-ART surge to 0.6% at the end of the project.

DSD Models - Community Pharmacy ART Services: Easing Drug Access, Improving patients Satisfaction

In the dusty rural community of Yaikyo, located 7.9 kilometres from Makurdi Town, lives Awashima, a PLHIV. She had been on treatment at Bishop Murray Medical Centre and had to make her way there to access her medication. The difficult terrain of her community with poor road access were issues she battled with as she navigates through the muddy terrain to reach the facility. This got worsened by the high cost of transportation, resulting in her poor retention in treatment. Her source of livelihood as a petty trader at the Kanshio market, close to Yaikayo, was further impacted as she would spend critical hours of her day at the hospital waiting to be attended to. Therefore, she sometimes found it difficult meeting up with her hospital appointments, particularly when it falls on her community market days.

A reprieve came for her when APIN, with support from US Centre for Disease Control, in 2018 introduced the community pharmacy ART (CPART) decentralized drug delivery model. APIN began activities by selecting registered community pharmacies in the state in conjunction with the Pharmacist Council of Nigeria, then followed with training of the community pharmacists on the ART program to equip them with the required skills to render ART refill services. Once it was rolled out at the health facility, Awashima was offered the option to be devolved into the model, to which she agreed.

From her first drug refill in 2018 at the community pharmacy, Awashima felt a great sense of relieve. The waiting time reduced significantly to just 25 minutes; she was able to schedule her pickup to any day of the week, even on Sundays, giving her more time to attend to her business. This improved her compliance to drug refill appointments and ultimately made her part of the decision-making process for her health care. *“Coming to the community pharmacy has given me a reason to live, getting my drugs has become much easier as it does not affect my business anymore”, she said.*

Awashima is one of the thousands of people living with HIV that have benefitted from CPART program being implemented by APIN. The program is a person-centred care approach aimed at improving access to ART services and overall patient’s satisfaction. From April 2018 to June 2022, APIN devolved 1,837 patients to the community pharmacy ART model of decentralized drug delivery.

“The program has impacted positively on community pharmacists as it has exposed them to better ways of managing HIV patients, The patients are happy and feel more relaxed during their visits to the community pharmacy” said Pharm Juliana Agbese, proprietor of Taomi Pharmacy, where Awashima access her medications.

5.4.2 Not Leaving Children and Adolescents Behind

Pediatric and adolescent care and treatment program is at the heart of the iCARES project and is complemented by a robust OVC program working to improve the treatment outcomes of the children and adolescents living with HIV by providing home visits to address the broader household socioeconomic needs of the beneficiaries and their caregivers. The program was intentional in not leaving children and adolescents on treatment behind by addressing the low disclosure of HIV status to young adolescents by their caregivers, missed clinic appointments by the children and adolescents due to conflicting school calendars with clinic visits. The program also actively looked out for children and adolescents with HIV negative caregivers, strengthened programming for adolescents transitioning to

adult care, and provided support to adolescents facing psychosocial issues and moving into boarding schools.

The program has trained 212 health care workers and 50 OVC CSOs staff on the adolescent package of care. This number included 106 Caregivers and 221 adolescents trained as peer champions under the Operation Triple Zero (OTZ) Program to improve the quality of services provided to young people. APIN has implemented training and re-training of health care workers to build their capacities to support parents and caregivers to navigate through the disclosure process, initiating and completing the process of HIV status disclosure to the CLHIV at the right time with the right tools. By the end of the project on 30th September 2022, the program had 15,068 pediatrics and adolescents on treatment (5,140 for 0-9 years and 9,928 for 10-19 years) across 252 supported treatment sites with trained service providers to offer pediatric and adolescent-friendly health services. This approach aligned with the primary goal of retaining clients in care and achieving good adherence to ARVs and viral load suppression. The high-volume treatment facilities have dedicated pediatric and adolescent case management teams to provide for the special health needs of these populations. APIN implemented an edutainment and peer mentoring based OTZ program helping to increase treatment literacy, motivate adherence, and appointment adherence, increase treatment continuity and improve psychosocial well-being, self-esteem, self-worth, and confidence of the adolescents and young people in the treatment program. Following these interventions, there has been a progressively quarterly decline in the rates of interruptions in treatment (IIT) amongst children and adolescents on treatment, from as high as 6.7% to 0.6% among children, and from 5.1% to 0.5% among the adolescents.

5.5 Empowerment from OTZ Champions Contributory Thrift Savings in Gboko

The OTZ program came on board in 2020 and changed the narrative for programming toward the attainment of the 2nd and 3rd 95 targets amongst adolescents and young people and led to high impact and life-transforming experiences for the clients.

Gboko East Comprehensive Health Center, a high-volume site with over 300 adolescent clients, has a passionate set of HCWs and OTZ champions who are highly innovative and trailblazers in the program. The OTZ champions came together and formed a contributory thrift saving group and agreed to put aside a part of their monthly incentives earned from their peer mentoring work into savings each month. At the end of every month, one champion in the group takes all the money saved for that month, which is subsequently rotated among all the group members throughout the cycle of the monthly contribution. Each of the recipients comes up with a proposal of what to do with the contributed funds when it is their turn and they are guided appropriately and followed up to ensure the establishment of a business or an investment.

Through this platform, about five (5) adolescents were registered for their West African Examination Council (WAEC), 3 got enrolled for Junior Secondary exams, 2 were empowered to procure chemical spraying equipment with which they work for farmers and get paid. Others started one business venture or the other. All the champions are virally suppressed and keep more to their clinic appointments in line with the OTZ goal of zero missed drugs, zero missed appointments, and zero viral loads.

Empowerment for self-sustenance: How OTZ Thrift contribution changed my story.



Miss Sandra Ugah is a 19-year-old PLHIV who lost her parents in 2016 and lives with her grandmother, a subsistence farmer who caters for her and 2 other siblings.

Through the efforts of her grandmother, she enrolled in a tailoring class in 2019 and completed the apprenticeship in 2021. At the end of her apprenticeship, she could not start her own tailoring shop because of lack of funds. She continued to work for her boss in an agreement for a monthly payment, however, the payment was irregular; hence, she resigned from the engagement.

At about the same time, she was selected to be one of the OTZ champions providing support to her peers at the facility where she is accessing ART services. When her turn to collect the money saved by the group came up in February 2022, she used the funds to buy a sewing machine. With her other savings, she also got a space for her shop and has successfully set up her tailoring business. With the little proceeds from the tailoring business, she can now augment the incentives from her peer mentoring work at the ART clinic. She is now able to support her grandmother in taking care of her other siblings.

In her words, *“I never knew I can amount to anything in this life, but this program has helped me achieve my dream and I feel happy assisting my grandmother and siblings. I make my own money without begging and my life has changed completely. Thanks to APIN and my OTZ coaches for finding me out. God bless you for me.”*

...From a dependent to an employer of labour;
my elevation story via OTZ Thrift contribution.



“I am **Joyce Steven**, a 21-year-old widow who commenced treatment in 2018 following diagnosis after the loss of my husband to the disease. Things became extremely hard for us as my failing health could not allow me to work and take care of my daughter who is also in treatment. I solely depended on relatives for our daily bread.

In 2019, I became an OTZ champion providing peer mentoring and support to my friends and peers to improve their treatment literacy and encouraging them to be actively involved in their health.

APIN commenced the economic empowerment contributory program from the incentives earned from peer mentoring. I collected my contribution,

bought a deep freezer, and started the production of local drinks (*Kunu and Zobo*), and orange juice. I subsequently added other drinks and my business blossomed and I sell to the nearby polytechnic and makes an average of N2000 gain daily.

Today, I have employed one person to help me serve in the shop while I go to sell in the school. Above all, my viral load is good now and my health is restored while my daughter is well and happy.

I want to especially thank the APIN for using this avenue to empower my family.”



Operation Triple

Zero

(OTZ)

*Improving Treatment Outcomes
Amongst Adolescents and Young
Adults on HIV treatment.*

Ms Patience is a 19-year-old student accessing antiretroviral therapy (ART) at Madonna Hospital Makurdi. She started ART in 2014 at the age of 11 years having been infected with HIV perinatally. She lives with a single-parent dad. Following the separation of her parents, the father who is a busy professional hardly had the time to give Ms Patience the necessary support at home to take her pills at the right time and right dose. As a result, she was not adherent to treatment and had persistently elevated viral load (190,241 cp/ml in 2021) even after her ART was optimized in 2020. On multiple occasions, she was admitted to the hospital on the account of HIV-related infections and spent weeks in the hospital.

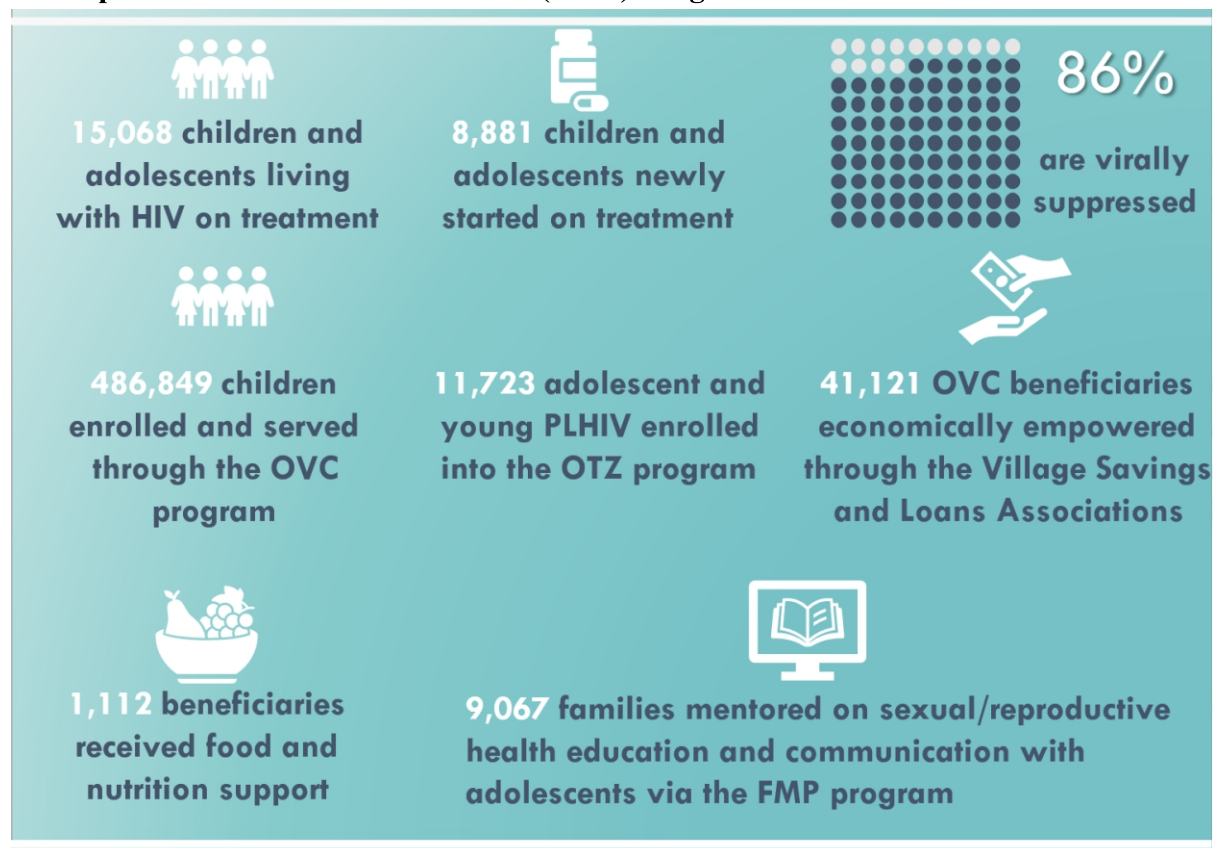
After her last admission in 2021, she was counselled and enrolled in the OTZ program. While in the program she was introduced to an adolescent package of care via the interactive module sessions which included HIV literacy sessions, adherence, and disclosure counseling, peer counseling, and psychosocial support. The program exposed her to a friendly environment where she could express herself. As a result, she committed to never missing clinic appointments by taking advantage of the Saturday meetings to pick up her medications and take them regularly.

Within 6 months of enrolment into the program, her viral load became undetectable and has remained so ever since. She is now a vibrant advocate of OTZ.

“Before joining the OTZ club, I just take my drugs anyhow and any time I like but that has changed, I am now motivated and very eager to take my drugs, my viral load is now 0. My health is my responsibility.”

- Ms. Patience.

5.6 Orphans and Vulnerable Children (OVC) Program



In line with the overarching goal of the Orphans and Vulnerable Children (OVC) Program to ensure vulnerable children and their households are healthy, safe, schooled, and stable, APIN implemented the OVC interventions from the commencement of the iCARES grant in 2017 with the generous support of PEPFAR through CDC. The program implementation was in collaboration with Government of Nigeria (Ministry of Women Affairs, Ministry of Health and Human Services, social welfare departments, among others), Civil Society Organizations, health facilities, traditional and religious leaders as well as other states/community platforms.

5.6.1 CSO engagement, technical and institutional capacity strengthening

An initial baseline assessment using the Organizational Capacity Assessment tools was conducted, which led to the engagement and sub-award of 29 CSOs in 2017 to participate in the OVC program in 22 LGAs of Benue State. The CBOs were pruned to 21 in 2022. The sub-award catered to both the programmatic and human resource needs of the CSOs towards the implementation of quality services to OVC beneficiaries. To ensure that the CSOs were well equipped with the requisite technical and institutional capacity to implement the iCARES OVC program, a range of training was conducted for CSO management and staff, as well as community-level case managers. Some of the training conducted during the grant cycle included comprehensive OVC training, case management training, care and support training, and household economic strengthening (including financial literacy training). Other

training conducted included psychosocial support training, and better parenting training, and training to effectively address gender-based violence. In addition to the off-site training, a hybrid of routine onsite and remote technical support was provided to CBOs by the dedicated OVC LGA-based teams as well as State and APIN HQ OVC teams. The CSOs were also equipped with the required SOPs, national guidelines, revised national data capturing tools, and IT equipment to support virtual meetings and training sessions, in addition to other anthropometric equipment to support the OVC program.

5.6.2 Enrolment of OVC beneficiaries and Community level program implementation

In collaboration with supported facilities and relevant community structures, OVC beneficiaries were identified, assessed and subsequently enrolled into the OVC program in line with PEPFAR's priority enrolment streams. The PEPFAR OVC program evolved with a spotlight on children and adolescents living with HIV and HIV-exposed infants, while not losing sight of other priority enrolment streams. The partnering community structures included LGA OVC desks, social welfare units, Child protection networks, KP partners, OTZ platforms, Mentor Mothers and the PMTCT program, and TBAs/cPMTCT platforms.

During the PEPFAR GH1753 grant cycle, the OVC program enhanced the quality of care to program beneficiaries and improved APIN's visibility across supported communities. Activities implemented through the CBOs were child/family-focused and tailored to address the specific needs identified and captured in the child/household's care plans. Beneficiaries who attained the graduation benchmarks were responsibly graduated from the program and appropriately documented and reported. Key program milestones were recorded on the different domains of the OVC program, and the result has enhanced the potential to meet the UNAIDS 95-95-95 goals.

5.6.3 *Integrated healthcare services for families and children infected or affected by HIV/AIDS*

Children and families infected or affected by HIV/AIDS enrolled in the OVC program had access to essential need-based healthcare services including HIV prevention and testing, early infant diagnosis (EID), anti-retroviral (ARV) treatment, viral load optimization and monitoring, immunization, menstrual hygiene practices, COVID-19 screening/vaccination, cervical cancer screening, and nutritional support. Activities aimed at addressing stigma and discrimination to reduce barriers to the uptake of services were also integrated. Working with the partner CSOs, APIN recorded significant improvement in pediatric treatment optimization, with viral suppression increasing from 53% in 2017 to 85% at the end of FY22 Q3, and caregivers viral load suppression was at a high level of 97%. Systems and strategies have also been instituted to provide the desired support to beneficiaries towards attaining family viral load suppression.

5.6.4 Eliminating educational barriers for OVCs

APIN worked collaboratively with relevant stakeholders including CSOs, Local and State Education authorities, and community structures to address barriers and improve access to education by OVC beneficiaries. This collaboration led to the provision of teaching and learning aids and educational block granting for waivers of school levies. Other interventions supported by CSOs during the grant period included school performance assessment, strengthening of early childhood care development, and supports for adolescents to transit from primary to post-primary education.

5.6.5 Household Economic Strengthening (HES)

The OVC program focused on tailored and viable interventions to mitigate the economic vulnerability of families and empower them to provide for the essential needs of their children and households without relying on external assistance. Key areas supported were vocational training for caregivers and older out-of-school adolescents, provision of start-up kits for different vocations, such as tailoring, welding, and fabrication, catering services, hairdressing, and shoe making. Additionally, individual or group Income Generating Activities (IGA) were supported including procurement of *garri* processing equipment, grinding machines, and groundnut processing machines. Others benefited from financial literacy training, cash transfer, Village Savings, and Loans Associations (VSLA) groups, and linkage to micro-credits among others. About 41,121 beneficiaries were reached with either one or more of these interventions. In addition to achieving household economic stability, persons in the ART program who benefited from these HES support, had sustained ART adherence, better retention in care, and improved treatment outcomes.

5.6.6 Food security and nutrition for optimal treatment outcomes

The provision of improved agricultural inputs and training on modern farm practices contributed significantly to food security and provided resources to cater to other household needs. The cultivation of communal farms and donations of food items to the food bank were initiatives that supported indigent households in dire need of food support. About 15,391 caregivers received agricultural inputs and training on modern farm practices, 44 communal farms were cultivated, 21 food banks were established, and 1,112 project beneficiaries were linked to the food banks for support.

5.6.7 Protecting OVCs to achieve personal life goals

Policies on child protection were adapted and stakeholders and beneficiaries were mentored on the provisions of the laws. Child protection committees were strengthened to help prevent and respond to child protection issues. CSOs with support from APIN equally intensified advocacy to key stakeholders including the National Population Commission and sensitization of caregivers on the importance of birth registration which yielded great results, as 42,321 OVCs who had no birth certificates were registered and issued certificates.

5.6.8 The Families Matter! Program (FMP)

FMP is a program implemented in Benue State by trained and certified facilitators and designed to support parents and caregivers of adolescents with appropriate knowledge and skills to communicate appropriately on issues relating to HIV prevention, status disclosure, and sexual/reproductive health messages. The program was also designed to support adolescents with skills to delay sexual debut and prevent new HIV infections as well as support those on ART to attain optimal treatment outcomes. The package entailed working with OVC CSOs and community platforms to identify eligible parents and caregivers who had their skills built within 7 weeks. At the end of FY22, a total of 18 waves of training were conducted, reaching 9,067 caregivers across 10 LGAs in Benue State.

The “Lame” walks again in Katsina-Ala

Nygba Terhile from Amaafu community in Katsina-Ala, a CLHIV and paternal orphan was enrolled in the OVC program with a viral load of (>20,000.00) cp/ml. His household was faced with so many challenges including food insecurity, which resulted in his malnourishment. The caregiver also being an unsuppressed HIV positive client could hardly engage herself in economic activities to address the household needs. One day, Terhile went to look for fish in a nearby river to support his mother, he fell on the rock and had double fractures on his thigh and pelvis on the same leg. The treatment of this condition brought untold hardship to the family as things became difficult for them and they also still had financial challenges to meet up with their need for feeding, adherence to ART, and other basic needs. This resulted in the rise in viral load and worsening malnutrition.

APIN, through the Association of Grassroots Counsellors on Health and Development (AGCOD), a CSO partner, intervened with different services including emergency funds for the treatment of the fractured leg, clinical appointment reminder and transport support, adherence support during home visits, linkage to Enhanced Adherence Counselling (EAC) and OTZ, nutritional support, and provision of crutches to aid walking. The caregiver benefited from a conditional cash transfer which helped to start up a business and boosted his economic base. With the support received, Terhile has regained his health, his viral load reduced to <50cp/ml, and can walk without the crutches.

Pre-Intervention



During Intervention



After Intervention



Saaondo - Surviving and thriving despite all the odds!

Ushakaa Saaondo, a 9-month-old EID Positive child who lost his mother experienced an interruption in treatment and became frail. He was traced and enrolled in the OVC program by APIN, through the Centre for Community Resource, Health and Social Development (CCRHSD), a partner CSO. At the time of enrollment, baby Saaondo appeared severely malnourished, and had tiny scales covering his skin from the neck down to his feet. The CBO with support from APIN facilitated his treatment by footing his hospital bills and providing the recommended foods to correct his malnutrition, thus boosting his nutritional status, and speeding up his recovery. Regular visits were paid to the child at the facility by the OVC case manager to monitor the child's recovery. Following this timely intervention by APIN through CCRHSD, Saaondo regained his health and became high-spirited and vivacious.

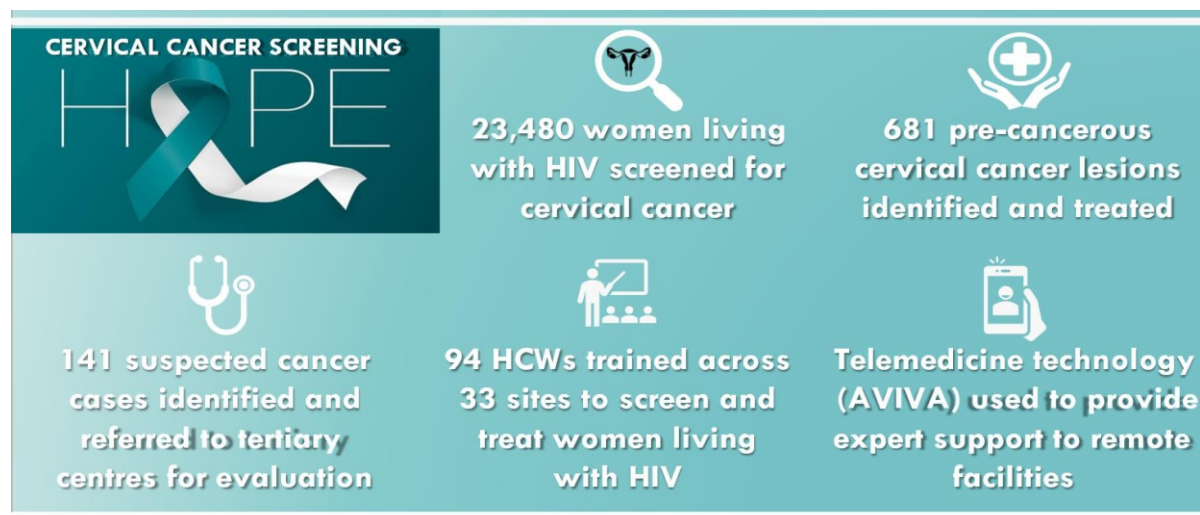


Baby Saaondo on admission at the Emergency Pediatric Unit (EPU)



Baby Saaondo discharged from the hospital

5.7 GIVING HOPE – Our Integrated Cervical Cancer Program for Women Living With HIV.



Cervical cancer is a public health challenge globally. It is the second most common reproductive cancer in Nigeria, after breast cancer. Reports showed that in 2018, 14,943 new cases of cervical cancer were recorded in Nigeria, and 10,403 deaths from the disease, with one woman dying of cervical cancer every 2 minutes (Bruni et. al., 2019). The situational impact of cervical cancer is worse in Nigeria due to ignorance, late presentation in the terminal stages, and poverty which limits the access of affected women to treatment that is not readily available. Women living with HIV are 4-5 times more likely to develop persistent precancerous lesions and progress to cervical cancer, often with more aggressive forms and with higher mortality. However, cervical cancer, when detected early, is treatable and with good results.

The cervical cancer program under the APIN/CDC iCARES grant employed a ‘*See-and-treat*’ strategy that offers free cervical cancer screening services as part of integrated services to women living with HIV above the ages of 18 years, with a thermal ablation treatment for those with precancerous lesions and linkage to cancer therapy for the women who have progressed to cervical cancer.

The integrated cervical cancer program was flagged off in 2020 by the then Honourable Commissioner for Health and Human Services, Benue State, Dr. Emmanuel Saleh Ikwulono, and the Rt. Hon. Ngunan Addingi, the Hon. Commissioner for Information, Culture, and Tourism, Benue State, a renowned health advocate for women, and with other relevant state stakeholders and APIN’s senior management in attendance. APIN also established a collaboration with the Benue State branch of Medical Women Association of Nigeria (MWAN) aimed at reaching women in the general population, increasing the knowledge of cervical cancer and the availability of its screening and treatment facilities.

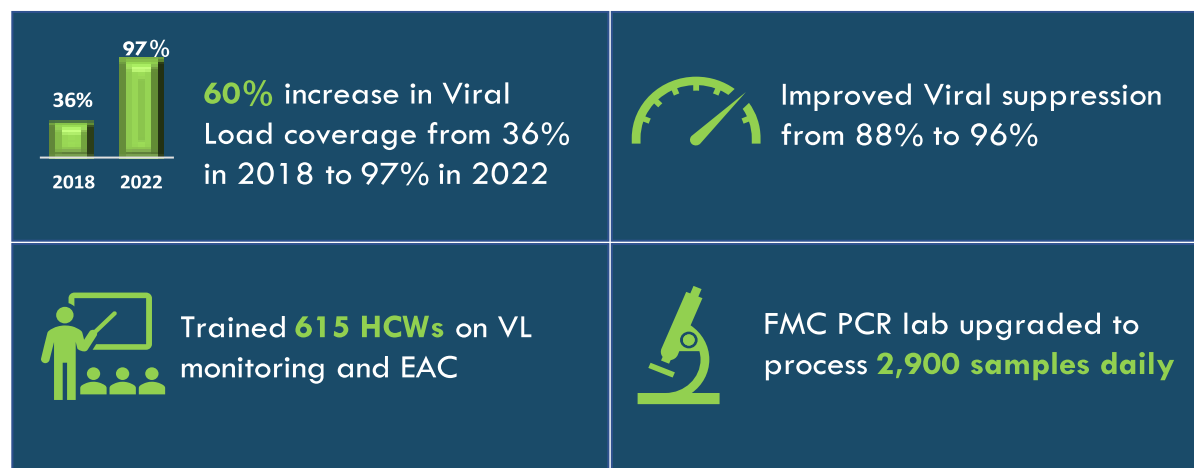
APIN trained 94 healthcare workers (61 Nurses and 33 medical doctors) to “screen and treat” cervical cancer at 33 health facilities in Benue State. These facilities were also equipped with medical equipment (examination couches, angle poise lamps, sterilizing materials, thermal ablation machines) for cervical cancer screening and treatment. There was also an ongoing onsite hands-on mentoring of HCWs to

strengthen their skills for optimal service provision with support for an instant specialist review of photographed cervical lesions by a consultant gynecologist remotely via an in-house built smart-phone powered app, AVIVA.

Since the commencement of the integrated cervical cancer screening in the Benue HIV program, APIN has provided cervical cancer screening to a total of 23,480 women living with HIV with 646 precancerous cases diagnosed and treated while 141 clients who had suspected cancer lesions were referred to the tertiary health facilities for biopsy for confirmation of the diagnosis and further management.

Chapter 6:

Viral Load Optimization



One of the cardinal goals of the *i*CARES grant was to ensure that at least 90% of PLHIV in supported SNUs are virally suppressed by optimizing viral load monitoring through activities targeted at the HIV clinics, PLHIV, and PCR laboratories. Despite, the adoption of routine viral load assays for HIV treatment monitoring in 2014, Nigeria was still struggling to make viral load tests widely available to clients in the country in 2018. At the end of Q4 in FY2018, the PEPFAR program in Nigeria was able to achieve viral load coverage of 56% with a suppression rate of 82%. The access to viral load testing in Benue was worse off in that period with a viral load coverage of 36% amongst clients eligible for viral load test and suppression of 88% of the clients who had the test. The APIN’s mandate was to reverse the trend by collaborating with the relevant stakeholders, including Government of Nigeria (GoN), CDC, USAID, CHAI, and other IPs. APIN, with a strong track record and existing in-house capacities in routine viral load monitoring, implemented multi-pronged approaches for the scale-up in Benue State.

The Game changing strategies: Interventions at a glance



6.1 Baseline Assessments

APIN conducted a baseline assessment to determine the readiness of the supported facilities to implement routine viral monitoring using the WHO standard assessment tool to identify areas of improvement in the viral load monitoring processes. The assessment covered, among others, issues of demand creation among care recipients and healthcare providers; sample collection, transportation, logging, and processing at reference laboratories; the transmission and review of results by providers; and result notification to the care recipients. The outcome of the assessments guided the development of a plan to optimize viral load coverage and suppression under the following broad strategies; viral load access/uptake optimization, strengthening the viral sample management and referral networks, PCR laboratory optimization, improving viral load suppression, and enhanced monitoring and performance management.

6.2 Viral Load Access/Uptake Optimization

The program implemented wide-ranging remedial actions to improve demand generation by service providers, get patients to demand the tests, and ensure adequate logistics for uninterrupted phlebotomy of patients within recommended time frames. The program trained 290 doctors, nurses, and other healthcare providers on viral load monitoring and enhanced adherence counseling, 125 service providers as viral load champions, and 200 laboratorians in collecting and managing viral load samples. In addition, on-site mentoring, technical assistance visits, review meetings, continuous quality improvement collaboratives on viral load monitoring, and instructional and promotional resources, such as job aids, SOPs, and IEC materials, strengthened the capacity-building efforts on viral load optimization. APIN implemented active demand creation for VL sample collection within recommended timeframes via client education, proactive generation of quarterly/monthly/weekly line lists of patients eligible for VL sample collection, active follow-up and tracking of patients eligible for VL, and use of viral load champions for gate-keeping at entry and exit points. The viral load champions are part of the five-member team of the facility case management teams who provide client-centric care to a cohort of a maximum of 1000 PLHIV per team. They were central to the viral load optimization; they served as links between the patients, facilities, and labs, ensuring prompt identification and linkage of eligible patients for viral load bleeding for sample collection on schedule. In addition, they collaborate with other team members to recall those eligible for viral load bleeding whose clinic appointments fall outside the quarter, ensure timely movement of samples from facilities to the labs, and follow up on results return and filing in patients' records. They also facilitated the linkage of patients with panic values (unsuppressed and low-level viremia) to enhanced adherence counseling.

The facility pharmacists also functioned as gatekeepers at exit points to identify patients who present for drug refills but are also eligible for VL sample collection. The PLHIV support group volunteers (mentor mothers, peer retention volunteers, OTZ champions) provided health literacy to their peers for

VL uptake and management of high VL results. The peer lay counselors are also involved in identifying VL-eligible patients during clinic days and mobilize their peers who reside in hard-to-reach communities for VL sample collection during mobile community cluster VL bleeding. To improve the access and uptake of pediatric age group to viral load testing, outreach phlebotomists worked with orphan and vulnerable (OVC) community-based organizations (CBOs) to collect VL samples of OVC enrollees and caregivers eligible for VL tests. The program provided extended clinic hours and weekend VL bleeding services at Tier 1 & 2 health facilities for busy professionals, children, and adolescents. APIN used Operation Triple Zeros (OTZ) and the All Kids count club meetings to bleed adolescent and pediatric age groups eligible for viral load. APIN deployed the Dried Blood Sample (DBS) for viral load sample collection in hard-to-reach and insecurity-prone communities to sustain VL access; however, its use was short-lived because of the limited estimation of low-level viremia. The program provided access to viral load monitoring for the KPs at supported four One-Stop Shops (OSSs), designated drop-in centers, and outreach sites and during community support group meetings. APIN instituted a robust inventory/commodity management to maintain uninterrupted supplies and consumables for VL sample collection across 252 health facilities.



Representative of the CDC during training for capacity building on viral optimization



Undetectable = Untransmittable Campaign in Benue State.



Stakeholders Engagement Meeting



Role Play at the VL optimization training in Benue State



Community Bleeding in Logo LGA



Community Bleeding in Ushongo LGA

6.3 Strengthening the Viral Sample Management & Referral Networks

Plasma was majorly in use for the scale-up of viral load monitoring in Benue State. The program organized the 252 supported facilities in a hub-and-spoke model and equipped sixty-five of the hub sites with the infrastructure to centrifuge and store viral samples at the clinic levels. The management of the sample referrals and transport from the hubs to the central PCR laboratory at Federal Medical Centre Makurdi, one of the country's six mega PCR laboratories, was via third-party logistics companies (3PLs) under the National Integrated Specimen Referral Network (NISRN) project. In addition, APIN collaborated with the UMB/PHIS3 project to operationalize the remote sample login via the Nigeria Medical Record System (NMRS) - Laboratory Information Management System (LIMS) data exchange. This system has helped reduce the pre-analytic workload at the PCR laboratory, VL results turn-around time (TAT) and real-time access to VL results at the supported sites once results are approved on LMIS by the PCR laboratory. In addition, APIN initiated and implemented a digital viral load sample and result tracking system (S-Tracker) to monitor the movements of viral load samples and results to and fro the PCR laboratory. The S-tracker helps the program to detect hiccups within the sample referral networks early and to hold 3PLs accountable, providing intervention and maintaining optimal sample transportation and retrieval of results from supported sites to and from the PCR laboratory.

**The Federal Medical Centre, Makurdi PCR Laboratory:
Upgrade, Capacitation, Systems Enhancement and Accreditation**

In 2018, the PEPFAR program made huge investments in PCR laboratory network optimization in Nigeria, resulting in the streamlining of supported PCR laboratories to 11 with the upgrade of their throughputs. This intervention was to reverse the high viral load backlogs at supported PCR laboratories with low viral load coverage and unacceptably high turn-round-time (TAT) of VL test results.

In line with the PCR laboratory network optimization, there was a remodeling of the infrastructure of the FMC Makurdi PCR laboratory with an upgrade of its equipment with 4 Abbott m2000sp/m2000rt and Pantha Hologic, to a medium-throughput PCR laboratory with an installed capacity to process 2,600 viral load samples and EID samples daily as against 505 daily output before the upgrade. The program also provided IT equipment for data management, a high throughput printer for printing viral load results, with an alternate power supply, a 150 KVA generator and inverters, to augment the epileptic power supply from national grids. The program supported the laboratory with additional human resources (10 medical laboratory scientists, 10 laboratory technicians, and 9 data entry assistants) for sample reception, processing, testing, and data entry to address the limitations in human resources at the laboratory and to support the 24-hour daily operations of two shifts on both weekdays and weekends. The program built the capacities of the laboratory personnel on biosafety and biosecurity; quality management systems (QMS); equipment maintenance; packaging, and transfer; and laboratory information management system. Two program-level members of staff were embedded in the laboratory to provide daily enhanced monitoring, coaching, supervision, and reporting of the PCR mega laboratory activities working with the management of the hospital. The program supported the Quality Management System (QMS) at the laboratory to address identified performance gaps and improve the quality of service indicators such as result turnaround time, sample rejection rate, proficiency testing performance, reagent stock-out, and equipment downtime performance. The program supported the enrolment for accreditation through the Strengthening Laboratory Management Toward Accreditation (SLMTA) processes and preparation for international certification. APIN collaborated with CHAI to support the modification of LIMS to be more user-friendly, easy for data mining, and seamless operation. This optimized PCR lab at FMC Makurdi is responsible for the testing of viral load samples for HIV treatment sites in Benue State, and adjoining states of Taraba, and Cross river with occasional receipt transfer of viral and EID samples within the National Integrated Specimen Referral Network (NiRSN) in Nigeria.



Refurbished/upgraded PCR Lab



New Abbot Equipment

During the project cycle, there was the roll-out and implementation of the remote viral load sample login via the Nigeria Medical Record System (NMRS) - Laboratory Information Management System (LIMS) data exchange. This system has helped reduce the pre-analytic workload of viral load sample registration at the PCR laboratory and enabled the direct sync of VL results on EMR at the supported sites once the results are approved on LIMS by the PCR laboratory, removing the bottlenecks of manual result entry. The scale-up of the implementation of the NMRS-LMIS data exchange has contributed significantly to a reduction in the median turnaround time (TAT) of viral load results from 24 days to 10 days with real-time access to VL results at the supported sites upon approval of results at PCR labs, improving the clinical -laboratory interface and accountability of client samples.

For effective laboratory operations, a laboratory activity management system (LAMS) was designed and deployed to the facilities and PCR laboratory. LAMS is a software application with a varied number of modules: Sample tracker (S-tracker); results sorting and dispatch; sample rejection; commodity management; equipment management; occurrence management and documents and record. The S- tracker was designed and deployed to facilities and the PCR lab to monitor the movements of viral load samples and results to and fro the PCR laboratory. The S-tracker helps us detect hiccups within the sample referral networks early to hold the 3rd party logistics accountable, provide intervention and maintain optimal sample transportation and retrieval of results from supported sites to and from the PCR laboratory. Once the viral load results are successfully delivered, an instant notification is sent to the sending laboratory, the same applies when viral load results dispatched from the PCR laboratory are delivered to Hub and spoke facilities. Instant notification for clinical decision value (>1000 copies/ml) and samples rejected at the PCR laboratory are sent to the sending facilities for urgent intervention. Between September 2021 and July 2022, a total of 808 rejection notifications have been sent to facilities with reasons for the rejection and information on corrective action. Faulty equipment is instantly communicated to the field service engineer for urgent intervention and to reduce downtime. For effective use of the equipment and to prevent service interruption due to faulty equipment or prolong downtime, APIN on annual basis engage service vendors for periodic preventive maintenance (PMM) plans and repair of faulty equipment. From

October 2017 to June 2022, the PCR laboratory tested 950,090 viral load samples with record high viral load testing outputs of 381,302 and 290,051 in FY20 and FY21 respectively, contributing 20% of the total viral load samples tested in Nigeria within the period.

6.4 Improving Viral Load Suppression

The robust clinic-laboratory interface via the NMRS-LMIS data exchange enabled prompt identification and notification of supported sites about unsuppressed viral load results to commence the patients' recall for Enhanced Adherence Counselling (EAC) within 24 hours of the availability of results. A quality-assured EAC is provided to patients with unsuppressed VL results by certified nurse adherence counsellors and very experienced lay adherence counsellors in some settings. The EAC sessions are delivered by guided use of EAC flip charts and documented on the EAC plan tool and high VL registers. The high-volume treatment sites (Tier 1 & 2 facilities) also provided dedicated viraemic clinic services for enhanced case management and tailored interventions for patients with unsuppressed VL results. The program has transitioned all eligible adult PLHIV to TLD-based regimens with all eligible C/ALHIVs optimized on the DTG/TLD-based regimens as one strategy to improve VLS rates among C/ALHIVs. APIN built the capacities of the therapeutic drug and ART switch committees at supported tier 1 & 2 sites to review and switch patients failing the first-line ARV regimen to appropriate and age-specific second-line regimens. These teams receive technical support from their site clinical mentors. The children and adolescents living with HIV (C/ALHIV) (0-17 years) enrolled in the OVC program and the HIV-positive family households who have unsuppressed VL results received additional psychosocial, nutritional, and household economic strengthening support to achieve VL suppression. The program supported structured age-appropriate paediatric disclosure, Kids, and OTZ clubs for the paediatric and adolescent subpopulations, respectively, to enhance peer interaction, support, and adherence to ARVs.

Family-Centered Care: A Collaborative Approach to Addressing Persistent Viral Un-suppression amongst Family Units on HIV Treatment

NKST Hospital, Mkar, the second largest HIV treatment facility in Benue with over 7,000 clients on treatment has a total of 32 identified family units assessing HIV care at the facility, with a total of 108 clients on treatment. Each family unit has at least 2 or more family members on treatment with the largest family unit having 6 nuclear family members on HIV treatment. Amongst the identified 32 family units, 9 family units have family members with high viral load results; 8 of the family members were the parents while 15 were children and adolescents.

The index family unit whose case management is spotlighted here has 4 members with a persistent high viral load since the roll-out of routine viral load monitoring in 2018, despite being managed through the traditional facility-based enhanced adherence counselling.

The Inje's family- a family of 4 (Mother, Father, and 2 children), all living with HIV reside in a suburb in Gboko LGA. The mother was diagnosed with HIV in 2015 and the last child has been on treatment for over 4 years but none of the family members have ever been virally suppressed. Each of the family members has had a minimum of four documented serial high viral load results, comprising both the routine and post-EAC results. Their recurrent interruption in treatment is a contributory factor.

This situation attracted the attention of the service providers and program staff who conducted deep-dive assessments to ascertain the causes of such persistent high viremia in a family unit. This effort resulted in the birthing of the family-centred approach to care in the management of persistent high viral load families in care at NKST Mkar. A multidisciplinary team of a clinician, paediatric focal person, OVC case manager, and facility retention officer with support from the program staff conducted a home visit to the Inje's family with the consent of the mother. The household assessments showed that their mother is experiencing self-stigma as she felt that everyone in their village has become aware of her HIV status since she was abandoned in the village by her husband for another woman. She was also experiencing some financial hardship having lost the capital of her petty trading, which was her major source of livelihood particularly following her separation from the husband. She defaulted from her clinic visits with complaints of the hospital being distant from her village, but she was unwilling to transfer to nearby health facilities due to stigma. The home visits revealed that she stores the ARV drug under unsuitable conditions with poor adherence to the frequency and dosing of ARV drugs for herself and her children. Sometimes, the children refuse to take the ARV drugs or vomit the drugs. The children were unhappy and have dropped out of school since their mother could not pay their fees. With her

financial challenges, the mother could not provide adequate meals for the children, resulting in malnutrition.

Guided by the needs assessment conducted, the project team linked the family to Women, Children's Health and Community Development (WOCHAD), an APIN OVC CSO partner, for economic empowerment through the VSLA. The team also facilitated the return of the children to school while the husband was reached, and a reconciliatory meeting was held to broker peace resulting in his reunion with the family. Intensive one-on-one EAC was done for all, with the clients followed up to ensure all barriers were addressed. The knowledge gaps were addressed, and the children optimized on the right regimen. The clinician diagnosed and managed the mother and children with skin diseases and at the same time dewormed them.

Following the interventions, the four members of Inje's family have achieved viral re-suppression becoming a virally suppressed family unit. The family was reunited, the children returned to school, and the mother's business revived. Reflecting on the family experience, Mrs. Inje, in an emotion-laden voice and with teary eyes, remarked: *"I don't know where to start to thank you, people. I had lost hope in this life and had on many occasions contemplated suicide since I felt that everyone including God had abandoned us, but God used you to give us back life. I just want to say thank you to APIN for coming to our rescue. I am happy that my children have returned to school, and I have started my small business. May God the great rewarder, bless and reward you people for me"*.

Mrs. Torkwase (Nutrition Officer, WOCHAD) also noted as follows, *"This is one of the best comprehensive packages of care APIN have ever provided, it's unique because the multi-disciplinary team ministered to the needs of the clients holistically. I feel elated being part of this team and thank you to APIN for providing us with this opportunity to impact life. I am so full of joy that this young family has been saved from destruction. God will bless us all."*

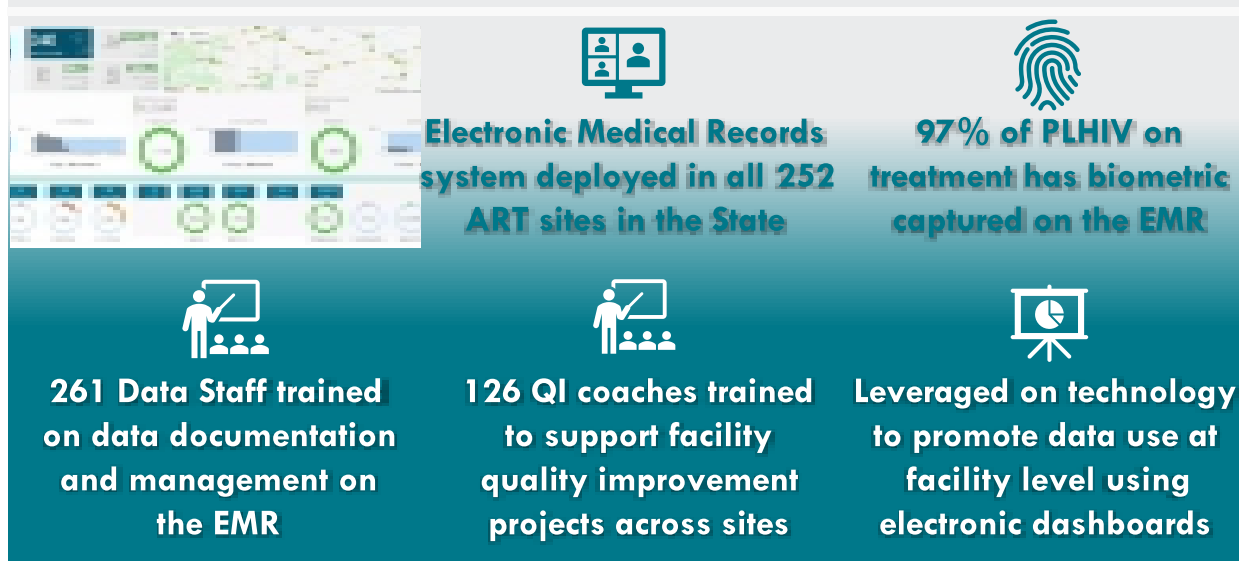
An additional eight unsuppressed family units in the same treatment facility have also been undergoing family-centred care through a collaborative approach of the clinical and community OVC teams with two additional family units - Nongu (NN), a family unit of 5, and Terser (TE), a family unit of 3 reaching the goal of suppressed family units.

6.5 Result

As a result of all the interventions listed above, the Benue HIV program has sustained a quarterly increase in viral load coverage from 36% in 2018 to 97% in 2022, with a corresponding sustained increase in viral load suppression amongst PLHIV on treatment from 88% to 96% within the same period. These record-breaking achievements were made despite the surge in the number of clients eligible for viral load monitoring. During the period of implementation, the program had a 54% increase in the number of clients eligible for VL.

Chapter 7:

Strategic Information: Evidence-Based Programming



The strengthening of the patient medical system of the HIV program at the facility and state level was a core mandate of the iCARES grant. This is to ensure the availability of quality and timely data to guide actions on patient and program management and drive improvements, results, and impact. At the onset of the project, most client records on the HIV continuum of care and treatment in Benue were paper-based.

7.1 Roll-out of Electronic Medical Records System (NMRS)

One of the immediate major deliverables of APIN was the roll-out of an electronic medical record system for a hybrid of paper and electronic medical records management across 252 supported treatment sites. APIN leveraged her experience, track record, and in-house expertise, to rapidly roll out and deploy its legacy EMR, the Open MRS, to these treatment sites, onboarding 145,102 client records within three months. To deploy the EMR to all facilities in a record time, a quick site readiness assessment was done to ascertain what was available in terms of personnel, capacity, and IT equipment. Based on the outcome of the assessments and available funding, university graduates with science backgrounds were recruited locally, trained on basic and intermediate database management, and deployed to supported health facilities, to augment available human resources. The required IT infrastructure such as Laptops, Desktops, Routers, and Servers with adequate specifications for database management was procured to facilitate the deployment and implementation of the EMR. Following the adoption of the Nigeria Medical Records System (NMRS) built to handshake National Data Repository (NDR) in 2019 by PEPFAR/CDC, Nigeria, there was a mandate for all IPs to migrate from all legacy EMR systems. APIN immediately keyed into the plan and deployed all available human and material resources to ensure that

the adoption and directives were carried out within the required timelines and to meet reporting requirements.

Due to the number of facilities involved, the vast terrain of Benue State, and further enhancements of the NMRS to manage patient biometrics, commodity management, LIMS-EMR Interoperability, HTS, and PMTCT services at the community and facility level, with the high-frequency (daily and weekly uploads of data on the NDR) reporting to the donors as well as the data demands for programming in the ART surge project, a lot of human resources and IT infrastructure were required to implement EMR/NMRS. To meet these demands, in 2020, additional 23 Health Informatics Associates and 180 Data Entry and Management Assistants were recruited to support the NMRS data entry and Surge program in Benue. The massive engagement of staff was necessary to implement several NMRS enhancements and meet the reporting requirements that come with the Surge program. The enhancements of NMRS and the optimization of its implementation across supported facilities ushered in the era of near-time availability of quality patient-level data to guide patient and program monitoring, management, and improvement.

7.2 Patient Biometrics Solution (PBS)

The program has accelerated the capture of biometrics of clients in the treatment program ensuring that 225,494 of 232,495 clients on treatment (representing 97% on treatment) have their biometrics captured, which have been deployed for real-time patient matching and deduplication using PBS at the point of client testing/enrollment to increase transparency and accountability to donors.

7.3 Facility Clinical Cascade Monitoring Dashboards.

With the availability of patient-level data from the EMR, an electronic facility clinical cascade monitoring dashboard was designed to summarize program data in formats that can be easily understood by site-level program managers and service providers and improve their capacity to utilize the information in guiding program decisions, implementation, and improvement. The dashboard provides a summary of key process and outcome indicators, enabling program managers to monitor program progress and patient performance across the clinical cascades. The dashboard also highlights the performance of the case management teams across the clinical cascade and key indicators to foster accountability and healthy competition among the CMT teams as each team strived to improve the treatment outcomes of the clients. The availability of facility performance data at the site level improved ownership and accountability among facility managers and service providers. It also helps facilities to quickly identify documentation gaps, leading to improvement in data quality and the overall M&E system.

7.4 Situation Room for Real-time Monitoring

APIN implemented a situation room for real-time monitoring of service provision across locations, mapping geo-coordinates of new HIV positives for targeting geographies and populations for HIV case finding. The situation room is also used to monitor and resolve data quality issues and programmatic gaps and daily prompting of field staff on performance across the clinical cascade such as drug refill schedules, missed appointments, VL eligibility, VL sample collection, missed opportunities, and management of unsuppressed viral results of clients. The APIN Situation Room operations mirror the typical Data Demand and Information Use (DDIU) cycle, which connects data demand to its use in advising decisions via the intermediate steps of synthesizing the raw data, transforming it into information; and making the information available to the program staff for real-time evidence-based decisions. The data of clients who received HIV testing services in the community and facility settings including the geocodes of the testing location are reported real-time through the APIN iCARES app linked to the situation room dashboards to monitor progress towards the first 95 with test locations and the identified positive's geo-coordinates to aid hotspot identification for community targeted testing.

7.5 Continuous Quality Improvement

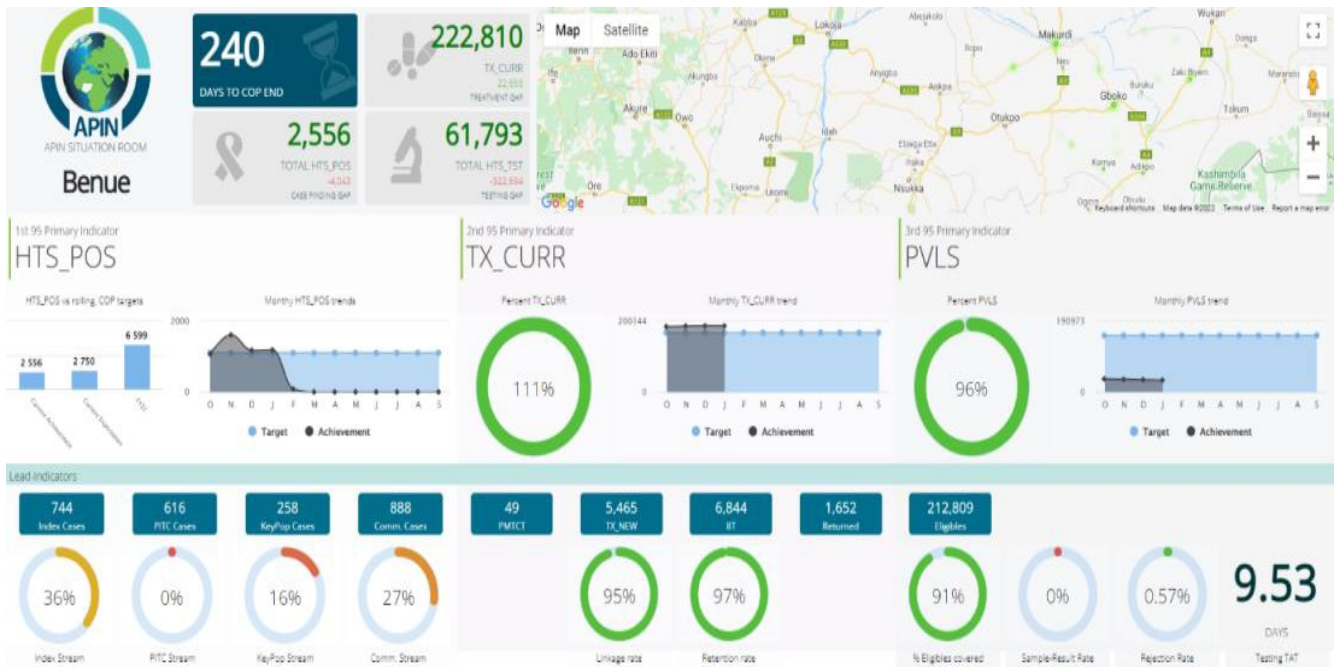
APIN implemented continuous quality improvement (CQI) projects guided by program data and feedback from periodic client satisfaction surveys conducted to improve the processes and systems at supported sites with better program results and outcomes. The CQI teams at supported sites received refresher CQI training and were supported to conduct monthly CQI meetings with technical support from the program CQI coaches. The CQI coaches provided mentoring support to the supported sites to implement the Quality Improvement Collaboratives on Retention and Viral load Suppression and the flagship Tuberculosis Clinical and Laboratory Interface for Quality Improvement (TB CLICQI)



CASE MANAGEMENT TEAM (CMT) KEY PERFORMANCE INDICATORS					
KPI	CMT-1	CMT-2	CMT-3	CMT-4	CMT-5
Total assigned patients	930	909	916	940	970
Number of patients active on ART	883 <i>Good (95% of Expected)</i> Score, 5	853 <i>Good (95% of Expected)</i> Score, 5	860 <i>Good (95% of Expected)</i> Score, 5	855 <i>Good (95% of Expected)</i> Score, 5	892 <i>Good (95% of Expected)</i> Score, 5
Number of IT patients	31 <i>Excellent (100% of TX_CURR)</i> Score, 10	48 <i>Good (150% of TX_CURR)</i> Score, 5	44 <i>Good (140% of TX_CURR)</i> Score, 5	71 <i>Good (100% of TX_CURR)</i> Score, 5	63 <i>Good (100% of TX_CURR)</i> Score, 5
Number of IT patients successfully returned to care	5 <i>Poor (<90% of Expected)</i> Score, 2	7 <i>Poor (<90% of Expected)</i> Score, 2	6 <i>Poor (<90% of Expected)</i> Score, 2	5 <i>Poor (<90% of Expected)</i> Score, 2	8 <i>Poor (<90% of Expected)</i> Score, 2
Number of patients with up-to-date VL results	780 <i>Poor (<90% of Expected)</i> Score, 2	709 <i>Good (90% of Expected)</i> Score, 5	728 <i>Good (90% of Expected)</i> Score, 5	761 <i>Good (90% of Expected)</i> Score, 5	791 <i>Good (90% of Expected)</i> Score, 5
Total Score	19 (48%)	17 (43%)	17 (43%)	17 (43%)	17 (43%)

A

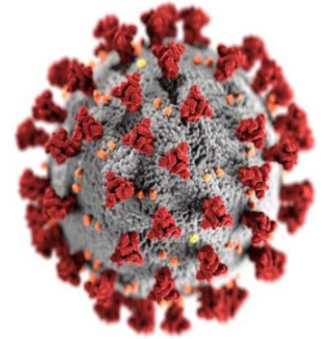
group of Staff at Federal Medical Center Makurdi, reviewing the site’s performance on the electronic facility performance monitoring dashboard Continuous.



Situation Room Monitoring Dashboards displaying the program performance

8.1 Programming in the Background of the COVID-19 Pandemic

In 2020, the outbreak of COVID-19 had a devastating impact on the continuity of treatment and quality of service delivery. The combination of the COVID-19 scare and lockdown measures adversely affected clinic attendance and threatened clients' access to care and treatment. This situation compelled the program to adapt and implement effective measures aimed at preventing disruptions in service delivery and preventing clients from contracting COVID-19 in health facilities. The first of these measures was the communication of COVID-19 messaging to clients through radio jingles, health talks, and adherence counseling, informing them of the continued availability of HIV services as well as the implementation of COVID-19 IPC measures in the supported facilities. As part of the IPC measures, APIN collaborated with the state government to provide health facilities with the needed personal protective equipment and trained them on the use. The ART clinics were decongested by rapid scale-up of multi-month dispensing of 3-6 months of ARVs to clients. Community-based differentiated service delivery (DSD) models, including home ARV delivery, were used to reach clients in difficult areas to prevent interruption in treatment. As COVID-19 vaccines became widely available in Nigeria by late 2021, the program's focus shifted to widespread vaccination campaigns for all PLHIV while upholding the relevant IPC measures. APIN partnered with PEPFAR/CDC and the Benue State Government to make vaccines widely available to the clients in designated health facilities. As a result, 40% of PLHIV on treatment have received at least one dose of the COVID-19 vaccine by the end of September 2022.



8.2 Delivering HIV Service in High-Services Areas

Nigeria is facing several internal security challenges, with the Northeast, Northwest, Northcentral, and Southeast geo-political zones as the worst affected areas. As part of the Northcentral zone, Benue State has had a fair share of the security challenges. The state had experienced incessant communal crisis, farmer-herder clashes, militia/cult-related activities, and frequent kidnapping episodes. Three local government areas in Benue State, Ukum, Katsina-Ala, and Logo, have the most difficult security situation and are classified as very high-security risk areas. The security challenge hampered entry, penetration, and movement around communities with displacements of populations including clients on ART with accompanying challenges in retaining these clients on treatment. To mitigate the risks and still provide oversight of the HIV program in the three LGAs, there was an engagement of temporary project personnel/consultants who are indigenes and residents in the high insecurity-prone LGAs

(Katsina Ala, Logo & Ukum) to serve as clinical, SI and laboratory mentors providing technical assistance to supported sites. These Indigenous mentors used their understanding of the local terrain to engage communities for better access and navigation of the LGAs to deliver on their job roles. This reduced the frequency of travel by program staff to the LGAs, who remotely support the mentors.

APIN engaged different layers of community leaders, traditional and religious leaders, and security agencies for collaboration in information-gathering and institutional support for the program. The program engaged a security consultant, who served as the liaison officer with the security agencies in the state (military, police, DSS), and provided APIN with daily security reports to guide the journey /travel plans of community service providers and program staff. APIN also partnered with other organizations that provide services to internally displaced persons (IDPs), using their platforms to reach out to displaced persons on ART and leveraged community-based support group champions for tracking as means of retaining clients on treatment as well as maximizing the use of DBS for VL sample collection.

Acronyms and Abbreviations

3Is	Intensive Case Finding, Isoniazid Preventive Therapy, and Infection Control
3PL	Third-Party Logistics
3TC	Lamivudine
ABC	Abacavir
ADR	Adverse Drug Reactions
AGCOD	A civil society organization partner providing OVC Services
AIDS	Acquired Immune Deficiency Syndrome
ALHIV	Adolescents Living With HIV
ANC	Antenatal care
APIN	APIN Public Health Initiatives
APYIN	Association of Positive Youth Living with HIV/AIDS in Nigeria
ART	Antiretroviral Therapy
ARV	Antiretrovirals
ASHWAN	Association of Women Living With HIV/AIDS in Nigeria
AVIVA	APIN VIA Innovative Visual Application
BENSACA	Benue State Agency for the Control of AIDS
BMMC	Bishop Murray Medical Centre, Makurdi.
BSUTH	Benue State University Teaching Hospital, Makurdi
CAPS	Congregational Approach to Optimize PMTCT Services
CBO	Community-Based Organization
CCRHSD	A civil society organization partner providing OVC Services
CDC	US Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
CIRA	Cycle of Interruption and Return to ART

CLHIV	Children Living With HIV
CME	Continuing Medical Education
CMT	Case Management Teams
CNS	Central Nervous System
CoT	Continuity of Treatment
cPART	Community Pharmacy ART Decentralized Drug Delivery Model
cPMTCT	Community Prevention of Mother-to-Child Transmission of HIV
CQI	Continuous Quality Improvement
CSO	Civil Society Organizations
DBS	Dried Blood Spot
DCM	Deputy Chief of Mission
DDD	Decentralized Drug Distribution
DDIU	Data Demand and Information Use
DiC	Drop-in Centers
DSD	Differentiated service delivery
DTG	Dolutegravir
EAC	Enhanced Adherence Counselling
ECHO	Extension for Community Healthcare Outcomes
EFV	Efavirenz
EID	Early Infant Diagnosis
ELISA	Enzyme-Linked Immunosorbent Assay
EMR	Electronic Medical Records
eMTCT	Elimination of Mother-to-Child Transmission of HIV
FBO	Faith-Based Organizations
FMCM*	Federal Medical Centre, Makurdi

FMP	Families Matter! Program
FSW	Female Sex Workers
FY	Fiscal Year
GeneXpert	Catridge-based test for tuberculosis diagnosis
GH1753	The Code for the iCARES Grant
GIS	Geographic Information System
GoN	Government of Nigeria
HCW	Health Care Worker
HES	Household Economic Strengthening
High-volume facility	A facility with more than 500 clients on treatment
HIV	Human Immunodeficiency Virus
HQ	Headquarters
HR	Human Resource
HRH	Human Resource for Health
HRST	HIV Risk Stratification Tool
HTS	HIV Testing Services
IBSS	Integrated Biological and Behavioral Surveillance Survey
iCARES	Improving Comprehensive AIDS Response Enhanced for Sustainability
IDP	Internally Displaced Persons
IEC	Information, Education, and Communication
IGA	Income Generating Activities
IIT	Interruption in Treatment
INH	Isoniazid
IP	Implementing Partner
IPC	Infection Prevention and Control

IT (HIV Testing)	Index Testing
IT (Technology)	Information Technology
KP	Key population
KPMSE	Key Population Mapping and Size Estimates
KVA	Kilovolt-Ampere
LAMS	Laboratory Activity Management System
LF-LAM	Lateral Flow Urine Lipoarabinomannan Assay
LGA	Local Government Area
LIMS	Laboratory Information Management System
LIT	Local Implementing Teams
Low-volume facility	A facility with less than 150 clients on treatment
M&E	Monitoring and Evaluation
MDCN	Medical and Dental Council of Nigeria
Medium-volume facility	A facility with 150-499 clients on treatment
MLSCN	Medical Laboratory Science Council of Nigeria
MMD	Multimonth Dispensing
MMD3	Three Monthly Multimonth Dispensing
MMD6	Six Monthly Multimonth Dispensing
MoU	Memorandum of Understanding
MSM	Men Who Have Sex with Men
MTCT	Mother-To-Child Transmission of HIV
MWAN	Medical Women Association of Nigeria
NAIIS	Nigeria HIV/AIDS Indicator and Impact Survey
NCDC	Nigeria Centre for Disease Control
NDR	National Data Repository

NEPHWAN	Network of People Living with HIV and AIDS in Nigeria
NISRN	National Integrated Sample Referral Network
NMRS	Nigeria Medical Records System
OSS	One Stop Shop
OTZ	Operation Triple Zero
OVC	Orphans and Vulnerable Children
PBS	Patient Biometrics Solution
PCR	Polymerase Chain Reaction
PDSA	Plan-Do-Study-Act
pDTG	Paediatric Dolutegravir
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PHIS3	Public Health Information, Surveillance, Solutions, and Systems
PI	Prison Inmates
PITC	Provider Initiated Testing and Counselling
PLHIV	People Living with HIV
PMM	Periodic Preventive Maintenance
PMTCT	Prevention of Mother-to-Child Transmission of HIV
PPE	Personal Protective Equipment
PrEP	Pre-Exposure Prophylaxis
PSCM	Pharmacy and Supply Chain Management
PSS	Patient Satisfaction Survey
PWID	People Who Inject Drugs
Q (1-4)	Quarter
QMS	Quality Management System
RPM	Revolutions per Minute

RTK	Rapid Test Kits
RTRI	Rapid Test for HIV-1 Recent Infection
RTT	Return to Treatment
RVST	Retroviral Screening Test
SAE	Small Area Estimation
SD	Standard Deviation
SI	Strategic Information
SIT	State Implementing Teams
SLMTA	Strengthening Laboratory Management Toward Accreditation
SMOH	State Ministry of Health
SNU	Sub-National Units
SOP	Standard Operating Procedure
SPICE	Sustaining Positive Impact for the Control of Epidemics
STI	Sexually Transmitted Infections
S-Tracker	A digital viral load sample and result-tracking system
TAT	Turnaround Time
TB	Tuberculosis
TBA	Traditional Birth Attendants
TBCLICQI	Tuberculosis Clinic-Lab Interface Continuous Quality Improvement
TDF	Tenofovir
TG	Transgender
TLD	Dolutegravir/Lamivudine/Tenofovir
TLE	Tenofovir/Lamivudine/Efavirenz
TPT	Tuberculosis Preventive Therapy
TrainSMART	APIN Training System Monitor and Reporting tool

U=U	Undetectable = Untransmittable
UMB	University of Maryland Baltimore
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
VIA	Visual Inspection with Acetic Acid
VL	Viral Load
VSLA	Village Savings and Loans Associations
WHO	World Health Organization
WOCHAD	A civil society organization partner providing OVC Services