



Final Performance Progress and Evaluation REPORT

**Improving Comprehensive AIDS
Response for Enhanced Sustainability
(iCARES program)**

...Improving health, Changing lives

Name of IP: APIN Public Health Initiatives
Award number: GH002098
Project period:
September 30, 2017-September 29, 2022





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Acronyms and Abbreviations

AGYW -	Adolescent Girls and Young Women
AHD -	Advanced HIV Disease
ANC -	Antenatal Clinic
ART -	Anti-retroviral Therapy
ARV -	Anti-retroviral
AYP -	Adolescents and young people
CAL-	Children and Adolescent
CALHIV -	Children and Adolescent Living with HIV
CAPS -	Congregational Approach to Optimize PMTCT Services
CBO -	Community-based Organizations
CDC –	Centers for Disease Control and Prevention
CFs	Community Facilitators
CIRAS -	Comprehensive, Integrated, Resilient ART System
CME -	Continuing Medical Education
CMT –	Case Management Team
Cpmtct	Community Prevention of Mother-to-Child Transmission
CoE -	Centre of Excellence
COMBEID -	Community-Based Early Infant Diagnosis
CoT –	Continuity of Treatment
COVID-19	Coronavirus disease 2019
CQI MDT	Continuous Quality Improvement Multidisciplinary Team
CSO-	Civil Society Organization
CTs-	Community Testers
DATIM -	Data for Accountability, Transparency, and Impact
DEA –	Data Entering Assistant
DCT-	Data Capturing Tool
DHIS2-	District Health Information Software 2
DNA PCR -	Deoxyribonucleic Acid Polymerase Chain Reaction
DOT -	Direct Observed Therapy
DSD –	Differentiated Service Delivery
DTG-	Dolutegravir
EID -	Early Infant Diagnosis
eMTCT –	Elimination of Mother-to-Child Transmission
EMR-	Electronic Medical Record
EnCOMPARS -	Ensuring Comprehensive HIV/AIDS Response and Building Sustainable
KP-Led and KP-	Friendly Community Approach
FMOH –	Federal Ministry of Health
FOMWAN	Federation of Muslim Women’s Association in Nigeria
FP-	Family Planning
GBV -	Gender-based Violence
GIS –	Geographic Information System
GOPD-	General Out-Patient Department
HCH -	Honorable Commissioners for Health
HEI –	HIV-exposed infants

HI-	Health Informatics
HIVDR -	HIV drug resistance
HIVST -	HIV Self-Test
HQ –	Head Quarters
HRH	Human Resources for Health
HSPH -	Harvard School of Public Health
HTS-	HIV Testing Services
iCARES -	Improving Comprehensive AIDS Responds for Enhance Sustainability
IEC -	Information Education and Communication
IIT -	Interruption in Treatment
INH -	Isoniazid
IPC	Infection Prevention and Control
IPC-	Inter-personal communication
IPV –	Intimate Partner Violence
IT-	Index Testing
JMSV -	Joint Monitoring and Supervision
KP -	Key Population
KPIF –	Key Population Investment Fund
KP RICE-	Key population Rapid Intensive Case Finding Expansion
LAMS -	Laboratory Activity Management System
LGA-	Local Government Area
LIVES-	Listening, Inquiring, Validating, Ensuring safety, and Support through referrals
LPV/r	Ritonavir boosted Lopinavir
MDT-	Multidisciplinary team
M&E-	Monitoring and Evaluation
MFI-	Model for Improvement
MLS -	Medical Laboratory Scientist
MLT -	Medical Laboratory Technical
MMD -	Multi-Month Dispensing
MNCH -	Maternal and Neonatal Child Health
MSM –	Men who have Sex with Men
MTCT	Mother-to-Child Transmission
NACA –	National Agency for Control of AIDS
NCMP	National HIV Clinical Mentorship Program
NAIIS -	Nigeria National HIV/AIDS Indicator and Impact Survey
NASCP-	National AIDS, STIs and Viral Hepatitis Control Program-
NCDC -	Nigeria Center for Disease Control
NEPHWAN -	Network of People Living with HIV/AIDS
NGO -	Non-governmental Organization
NHOCAT -	National Harmonized organizational assessment tool
NMRS -	Nigeria Medical Record System
NPHCDA -	National Primary Health Care Development Agency
OI -	Opportunistic Infection
OPD –	Out-Patient Department

Option B+	Initiation of lifelong highly active antiretroviral therapy regardless of CD4 count for all HIV-positive pregnant and breastfeeding mothers
OSS -	One Stop Shop
OTZ -	Operation Tripple Zero
OVC -	Orphan and Vulnerable Children
PBFW –	Pregnant and Breastfeeding Women
PBS-	Patient Biometric System
PEP -	Post Exposure Prophylaxis
PEPFAR -	President's Emergency Plan for AIDS Relief.
PHC –	Primary Health Center
PHCB-	Primary Health Care Board
PITC -	Provider-Initiated Testing and Counseling
PLHIV -	People Living with HIV
PMTCT -	Prevention of Mother-to-Child Transmission
PoC -	Package of Care
PrEP –	Pre-Exposure Prophylaxis
PSS-	Patient Satisfactory Survey
PWID -	People Who Inject Drugs
QMS -	Quality Management System
RSL -	Remote Sample Login
RST -	Remote Sample Tagging
RTRI -	Rapid tests for recent HIV infection
SCALES –	Service Delivery, Communication, Accountability, Logistics, Electronic reporting and Supportive Supervision
SCM-	State Clinical Mentor
SDP -	Service Delivery Points
SOP -	Standard Operating Procedure
SPHCDB -	State Primary Health Care Development Board
STI –	Sexually Transmitted Infections
STBLCP-	State Tuberculosis and Leprosy Control Program
T&A-	Target and Achievement
TAT-	Turn Around Time
TB -	Tuberculosis
TBA –	Traditional Birth Attendant
TB_PREV-	Tuberculosis Prevention
TG -	Transgender
ToT -	Training of Trainers
TPT –	TB Preventive Therapy
Tx_TB-	Number of PLHIV Screened for Tuberculosis
UNAIDS -	United Nations Program on HIV and AIDS
UNICEF –	United Nations International Children's Emergency Fund
USAID-	United States Agency for International Development
VL-	Viral Load
VLC-	Viral Load Coverage
VLS-	Viral Load Suppression

WHO - World Health Organization

PERFACE

APIN Public Health Initiative (APIN) has been a valued indigenous implementing partner for the US Centers for Disease Control and Prevention's (US CDC) Nigeria country office since 2008. From 2017-2022, through the Improving Comprehensive AIDS Response for Enhanced Sustainability (i-CARES Project) funds, APIN implemented comprehensive HIV prevention, care, and treatment initiatives, as well as the orphans and vulnerable children program, laboratory services delivery, and systems strengthening interventions in seven of the 19 states supported by US CDC in Nigeria.

The 2017 to 2022 period was a turning point for the President's Emergency Plan for AIDS Relief (PEPFAR) program in Nigeria. In 2018, Nigeria conducted the Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS 2018), which remains the largest HIV survey ever done by the PEPFAR program globally. The survey provided direct estimates of HIV infection risks and burden, as well as the effectiveness and population-level impacts of HIV-related prevention, care, and treatment interventions in the country. It became the nexus for the initiation of the HIV SURGE in 2018 in US CDC Nigeria supported states. The SURGE aimed to accelerate HIV case finding and linkage of people to life saving antiretroviral therapy. It provided data to inform decision making and program implementation by US CDC Nigeria, implementing partners including APIN, and the Government of Nigeria. Additionally, the COVID-19 pandemic emerged in Nigeria during this period and had significant impacts on HIV services delivery and uptake that required innovative approaches to navigate sustain HIV services.

This compendium presents the approaches and innovations implemented by US CDC Nigeria and APIN, in partnership with federal and state ministries of health, civil societies and other stakeholders from 2017-2022. It covers activities for HIV case finding, linkage and retention on antiretroviral treatment and care, and achieving viral load suppression before and after NAIIS 2018, as well as during the COVID-19 pandemic. The compendium examines the strategic engagements and implementation approaches used across key thematic areas including HIV case finding, antiretroviral treatment and retention in care, the orphans and vulnerable children program, the key population program, laboratory services delivery, and systems strengthening interventions. Across activities it highlights outcomes and details lessons learned, challenges, and barriers faced with the aim of informing ongoing and future HIV program interventions.

APIN's work exemplifies quality HIV programming that excels at identifying people with HIV, linking them to life-saving treatments, and achieving sustained viral load suppression. As Nigeria moves towards reaching and sustaining HIV epidemic control, strategic, innovative, and data-driven programming will be increasingly vital, and US CDC Nigeria looks forward to its continued partnership with APIN.

Dr. Mary Boyd,

US CDC Nigeria Country Director

FOREWORD

The 2018 Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) provided a clearer picture of the HIV epidemic in Nigeria. Based on the NAIIS, subnational units (SNUs) in Nigeria were categorized into three (3) groups: RED states (high unmet needs, low treatment saturation), GREEN states (low unmet needs, high treatment saturation), and YELLOW states (low unmet needs, low treatment saturation). This categorization helped the Government of Nigeria (GoN), funders, implementing partners, and other stakeholders to develop innovative strategies to address gaps confronting the HIV epidemic.

Over the past 5 years (October 1, 2017 – September 30, 2022), with funding from the US Centers for Disease Control and Prevention (CDC), APIN Public Health Initiatives implemented the ***Improving Comprehensive AIDS Response Enhanced for Sustainability (iCARES) Project*** in seven states, namely: Benue, Plateau, Oyo, Ogun, Ondo, Osun, and Ekiti. During this period, APIN deployed various strategies such as risk-based community testing, the use of recency surveillance to guide case finding, differentiated service delivery (DSD), a case management team approach, community viral load sample collection, and the use of technology to reduce turnaround time for viral load results to improve performance along the HIV treatment continuum cascade. Our approaches resulted in increasing our supported states' treatment coverage from 58% to 103% between 2017 and 2022. Benue State increased from 66% to 126%; Plateau State increased from 97% to 150%; Ondo State increased from 29% to 75%; Oyo State increased from 31% to 75%; Ogun State increased from 23% to 70%; Ekiti State increased from 16% to 61%; and, Osun State increased from 15% to 45 %. This achievement was remarkable despite the COVID-19 pandemic that shook the foundation of our health system. The implementation of resilient, innovative, adaptive, and patient-centered approaches contributed to these successes despite the global pandemic.

Furthermore, in the course of the grant cycle, we worked with our funders and GoN to support the launch and implementation of the National Clinical Mentorship Program (NCMP) in Nigeria. The NCMP program is a first step in the right direction in building the foundation for a critical mass of skilled government-owned health professionals to drive the program in line with the spirit of government ownership and sustainability. Furthermore, APIN has biometrically captured 97% of our current treatment population and has begun de-duplication across our supported states. We are working with stakeholders in Nigeria to ensure that all PLHIV are accounted for and captured biometrically across Nigeria.

This ***iCARES*** end-of-project report will help readers understand the dynamics of HIV programming in Nigeria and see the impact APIN has made nationally and in assigned sub-national units. In addition, it highlights our innovative strategies, performance, lessons learned, challenges and how they were overcome, and what we plan to do in the next 5-year grant cycle (*Accelerated Comprehensive AIDS Response for Epidemic control and Sustainability - aCARES*), to address the remaining gaps.

Many thanks to the government of Nigeria at every level, the federal and state ministries of health, NASCP/SASCP, NACA/SACA, and other government agencies for providing the enabling environment and taking the lead towards HIV epidemic control. We are very grateful to our funders for their support and guidance throughout the years. My appreciation also goes to our hardworking facility healthcare

workers and beneficiaries of our work. Finally, I thank the program staff, admin staff, and other field officers, without whom we would not have achieved this feat.

Dr. Prosper Okonkwo

CEO, APIN Public Health Initiatives

1.0: Introduction

APIN Public Health Initiatives (APIN) is one of the leading Nigerian implementing partners with over two decades of experience and a successful track record of managing large and diverse projects. APIN's operational experience dates back to 2000 when Harvard School of Public Health (HSPH), with funding from the Gates Foundation, initiated HIV/AIDS research and prevention initiatives in Nigeria. In 2004, HSPH implemented HIV/AIDS prevention, care, and treatment programs with support from the United States President's Emergency Plan for AIDS Relief (PEPFAR). In 2008, APIN became a local NGO and is currently completing her 3rd 5-year PEPFAR program implementation cycle" as an independent indigenous organization named. The project is titled "Improving Comprehensive AIDS Response for Enhanced Sustainability (iCARES) program and commenced in 2017. Her previously implemented projects are Care and Treatment of Program for the prevention Care and Treatment of HIV/AIDs in the Federal Republic of Nigeria (2008-2013), Comprehensive AIDs Response Enhanced for sustainability-CARES (2013-2017), and iCARES 1753 (2017-2022).

The notice of award for the iCARES was announced on 22nd August 2017. The iCARES project sought to achieve epidemic control for HIV in several subnational units and ensure that PEPFAR-supported patients are retained on care and treatment. The notice of award particularly provided an opportunity for APIN to further its impact as it provided the organization with the opportunity to expand from its initial three (3) states of operation to eight (8) states, and provide care and treatment to an estimated 22% of HIV-positive people in Nigeria.

The Nigerian HIV program landscape, over the course of the iCARES five-year implementation period, faced significant challenges, even as it made some great achievements. Among others, the results of the 2019 Nigeria National HIV/AIDS Indicator and Impact Survey (NAIIS) showed that the country's overall HIV prevalence among adults aged 15 to 49 years was 1.4 percent, down from the estimated 2.8 percent before the survey. The findings from NAIIS also indicate an estimated 1.9 million people living with HIV (PLHIV) in Nigeria, down from over 3 million before the survey. The NAIIS results gave us information that helped us meet the expectations of our funders and implement our program. Furthermore, in 2019, PEPFAR/CDC launched the ART surge program in priority states and introduced the Comprehensive, Integrated, Resilient ART System (CIRAS) —a framework for managing organizational complexity and a tool to create a shared sense of purpose around a clear program objective and promote transparency. W quickly imbibe and scale up the 10 essential components of CIRAS within the overarching 5 core principles namely: *Adaptability, Autonomy and accountability, timeliness and accuracy, transparency and connectivity.*

Despite the great opportunities for program implementation success highlighted above, our program faced the impact of the COVID-19 pandemic. The index case in Nigeria was identified on 9th March 2020, and within a few weeks, the pandemic spread across the country. This led to movement restrictions, lockdown of health facilities and disruption in global supply, including reagents for viral load analysis and spare parts for equipment, with the resultant impact on the turnaround time for sample processing. However, we responded to these challenges in an adaptive and resilient manner, as evidenced by our great program performance and impact during the pandemic.

To achieve success, APIN established a strong collaboration with the government of Nigeria and its ministries, departments, and agencies, PLHIV, as well as a diverse group of key stakeholders. These stakeholders included civil society and community-based organizations; health facilities and healthcare workers; communities and community leaders; as well as the project funder—the US Center for Disease Control and Prevention. Overall, APIN collaborated with 415 health facilities, 46 community-based organizations (CBOs), and 3 Nigerian and international partners during the course of the iCARES project to positively impact PLHIV and vulnerable populations at risk of HIV infection. In general, the project beneficiaries included the general populations, key populations, pregnant and

breastfeeding women, adolescents and pediatric age groups, orphan and vulnerable children (OVC), and incarcerated populations.

This report presents an overview of the project, including project strategies, key interventions, and the results achieved. The report is structured around the following strategic themes, which include the key areas of project performance:

- (i) HIV Case finding and linkage to treatment among at-risk populations
- (ii) Patient retention and treatment;
- (iii) Viral load coverage and suppression optimization;
- (iv) Project reporting accountability and consistency.
- (v) Cross-cutting interventions,
- (vi) Program Implementation challenges and Key lessons learned
- (vii) Priorities for HIV Epidemic control and Program sustainability moving forward

2. HIV Testing and Linkage Services



2.0: Comprehensive HIV Services

2.1: HIV Testing Services and Linkages

Knowing one's HIV status through HIV testing services (HTS) is crucial to the success of the HIV response in Nigeria and the attainment of the UNAIDS 95-95-95 treatment targets by 2030, which refers to 95% of people living with HIV knowing their HIV status; 95% of people who know their status on treatment; and 95% of people on treatment with suppressed viral loads. The objective of APIN's HIV testing services was to provide HTS to those who remained undiagnosed and those at the highest risk for HIV infection. We achieved our objectives by:

- Identifying people living with HIV through the provision of quality testing services for individuals, couples, and families.
- Effectively link individuals and their families to HIV treatment, care, and support, as well as HIV prevention services based on their HIV status and risk factors.

2.1.1: Facility-based HIV testing

During the grant cycle, APIN provided HIV testing services to 5,644,622 persons between 2018 and 2022 fiscal years. Figure 1 shows the number of people tested for HIV, the number of positives identified, and the percentage yield in each fiscal year (FY). The yield, in general, ranged between 2% and 4%.

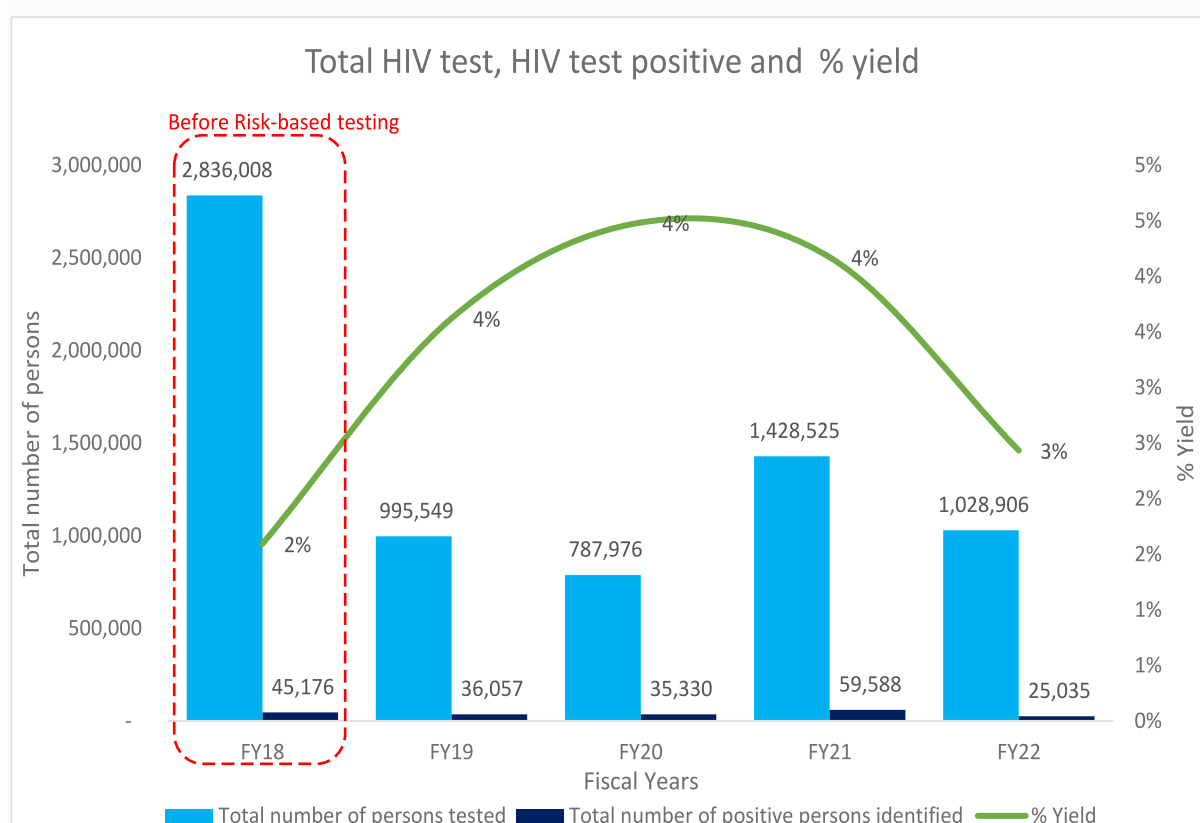


FIGURE 2. 1: NUMBER OF PEOPLE TESTED, NUMBER OF HIV-POSITIVES IDENTIFIED, AND PERCENTAGE YIELD (FY 18 TO FY 22)

APIN testing strategies were primarily facility-based at the start of the grant cycle in FY 18, with only Benue and Lagos States providing testing services in the communities. The facility-based testing

strategies included Provider-Initiated Testing and Counselling (PITC), which was implemented in supported health facilities to ensure that testing services are provided to clients with HIV-related or non-HIV-related ailments. The project also enabled HTS in several service delivery points (SDPs) within the supported facilities. High-yielding SDPs include outpatient clinics (OPD), child immunization/welfare clinics, paediatric clinics, accident and emergency clinics, and in-patient children's and adult wards. Tuberculosis (TB) clinics, sexually transmitted infections (STIs) clinics, and family planning clinics were also among the high-yielding clinics. In addition, we provided facilities with trained ad-hoc testers and counsellors to assist facility staff at the various SDPs. SDP testing outputs were evaluated in terms of coverage, efficiency, and positivity yields, and underperforming SDPs were phased out.

Starting with FY 19, APIN implemented risk-based testing, which involves the screening of prospective clients to identify high-risk individuals who are most likely HIV-positive for testing. This strategy assisted in identifying individuals who required HIV testing based on their likelihood of exposure to the virus, linking HIV-positive individuals to treatment and HIV-negative individuals to HIV preventive programs. Our testing yield increased from 2 per cent in FY18 to 4 per cent in FY19, 4 per cent in FY20, 4 per cent in FY21, and 3 per cent in FY22 as a result of this strategy (Figure 2.1).

2.1.2: Laboratory support for case finding

The major challenge that confronted case finding was the availability of test kits. The supply was initially unable to meet up with the huge targets allocated to the state and APIN had to leverage the supplies from some state government and NACA. As the supplies from the GHSC began to improve, the challenge of availability at all testing points emerged. Our continuous engagement with GHSC and CDC eventually paved the way for supplies to be made to 2-3 designated centers from where distribution were done by APIN based on positive yield potentials of testing sites and community. We implemented a weekly consumption data reporting to ensure visibility for all commodity locations and routinely carry out reverse logistics to guarantee adequate quantities are available for every testing points based on consumption pattern and avert expiries. Retesting of clients who tested positive showed 100% concurrency across all supported sites. The quality teams of all states MOH were capacitated and supported on a regular basis to produce control panels that are used to ensure quality testing services are provided across our state programs

2.1.3: Community-based testing: Reaching the “unreached” populations

We implemented community testing in Benue and Lagos States at the start of the grant cycle in FY 18 through selected community-based organizations. This approach, however, only helped us achieve high testing numbers but not a high number of PLHIV. Figure 2.2 shows the yield of facility-based testing versus community-based testing in Benue and Lagos using FY 18 data. Due to poor yield from the community efforts, the strategy was dropped at the end of FY 18.

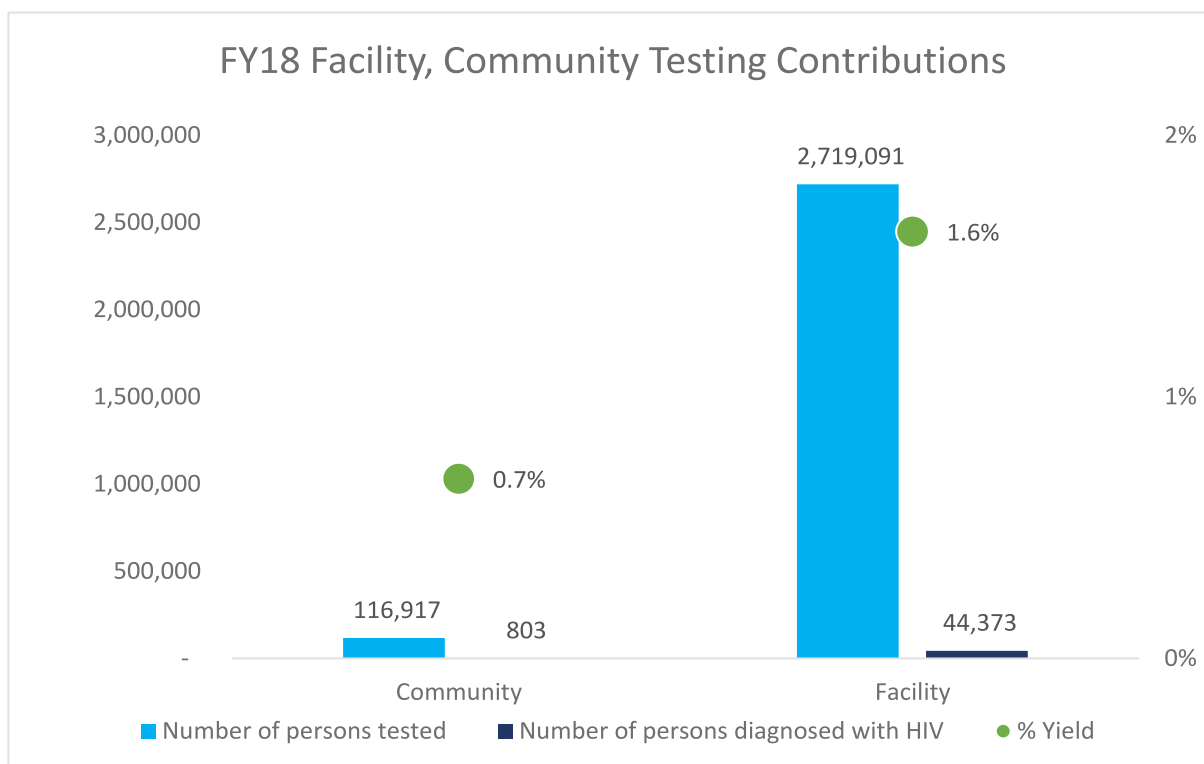
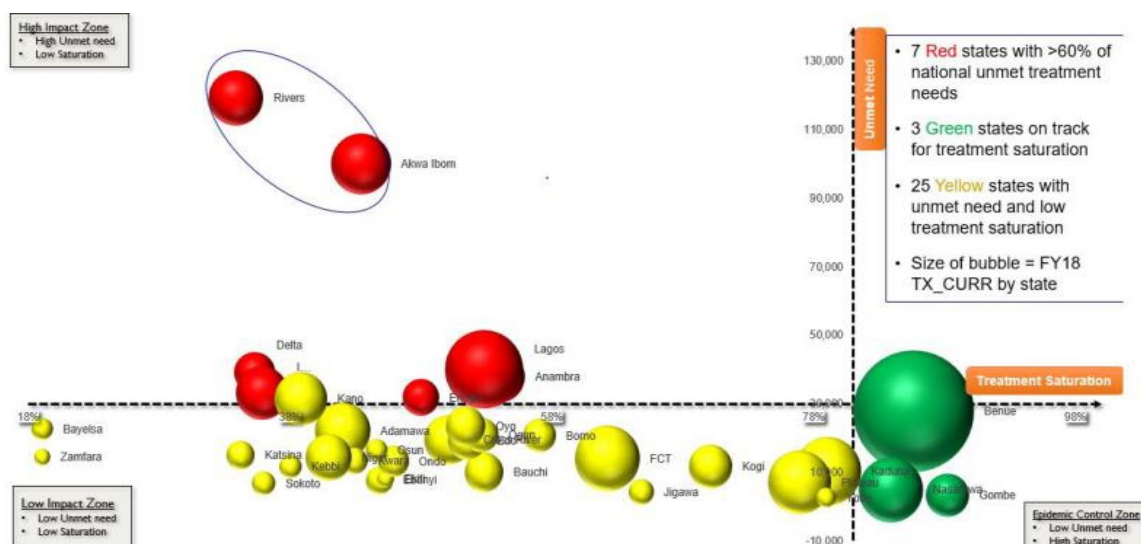


FIGURE 2. 2: COMPARING HIV TEST YIELD IN FACILITY-BASED TESTING AND COMMUNITY-BASED TESTING IN FY 18 IN LAGOS AND BENUE STATES.

Based on the results of the 2019 NAHS, which provided a clearer understanding of the HIV epidemics, sub-national units (SNUs) in Nigeria were classified into three (3) groups: (i) Red states (high unmet needs, low treatment saturation); (ii) Green states (low unmet needs, high treatment saturation); and (iii) Yellow states (low unmet needs and low treatment saturation).



As of March 2019, the Nigeria ART program had enrolled and retained about 750,000 persons on ART since 2004, a total achieved over 15 years. To close the ART gaps identified through NAIIS, the Nigerian ART program was required to enroll and retain an additional 500,000 persons on ART over 18 months – from March 2019 through September 2020. The program for the required surge in PLHIV on antiretroviral therapy (ART) was implemented in five states, including Benue, which was supported by APIN. The surge mode required the reactivation of community HTS in Benue State. APIN collaborated with the State Ministry of Health to implement intensified community HIV case finding, linking, and retention of identified cases in treatment through accompanied referrals in APIN-supported states. Small area estimation (SAE) was used to identify ART gaps at the local government area (LGA) level for targeted HIV response and to prioritize LGA-level testing and resource allocation.

We used a two-pronged approach based on previous implementation lessons learned: (1) directly engaging community testing teams for some LGAs and (2) subcontracting to a third-party community-based organization to work in selected LGAs. Each LGA had a team of community testers who were in charge of testing, including a linkage coordinator who was in charge of ensuring same-day ART initiation in facilities for every identified positive, a monitoring and evaluation (M&E) officer who was in charge of data collection, and a supervisor who oversaw the entire team. The teams received extensive training on HIV testing services and were provided with tools and other materials to facilitate their work. APIN-branded T-shirts and face caps were provided for easy identification within the community, as well as umbrellas, shuttle bags, boots, and raincoats to work even in inclement weather. Each team created a daily journey map showing the proposed testing location, which was shared with APIN backstops for active supervision. High-risk LGAs and hotspots were identified for increased testing coverage. This intervention was successful in Benue State, where community testing accounted for 4 percent of total testing and 5 percent of HIV positives identified in FY 19 (Figure 2.4).

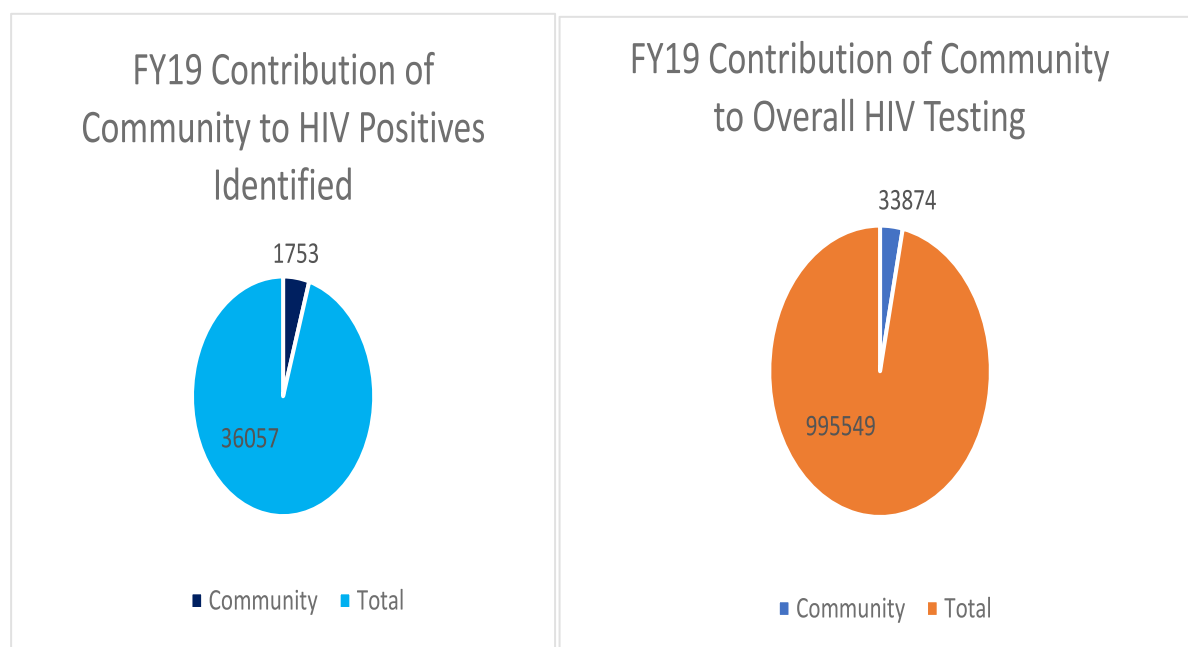


FIGURE 2. 4: CONTRIBUTION OF COMMUNITY-TESTING EFFORTS TO OVERALL HIV TESTING NUMBERS AND HIV-POSITIVES IDENTIFIED.

Based on the success of the new approach to community testing in Benue, we used the same approach to scale up community-based testing to our remaining six states in FY 20 Q3.

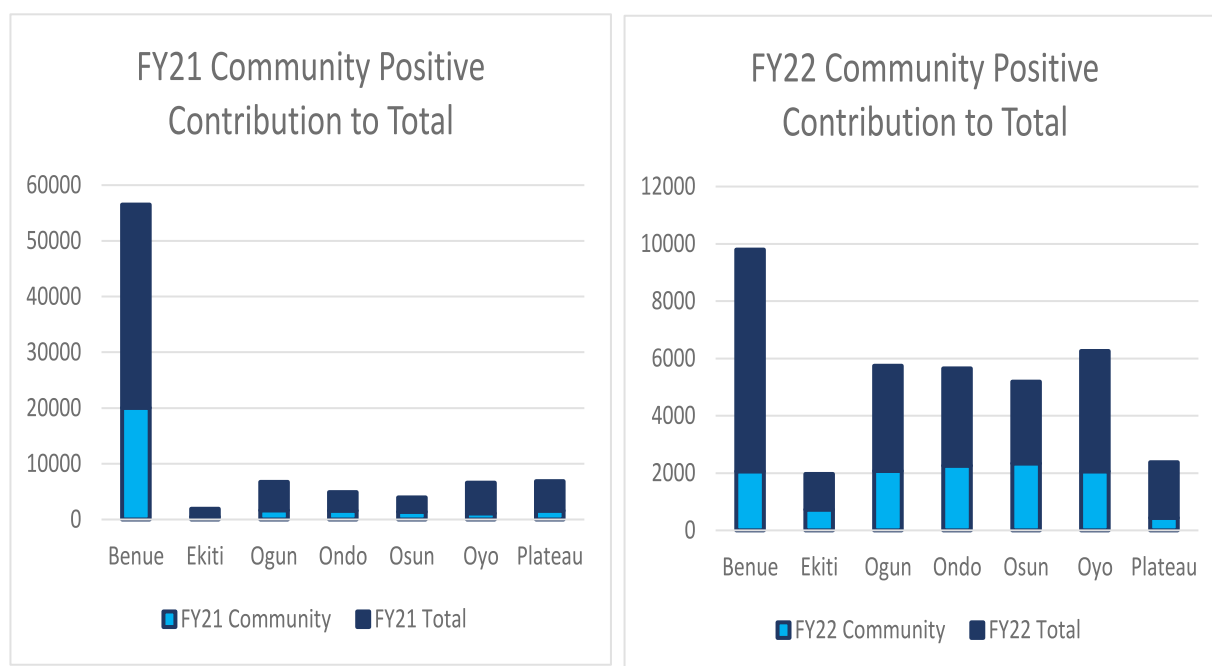


FIGURE 2. 5: CONTRIBUTION OF COMMUNITY TESTING TO TOTAL POSITIVE CASES IDENTIFIED BY APIN-SUPPORTED STATES IN FY21 AND 22.

2.2: Reaching Underserved Populations through Innovative Approaches

2.2.1: Index Testing: The “Magic Bullet” for HIV Case identification

The introduction of index testing services was one of the most remarkable and game-changing strategies that resulted in the identification of more HIV cases. Index testing is a voluntary process in which people newly diagnosed with HIV (index clients) were asked to name their sexual partners, needle-sharing partners, and biological children for follow-up and HIV testing services. Index testing was conducted in a safe and ethical environment using standard approach, in accordance with the 5Cs for HTS outlined by the World Health Organization (WHO): consent, confidentiality, counselling, correct (accurate) test results, and connection to treatment or prevention services.

Comprehensive training on safe and ethical index testing services was provided to providers selected from HTS units, ART clinics, and antenatal care clinics in high-yielding facilities in APIN-supported states. To ensure providers were invested in the program's success, they were required to track their performance as a facility to identify gaps and shortfalls for improvement. This strategy was implemented at the state level for all sites, as well as at the HQ level for all states that were being supported by APIN. Index testing registers were reviewed every week to identify clients who were not offered the service, as well as partners and biological children who were not tested. In addition, viral load registers were reviewed to track patients with viral load results greater than 1000 copies/ml and offer them index testing services because they were more likely to infect their sexual partners. This approach resulted in an increase in the acceptance rate for HTS over time, (Figure 2.6). Expert elicitors were quickly identified and used to mentor their underperforming peers. As a result, the index/partner elicitation ratio improved from 1:1.9 in FY 18 to 1:2.6 in FY 22:

APIN INDEX TESTING ACCEPTANCE RATE & ELICITATION RATIO

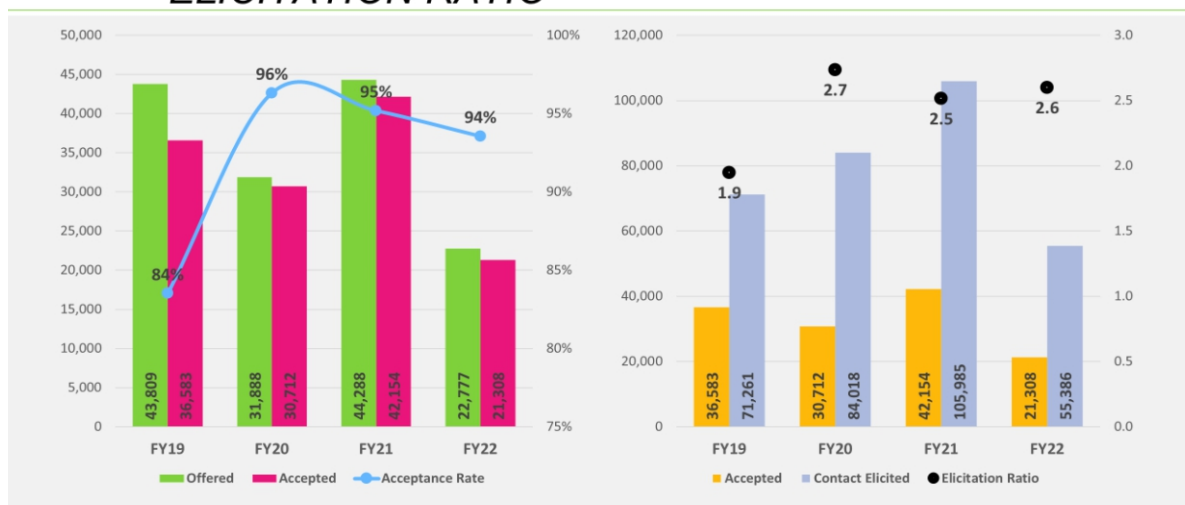


FIGURE 2. 6: APIN INDEX TESTING ACCEPTANCE RATE AND ELICITATION RATIO FROM FY 19 TO FY 22

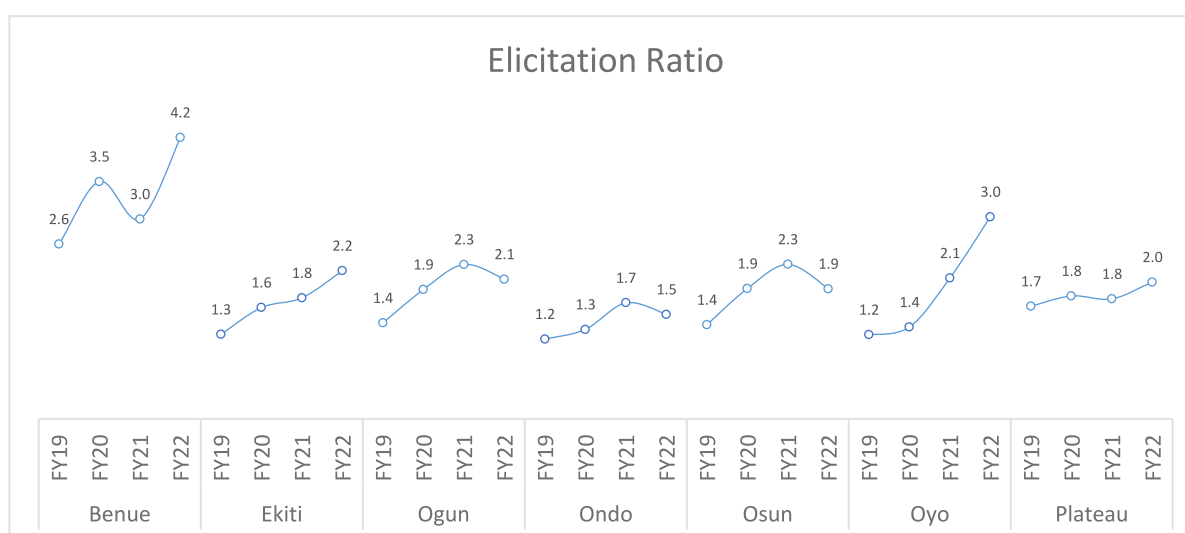


FIGURE 2. 7: INDEX TESTING ELICITATION RATIO ACROSS APIN-SUPPORTED STATES.

Integration of services relating to gender-based violence (GBV) was a critical component of the index testing service. Screening for intimate partner violence was a required component of service delivery. This ensured the prevention of adverse events as a result of the woman accessing HIV-related services and also assisted in identifying GBV survivors and providing them with the necessary service. APIN trained all index testing providers on first-line support, based on the WHO approach of GBV-LIVES (Listen, Inquire, Validate, Enhance safety, and Support). To improve index testing, integrated health services such as hepatitis B and C testing, urine analysis, and malaria tests were provided alongside HIV testing services for elicited partners. Biological children of the index who were under the age of 19 were also tested, making this one of the most important strategies for reaching this underserved

population. As a result of the integrated services approach, the partner testing rate for index testing improved significantly from 59 percent in FY 19 to 85 percent in FY 22 (Figure 2.8).

APIN INDEX TESTING OUTCOMES

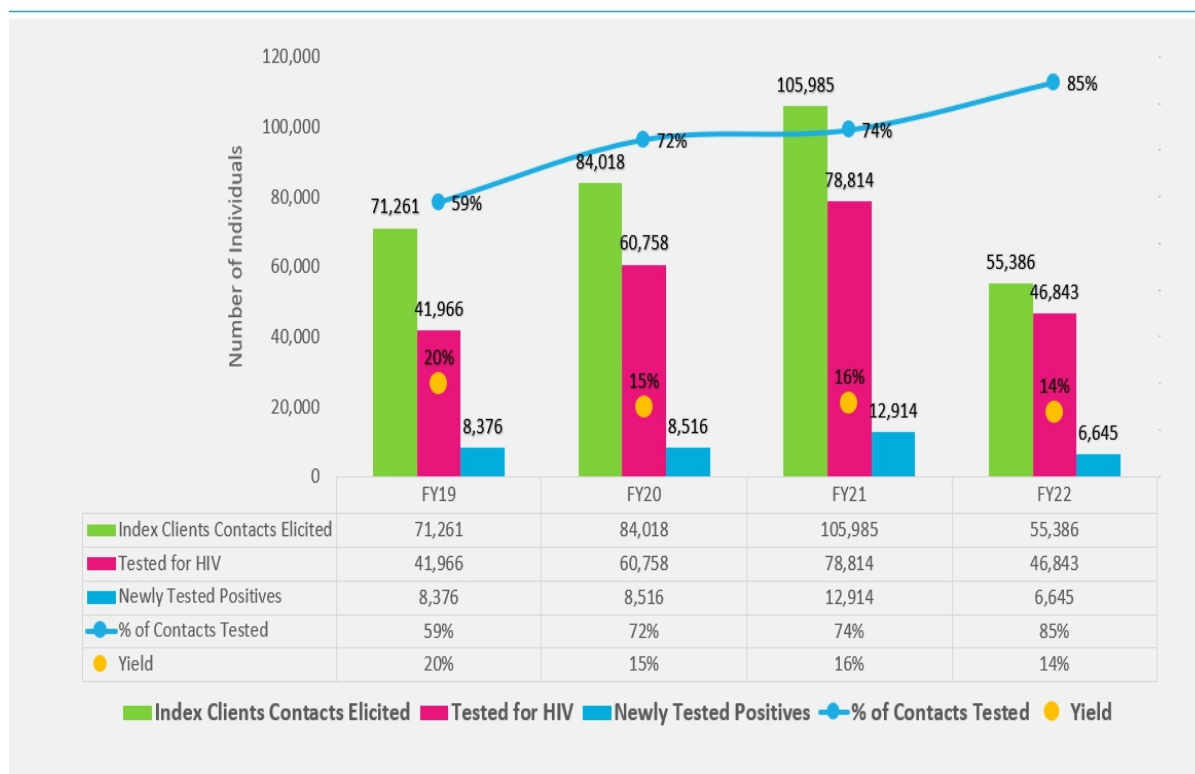


FIGURE 2. 8: INDEX TESTING OUTCOMES FROM FY 19 TO FY22

As the implementation of the grant progressed, it became increasingly important to conduct a deep-dive analysis to identify and comprehend the impediments to optimal index testing. This was accomplished through interactive sessions with service providers. Key issues identified included inadequate counseling and elicitation skills; a lack of audio-visual for confidentiality and privacy, and a conducive environment during index testing services; and, providers' inability to reach partners who could not come to the facilities. APIN addressed these issues by providing dedicated phone lines for contacting named sexual partners, as well as communication and transportation support to reach these partners. Expert elicitors were transferred between facilities and, in some cases, between states to provide hands-on mentorship to other service providers. For audio-visual confidentiality, APIN partitioned HTS spaces to create cubicles in several facilities across its supported states. Also, suggestion boxes were placed in supported facilities to encourage client feedback. The success of the efforts is reflected in Figure 8, with the proportion of the contribution of index testing to the overall cases of identified HIV-positive persons increasing from about 4% (2,224) in FY 18 to 20% (6,135) in FY 22.

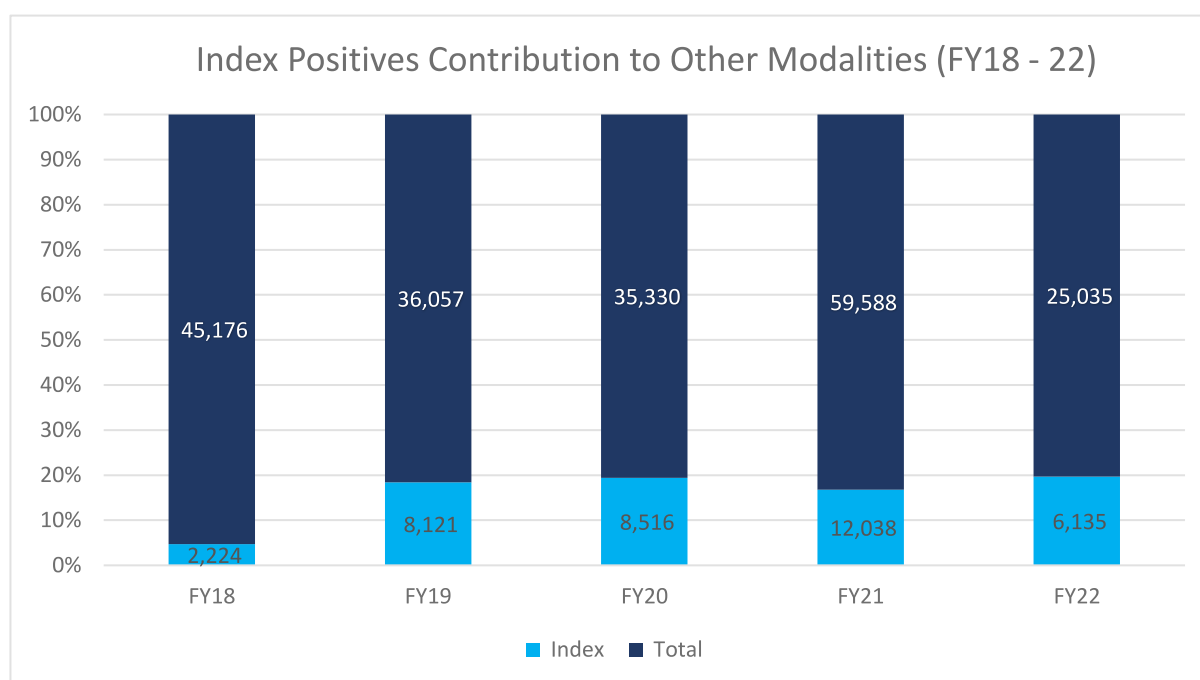


FIGURE 2. 9: CONTRIBUTION OF INDEX TESTING TO IDENTIFICATION OF PLHIV COMPARED TO OTHER HIV TESTING MODALITIES.

2.2.2: HIV Recency Testing

As Nigeria approaches epidemic control, WHO and PEPFAR have increased their efforts to meet the UNAIDS 95-95-95 targets. To maximize impact, high-quality, real-time data was required for targeting the right interventions to the right population at the right time. APIN focused on recency data for newly diagnosed individuals, which was compiled and analysed in real-time, to maximize the first 95.

HIV recent infection surveillance systems were recently introduced to detect, characterize, monitor, and respond to recent infections among newly diagnosed people living with HIV (PLHIV). Rapid tests for recent HIV infection (RTRI) were used to distinguish between recent (i.e., HIV infection contracted within the previous 12 months) and long-term HIV infection (HIV infection contracted more than 12 months). The goal of this intervention was to use a rapid test kit such as the *Asante* test kits for rapid testing for recent infection (RTRI) for all newly identified positive clients who had a corresponding viral load result greater than 1000cpml. Recency surveillance was used to provide continuous epidemiological data on newly diagnosed individuals' people, places, and times, which informed HIV prevention and control strategies.

APIN piloted recency surveillance in Benue State in March 2020, and it was later expanded to Plateau, Osun, Oyo, Ekiti, Ogun, and Ondo States. APIN was able to strengthen its recency program through capacity building, remote mentoring and supervision visits, effective team communication through the provision of a two-way feedback system, weekly RTRI data analysis and provision of constructive feedback for program decision making, and real-time RTRI viral load samples/results monitoring in October 2020.

APIN used generated data to support the acceleration of achieving HIV epidemic control in supported states through the use of GIS heat maps to guide geographic prioritization of HIV prevention and treatment strategies in locations with ongoing HIV transmission through the integration of HIV recency testing into HIV testing services in Nigeria. Individual-level responses for recent cases were initiated,

which included an optimized HIV drug regimen as well as increased index testing for all identified recent clients.

The APIN recency surveillance program has helped to characterize recent cases based on age and gender distribution, testing modalities, social status, occupation distribution, and local government of residence. We were able to strengthen partner notification and family index testing services to reach new HIV-infected individuals, identify geographical locations with ongoing HIV transmission, allocate resources for case finding and prevention activities, and contribute to the generation of data to track the epidemic and measure HIV incidence with this vital information (the rate of new infections). Geo-coordinates of recent infections in communities were used to generate heat maps, which guided community testing activities to hot spots for recent infections. Figure 2.10 shows the example of a sample heat map generated for Gwer East LGA in Benue State.



FIGURE 2. 10: SAMPLE HEAT MAP GWER-EAST LGA

2.2.3: HIV Self-testing Services: “You can do it Yourself” Approach

The HIV Self-Test (HIVST) is a screening test that allows the user to perform and interpret his or her test whenever he or she chooses and privately. HIVST is convenient, easy to use, and has acceptable sensitivity and specificity rates, in addition to the advantage of privacy and confidentiality. If the user tests positive, they must seek confirmatory testing and treatment in accordance with the national algorithm. HIVST has been shown to address many of the barriers to HIV testing, such as stigma, limited access to testing health facilities, a lack of privacy, and long wait times for test results.

APIN began implementing HIVST in 2020 in response to issues of low HIV testing coverage among underserved populations – groups with less access to HTS and higher vulnerability to infection. As a result, APIN's HIVST distribution was focused on key populations (KPs) – men who have sex with men (MSM), female sex workers (FSW), persons who inject drugs (PWID), and transgender – as well as index clients' partners, children, adolescents, and the general population. Selected health facilities and community outreach teams as well as key population one-stop shops (OSS) were activated as community-based and facility-based service delivery channels. The distribution channels featured two patterns: (a) primary distribution, where the user receives for personal use, and (b) secondary distribution, where the user collects on behalf of their sexual partner, children, or others. Approximately 9 in 10 (88%) of those who received HIVST kits did so for their personal use, while 9% received for their sexual partners, and 3% for others (Figure 2.11). Providers used both assisted and unassisted methods to deliver this service, with the former requiring the provider to perform an in-person demonstration of how the HIVST kit worked. About half of the 27,332 HIVST distributed between 2020 to 2022 involved assisted method, while the other half involved the unassisted method (Figure 2.11)

Proportions of HIV Self-Testing Types for Distributed Kits

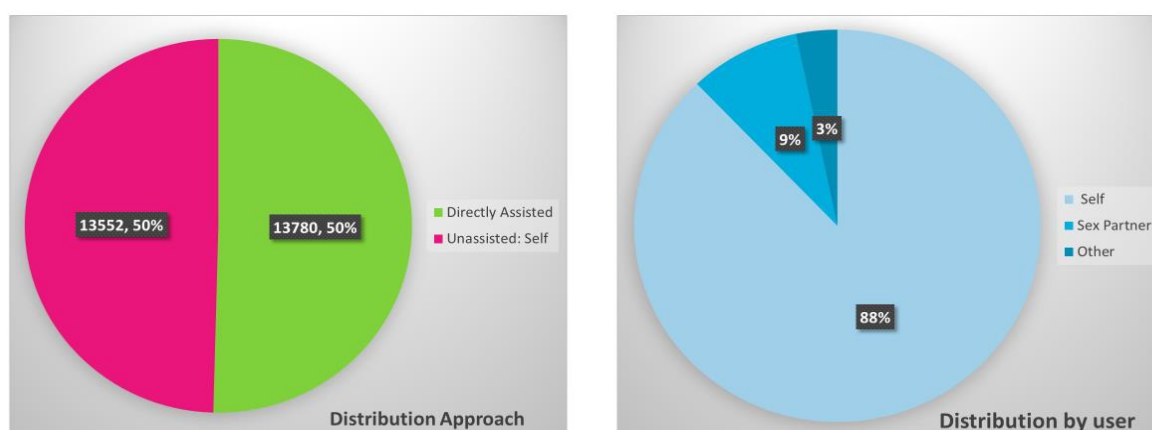


FIGURE 2. 11: PROPORTIONS OF HIV SELF-TESTING DISTRIBUTION BY APPROACHES

HIVST demand was generated at strategic points within the health facilities, such as ART clinics during health talks and HTS units for KPs during inter-personal communication (IPC) sessions and other KP community interventions. These approaches were informed by the need to reach as many PLHIV, their partners, and other high-risk groups with HIVST. APIN-supported states were able to work with the peculiarities and structures of the states to reach the desired population with HIVST kits. For example, the APIN team in Ondo State, in collaboration with the Ondo State School of Health Technology, organized a youth-focused program on Valentine's Day to raise HIVST awareness among young people.

2.3: Linkage of HIV-positive Persons to Treatment

APIN established an accompanied referral system from testing points to ART clinics within facilities and from communities to facilities to ensure same-day linkage and ART initiation. This approach has proven to be the most efficient approach to optimal linkage to ART treatment, care, and support services. Clients were referred from non-treatment facilities such as PHCs), where they were tested, to comprehensive treatment sites for linkage to antiretroviral therapy and other client-centered care and support services through inter-facility referral systems. APIN achieved a linkage rate of more than 95 percent between FY 19 and FY 22. In FY 20 to 22 the rate was above 100%; this was a result of persons not linked in previous periods that were now linked.

The approach to linking identified HIV-positive persons to treatment services was contextualized to the point of identifying the individuals, and included community-to-facility (Figure 2.13), facility-level, (Figure 2.14), and facility-to-facility (Figure 2.15) referral linkages.

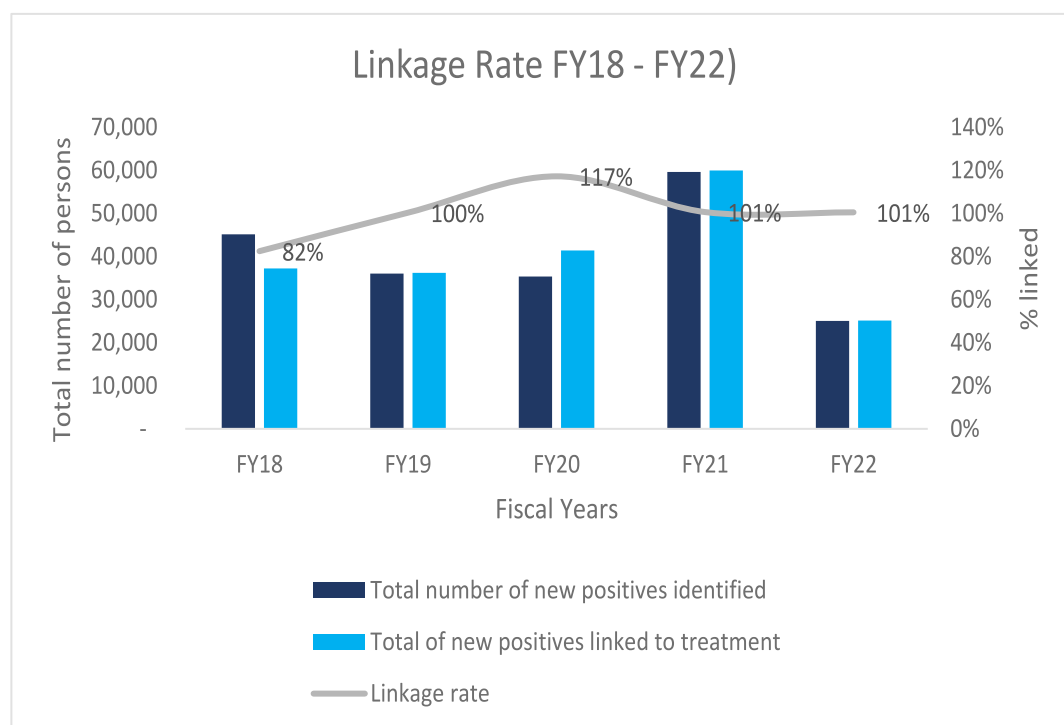


FIGURE 2. 12: LINKAGE RATE FOR NEWLY DIAGNOSED HIV CASES FROM FY 18 TO FY 22.

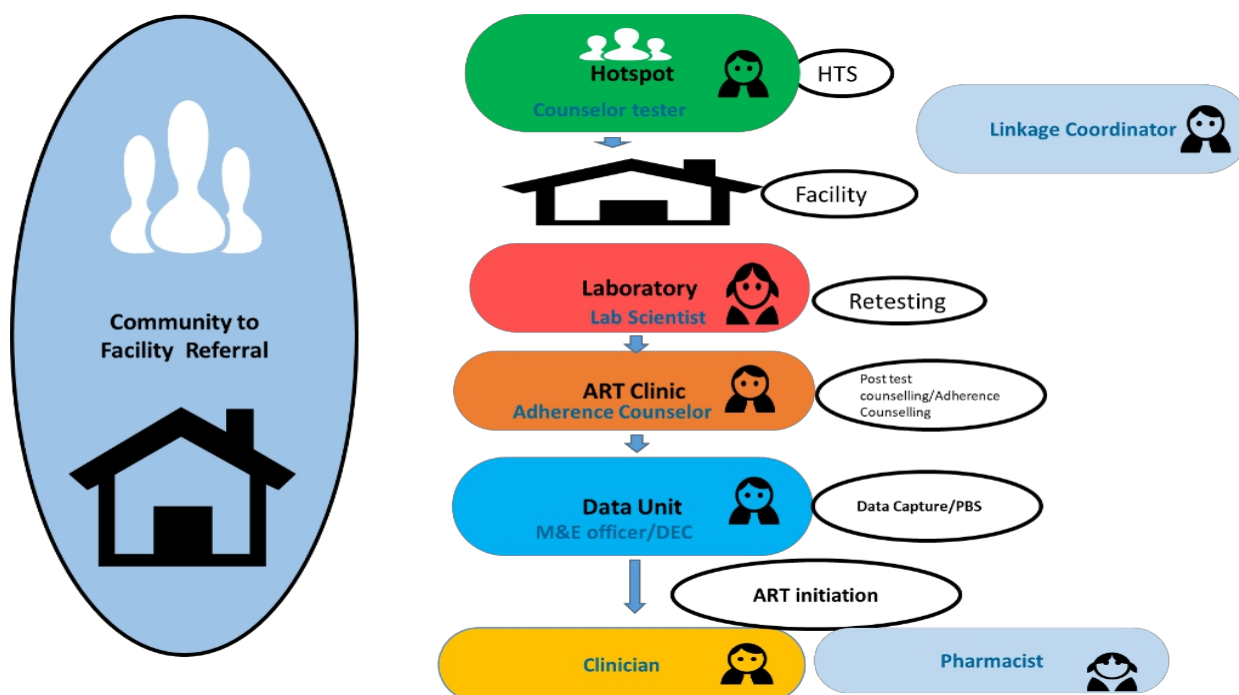


FIGURE 2. 13: COMMUNITY-TO-FACILITY REFERRAL FLOW CHART

The illustration below depicts the referral system across different modalities

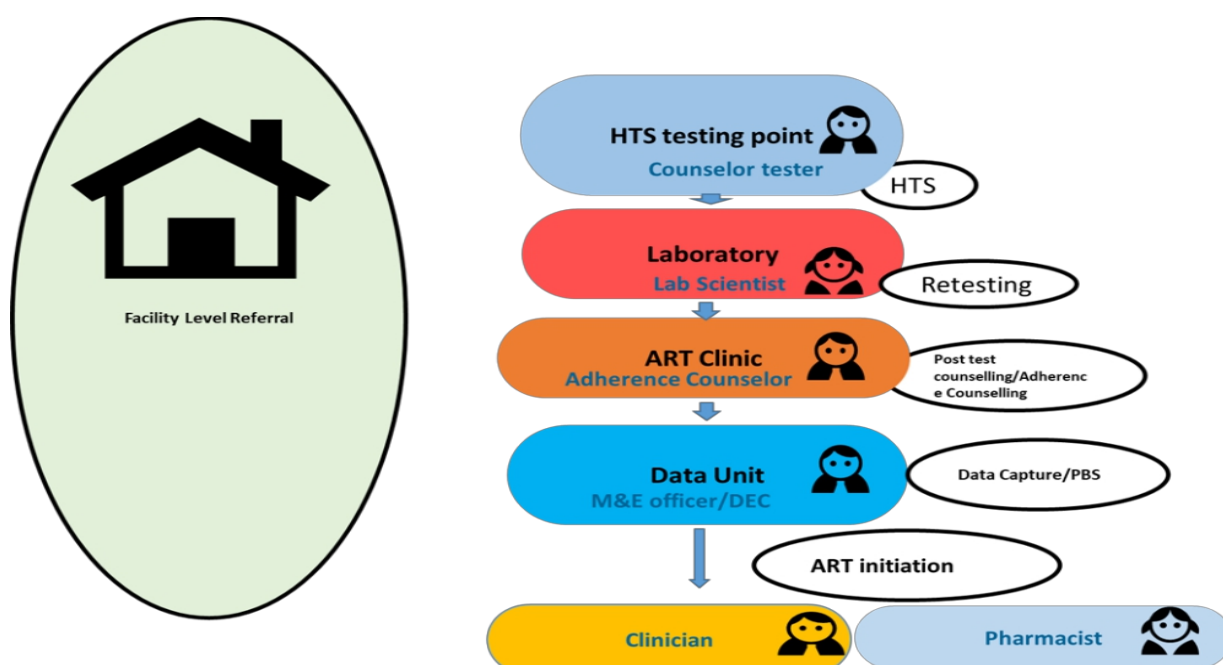


FIGURE 2. 14: Intra-facility referral flow chart

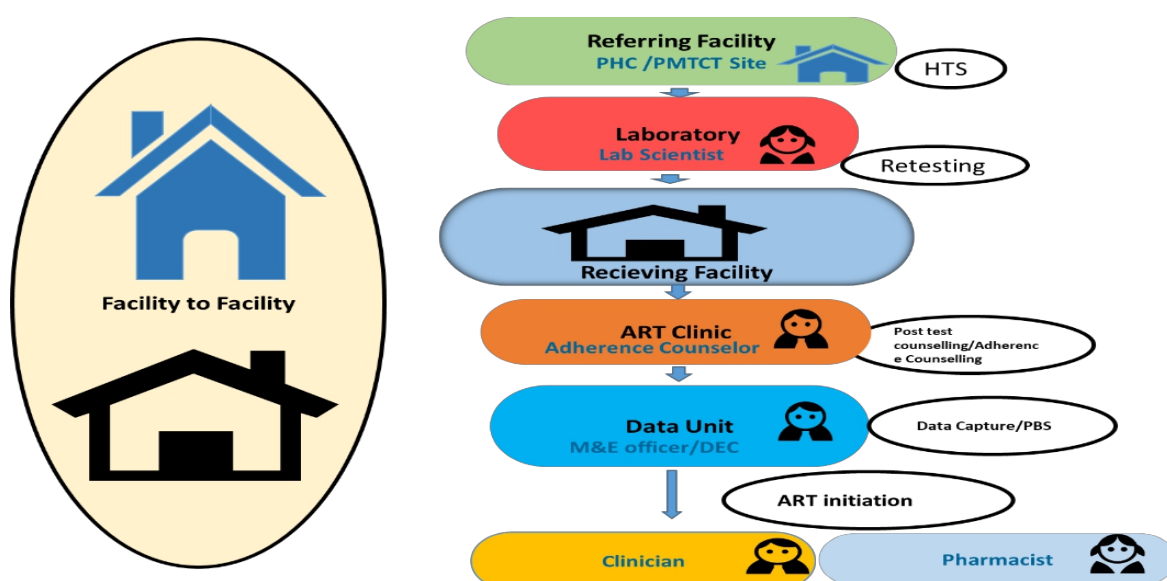


FIGURE 2. 15: INTER-FACILITY REFERRAL FLOW CHART

2.3.1: Pre-exposure Prophylaxis: Staying Negative

Despite remarkable advances in HIV treatment, the annual number of new infections has remained close to two million for several years¹. As a result, a large number of people in Nigeria remain at high risk of HIV infection, including key populations, sexually-active adolescent girls and young women (AGYW), and sero-discordant couples (SDC). Thus, there is a critical need to increase access to effective HIV prevention interventions such as pre-exposure prophylaxis (PrEP). Oral PrEP, when combined with other biomedical interventions, has proven to be extremely effective in protecting many of the most vulnerable and at-risk populations, including HIV-negative partners in sero-discordant relationships, MSM, sex workers, women, and girls. APIN began providing PrEP services to key populations in Benue and Lagos States in FY 18 and to the general population in FY 20. The process of introducing the service involved appropriate training of healthcare workers in supported facilities across seven states and screening of potential clients for eligibility.

The emphasis for PrEP was initially on sero-discordant couples, which yielded some measure of fair outcomes. However, a significant proportion of the target populations were being missed because of myths and misconceptions about PrEP within the KP community. To address this, APIN enlisted the help of key opinion leaders and champions from the KP communities who had received the service and were engaged as “oral PrEP Stars.” These were MSM peer beneficiaries of PrEP who were recruited as “PrEP stars”. Their role was to create a demand for PrEP services among their peers through community awareness activities, peer-to-peer sessions, and interpersonal communication (IPC) and group sessions with community members. The PrEP intervention was majorly implemented in Benue State at the beginning, and APIN created jingles in six languages (English, Hausa, Yoruba, pidgin, Tiv, and Idoma) to sensitize the targeted populations. The jingles were distributed through speakers who were strategically placed in PrEP-promoting facilities. IEC materials with information on PrEP use and adherence, such as posters and roll-up banners, were also created and distributed to strategic locations in health facilities, offices of community-based organizations (CBOs) serving KPs, and OSS. APIN used PrEP in accordance with global standards, and in conjunction with condom programming.

In FY 22, the targets for PrEP in all states quadrupled, necessitating re-strategizing by APIN to meet the increased numbers. Additional PrEP training was provided, and APIN implemented weekly tracking of PrEP achievements per facility. Providers were also assisted in following up with sero-discordant

¹ UNAIDS, 2021

couples sourced from their database so as to introduce them to PrEP. These efforts resulted in a 74% increase in PrEP achievements by the third quarter, up from 14% in the first quarter. Overall, PrEP uptake increased from 906 in FY 18 to 9,625 in FY 22 – almost a 1,000% increase.

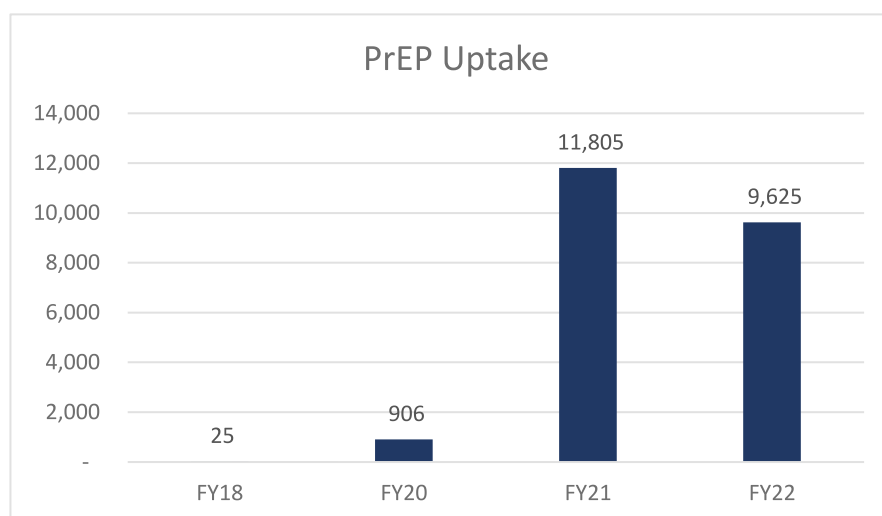


FIGURE 2. 16: TREND IN PREP UPTAKE: FY 18 TO FY 22

2.4: Towards an HIV-free generation; APIN's PMTCT Program

Elimination of Mother-to-Child Transmission (eMTCT) is a critical step toward achieving the global and national goals of ending the HIV/AIDS epidemic as a public health threat by 2030. Vertical transmission of HIV is the most common route of infection among children and is almost entirely preventable by preventing HIV transmission from mother to child (PMTCT). The APIN PMTCT program was built on four key PMTCT pillars that align with national PMTCT guidelines:

- Primary prevention of HIV infection in women of reproductive age group and their partners.
- Prevention of unintended pregnancies in HIV-positive women
- Prevention of transmission of HIV from infected mothers to their infants
- Provision of appropriate treatment, care, and support to HIV-infected mothers, their infants, and family.

Interventions to address the four pillars included the following:

- Risk stratification and risk reduction counseling, including condom distribution;
- Integration of family planning into HIV services, including information, education, and communication;
- Leveraging the operation triple zero (OTZ) program – “Zero viral load, Zero missed appointments, and Zero missed drugs” – to reach adolescents;
- Incorporating GBV and IPV screenings into women-focused programs,
- HIV testing services for all antenatal care (ANC) attendees using the 'Opt-out' approach,
- testing of mothers in non-ANC settings e.g., immunization clinics, infant welfare clinics, and children emergency wards;
- Prompt ART initiation for all HIV-positive pregnant and breastfeeding women (PBFW) using Option B+;
- Monitoring PBFW on ART for viral load when due as well as delivery options; and,
- Infant feeding counselling

2.4.1 HIV Testing of pregnant women in ANC Settings

Through the iCARES, APIN facilitated the testing of a total of 1,451,523 new ANC attendees for HIV during the grant cycle, working with various supported health facilities and community structures across the eight focal states. The program achieved over 99 percent testing coverage among ANC attendees in all the APIN-supported facilities. During the five-year implementation period, a total of 9,530 HIV-positive pregnant women were identified (Table 2.1). Healthcare workers in the ANC were trained to provide quality HIV testing and counselling in accordance with national guidelines. To support testing services, tools and consumables were provided.

TABLE 2. 1: Number of women tested during ANC, and new and known HIV-positives identified by states

State	Tested	New Positives	Known Positives
Benue	399,232	4,708	24,573
Ekiti	93,092	261	566
Lagos	111,497	603	834
Ogun	127,423	823	1,607
Ondo	142,583	982	1,647
Osun	62,187	265	817
Oyo	315,001	1,306	3,017
Plateau	160,995	582	3,635
Total	1,412,010	9,530	36,696

3.4.2: Treatment for HIV-positive pregnant women

Option B+ HIV treatment is implemented by APIN for HIV-positive pregnant women in compliance with national recommendations. The treatment coverage for diagnosed HIV-positive pregnant women is between 99% and 100% (Figure 2.17). The use of mentor-mothers contributed to the high rate of treatment among pregnant HIV-positive women.

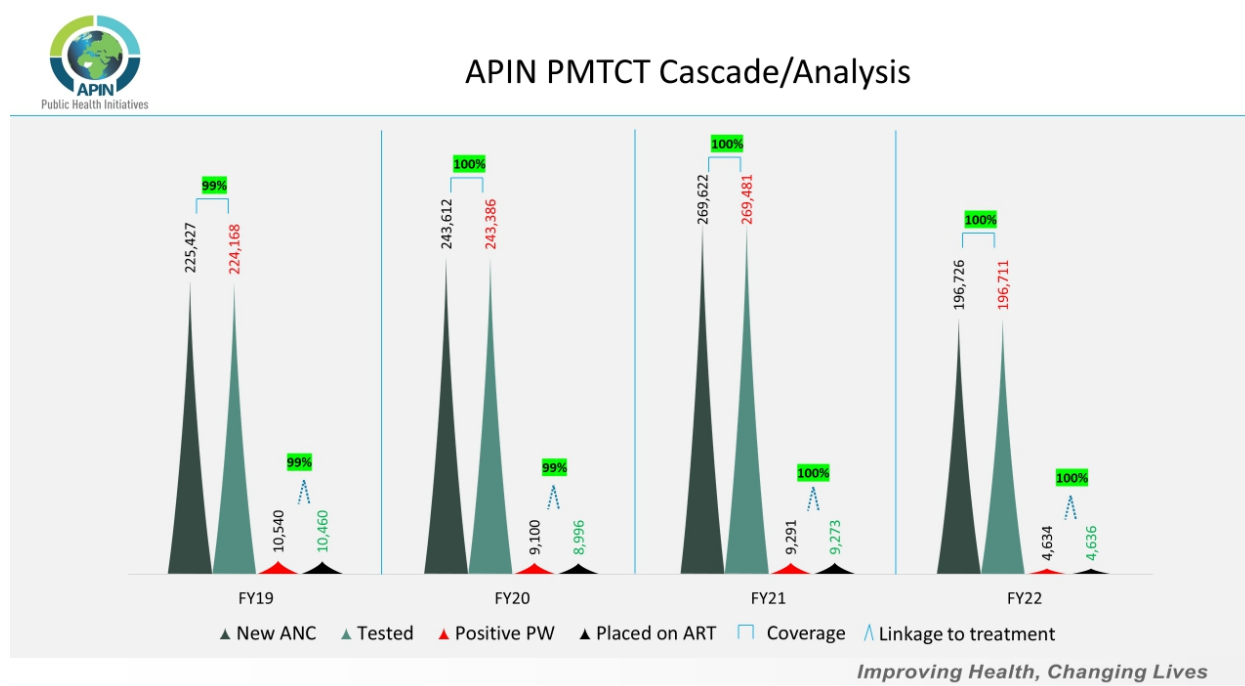


FIGURE 2. 17: PMTCT SERVICES CASCADE

2.4.3: Early Infant Diagnosis for Infants Born to HIV-positive Mothers

DNA PCR testing was offered to all HIV-exposed infants (HEI) at 6 weeks of age and 12 weeks after cessation of all forms of breastfeeding in accordance with current national guidelines. Furthermore, HEIs were prescribed ARV and cotrimoxazole prophylaxis in accordance with national guidelines. Dried blood spot (DBS) samples were collected and sent to designated testing laboratories, where the results were obtained both electronically and in hard-copy printouts. DNA PCR tests were performed on a total of 49,608 HEI during the grant cycle; 36,626 of these HEI had DNA PCR test done at 2 months. The DNA PCR-positive babies were contacted as soon as the results were available and were linked to additional HIV care and treatment. Overall, 555 HEI (83.6%) of the 664 HEI found to be HIV-positive were successfully linked to care (Table 2.2).

TABLE 2. 2: Yearly Early Infant Diagnosis (EID) cascade per state (FY 18- FY22)

Financial Year	Number of Early Infant Diagnosis (EID) undertaken through PMTCT	PMTCT: HIV-exposed infants identified to be HIV-positive	PMTCT: HIV-exposed infants identified to be HIV-positive and linked to ART treatment
FY18	11,020	129	107
FY19	11,475	225	184
FY20	9,676	145	126
FY21	11,521	103	85
FY22	5,916	62	53
Grand Total	49,608	664	555

Strategies that contributed to the outcome achieved included the use of mentor-mothers, facility tracking teams, road-to-final-outcome cards, and community-based early infant diagnosis (COMBEID). COMBEID is a community-based intervention that aims to contribute to the achievement of the

eMTCT target through improved HEI care and follow-up, as well as to the establishment of a sustainable EID program in APIN-supported states.

The PMTCT program's overall impact is that HIV-exposed infants remain negative throughout the PMTCT period. At 18 months after birth, this outcome is determined. During the grant cycle, only about 2% of HIV-exposed infants were HIV-positive at 18 months. The majority of these children were born to mothers who did not participate in the PMTCT program and were discovered either during labor or after delivery. Figure 17 shows the final outcome of the PMTCT grant cycle.

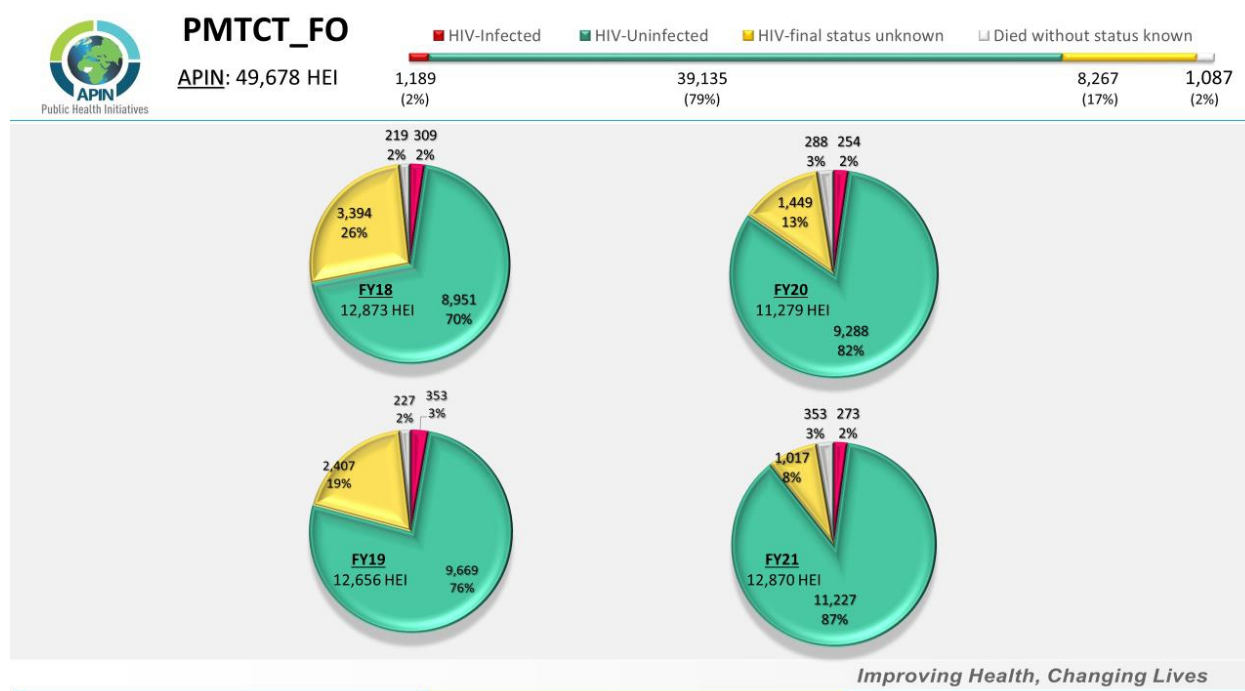


FIGURE 2. 18: PMTCT FINAL OUTCOME PERFORMANCE

2.4.4: Community PMTCT program

APIN began implementing the community PMTCT (c-PMTCT) program in FY 22 in the two pilot states of Benue and Osun with the aim of achieving epidemic control among subpopulations such as pregnant women. Community PMTCT was implemented at three levels: Traditional birth attendant (TBA) settings manned by healthcare workers, TBA settings manned by non-healthcare workers, and congregational settings. Benue is implementing c-PMTCT at all three levels, in 20 sites, and five congregational settings. On the other hand, Osun State is only implementing c-PMTCT in TBA settings manned by healthcare workers and those that are not, and in 10 locations on the whole. These community settings were linked to supported health facilities in a hub-and-spoke manner, which allows for ease of referral and support to these community structures.

TBA settings staffed by non-healthcare workers were assisted by trained roving nurses to provide quality ANC and PMTCT services. The program offered HIV testing assistance in TBA settings, maternity homes, faith clinics, and congregational settings. Staff in TBA settings were also trained on basic universal precautions and provided with medical equipment and consumables such as fetoscopes, stethoscopes, delivery couches, tape measures, bed screens, sphygmomanometers, weighing scales, trolleys, and delivery sets that included consumables such as hand gloves, hand wash, hand sanitizers, methylated spirits, bleach, and cotton wool, and rapid test kits. Furthermore, monitoring and evaluation (M&E) systems with M&E assistants were put in place to support the documentation of routine ANC services and reporting.

2.4.5: Congregational Approach to Optimize PMTCT Services

APIN used existing strong collaboration with faith-based institutions to reach pregnant women and their partners with information on the benefits of ANC and other health interventions, in the context of a congregational approach to PMTCT services (CAPS). In this regard, APIN tapped into the states' already established religious structures and networks. That approach served as an excellent opportunity to use the capacity of religious leaders and therapeutic spiritism practitioners to reach pregnant and breastfeeding women with PMTCT services, particularly those with limited access to ANC services. APIN carried out the CAPS project in Benue state through existing faith-based organizations (FBO) network, namely, Catholic Church (Dioceses of Makurdi), Katsina-Ala, and Gboko; NKST Health Mission; and, *Jama'atul Nasril Islam* (JNI) via the Federation of Muslim Women's Association in Nigeria (FOMWAN). Based on historical program data, the pilot phase was implemented in medium-to-high volume church (parish) and Islamic congregational settings in rural communities and LGAs with high HIV prevalence and MTCT rates. For referrals to health services, these faith communities were linked to supported PEPFAR PMTCT sites. The congregation organized interested and registered participants into cohorts based on pregnancy trimester with technical assistance from APIN. All pregnant women in the same trimester were assigned to the same cohort, with sessions held every two weeks. HIV testing services were made available at the first meeting following each member's registration, as well as to new members as they were added to the cohort. Repeat testing and counseling services were provided to participants during the third trimester to address cases of maternal infection during pregnancy. Baby showers were held for registered members who were in their third trimester of pregnancy. Participants were given gifts called "mama packs", which contained essential items for delivery, during this activity. Approximately 3,700 pregnant women were tested for HIV on the CAPS project from October 2021 to June 2022, with 12 new positives and 131 previously known positives identified.

2.5: Key Populations Programming: The Story and Successes

According to the 2020 Integrated Biological and Behavioral Surveillance Survey (IBBSS), the HIV prevalence for men who have sex with men (MSM) is 25%, female sex workers (FSWs) is 15.5 percent, people who inject drugs (PWIDs) is 10.9 percent, and transgender people (TG) is 28.8 percent, all of which are significantly higher than the national prevalence of 1.5 percent. Individual behaviors such as unprotected intercourse, multiple partners, and harmful drug increases the vulnerability of KP to HIV infection. Also, social, economic, and legal factors such as widespread stigma and discrimination against members of the KP community, contribute significantly to their low level of access to health services, thereby increasing their vulnerability to HIV/AIDS.

APIN began programming among KP in FY 18 in Lagos and Benue states, in collaboration with a USAID partner that supported prevention programs for KP and the CDC. This collaboration came to an end in September 2019, with the program officially transitioning to APIN in FY 20. Following an assessment using a National Harmonized Organizational Assessment Tool (NHOCAT), APIN engaged the top six KP-led and competent CBOs to work in priority LGAs in Benue State for enhanced delivery of HIV case finding among peers, while a local implementing partner was contracted to implement in the remaining LGAs in Benue.

APIN was awarded the key population investment fund in 2019. (KPIF). The grant titled, "Ensuring Comprehensive HIV/AIDS Response and Building Sustainable KP-Led and KP-Friendly Community Approach" (EnCOMPARS), focused on organizational development and system strengthening for KP-led CBOs, which was not present in the ICARES grant.

In the first quarter of fiscal year 21, APIN piloted a condensed version of KP implementation in the yellow states of Oyo, Osun, Ogun, Ondo, and Ekiti, dubbed "*Key population Rapid Intensive Case Finding Expansion (KP RICE)*" which involved direct engagement of KP community members in their respective states was used for implementation. These KP community members were able to reach the target population through snowballing. Small group meetings in APIN offices and testing parties for

KPs were used to conduct testing. The results of the pilot implementation served as the foundation for the donors to scale up a full-packaged implementation among KP in these states in the following quarters. Eleven KP-led CBOs were identified, assessed, and involved in the program in the states of Ogun, Ondo, Osun, and Ekiti. APIN also worked with Nigerian correctional facilities in their respective states to reach out to the prison population. In line with this, the program collaborated with CBOs to recruit and train CTs among prison clinic personnel, as well as provide HIV testing commodities and documentation tools. During community ART outreaches within prison facilities, newly identified HIV-positive clients were linked to treatment; new entrants were given HTS. KP Community Facilitators (CFs) and Community testers (CTs) built the capacity of community members on the correct and consistent use of condoms by sharing information and condom demonstrations using penile and vaginal models, in addition to providing HIV prevention information to KPs during IPC and small group sessions. HIV prevention commodities such as male and female condoms and lubricants were also distributed by CFs and CTs.

The KP-led/friendly CBOs (6 in Benue and 11 in the south-west states) used the KP size estimates to map, validate, and identify KP hotspots within LGAs. Trained KP community volunteers for each target population used a snowball approach to provide highly accurate and consistent HIV prevention information and services to their peers. APIN used manuals and job aids to deliver HIV prevention messages to KPs via KP community volunteers recruited by CBOs. This served as an entry point into HTS as well as a link to other services such as STI and GBV. From FY 19 to FY 22, 187, 233 KPs in six states (Benue, Lagos, Ogun, Ondo, Osun, and Ekiti) received key population prevention information and services, including 108, 534 FSW, 45,076 MSM, 30, 070 PWID, 219 PIPs, and 637 TG.

2.5.1: HTS for KP

High-yielding, client-centred approaches were deployed to provide high-quality HTS to community members. KP counsellors/testers (CTs) and outreach coordinators used the snowball approach to identify their community members and hidden sexual networks for testing, focusing on unreached and underserved communities. Aided by the risk stratification tool, the team screened KPs to determine eligibility for HIV testing services before providing HTS. An incentive-based social networking strategy was used as an entry point to test high-risk individuals. Members of the key population were recruited to distribute coupons to their social network members and refer them to HIV testing services. The coupons were used to access HTS. Several generations of recruiters were raised from the initial seed, with the outcome of the HIV test determining who became a recruiter. HIV-positive clients were offered index testing services with sexual and injecting partners elicited, contacted and tested for HIV. Moonlight testing outreaches were conducted around FSW hotspots with FSWs tested and new cases identified. In all, 55% of the KPs that were tested were FSW, while MSM constituted 22.9%, PWID 19.5 %, PI 1.6 percent, and TG only 0.6% of those tested.

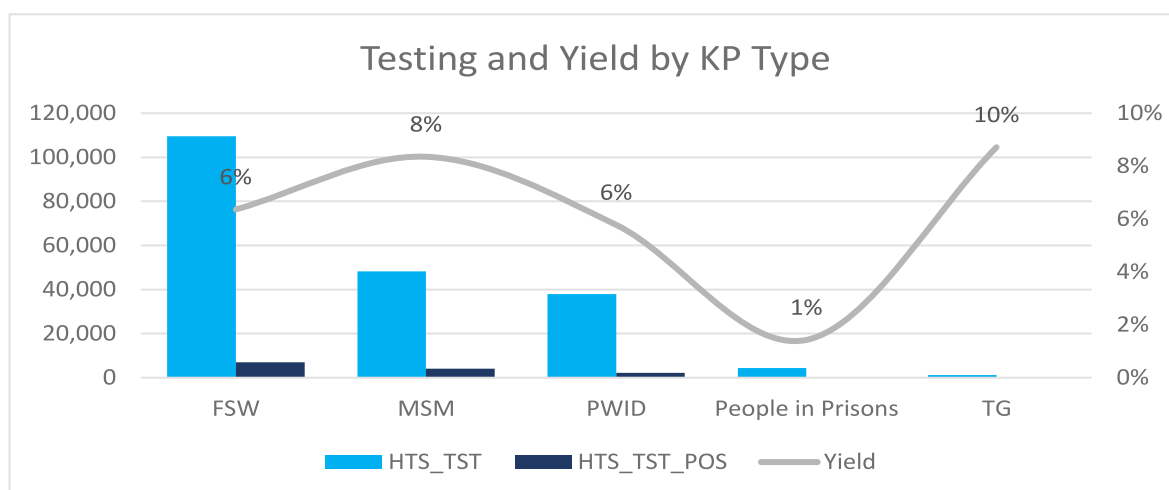


FIGURE 2. 19: DISTRIBUTION OF KPs TESTED FROM FY19 TO 22 BY KP SUB-TYPE (INCLUDE TESTED, POSITIVE, AND YIELD).

Through the peer-to-peer model, Pre-exposure prophylaxis (PrEP) was used to help find HIV cases (P Square model). Offering incentives was also a good way to get KPs to find more HIV cases.

TABLE 2. 3: PrEP uptake by key population groups by state

KP Typology	Benue	Ekiti	Lagos	Ogun	Ondo	Osun
FSW	811	310	9	351	1362	1097
MSM	724	281	4	759	294	128
Prisons	34	2	-	0	0	1
PWID	726	1	-	170	47	36
TG	20	0	-	4	0	1
APIN	2,315	594	13	1,284	1,703	1,263

2.5.2: Linkage to Treatment for KP Program

The APIN KP program engaged KP community-led HIV case managers for all KP target populations to ensure that all identified HIV-positive KPs were linked to treatment. The HIV case managers were primarily in charge of escorting all reactive KP community members to HIV services, ensuring retesting and linkage to treatment. KP clients in Benue State were linked to treatment at 4 KP one-stop shops and 2 Drop-in Centres. Other clients in locations without one-stop shops were linked within the community during ART outreaches. APIN established a state-of-the-art One-Stop Shop (KP Centre of Excellence [CoE]) for key populations in Benue state, complete with modern indoor and outdoor games facilities for KP leisure and a call center for KPs to call from anywhere in the country to seek medical services. Other services provided by the CoE include health promotion, STI diagnosis and treatment, PrEP, health education and counseling for treatment adherence, cervical cancer screening, and management of anal and vaginal warts.

New HIV cases identified in Ogun, Osun, Ondo, and Ekiti states were initially linked to treatment at public health facilities where providers were trained to provide high-quality KP-sensitive and non-discriminatory HIV care. APIN launched KP OSS in Ogun and Osun states in June 2022, where KP enrolment began. Over the project years, the program collaborated with KP case managers to enrol 12,259 KPs in care; 6,567 (53.6%) of the enrolled KPs were FSW; 3,564 were MSM (29.2%); 1, 974

(16.1% were PWID; 94 (0.7%) were TG, and 60 (0.5%) were PIs. In general, the number of enrolled KPs rose gradually from FY 18, peaked at FY 21, before declining slightly in FY22 (Figure 2.20).

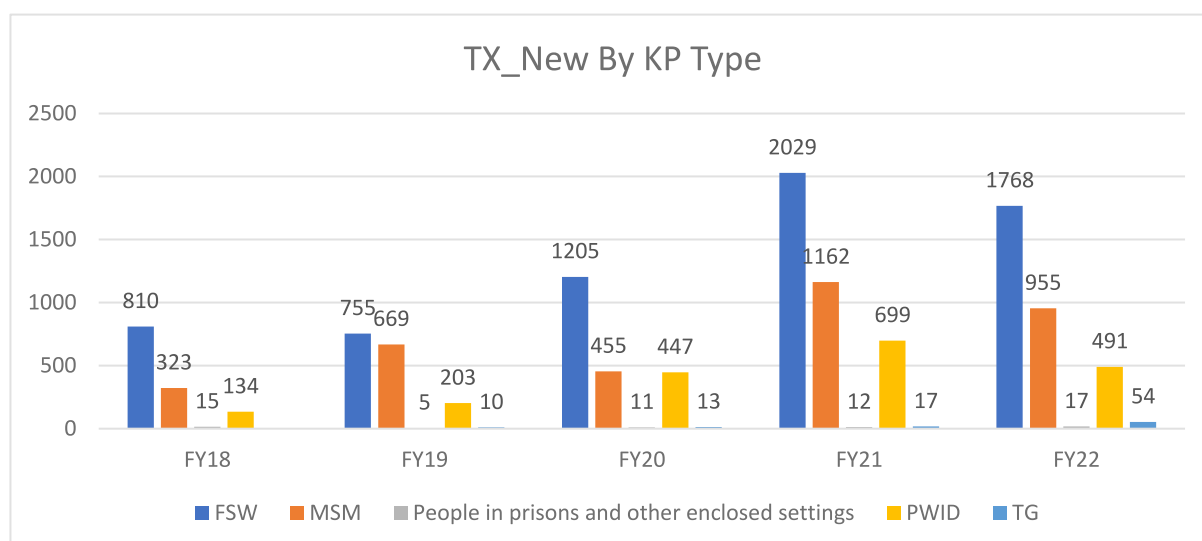


FIGURE 2. 20: CLIENT ENROLMENT IN CARE BY YEAR AND KP SUBTYPE

2.5.3: Retention in care

Retention in care was ensured through the use of KP case managers from the KP community and peer navigators who were funded for continuous follow-up via calls, SMS, and home visits. In addition to multi-month dispensing (MMD3 and 6), the OSS adherence counsellors, CBO linkage/community coordinators, and peer navigators used multiple tracking streams to ensure that clients who missed appointments were tracked back to care as soon as possible. The call center agent sent appointment reminders and followed up with clients who missed clinic appointments, lowering the program's IIT rate.

2.5.4: Viral load coverage and suppression among KP

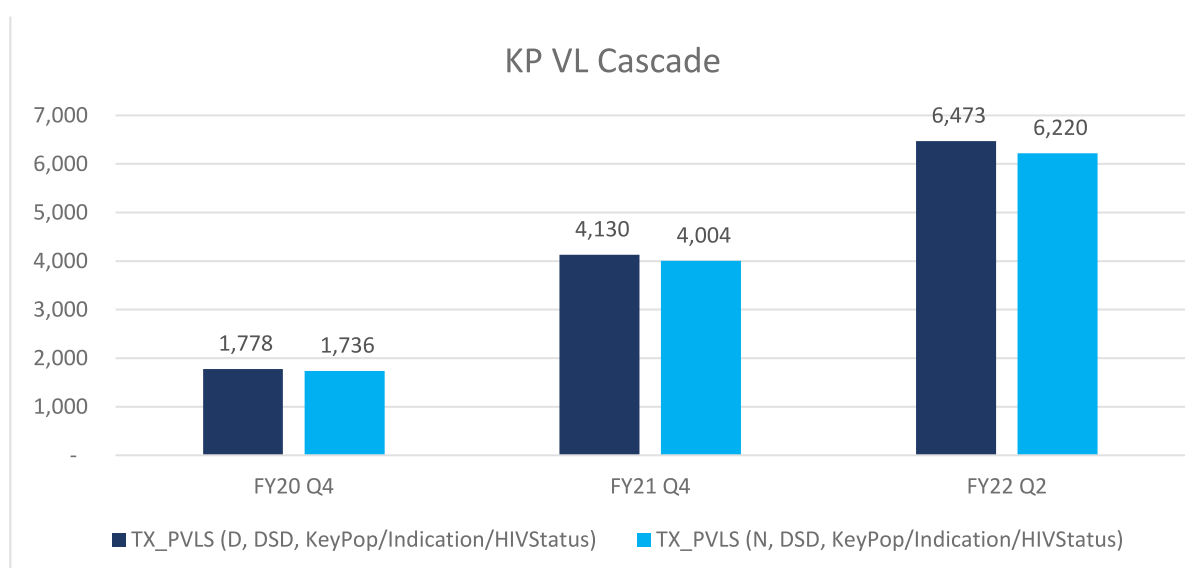
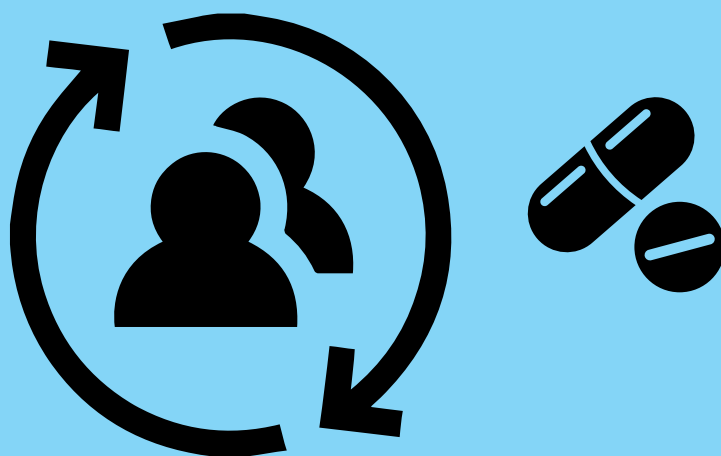


FIGURE 2. 21: KP VLS FY 20 TO FY 22

3. Patient retention and treatment



3.0 Expanding access and scaling up treatment numbers to reach epidemic control

Between FY18 Q1 (the start of the iCARES project) and FY22 Q3, APIN improved the number of people currently on treatment current by 130,426 PLHIV (end of project-less by a quarter). APIN expanded its comprehensive ART services in Nigeria from three to eight states in 2017. To achieve excellence and epidemic control in APIN-supported states, bold steps were taken and strategies were implemented with the goal of reaching > 95 percent ART coverage. Using the surge strategy and the incident command system, APIN increased case-finding across all subpopulations. We used the national "test and start" strategy, focusing on same-day client enrolment while ensuring counseling with positive messaging and adequate documentation at enrolment. The 'test and start' approach could only be implemented because we had established a strong and well-coordinated linkage system from every testing point within health facilities and the community.

APIN prioritized client-centered case management to keep clients on the continuum of care by incorporating peer support, particularly for adolescent clients, and implementing evidence-based Differentiated service delivery (DSD) models guided by patient-level data-driven analytics. With the emergence of the COVID-19 pandemic, these strategies were driven by service providers who had benefited from various capacity-building under the project. Following the rationalisation process carried out by the government and funding agencies, APIN on boarded 35,306 additional clients from sites supported by the Government of Nigeria through the Global Fund in FY21 Q2. APIN treatment figure increased progressively from 247,827 in FY 18 Q1 to 378,253 in FY 22 Q3 (Figure 23).

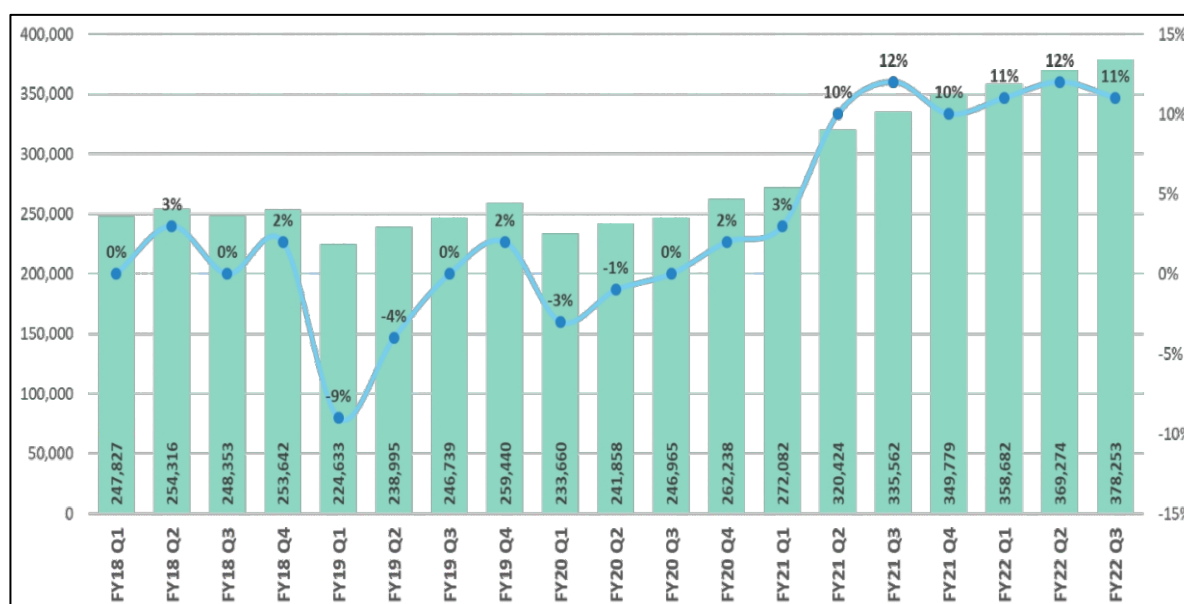


FIGURE 3. 1: APIN TREATMENT GROWTH: FY18 TO FY22

3.1: Continuity of Treatment and the Road map toward < 2% IIT Rate

To achieve epidemic control by 2030, it is necessary to retain all identified PLHIV in care and treatment; failure to keep PLHIV on lifelong treatment is analogous to pouring water into a leaking bucket. Despite identifying approximately 116,000 new positives during the first two years of the iCARES project, the growth in treatment numbers was not significant. Despite over 100,000 new

positives identified, the treatment growth increased from 247,827 to 262,238 in the first three (3) years (FY18 to FY20) (figure 3.2).

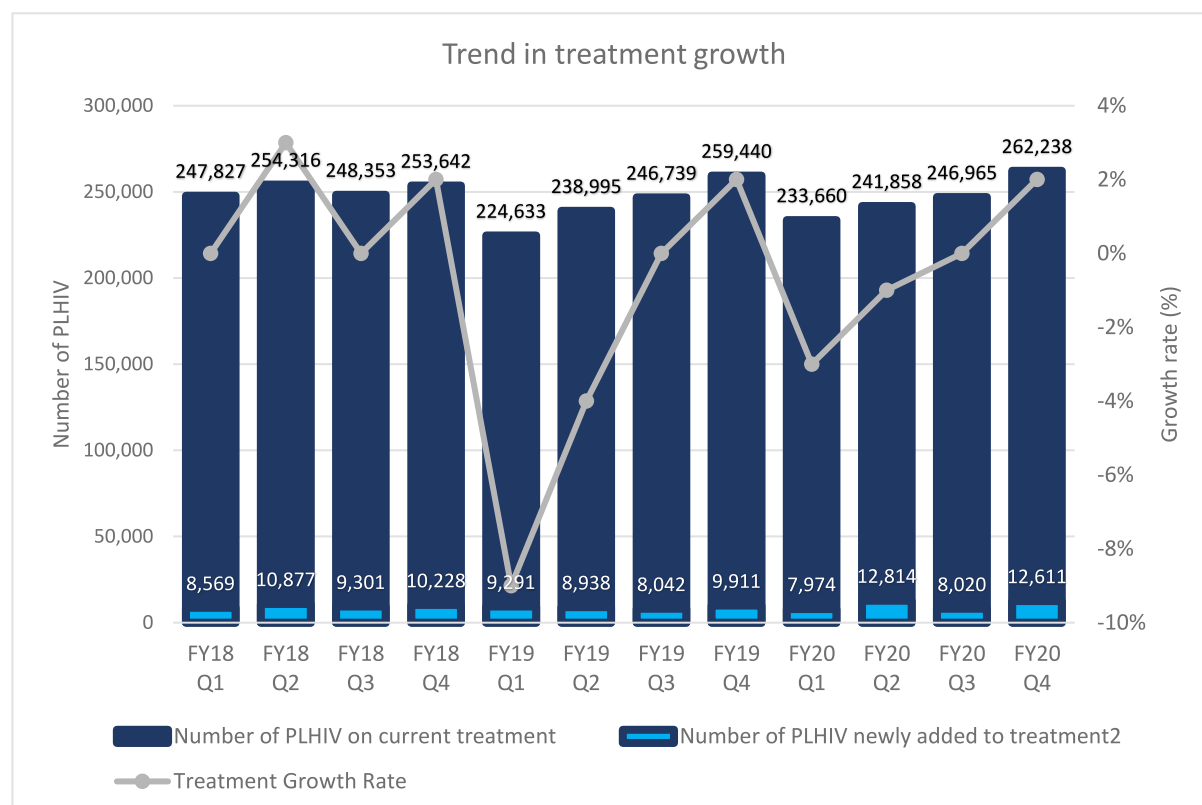


FIGURE 3. 2: NUMBER OF PLHIV ON TREATMENT BY FISCAL YEARS AND QUARTERS

3.1.1: Use of Innovative Technologies to improve retention rates

Furthermore, between FY20 Q4 and FY21 Q3, before the deployment of various innovative technology, APIN had an average retention rate of 3.2% (Figure 24).

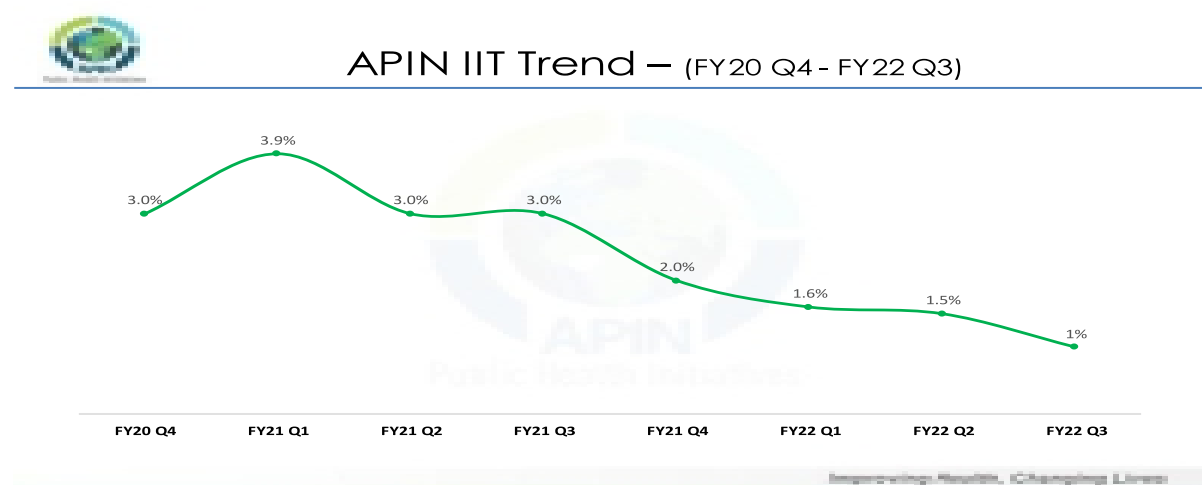


FIGURE 3. 3 TREND IN INTERRUPTION IN TREATMENT (IIT) FY20 TO FY22

To ensure reduced interruptions in treatment and retention among PLHIVs, with the goal of positively impacting the second and third 95, can be a daunting task, especially given the factors associated with patients' interruptions in treatment. APIN formed a multidisciplinary team to address treatment

interruptions. In FY22 Q2, reports from the Patient Satisfaction Survey (PSS) revealed that more than half of patients who returned to care after a treatment interruption attributed their interruption to a lack of transportation fare and distance to their treatment sites. (See Figure 3.4)

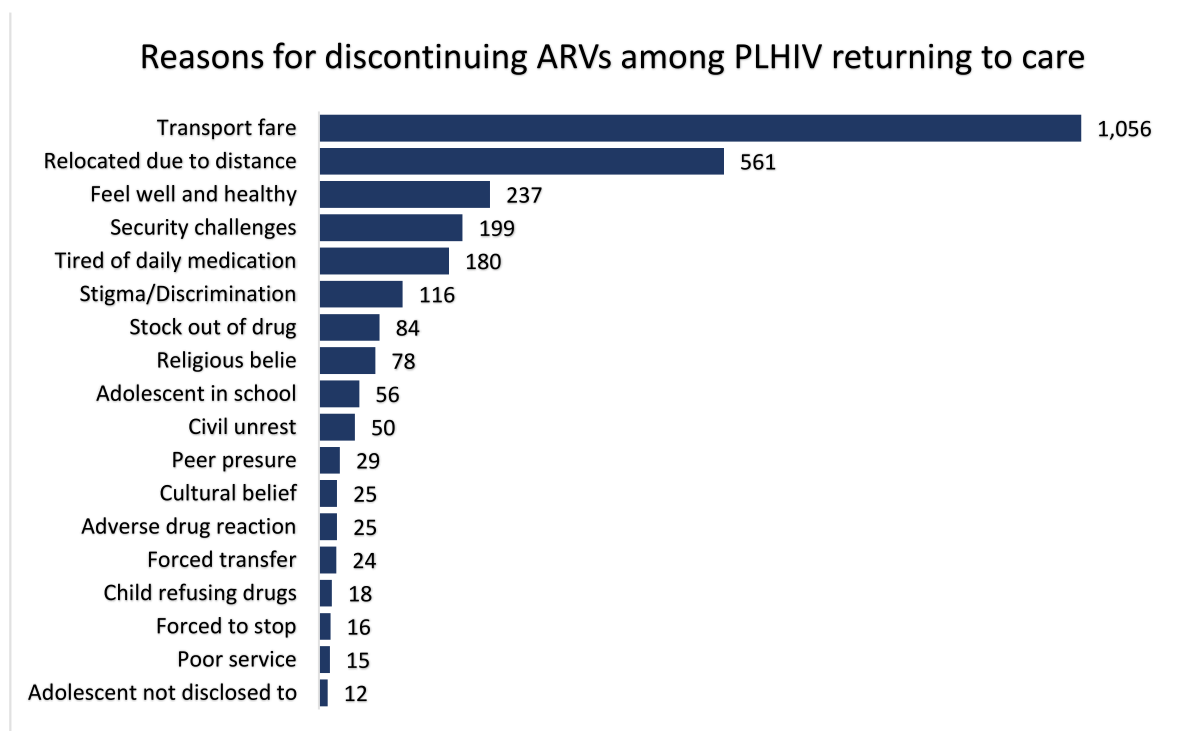


FIGURE 3. 4: REASONS FOR DISCONTINUING ARVS

APIN hired Vitira Health and Vantage Health Technologies in FY21 Q4 with the goal of using innovative technology to support her retention drive. While Vantage Health was tasked with predicting patients who are at high risk of missing their next appointment and deploying customized intervention aimed at reducing interruptions in treatment (IIT), Vitira Health innovation was tasked with increasing access to treatment, particularly among highly mobile patients, through the use of smart card and mobile app technology. Patients with a Vitira Health Smart Card could access care in any Vitira Health Technologies-supported facility while having their records updated or synchronized into the facility EMR where they were initiated into treatment.

Pilots were conducted in selected facilities using historic data and sites with a high level of ML burden to ensure the viability of these innovative technologies. The Vantage/APIN Adherence solution pilot results (Table 3.1) demonstrates that the innovation was viable and needed to be scaled up.

TABLE 3. 1: THE VANTAGE/APIN ADHERENCE SOLUTION PILOT REPORT

Vantage/APIN Adherence Solution Pilot Report						
State	Facility	No of High Risk Patients	No of patients reached	% of Client Reached	No of patients who came for their pick-up	% of eligible clients active
Benue	Gboko General Hospital	30	30	100%	29	97%
Benue	Northbank General Hospital	30	19	63%	19	63%
Oyo	Adeoyo Maternity Hospital	30	17	57%	15	50%
Plateau	Faith Alive Foundation	30	25	83%	17	57%
Pilot Summary		120	91	76%	80	67%

Site selection was based on the burden of TX ML, with a focus on TX ML IIT, to ensure an effective program outcome. The clinical teams, as well as the facility's CMT , were integrated into the program. Guidelines and training were implemented to ensure the program's success. As the Vantage/APIN Adherence Solution Report of June 2022 shows, 4,781 patients were reached, which constituted 83% of the targeted high-risk patients across 33 facilities, and 44% of eligible clients active (Table 3.2).

TABLE 3. 2: The Vantage/APIN Adherence solution Report June 2022

Vantage/APIN Adherence Solution Report (June 2022)						
State	Number of Facilities Selected	No of High Risk Patients	No of patients reached	% of Client Reached	No of patients who came for their pick-up	% of eligible clients active
Benue	6	854	725	85%	589	69%
Ekiti	2	159	89	56%	53	33%
Ogun	4	436	345	79%	345	79%
Ondo	6	622	611	98%	546	88%
Osun	3	211	158	75%	131	62%
Oyo	4	189	126	67%	124	66%
Plateau	8	3,300	2,727	83%	756	23%
	33	5,771	4,781	83%	2,544	44%

Vitira Health Smart-Card Technology was piloted in 6 Benue facilities in the 4th quarter of the 2021 fiscal year and was later scaled up to 66 Benue facilities by the first quarter of the 2022 fiscal year. After training in the 5 plus 1 red states was completed, the 2nd scale-up phase began in the second quarter of the 2022 fiscal year, especially as APIN worked toward program saturation and 73 facilities were reached in this phase and the vitira health smart card activated in 145 sites (Table 3.3).

TABLE 3. 3: Vitra Scale-up Report

Vitira Scale-Up Report					
State	Number of Facilities	Pilot Facilities (FY21 Q4)	1st Phase Site Scale-Up (FY22 Q1)	2nd Phase Scale-Up (FY22 Q2)	Vitira Health Smart Card Activated Sites
Benue	252	6	66	16	88
Ekiti	15	0	0	6	6
Ogun	28	0	0	10	10
Ondo	30	0	0	10	10
Osun	16	0	0	5	5
Oyo	37	0	0	13	13
Plateau	34	0	0	13	13
Total	412	6	66	73	145

During the review period, a total of 44,636 clients were issued cards out of 144,766 eligible clients (31%), of whom 44,500 (9.7%) are still active. The eligibility criteria for card issuance were based on facilities with high IIT rates; clients who are at high risk of missing their appointments; a proportion of highly mobile clients, particularly KPs; and clients who live in states other than the ART enrollment/pick-up states.

TABLE 3. 4: Vitira Card Uptake Report

State	TX_CURR (May 2022)	Clients Eligible to be Issued Vitira-Health Card	% of Eligible Client	No. of Cards assigned to Patients	% of Eligible Clients Assigned Vitira- Health Cards	# of smart card scans done per health facility	Clients Active on Treatment	% of Client Active on Treatment
Benue	228,020	64,084	28%	19,106	30%	95,502	19,010	99%
Ekiti	7,011	3,074	44%	1,095	36%	6,285	1,095	100%
Ogun	27,243	16,646	61%	4,835	29%	28,769	4,800	99%
Ondo	18,613	9,161	49%	2,175	24%	16,468	2,175	100%
Osun	13,394	3,734	28%	347	9%	4,136	347	100%
Oyo	32,236	22,952	71%	9,255	40%	39,597	9,250	100%
Plateau	47,780	25,115	53%	7,823	31%	37,740	7,823	100%
Total	374,297	144,766	39%	44,636	31%	228,497	44,500	100%

The weekly facility continuity in treatment and viral coverage and suppression monitoring tracker was another innovation used to ensure patient retention in FY22 Q1. The tracker was designed and implemented with the goal of monitoring and providing timely feedback and interventions to facilities dealing with retention, viral coverage, and viral suppression issues. The tracker used trends and conditions to identify facilities and age groups (pediatrics and adolescents) with IIT rates greater than 2%.

The Case Management Team (CMT) was formed in FY21 and quickly became a game changer in terms of reducing IIT and improving CoT. The CMT is a multidisciplinary team with specific roles and responsibilities aimed at providing quality care to HIV-positive people. The CMT employed 1,768 people to ensure that CoT reduced IIT. This was made up of over 905 ad hoc staff hired and 863 facility staff divided into 5 teams of 5 people each, with each team managing no more than a thousand clients. To manage all of the clients, over 375 teams were formed, and each team was to:

- Manage no more than 1000 clients following CMT SOP.
- Sub-population teams focus on paediatrics and key populations
- Intensive follow-up of all newly enrolled clients till 1st viral load (VL) bleeding.
- Weekly generation of appointment line-list every Thursday
- Daily follow-up of missed appointments and tracking outcomes.
- Scheduled follow-up of clients on MMD and pre-appointment reminders
- Ensure bleeding of all viral load eligible among the clients allotted to them
- Follow-up all IIT who Return to Treatment (RTT) to ensure they stay in care
- Real-time documentation of all activities
- Real-time documentation with focus on CoT via key performance indicators (KPIs)
- Facility-specific interventions for identified gaps in retaining clients on treatment
- Support 1st 95 target by ensuring all women of reproductive age are profiled for family index testing

Under the CMT plan, staff were rewarded based on KPIs, which encouraged the teams to do their best. These interventions changed the dynamics in terms of impact, resulting in an upward trajectory of CoT

(Table 8 and Figure 26. Overall, APIN grew her current on treatment from 247,827 in FY18 Q1 to 378,253 in FY22 Q3, despite transferring a state with over 40,000 treatment current to another partner in Q1 FY20.

TABLE 3. 5: TX_CURR Growth Rate

IMPLEMENTING QUARTERS	TX_CURR	TX_NEW	TX_CURR Growth Rate
FY21 Q1	272,082	12,980	3%
FY21 Q2	320,424	14,222	10%
FY21 Q3	335,562	16,149	12%
FY21 Q4	349,779	16,617	10%
FY22 Q1	358,682	12,558	11%
FY22 Q2	369,274	12,657	12%
FY22 Q3	378,253	11,212	11%

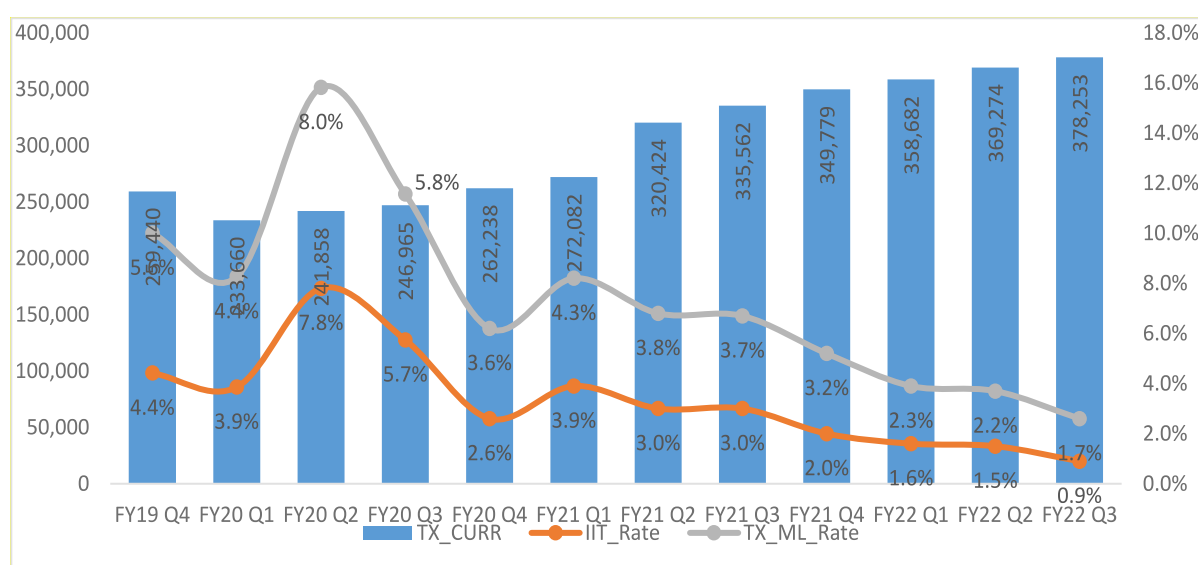


FIGURE 3. 5: APIN COT AND IIT PERFORMANCE FOR THE IMPLEMENTATION OF THE ICARES GRANT: FY19- FY22

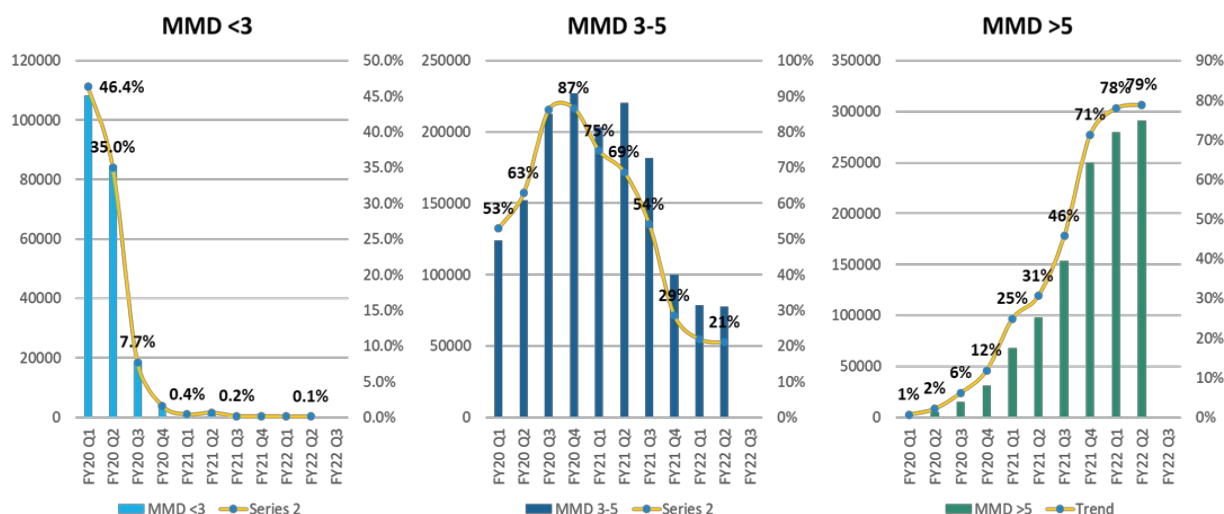
3.1.2: Differentiated Service Delivery Scale-up and Multi-month Dispensing strategy

Differentiated Service Delivery (DSD), also known as "differentiated care," is a client-centered, evidence-based approach that simplifies and adapts HIV services across the cascade to reflect the preferences and expectations of PLHIV while reducing unnecessary burdens on the health system and ensuring overall improved patient retention in care and clinical outcome(s)¹. APIN utilized various strategies, including multi-month dispensing (MMD) and decentralized drug delivery models, including community ART refill groups, community pharmacy ART, adolescent refill club, home refill, courier system, and ART decentralization, among others (Table 9).

TABLE 3. 6: Patient distribution to decentralized drug delivery models

S/No	STATE	TX CURR	FACILITY HCW MANAGED GROUP	COMM. ART REFILL GROUP	COMMUNITY PHARMACY ART	ADOLESCENT REFILL CLUB	FAMILY CENTERED ART REFILL GROUP (F-CARG)	COURIER SYSTEM	HOME REFILL	ART DECENTRALI- ZATION	COMM. DRUG DISTRIBUTION POINTS	KP MOBILE ART TEAM	TOTAL ON COMMUNITY BASED DSD MODELS	PROPORTION OF PATIENTS ON COMMUNITY BASED DSD MODELS
1	BENUE	228,867	19084	3667	1837	12137	170	0	311	2847	888	2160	43101	18.8%
2	EKITI	7241	444	80	167	126	18	18	234	298	388	0	1773	24.5%
4	OGUN	27488	1059	94	659	444	62	6	193	1706	89	0	4312	15.7%
5	ONDO	19,114	455	191	509	626	0	0	499	0	0	0	2280	11.9%
6	OSUN	13967	489	0	168	352	186	0	244	2170	0	0	3609	25.8%
7	OYO	32796	62	49	556	1001	480	0	560	1051	0	0	3759	11.5%
8	PLATEAU	48355	1087	87	685	1215	25	0	0	435	0	0	3534	7.3%
	TOTAL	377828	22680	4168	4581	15901	941	24	2041	8507	1365	2160	62368	16.5%

MMD involves dispensing ARVs for a period of 3 to 6 months to a client at once and has the advantage of reducing the frequency of medication refill visits, thereby lowering barriers to care at both the patient and health system levels. With PEPFAR's increased push for 6-monthly ARV dispensing (MMD 6) in the fiscal year 2020[Q1], APIN gradually shifted clients to MMD 6. By the end of FY 22 Q2, 79% of clients in care were on MMD>5, while only 0.1 percent of were on MMD3 (Figure 27). The MMD strategy aided APIN in mitigating the effects of COVID-19 lockdown and service disruption on service delivery. In the absence of a national DSD operationalization process, APIN developed in-house process monitoring and reporting tools such as SOPs, IEC materials, and job aids, as well as conducted sensitization and training for healthcare workers. APIN also strengthened collaboration with the pharmacy and supply chain management unit to ensure the availability of optimal ART commodities to support the various DSD models. To ensure accountability and implementation fidelity, tracking, monitoring, and evaluation processes were implemented across all sites.


FIGURE 3. 6: MMD IMPLEMENTATION ACROSS FISCAL YEARS AND QUARTERS

3.1.3: Advanced HIV Disease Package of Care Implementation: Road map to reducing Morbidity and Mortality among PLHIV

Deaths from HIV-related illnesses have been steadily decreasing in recent years as more PLHIVs have been identified and treated. However, within the last 6 years, mortality rate had plateaued and gradually increasing again. This was attributed to certain opportunistic infections (OIs) found to be common in PLHIV with CD4 < 200c/ml, WHO clinical stage 3 and 4, clients with treatment failure, and children < five years old (Figure 28). PLHIV who fall into this category have been described as having Advanced HIV Disease (AHD). In order to reverse the trend and ensure a progressive decline in morbidity and mortality rate, a package of care was put together as the "AHD Package of Care (PoC)", which comprises diagnosis, prophylaxis and pre-emptive treatment, ART Initiation, and adapted adherence support. APIN began implementing the AHD package of care in FY22, after the Federal Ministry of Health approved a national scale-up through NASCP and PEPFAR-funded IPs were directed to begin full AHD program implementation. The goal was to reduce morbidity and mortality among PLHIVs with AHD through real-time testing, diagnosis, and management of AHD-related OI.

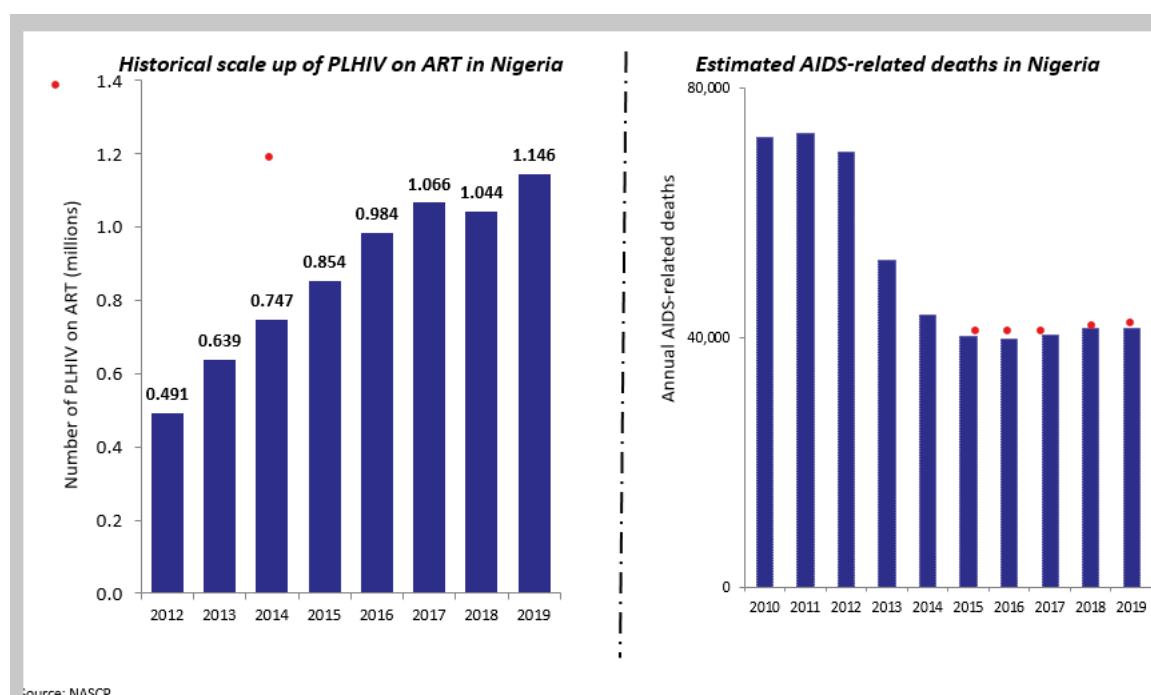


FIGURE 3. 7: ESTIMATED AIDS RELATED MORTALITY AMONG PLHIV ON ART

APIN trained 356 facility staff and began AHD Point-of-Care (PoC) intervention immediately to ensure prompt implementation across supported states. AHD PoC test kits that could provide results for CD4 within 45 minutes, TB within 15 minutes, and CrAg within 20 minutes were provided to strengthen services for prompt Advanced HIV Disease (AHD) case identification and proper management. To support sites without CD4 testing platforms, an effective sample referral and results retrieval network was established and strengthened. A hub-and-spoke network was also established. Screening, diagnosis, OI prophylaxis use, and intensified adherence counseling were all supported across all supported sites to ensure that PLHIV

The National Advanced HIV Disease (AHD) Technical Working Group named APIN the best performing AHD point of care implementing partner after only 9 months of AHD program implementation

with AHD were identified and managed effectively within the available resources. APIN trained experts from tertiary institutions in each state to serve as AHD emergency support contacts for state teams. APIN also purchased and distributed free lumbar puncture kits to all of our facilities to serve our indigent clients. The National AHD Technical Working Group named APIN the best performing AHD PoC implementing IP after only 9 months of program implementation. We were able to perform CD4 tests on 28,012 people during the same time period, 6,417 of whom were diagnosed with AHD and had CD4 levels of 200 c/ml. The number of current on treatment under the AHD program ranged from 2,657 in Plateau to 10,302 by FY 22 (Table 3.7).

TABLE 3. 7: AHD Performance by states

Indicators	Benue	Ekiti	Ogun	Ondo	Osun	Oyo	Plateau
TX_NEW	10,302	1,951	4,946	5,130	4,060	6,366	2,657
CD4 Test Done	6,461	1,861	4,568	4,962	3,006	4,708	2,446
CD4 <200 cells/mm3	1,516	279	1402	419	748	1206	847
TB-LAM done	478	185	949	256	354	655	271
TB-LAM Positive	65	40	352	42	28	109	102
Positive TB-LAM sent for GeneXpert	27	5	2	39	8	8	9
Positive GeneXpert	10	2	0	33	7	3	2
Serum CrAg Test	611	82	618	123	391	466	215
Positive Serum CrAg Test	19	2	15	4	6	7	13
CSF CrAg Test	4	0	9	1	0	4	3

3.1.4: Laboratory support for Advanced HIV Disease testing

The Laboratory team supported the testing of all newly diagnosed clients for CD4 by ensuring samples are collected and transported to testing sites and results released before clients are placed on treatment. APIN remains the leading implementing partner with remarkable performance for CD4 testing. This was made possible through provision of funding that aided sample movement when it was obvious that the NISRN system lacked capacity to move the samples. With the provision of VISITECT point of testing device, CD4 testing services became more available in more centers across the APIN program. We also embarked on regular reverse logistic systems to ensure availability of the very few commodities provided by the GHSC-PSM. Adhoc staff were engaged in some of the states to help coordinate CD4 testing for positive clients and ensure linkages to other AHD packages of care.

3.1.5: Asset-based programming – Implementing and scaling up OTZ for improved treatment outcomes for adolescents and young people.

Adolescents and young people (AYP) living with HIV are a vulnerable population with poorer treatment outcomes than adults. The factors that influence these outcomes are complex. To meet the UNAIDS 95-95-95 target, innovative approaches are needed to bridge the gap between the unique challenges of AYP and their need for long-term ART care. Based on the success of the Operation Triple Zero (OTZ) initiative for adolescents in Kenya, the US-CDC requested all implementing partners to implement OTZ in sites that contributed 80 percent of the TX CURR. APIN developed the implementation framework to guide implementation with fidelity across supported states. See Figure 29 for a streamlined version of the OTZ implementation framework.

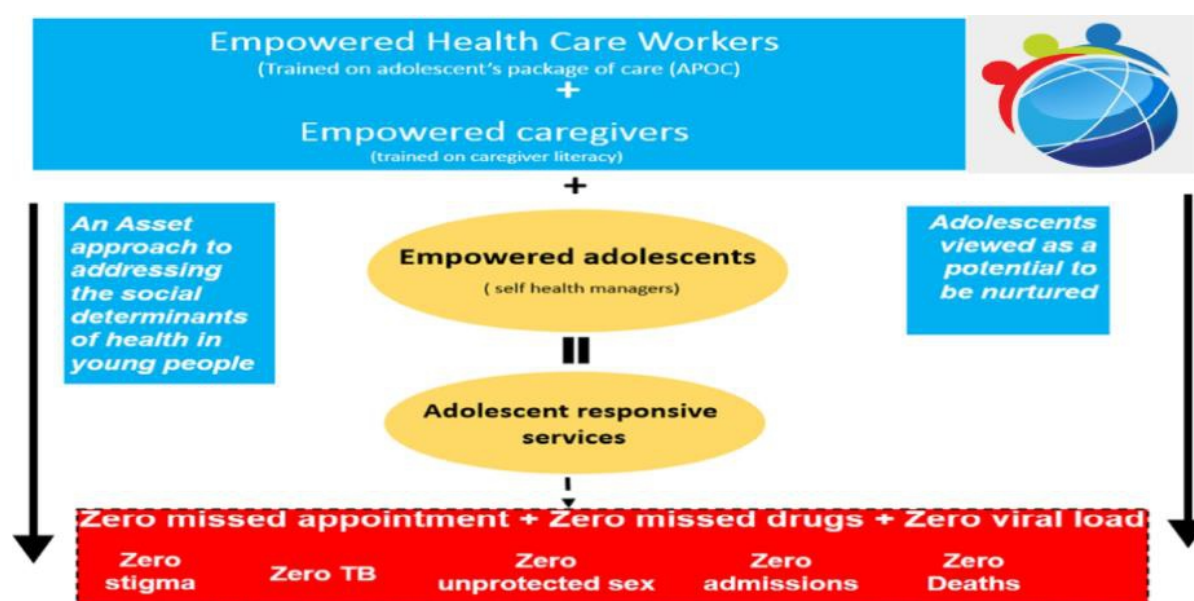


FIGURE 3. 8: STREAMLINED VERSION OF THE OTZ IMPLEMENTATION FRAMEWORK

APIN began the implementation of the OTZ program with one pilot site (LUTH) in Lagos in Q4 2019, and expanded to 25 sites in FY 20. These sites accounted for 54% of TX CURR among adolescents (10–19 years). By FY 22, APIN has increased the number of OTZ sites to 166 across seven supported states (Figure 3.8).

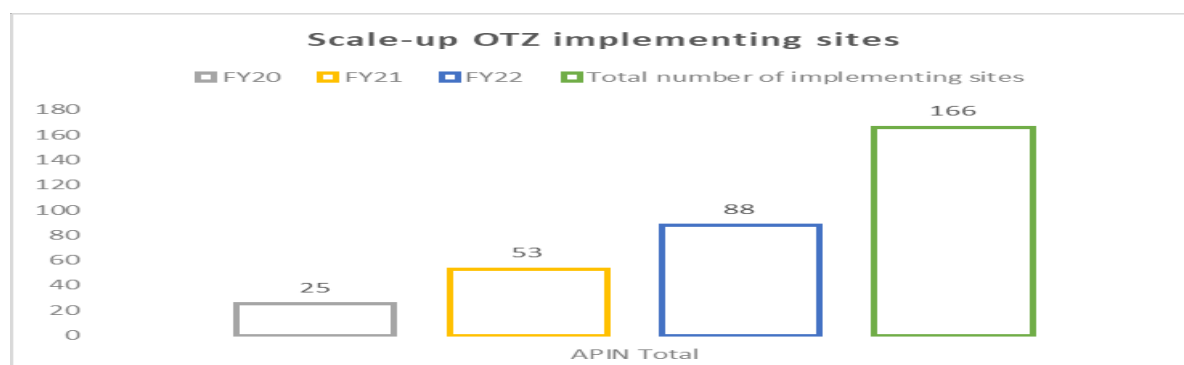


FIGURE 3. 9: SCALE UP OF OTZ IMPLEMENTATION FROM FY20 TO FY 22

The OTZ club enrolled adolescents ages 10 to 19 who are aware of their status. Despite the voluntary nature of enrollment, a variety of proactive initiatives were implemented to encourage teenagers and young adults to join the OTZ club. These include promoting and supporting disclosure services in the facility through one-on-one counseling; generating a waiting list of adolescents with full disclosure status for enrolment into the OTZ program during clinic visits and virtual contact, and providing OTZ champions with one-on-one peer interactions to promote acceptability to adolescents yet to be enrolled during clinic visits and through phone calls. Other initiatives in this respect included training service providers offering OTZ to eligible adolescents, and showcasing the benefits and successes achieved during facility health talks, home visits by OVC CSOs, and during review meetings. The number of adolescents enrolled into the OTZ program increased from 748 in FY20 Q2 to 16,823 by FY22 Q3 (Figure 3.9).

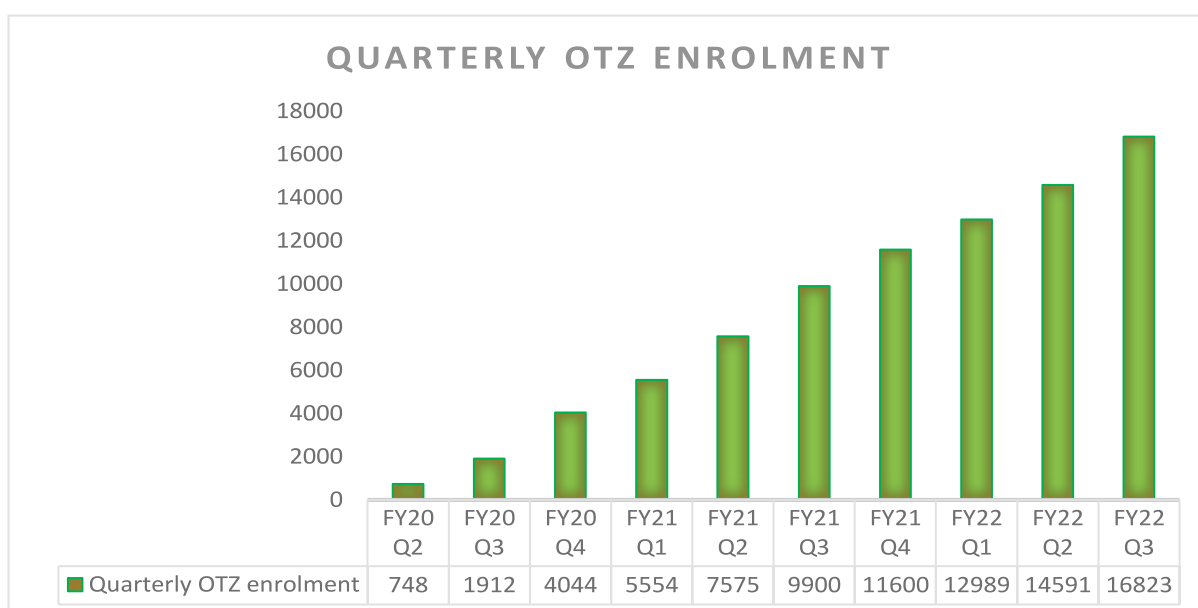


FIGURE 3. 10: QUARTERLY OTZ ENROLMENT TRENDS: FY20 Q2 TO FY22 Q3

To ensure increased adherence and suppression of viral load among OTZ members, social interventions to help adolescents and their caregivers were made available during the monthly OTZ club meeting, led by OTZ champions and supported by trained health care providers and OVC CSOs. The meeting times and places were designed as flexible clinics for the collection of ART medication and viral load samples. Additionally, there was a quarterly caregivers' forum to enhance the ability of caregivers to provide assistance for AYP at home. During the monthly meetings, the OTZ modules were discussed utilizing motivational counseling techniques to guarantee that AYP were provided with accurate and valuable knowledge in order to become responsible and competent self-managers of their health. Self-reporting and viral load suppression rates were utilized for each group to determine adherence. Adherence increased from 74% to 90% and viral load suppression rates increased from 80% to 97% 12 months after enrollment in the program.

Reaching Adolescents & Young People in Challenging Times: Innovation Counts

Faced with COVID-19 lockdown, health facilities and OTZ champions adopted innovative approaches, which included virtual enrolment using calls and group sessions on WhatsApp groups to continue their activities. Over 15 WhatsApp groups were used to provide treatment literacy and adherence reminders to over 518 adolescents and young people.

During the COVID-19 pandemic, the restriction on social gathering compounded by the lock-down led to the development of contingency plans by facilities and the OTZ champions, which included virtual enrolment using calls and group sessions on WhatsApp groups. Five OTZ sites identified 425 adolescents with a personal documented phone number and enrolled 191 via phone calls, and some HCWs, caregivers, and OTZ champions were trained and mentored via Zoom. Over 15 WhatsApp groups were used to provide treatment literacy and adherence reminders to over 518 AYP.

3.2: TB-HIV Collaboration

3.2.1: HIV Screening and Treatment

The iCARES implemented a number of strategies to improve the access of people with TB to relevant HIV services. These included:

- TB screening services in all service delivery points (SDPs), such as MNCH (PMTCT), GOPD, pediatrics clinics/wards, KP, and OVC programs;

- Ensuring that the populations of interest are screened for TB at every clinic visit in all supported facilities and communities;
 - Including tuberculosis testing in index testing services;
 - Improving clinical TB screening in HIV/AIDS patients by using a chest X-ray in conjunction with TB symptoms is a priority;
 - Screening PLHIV for TB at all SDPs using a standard TB screening checklist. The symptom screening checklists are now source documents for capturing TB screening in the EMR, which serves as the TX TB reporting source;
 - Improving HIV/TB collaboration capacity among healthcare workers
 - Providing necessary R&R equipment and job aids;
 - Ensuring regular technical assistance/supportive supervisory visits to identify and address screening gaps’;
 - Conducting bi-directional screening for both TB and COVID-19 as part of the APIN TB/COVID-19 screening at selected facilities in Benue and Plateau.
- With the implementation of these strategies, the percentage of ART patients who went to an ART clinic and were screened for tuberculosis at least once during the semi-annual reporting period (TX_TB) generally improved to above 90%, and peaked at 92% at the end of Q2 of (Figure 31).

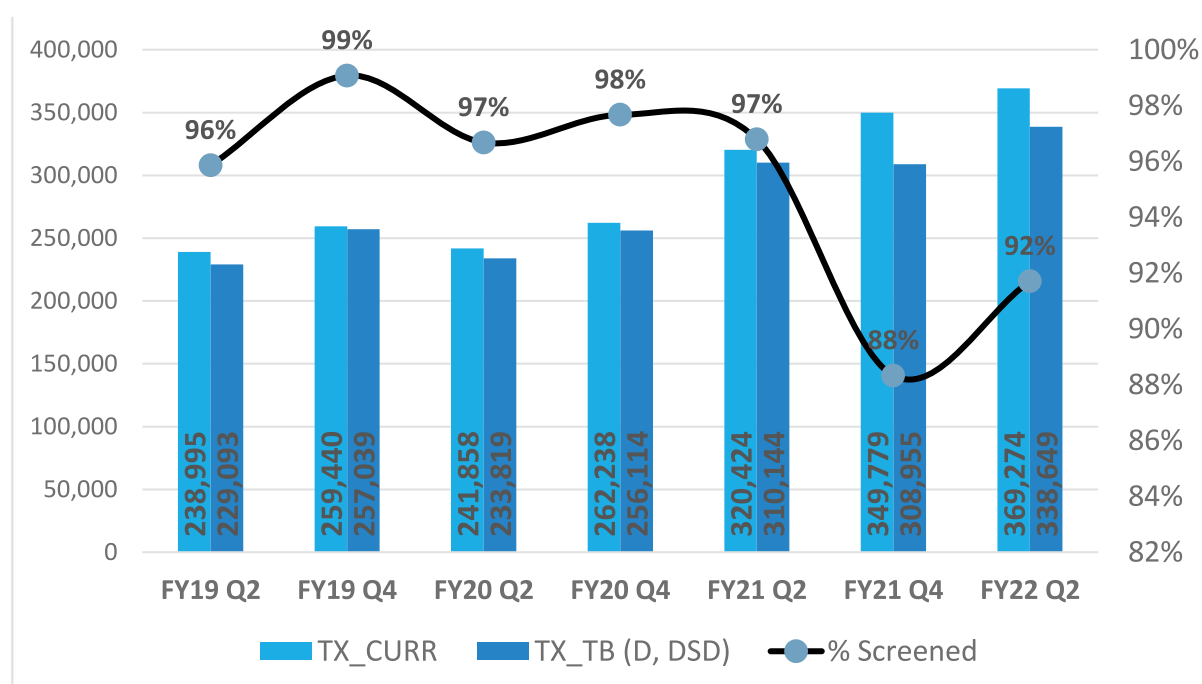


FIGURE 3. 11: TB SCREENING BY QUARTERS

Also, the proportion of new and relapsed tuberculosis cases with documented HIV status (TB STAT) was also consistently between 95% and 100% under iCARES (Figure 32). To continue to improve and sustain gains in TB STAT, APIN implemented several strategies, including setting up HTS points at most TB DOTS clinics located within APIN supported facilities or an efficient referral system to facility HTS points where there was no HTS point at DOTS, supporting DOTS clinics with RTKs and reporting tools, and capacity building on HTS for TB DOTS

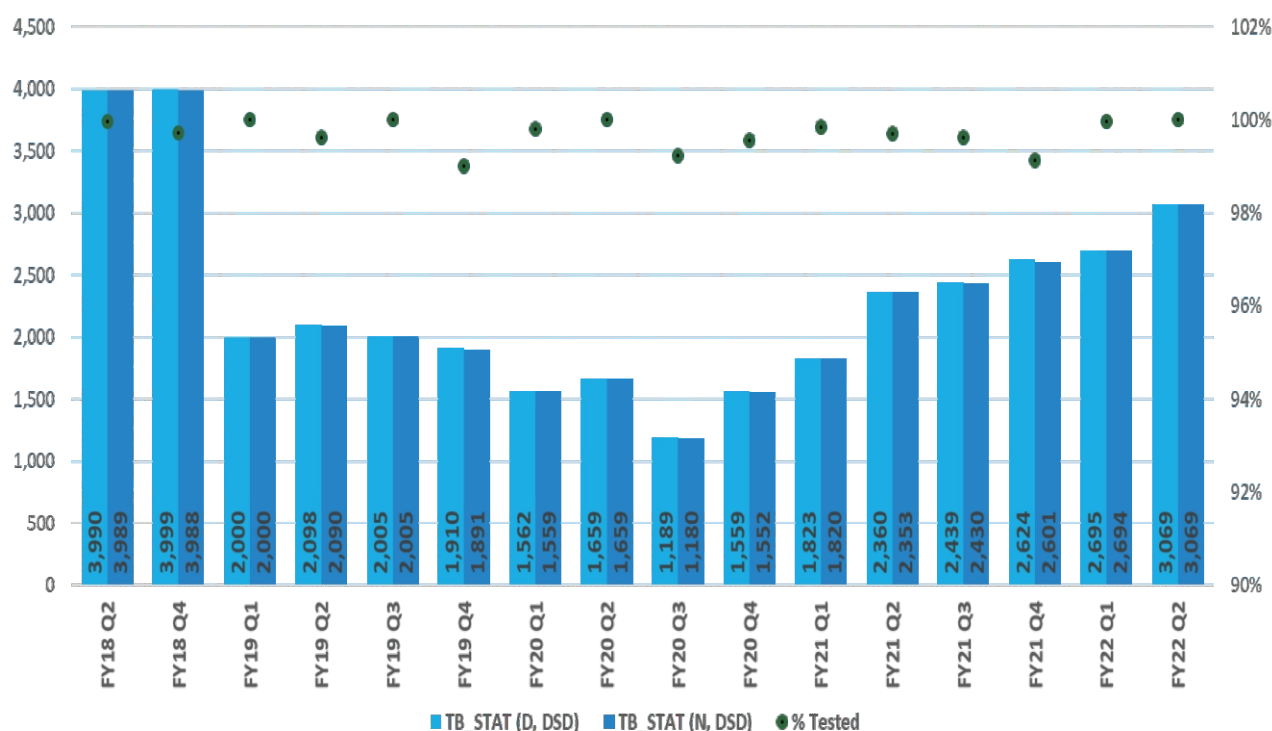


FIGURE 3. 12: TB STAT PERFORMANCE (FY18-FY22 Q2)

3.2.2: TB Preventive Therapy

This indicator provides information on the proportion of ART patients who completed a standard course of TB Preventive Therapy (TPT) during the reporting period. The program's primary objective is to ensure that all ART patients who initiated TPT during the previous reporting period are followed up until therapy completion, reported during the current reporting period, and documented. This indicator has increased from 95 percent in Q2 of fiscal year 2020 to 99 percent at the end of Q2 of fiscal year 2022 (Figure 3.11).

The strategies deployed to achieve this feat for TB_PREV include;

1. HCW training on identification of PLHIV who were eligible for TPT, INH prescription, possible adverse events and its management
2. Routine screening of PLHIVs and commencement of eligible patients on TPT,
3. Patient education on the importance and benefits of TPT,
4. Physical and remote monitoring of adherence and side effects that might lead to TPT treatment interruption using the case management approach,
5. Aligning TPT prescription to patients ARV MMD type (e.g., patients getting to ease adherence process,
6. Pharmacy gate-keeping,
7. generating list of eligible patients electronically using the EMR to help tag or flag folders of eligible patients,
8. Assessing adherence and documenting date TPT completion and other outcomes in the appropriate DCT at end of six (6) of therapy.

4. Optimizing Viral Load coverage and suppression



4.0: Optimizing the VL Coverage and Suppression –General population

Viral Load Monitoring (VLM) is the most reliable method for assessing ART response and can assist in determining adherence and drug resistance issues. As a result of the complete adoption of the "Treat All Policy," the risk of HIV drug resistance (HIVDR) among ART patients globally is increasing. Consequently, the danger of transmitting resistant HIV strains increases. Therefore, the iCARES project constantly evaluates how patients are responding to treatment and uses the information to improve care and programming. The efforts have resulted in increase in the viral load coverage and suppression from 46 percent and 86 percent in FY 18Q4 to 94 percent and 95 percent in FY 22Q2 respectively. Since FY 21Q1, APIN has maintained coverage and suppression rates of at least 92% for viral load coverage and 95% for viral load suppression (Figure 35).

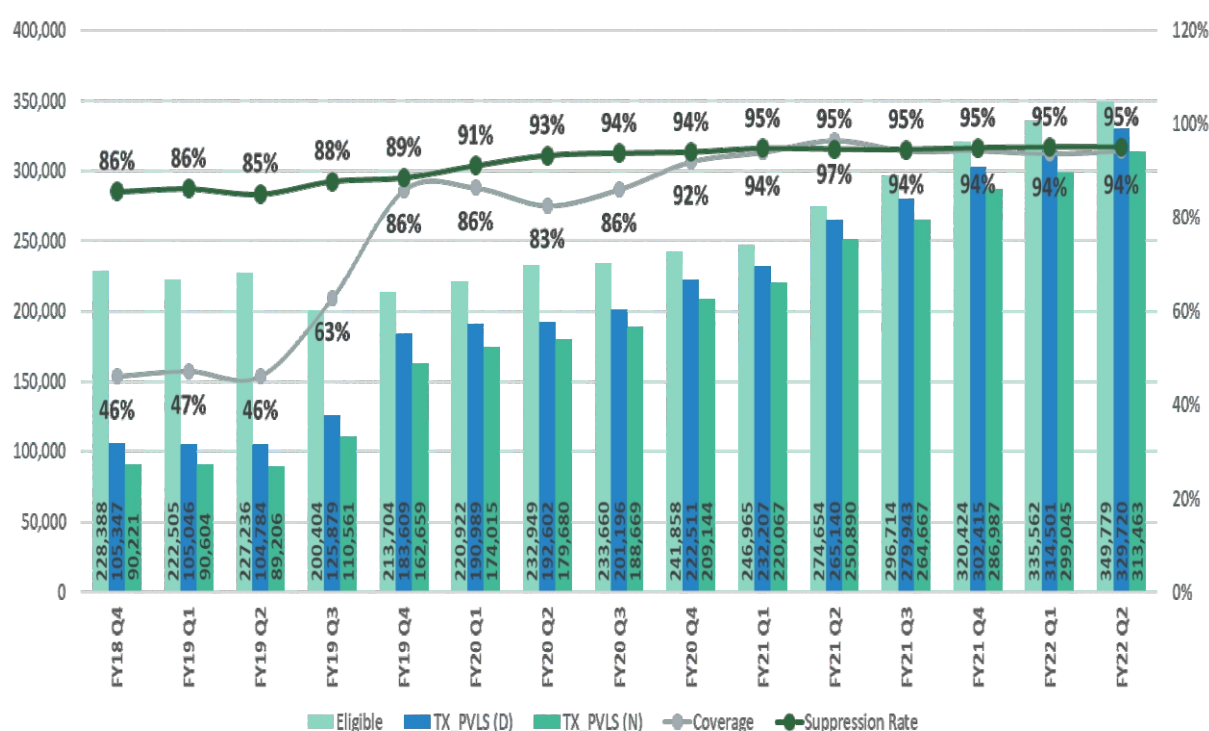


FIGURE 4. 1: VIRAL LOAD COVERAGE AND SUPPRESSION TRENDS- ALL POPULATIONS (FY18 TO FY 22)

The success of VL coverage and suppression was due to the quick identification of problems and development of solutions. There were many "kinks" in the pre-analytic phase of the VL cascade at the start of the grant, primarily issues with demand creation and sample transport (Figure 36). However, one vexing issue that has persisted is the issue of lab testing delays (analytic phase), which are primarily caused by reagent stockouts and equipment downtime. Despite this, significant progress has been made, and efforts to resolve these lingering issues are ongoing (both at the partner/IP and PEPFAR inter-agency levels).

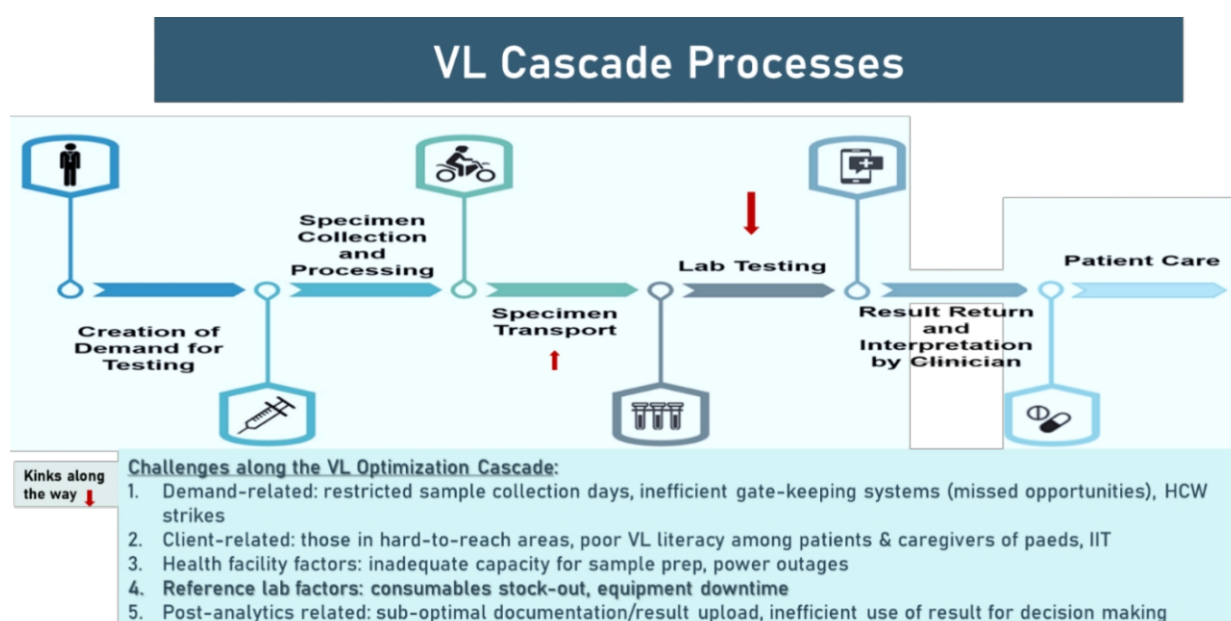


FIGURE 4. 2: KINKS ACROSS THE VL CASCADE PROCESSES.

Establishing a VL multidisciplinary team approach at the central and state levels; generating line listing of clients eligible for viral load; contact re-validation efforts; daily/weekly tracking of eligible clients for VL sample collection; community cluster bleeding for viral load; and the CDC's weekly check-in calls on VL coverage and suppression performance are key major strategies that accounted for the huge success in VL coverage and suppression. Figure 37 shows the strategies that resulted in a 95 percent suppression rate among our patients.

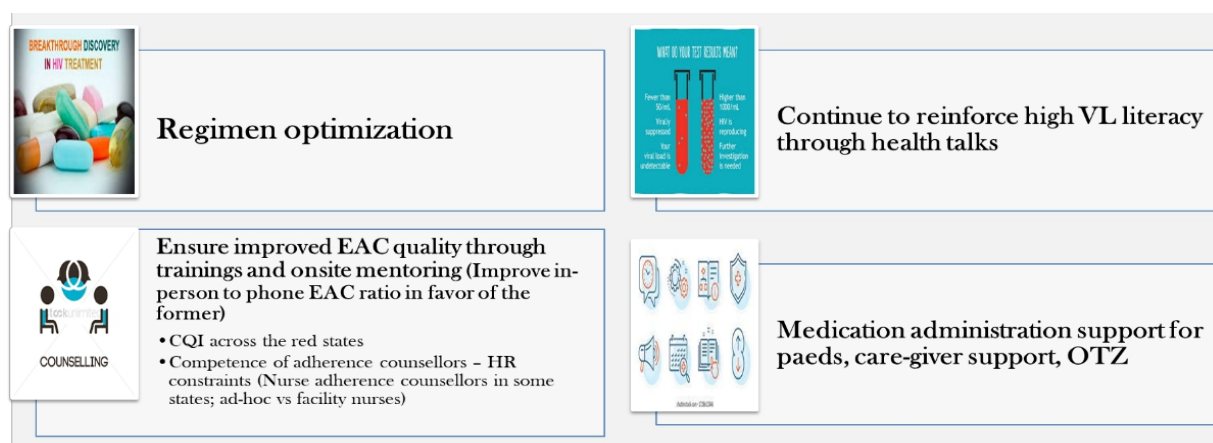


FIGURE 4. 3: STRATEGIES TO IMPROVE VIRAL LOAD SUPPRESSION

4.1: Paediatrics and adolescent viral load coverage and suppression

For children aged 0-9 years, our viral load coverage and suppression increased from 63 percent and 65 percent, respectively, in FY 18Q4 to 83 percent and 86 percent, respectively in FY 22 Q4. During the same period, adolescent coverage and suppression increased from 45 percent and 65 percent to 96 percent and 85 percent, respectively, in FY 22Q4 (Figures 4.3 & 4.4).

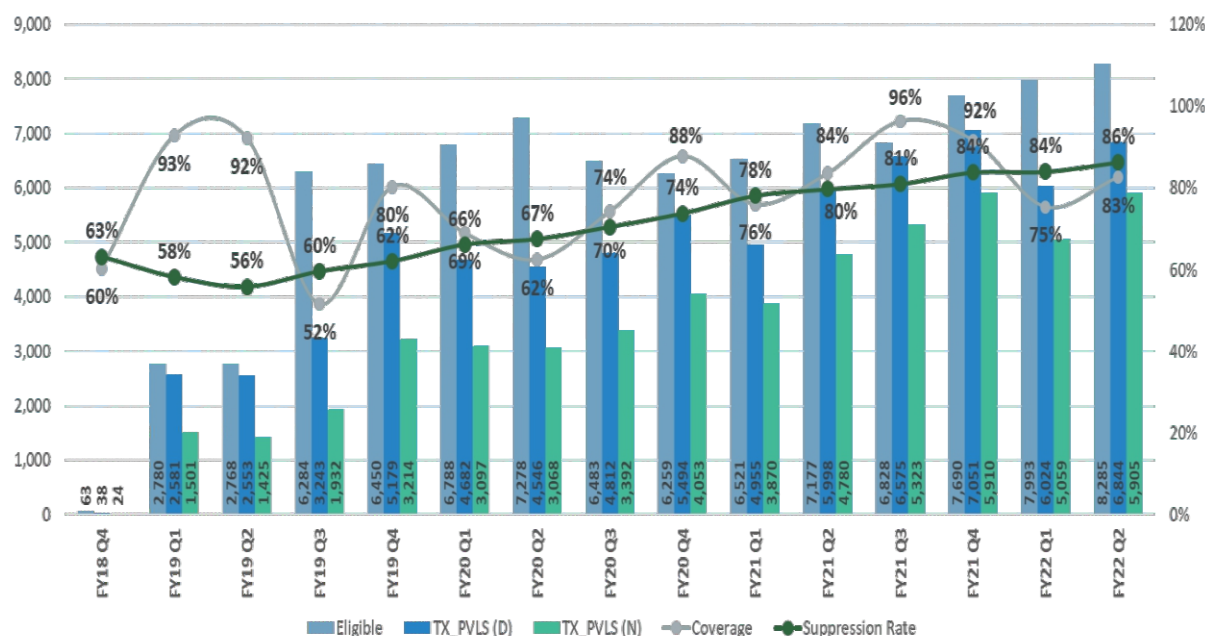


FIGURE 4. 4: APIN PAEDIATRICS VIRAL LOAD CASCADE TREND (0-9YRS)

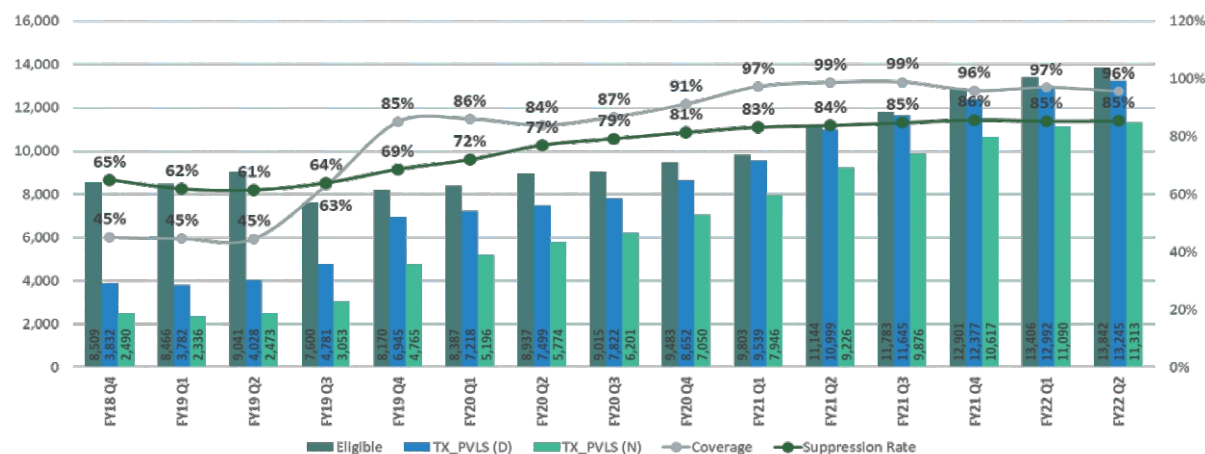


FIGURE 4. 5: APIN ADOLESCENT VIRAL LOAD CASCADE TREND (10-19 years)

APIN used patient-centered interventions to address personal, interpersonal, and structural barriers to antiretroviral treatment effectiveness. This entails providing children and adolescents (CAL) with age-appropriate ART. As clinically indicated, CAL on LPV/r pellets or granules and other ARVs were gradually transitioned to DTG-based regimens. Differentiated care was implemented for CAL receiving ART in the program as part of the client-centric care. This implies that CAL treatment was tailored to individual patients' needs from the start of ART to the completion of HIV care and treatment. DSD

initiatives were implemented, including age-band specific clinics, harmonization of clinic days for parents and caregivers, a family-based approach to DSD, and parent-child paired care.

Furthermore, the OTZ and OVC (orphan and vulnerable children) programs were used to improve retention in care, which resulted in medication adherence and VLS. Adolescent clinics were expanded at several secondary and tertiary care facilities. Capacity building through training and technical assistance on viral load optimization across APIN-supported healthcare facilities increased healthcare workers' and program staff's knowledge base and competency to provide VL services tailored to patients' needs.

4.2: Viral load for Pregnant and Breastfeeding women

Viral load suppression for pregnant and breastfeeding women moved from 83% at the beginning of the grant to 94% with coverage hovering around 94-96% (Figure 40).

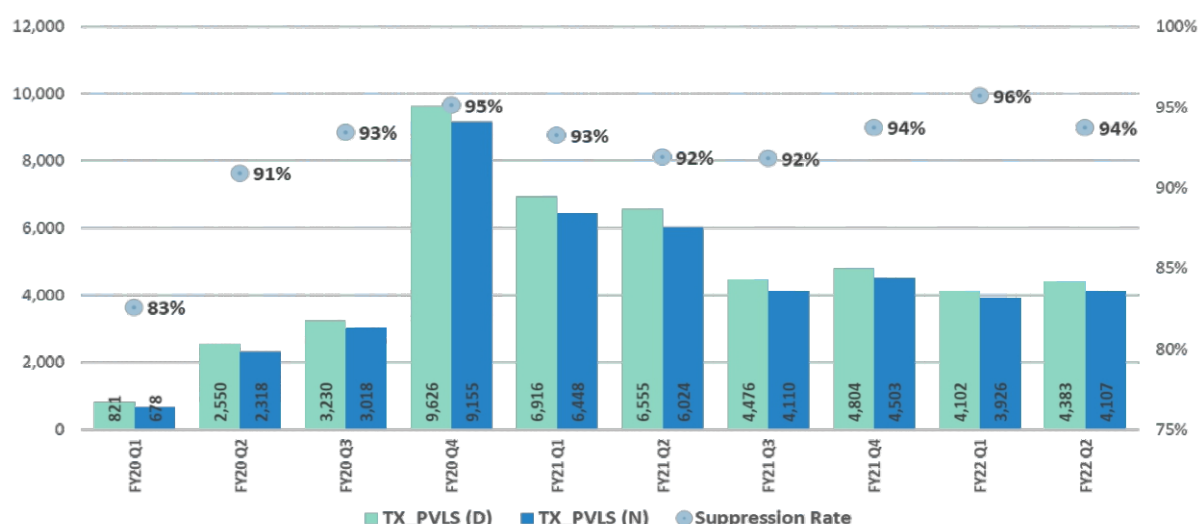


FIGURE 4. 6: TREND IN VIRAL COVERAGE AND SUPPRESSION RATES AMONG PREGNANT AND BREASTFEEDING WOMEN.

Transmission of HIV from mother to child can occur during pregnancy, labor, and delivery, or breastfeeding, with the biggest risk occurring during labor. As such, viral suppression is essential for preventing MTCT among HIV-positive women. Beyond viral suppression of <1000 copies per milliliter, an undetectable viral load level is the most desirable condition. At a viral load of <50 copies per milliliter, the risk of MTCT is practically zero! During the grant cycle, the following strategies contributed to our progress in viral load coverage among pregnant and breastfeeding women:

- Mentor HCWs on the determination of viral load eligibility of PBFW
- Monthly generation of eligibility line lists
- Ensure complete, correct, and continuous updating of contact details
- Weekly follow-up with sampling of eligible clients
- Mentor mothers as case managers (including for unbooked HIV pregnant women)
- Integrate ART clinic with antenatal visits
- Mother-baby pair clinic appointment
- Community viral load sampling

- Prioritization of VL samples of PBFW; correctly marking viral load request forms as 'Pregnant' or 'Breastfeeding'
- Pharmacy gatekeeping for viral load sampling for eligible patients
- Limit MMD in PMTCT to a maximum of MMD3

The use of the following strategies that were used during the program implementation period also resulted in high-level performance in the area of viral load suppression:

- Community PMTCT; for early diagnosis
- Rapid ART initiation using Option B+
- Treatment of comorbidities and OIs
- Intensive adherence support
- Nutritional Support
- Mentor mothers as role models (as peer/expert-client counselors)
- Enhanced adherence counseling for unsuppressed; repeat viral load after one month of good adherence (instead of 3 months as in the general population, for prompt intervention if needed)

4.3: Laboratory support to ensure optimal viral load coverage and suppression

The laboratory is critical to achieving the third UNAIDS "95" goal for HIV/AIDS epidemiology control. With a large number of PLHIV on treatment, the demand for viral load testing at the molecular laboratory increases and various challenges impede laboratory operation. Increased turnaround time (TAT); reagent stock out; prolonged transit time between sample collection and receipt at the PCR laboratory; and other PCR-related commodities stock out are some of these challenges. To effectively address these challenges and improve service quality, the laboratory team designed and implemented some novel interventions.

4.3.1: Laboratory System strengthening and intervention.

To augment the human resources shortfall at the supported PCR laboratories (FMC Makurdi, JUTH & OAUTH PCR Lab), APIN supported the engagement of qualified and competent human resources for testing services, samples reception and data entry at the designated PCR laboratories. The redesign of the laboratory floor plan to aid work safety and infrastructural upgrade (provision of testing equipment, power inverters and computer) were also supported by APIN to improve quality of testing across all supported PCR laboratories. To forestall service interruption due to equipment down time, APIN engaged competent vendor for plan preventive maintenance (PPM) and carryout repair in event of equipment failure. APIN provided support for 24 hours testing services across the supported PCR lab, through incentivizing extra hours, public holidays and weekend duties this helped to reduce laboratory turn-around time (TAT) and improve accessibility of test results. To enhance and monitor lab processes, APIN supported the development of software application and laboratories information management system to track sample shipment, automate laboratories processes and retrieval of laboratory data.

4.3.2: Laboratory QMS and Accreditation

Laboratory Quality Management Systems (QMS) implementation plays an important role in ensuring provision of accurate, reliable and timely patient results, which is required for optimal patient care. A well-structured and implemented Laboratory QMS also help Laboratories attain and maintain accreditation. Laboratory accreditation process is a global acceptable means of identifying technically competent laboratories. While it is an accomplishment to attain accreditation, it is an achievement to maintain / sustain accreditation. Through technical assistance for service delivery improvement (TA-SDI), APIN's activities on Laboratory accreditation process produced Laboratories accredited to international standard (ISO 15189; 2012) and four years after, the laboratories were reaccredited for another accreditation cycle. To achieve and sustain this, APIN adopted some strategies, including:

- Onsite and remote mentorship support by APIN certified Laboratory mentors
- Capacity building of relevant staff on ISO 15189:2012 requirements and implementation
- Equipment maintenance and calibration support for efficient service delivery and fulfilment of accreditation requirements
- Payment of accreditation related costs: registration, assessment visit etc
- Subscription for Proficiency Testing schemes for accredited assays

These strategies resulted in initial achievement of accreditation and successful annual surveillance assessment as well as the reaccreditation of these labs after the end of the first accreditation cycle.

4.3.3: Laboratory support for integrated disease testing

APIN manages the highest number of patients on treatment in Nigeria. To support this huge number of patients on treatment and provide care for TB/HIV co-infected patients, we have invested heavily in the development, renovation and maintenance of infrastructures to support TB laboratory diagnostic services. We have outstanding experience and remarkable achievements in supporting and managing TB laboratories for the optimization of TB case detection in Nigeria. We have supported the TB program and played critical roles through the different phases of TB lab diagnosis in Nigeria, namely: AFB microscopy, fluorescent microscopy, and currently using GeneXpert machine. We have been collaborating with the National TB Program to scale up GeneXpert optimization in Nigeria. APIN is currently supporting intensified TB case finding using GeneXpert testing in about 70 health facilities in 5 states of operation in Nigeria. During the period of COVID 19 pandemic, we pioneered the bidirectional screening for TB and COVID 19 using the GeneXpert machines in two of our supported states. The use of the GeneXpert machine to test for COVID-19 as well as TB in Benue and Plateau states contributed to a very large extent the successes recorded by the NCDC in the diagnosis of clients infected with COVID-19 in Nigeria. The GeneXpert platform is currently being used for EID testing for exposed infants and this is currently being scaled up within the APIN program. We are also exploring the possibility of utilizing the same platform for the diagnosis of HPV in our cervical screening program for HIV infected women.

4.4: Pharmaceuticals and Logistics Management Systems

In line with the mandate and core responsibility of providing pharmaceutical care, the APIN PSCM team has continued to promote rational and efficacious use of ARVs through the provision of on-site mentor-ship on screening, identification, monitoring and documentation of adverse drug reactions and instituting appropriate interventions aimed at ameliorating the patients' conditions. In the aggressive drive to ensure clients had improved treatment outcome Adverse drug monitoring and reporting was placed on the front burner with several strategies and initiatives introduced to address the challenges on ground ranging from onsite mentor-ship and training of HCW to creating awareness on pharmacovigilance activities, multidisciplinary approach to monitoring and reporting, incentivized remote ADR monitoring which entails patients' follow up via phone calls for adverse drug reactions especially the newly initiated, pregnant women on TLD, switched and substituted patients on new molecules. Pharmacovigilance committees were established across high volume facilities and provided with support for meetings bimonthly. All cases of adverse drug reactions reported were promptly submitted to the appropriate agencies of government like NAFDAC and NASCP. A biweekly and monthly collation of reports was instituted across all sites and the responsible persons followed up rigorously for reports of pharmacovigilance activities. Overall a total of 2450 ICSRFs forms were collated and reported between April 2018 to September 2022.

APIN places high importance on Pharmaceutical care in pediatric and adolescent Pharmacy because of the sensitivity of the age groups. In order to improve adherence in pediatrics with positive care givers (mother/father) mother- baby alignment of refill months was introduced as a reminder for drug pickups. Body weight is essential in pediatric dosing hence, mothers unable to bring their wards at

next refill dates are encouraged to weigh their wards at nearby clinics or Community pharmacies and the weights brought back to the clinic written on paper this is to guide the Pharmacist in dosage adjustment. An SOP/Job aid was developed, printed and shared to guide facility Pharmacists on the usage of Zidovudine/lamivudine/Nevirapine 60/30/50mg and Zidovudine/lamivudine 60/30mg pediatric tablets for prophylaxis in HIV exposed Infants (HEI) following rapid advice from NASCP due to scarcity of Zidovudine and Nevirapine suspension in the country. APIN followed closely with our adolescents through ADR monitoring to ensure daily use of their medications. Regimen change was introduced timely to forestall non-compliance and adherence due to complaints of TLD-induced weight gain by our adolescents.

The remote tracking of patients on TB preventive therapy (TPT) was initiated in the last FY, in order to improve adherence to TPT as well as to monitor the completion of Isoniazid in patients (TB_PREV N). The facility pharmacists documented the outcome of the tracking on an adapted IPT register and significant improvement in adherence was observed due to consistent calls made by facility Pharmacists. Adverse drug reactions were also reported promptly and recommendation on ADR management were provided to patients via phone, this process resulted in optimal retention in care. This initiative improved TPT adherence and completion rate to about 98% in FY22.

In Southern Ondo state for instance, the commencement of the Surge intervention program led to more clients in need of ARVs, Introduction of the Health Care worker-led model of DSD resulted in improved retention and medication adherence as at FY22Q4 the Ondo state attained an IIT rate of 0.4%, with over 779 clients currently receiving uninterrupted ART services in Ese-odo LGA.

4.4.1: LAB Logistics management system

APIN has in the last 5 years supported the HIV program in the management of program commodities in seven states. Deliberate investment was embarked upon through provision of computer systems, data bundles, periodic meetings and trainings on logistic management practices to strengthen logistics information systems to provide critical data for informed supply chain decision-making. We have trained over 250 staffs from the various facilities in the 7 states on logistic management of laboratory commodities. This has resulted in better commodity management, reduced expiries and improved timeliness and quality of reports. The buffer stocks of GeneXpert cartridges within the APIN program has contributed immensely in supporting continuous product availability especially when the national supplies system is challenged. With the commencement of RTK commodity supplies to selected hubs in our supported states, the laboratory team working together with the community and prevention teams in each state coordinated the distribution of commodities to states spokes sites and communities with emphasis on sites with potentials for positive yields. The 3 PCR laboratories supported by APIN were provided with additional storage capacities to hold 3 month of stocks to guarantee continuous availability of reagents and consumables and ensure uninterrupted service provision when the national supplies system is challenged. We have increased government ownership to lead various program intervention through support to the state MOH and the LMCUs. We funded joint supervisory visits to sites and embarked on various program data review meetings.

5. Cross-Cutting Interventions



5.0: Cross-Cutting Interventions

5.1: Capacity building

Over the grant period, APIN conducted a total of 331 training with 21,412 trainees participating. The training covered various thematic areas and geared towards strengthening the health system and building the capacity of healthcare workers to provide quality HIV services to Nigerians (Figure 41).

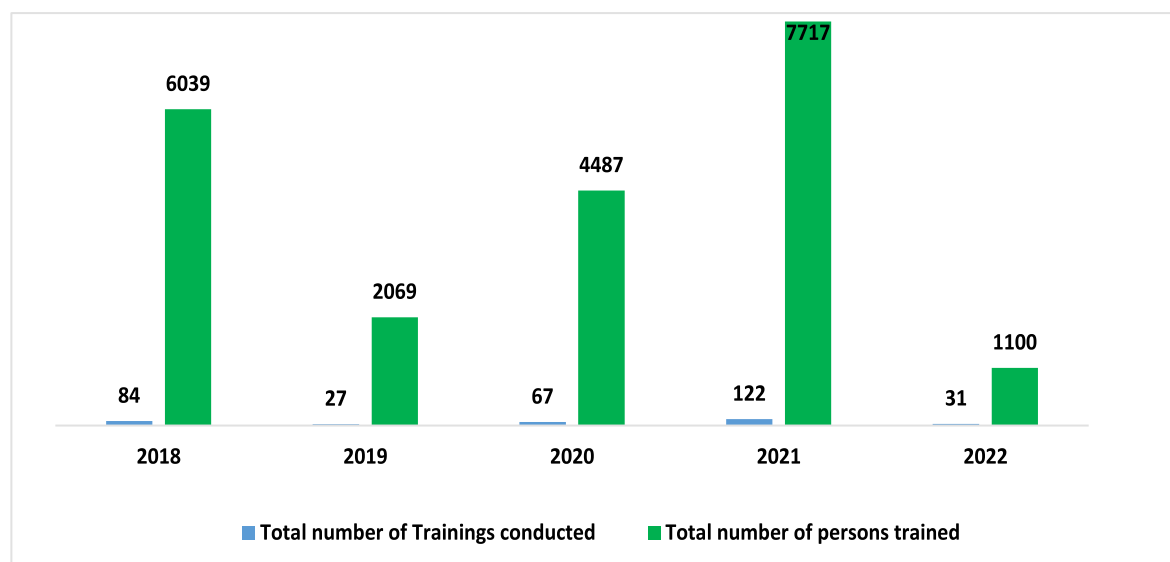


FIGURE 5. 1: TRAINING CONDUCTED BY APIN AND THE NUMBER OF TRAINEES

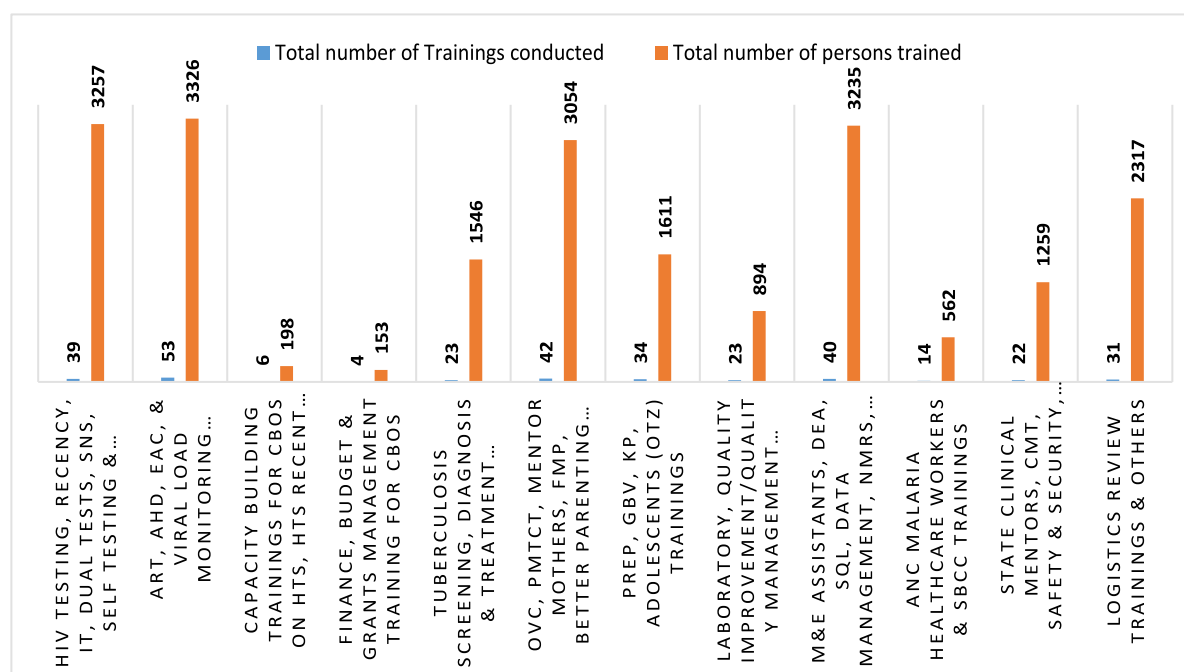


FIGURE 5. 2: CATEGORIES OF TRAINING CONDUCTED BY APIN DURING THE GRANT CYCLE

The training conducted are based on the findings of training needs analysis, and training objectives and goals were established in accordance with trainees' needs and using the relevant national curriculum. Participants in training were carefully selected based on their skills, competence, and

ability to provide services and train others following their training. Furthermore, training participants typically included staff of various government ministries and agencies who can drive the scale-down of such training across health facilities in accordance with the sustainability plan. Furthermore, APIN conducted several training-of-trainers (ToT) program to develop a pool of experienced instructors capable of delivering training in accordance with program expectations. Pre- and post-test evaluations, as well as participant feedback questionnaires, were used to assess the effectiveness of various training undertaken, and the results used to improve future training activities and maintain quality.

Provisions were made for clinicians who participated in clinically-relevant training to earn Continuing Medical Education (CME) credits, and this improved the popularity and acceptability of the training programs. To sustain the benefits of the training and achieve the desired outcomes, APIN developed a follow-up mentorship plan for participants from various health facilities, which is then integrated into site weekly supportive supervisory visits.

5.2: Stakeholders' engagement and Partnerships

APIN has utilized stakeholder engagement and partnership as a tool to promote innovations, build the capacity of in-country institutions, and improve local ownership and sustainability of public health programs. During the five-year duration of the ICARES project, APIN worked closely with all levels of government, the private sector, faith-based organizations, and civil society organizations to strengthen public health interventions.

5.2.1: Cross –sector collaboration with health authorities at the national level

APIN strategically engaged and supported the Federal Ministry of Health (FMOH) to review and develop public health policies and guidelines through its membership and active participation in various technical working groups and the submission of memoranda to the National Council on AIDS. APIN Public Health Initiative worked in close collaboration with NACA and NASCP to develop national documents to guide the implementation of the national HIV program. These guidelines included the national guidelines for the incorporation of the novel national clinical mentorship program into the national HIV response, the National guideline on the prevention, care and treatment of HIV and for the 2018 Nigeria HIV/AIDs indicator and impact survey (NAIIS) to determine the HIV incidence, HIV prevalence, viral load suppression and risk behaviours in the country.. To strengthen and sustain the national response to the COVID-19 pandemic, APIN collaborated with the Nigeria Center for Disease Control (NCDC) and the National Primary Health Care Development Agency (NPHCDA) to implement the One Country, One Plan, One Team campaign for COVID-19 vaccination. To improve program and resource efficiency as a pathway to national epidemic control, APIN also supported the planning and implementation of the national HIV program alignment 1.0 initiative.

5.2.2: Collaborations at the State-level

At the subnational level, APIN continued to strengthen the capacity of state ministries of health, hospital management boards, and SACAs in its focal states through advocacy, centralized in-person and virtual training for 128 state program managers across its 7 supported states on HIV program efficiency and effectiveness towards ownership and sustainability. Technical support for the development of annual and strategic work plans, joint implementation, and integrated supportive supervision of HIV-related interventions were also provided. APIN supported regular data and HIV program review meetings at the state and facility levels in order to institutionalize the culture of data demand and use for clinical and program decision-making. This technical and programmatic assistance helped the states in building institutional capacity and enhancing state ownership and sustainability of public health programs.

APIN also assisted the states in enhancing the effectiveness of their health programs through service integration by facilitating joint planning, implementation, and coordination of HIV, tuberculosis, COVID-19, and malaria programs. As part of its mandate to mitigate diseases of public health importance, APIN collaborated with SPHCDBs across its supported states to plan, coordinate, and

develop state and LGA-specific strategies to contain and prevent the continuous transmission of COVID-19.

5.2.3: Partnership at the LGA and community levels

As part of the iCARES project, APIN engaged and supported private hospitals and faith-based organizations to build their capacity to provide quality and comprehensive HIV services in its supported states. APIN also supported integrated service delivery at PHCs and developed the capacity of various civil society and community-based organizations to conduct community diagnosis, plan effective health interventions, support health service delivery, and provide community-based monitoring of the interventions. APIN worked in partnership with 16 Key population led CBOs and 2 KP friendly/competent CBOs to provide HIV services and reduce structural barriers to HIV services for Key populations. The program built the institutional and technical capacity of these organizations to enhance program implementation and HIV case finding in Benue, Ogun, Oyo, Osun, Ekiti and Ondo states. The program funded several capacity building activities, supported infrastructural and institutional capacity strengthening and interventions across the results areas leading to improved systems and structures and increased access to funding for the CBOs. CBO staff and community volunteers' utilized knowledge gained on the program and funding provided to increase access KP prevention information and community ownership. APIN also collaborated closely with NEPHWAN and other PLHIV networks to improve patient satisfaction, retention in care, treatment outcomes, and quality of life of the clients. These initiatives increased transparency and accountability and bolstered the public's faith in the public health programs in APIN-supported states.

5.3: Support for the National Clinical Mentor-ship Program



The National HIV Clinical Mentor-ship Program (NCMP) was designed by the National AIDS, STIs and Viral Hepatitis Control Program (NASCP) in collaboration with the U.S Centers for Disease Control and Prevention (CDC) to promote continuous quality improvement of HIV services in Nigeria and to fast-track progress towards ending the HIV pandemic by the year 2030. The program was designed as an additional intervention to strengthen the national HIV response. With funding from CDC, APIN provided operational,

programmatic and technical assistance at the national level towards the implementation of the program across the 18 + 1 CDC-supported states. At the sub-national level, APIN supported these programs at all its supported states.

5.3.1: Support for the Development and Dissemination of the NCMP Guidelines and Training Toolkit

During a 5-day stakeholders meeting, APIN worked with NASCP, CDC, and other subject matter experts from the national HIV task team to develop the NCMP guidelines, training manuals, and Standard Operating Procedures (SOPs). The finalized tools were unveiled by the Government of Nigeria at the official launch of the NCMP in December 2021.



5.3.2: Recruitment, Training and Capacity Building for Clinical Mentors

Towards the operationalization of the NCMP, APIN supported the hiring of the National Clinical Mentors in the 18 + 1 CDC-supported states. The states are Abia, Benue, Delta, Enugu, Ekiti, Gombe, Imo, Katsina, Kogi, Lagos, Nasarawa, Kaduna, Ondo, Ogun, Osun, Oyo, Plateau, Rivers and FCT. The interview framework was designed in line with international best practices and supported by the APIN human resource team. The recruitment process was rigorous and transparent as staff from NASCP, CDC and APIN ensured that the right candidates were selected during the interview. The 19 hired NCMs were subsequently deployed to the 18+1 CDC-supported states to provide technical assistance to the state clinical mentor team and to serve as a liaison for NASCP in the coordination and management of the clinical mentorship program.

At the state level, a data-driven needs assessment was jointly done by program managers from the various state ministries of health, CDC and APIN to determine the requisite number of state clinical mentors (SCMs) across APIN-supported states. The SCMs were recruited through a competitive process and assigned to LGAs and facilities for ongoing technical support, coaching and mentoring to HIV service providers. A total of 56 SCMs were engaged in the 7 APIN supported states (Table 12).

TABLE 5. 1: NUMBER OF STATE CLINICAL MENTORS RECRUITED IN APIN-SUPPORTED STATES

State	Benue	Plateau	Oyo	Ogun	Ondo	Osun	Ekiti	Total
Number of state clinical mentors	21	9	9	7	5	3	2	56

Following the recruitment of the national and state clinical mentors, APIN, in collaboration with NASCP, FMOH and CDC organized capacity-building workshops for the clinical mentors and relevant government officers. The aim was to familiarize the clinical mentors and the government actors with the goal, objectives, and the standard operating procedures of the national HIV clinical mentorship program. A total of 19 National Clinical Mentors, 19 State AIDS Program Coordinators, and 19 Directors

of Public were trained as trainers on the National HIV Clinical Mentorship Program while a total of 56 were trained to function as State Clinical Mentors across APIN-supported states.



APIN's Associate Director (Health System Strengthening) facilitating a session at the state clinical mentors training in Oyo State

5.3.3: Provision of Working Tools and Materials

To support a conducive working environment for optimal performance for the national and state clinical mentors, APIN engaged with key stakeholders at the State Ministries of Health to provide office space for the clinical mentors, while the organisation provided the furniture needed for the offices as well as laptops to the mentors (Table 13). In addition, APIN provided the mentors with relevant manuals, including the Nigeria Clinical Mentorship Guideline, Clinical Mentorship Training Facilitators' Guide, HIV Clinical Mentorship Training Participants' Guide, and the Nigeria Clinical Mentorship Standard Operating Procedure document.

TABLE 5. 2: Number of Furniture and Laptops Provided by APIN to Clinical Mentors in APIN-supported States

State	No of Mentors NCM and SCM	Laptops	Office tables	Office chairs
Benue	22	22	22	22
Plateau	10	10	10	10
Oyo	10	10	10	10
Ogun	8	8	8	8
Ondo	6	6	6	6
Osun	4	4	4	4
Ekiti	3	3	3	3
Total	71	71	71	71

5.4: COVID-19 vaccination efforts

NPHCDA, in collaboration with supporting partners, facilitated the nationwide distribution of COVID-19 vaccines, starting from March 2021. In November 2021, NPHCDA launched the Service Delivery, Communication, Accountability, Logistics, Electronic reporting and Supportive Supervision (SCALES) strategy to increase COVID-19 vaccination coverage and revive routine immunization through increased access to COVID-19 vaccines outside the health facility. In addition to fixed posts and mobile teams, this strategy entailed the establishment of mass vaccination camps in select public locations throughout Nigeria. With funding from the US Centers for Disease Control and Prevention (CDC), APIN supported the implementation of SCALES across APIN-supported states beginning in January 2022. APIN established COVID-19 vaccination task teams at the headquarters and state level to ensure optimal coordination and accountability of APIN's support for the states. The teams provided technical support to the State Primary Health Care Boards (SPHCB) in APIN-supported states in terms of planning, coordination, and implementation of strategies to increase COVID-19 vaccination coverage among eligible populations. APIN's support to its focal states in the implementation of SCALES involved a four-pronged strategy to expedite their success.

5.4.1: Assistance with Planning and Coordination

APIN state teams engaged stakeholders at multiple levels to support strategic planning and coordination for COVID-19 mass vaccination programs at the state level. APIN state teams also conducted advocacy engagements with SMOH and SPHCB stakeholders, including the Honourable Commissioners for Health (HCHs) and Executive Secretaries to identify state-specific gaps in the state's COVID-19 vaccination program and facilitate a targeted response to state needs. Following needs assessments, the state teams actively participated in strategic discussions with HCHs and state PHCB teams, which resulted in the development of strategies to increase COVID-19 vaccine uptake in the LGAs. Typical outcomes of these meetings included the development of proposals, budgets, and work plans to guide the implementation of the agreed-upon strategies. As part of efforts to ensure effective resource coordination and utilization, APIN teams also participated in periodic state-level reviews of human resource performance and outputs as well as vaccine consumption and waste rates. By participating in these joint reviews, which also included other implementing partners like the World Health Organization (WHO) and UNICEF, APIN assisted states in providing data-driven and timely responses to emerging challenges at the site, LGA, and state level.

5.4.2: Support for Social Mobilization, Communication, and Advocacy

APIN conducted advocacy visits and engagements with multi-level stakeholders to secure their support for community mobilization. Political, religious, and academic grassroots stakeholders were engaged within the context of each state and in light of their roles as community gatekeepers. For instance, the large number of tertiary academic institutions in Ogun State necessitated the implementation of "Campus Storm" COVID-19 vaccination exercises. During the initial phase of assistance to Ogun state, APIN provided logistical incentives to LGA and ward-level political leaders in all LGAs to encourage community mobilization. Traditional and religious leaders in each of the state's 20 LGAs were also enlisted to ensure community participation in the expansion of COVID-19 vaccination coverage. With this assistance, Ogun State vaccinated 410,203 people during the first 35 days of APIN's support, which is approximately 71% of what the state accomplished in 84 days. In addition, eleven (11) of the twenty LGAs had met more than fifty percent (50%) of their assigned goals by the end of the period, compared to only one (1) LGA at the start of the period.

As part of community mobilization efforts, some APIN states provided information, education, and communication (IEC) materials and supported the production and airing of jingles and edutainment or motorized campaigns to increase COVID-19 vaccine awareness and acceptability. APIN state teams also utilized community dialogues conducted under the ANC/Malaria project to promote COVID-19 vaccination messaging and, consequently, increase vaccine uptake.

5.4.2.1: Assistance with Service Delivery and Information Management

In addition to mobilization support, APIN collaborated with some SPHCs to improve the delivery of COVID-19 vaccination activities by donating personal protective equipment (PPE) and infection prevention and control (IPC) materials for use by vaccination teams across the states. Additionally, APIN state teams participated in Joint Monitoring and Supervision (JMSV) visits to state vaccination teams. During these visits, APIN state teams mentored healthcare workers on IPC protocol adherence and proper documentation of vaccination services rendered.

APIN utilized PEPFAR support for the distribution of COVID-19 vaccines, vaccination cards, and seals to designated locations within the states in order to prevent interruptions in the availability of COVID-19 vaccines and related disruptions in service delivery. Also, APIN utilized the US CDC's funding support to provide incentives to vaccination teams for COVID-19 vaccination services rendered in the seven (7) supported states. Supported states implemented a performance-based incentive structure for ad hoc staff supporting vaccination as a strategy to improve performance, whereas government-employed healthcare workers were provided some stipends for mobilization. In addition, APIN provided logistical support for the transportation of vaccination teams within LGAs, as well as data support to facilitate the timely and error-free reporting of COVID-19 vaccination data to NPHCDA.

5.4.2.2: Support for Integration of HIV and COVID-19 Vaccination Services

To increase access to COVID-19 vaccines for PLHIVs, APIN state teams assisted SPHCs in integrating HIV/AIDS and COVID-19 vaccination service delivery. Through multiple advocacy engagements with key stakeholders at the state PHCBs, APIN state teams facilitated the inclusion of selected ART and PMTCT sites on the state-level lists of vaccination sites (Table 11).

TABLE 5. 3: Number of APIN-Supported Facilities Serving as COVID-19 Vaccination Sites by States

State	Number of APIN-supported Facilities	Number of APIN-supported Facilities serving as Vaccination sites
Benue	251	35
Ekiti	15	4
Ogun	28	25
Ondo	30	19
Osun	14	4
Oyo	37	12
Plateau	27	5

To increase access to COVID-19 vaccines for PLHIV, vaccination teams were assigned to work within ART clinics as fixed posts and roving vaccination teams visited ART clinics. APIN also ensured that COVID-19 vaccination messaging was included in routine health talks at ART clinics in order to increase PLHIV awareness of the vaccines as well as combat vaccine apathy.

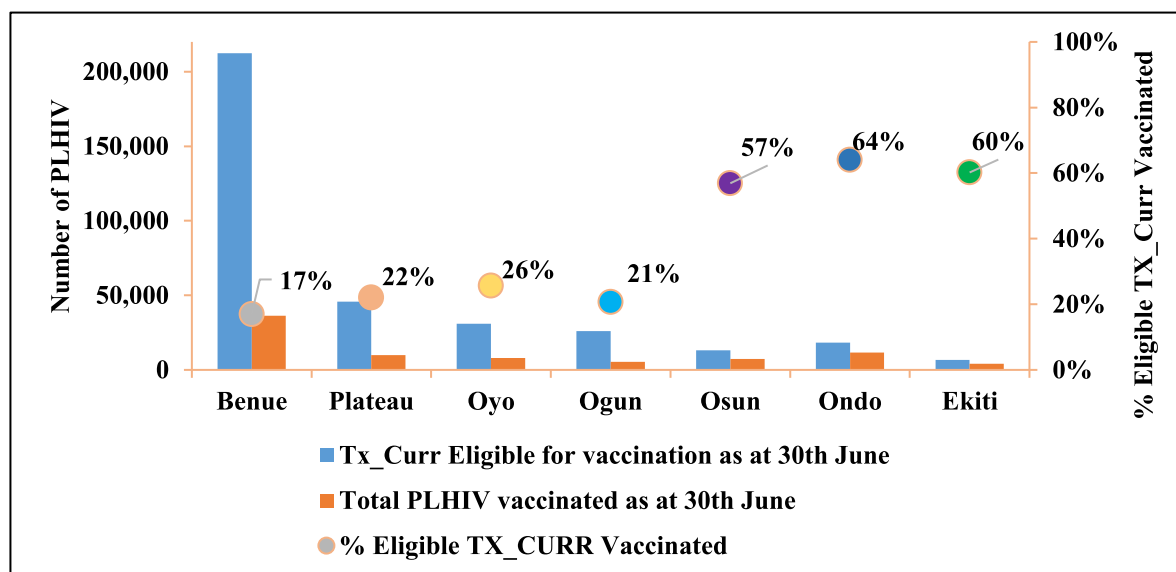


FIGURE 5. 3: STATE-LEVEL ACCOMPLISHMENTS FOR ALL APIN-SUPPORTED STATES.

5.5: Human Resource for Health

Health workers are central to providing client-centred services and meeting the needs of all HIV priority populations. Ensuring availability of health service providers is key for ensuring clients have access to the appropriate HIV services, which can successfully lead from diagnosis to achieving and maintaining HIV viral suppression (known as the continuum of care).

Over the past five (5) years, through PEPFAR/CDC funding APIN has invested in the development, training and support of health care service providers. This has been done with the aim of bridging the gap and ensuring adequate and quality service provision to all HIV priority population.

In 2021, a total of 6,060 persons were engaged to provide support to PLHIV in seven APIN supported States, with Benue accounting for 40% of the Staff. A total of \$17,934,404.60 was expended on Human Resource for Health. With the full scale-up of surge activities across all APIN supported states in 2022, human resource for health grew to 8,160 with an expenditure of \$21,751,877.

The impact of this increase, saw case finding jump from 11% in 2021 to 24% in 2022. Retention also experience a great deal of improvement as IIT rate dropped from 2% in FY21Q4, to 0.3% in FY22 Q4.

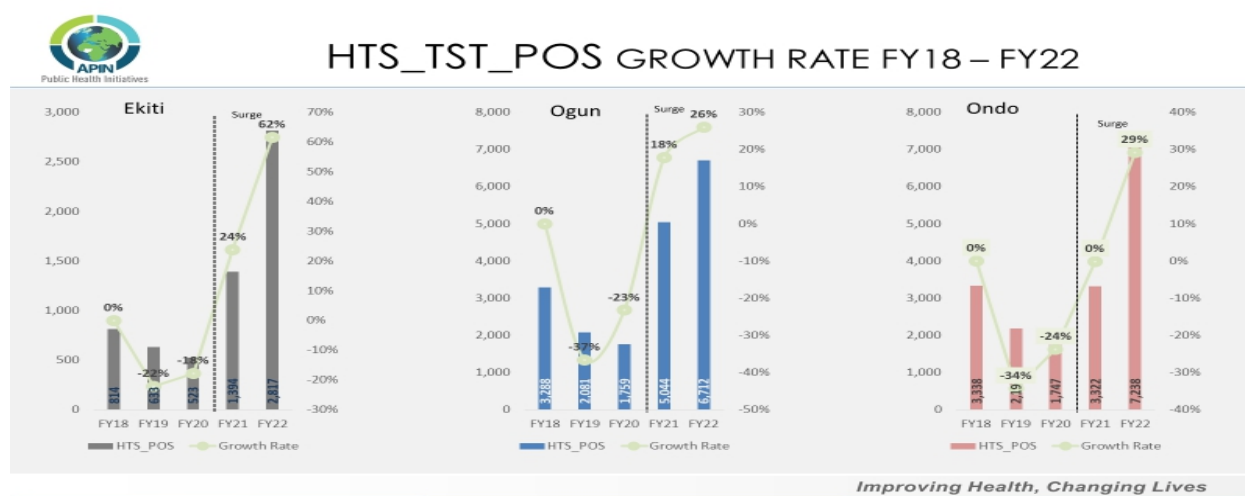


FIGURE 5. 4: HTS_TST_POS GROWTH RATE FY18-FY22 IN EKITI, OGUN & ONDO STATES.

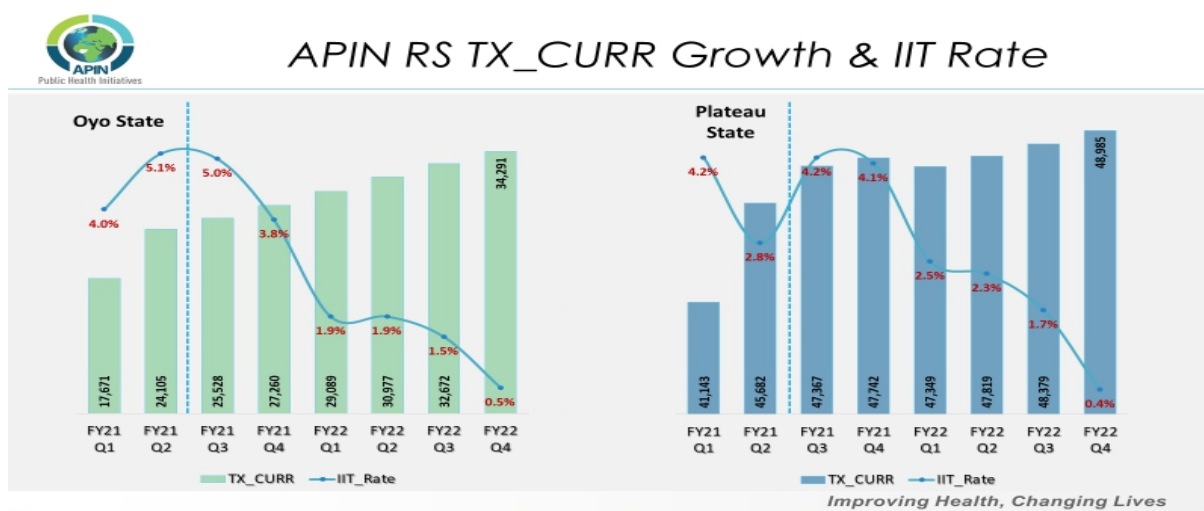


FIGURE 5. 5: APIN RS TX_CURR GROWTH & IIT RATE IN OYO AND PLATEAU STATES.

5.6: Interventions, innovations and acceleration in service delivery during the COVID 19 Pandemic

The COVID 19 pandemic led to reduced hospital attendance leading to reduced testing activities in the facilities, a pause in community outreach and a decrease in HIV Clinic services. However APIN remained committed to continuing essential HIV prevention and treatment services, while maintaining a safe healthcare environment for clients and staff during the COVID-19 pandemic. Prevention and Community services during the COVID-19 pandemic were provided by adapting activities in line with Government's directives and policies on social distancing and movement restrictions. In the facilities, APIN ensured the provision and use of PPEs by HCWs and social distance was maintained during all HTS activities. Health talk/ sensitization on COVID-19 were integrated into HTS counselling by facility health care workers during clinic visits. In the communities, house to house awareness creation on benefits and location of facilities accessible for vaccination in addition to HTS messages was conducted by linkage coordinators and community testers.

Services were decentralized to enable individuals to continue to access treatment, PrEP and viral load testing and other care through community platforms. Virtual Platforms were optimized to determine appropriate and needed differentiated services for PLHIV. The use of virtual platforms during the pandemic was instrumental to identifying more Key populations in the virtual space. Social media, SMS and phone calls were alternative methods of communication by health care and peer workers ensured critical services remain uninterrupted. For individuals already on PrEP, a 3-month supply of PrEP medication were given whilst follow up to assess side effects were done by telephone or SMS. HIVST were used to increase testing reach in communities where HIV testing services could not be provided using conventional outreach model. This strengthened the HIVST delivery and also improve APIN's engagement with other community structures such as community pharmacies and private laboratories and clinics.

The use of Tele ECHO platform was also intensified during the COVID-19 pandemic and it increased capacity building reach for health care work force. Virtual platforms were adapted for trainings for both facility and community volunteers, this model reduced cost and logistics for trainings to the barest minimum and also helped the program gain time that would have been wasted trying to plan and arrange for physical trainings.

5.6.1: Sustained ARV supplies to patients using differentiated service delivery approaches during the COVID 19 pandemic

To ensure continuous ART to clients, APIN adopted a variety of differentiated service delivery approaches which are outlined below:

- ***The use of WhatsApp platform for information and drug refill notification:*** A WhatsApp platform was created for the purpose of interactions between patients and Health Care Workers. All patients with functional phone numbers and who consented were added to the platform by an HCW acting as an Administrator. A patient due for ARV drug pick-up puts a notification on the drug pick-up date on the platform with details on how best the drug refill can happen. The HCW will crosscheck the pickup date and the patient will be engaged in a chat on how best the drugs can be delivered. Most of them got their drug deliveries via private courier service providers. This approach was used in Faith Alive Foundation and JUTH, both in Plateau states.
- ***Enhanced health care providers led drug delivery:*** where clients were carefully mapped based on their locations and assigned to a provider. The assigned HCWs ensured drugs were delivered to these clients at agreed location and on refill dates.
- ***Support for intra and inter-state drug refill:*** APIN supported intra and inter-state drug refill for clients through actively tracking and linking clients to nearby ART centres using an ART directory. This model was used for clients who got stuck at various locations outside their state or LGA of residence due to the restrictive measures posed by COVID -19 pandemic.
- ***Scale up of Multi-month dispensing:***

During the COVID 19 pandemic, eligible clients were given a minimum of 6 months drug refill to decongest the facilities and reduce the risk of transmission of COVID 19 infection.

5.6.2: Adoption of Innovative Approaches to Ensure Continuity of Quality TB Services During COVID-19 Pandemic.

In order to ensure continuity of quality tuberculosis (TB) services and reverse the negative impact of the COVID-19 pandemic on TB case finding, APIN implemented bi-directional screening and testing for COVID-19 and TB in selected facilities in Benue (20) and Plateau (10) States.

The existing GeneXpert network of machines that had been in place for TB diagnosis was optimally used for COVID-19 testing by transporting large volumes of patient samples to sites with GeneXpert machines with the capacity to conduct both TB and COVID-19 tests while ensuring that TB diagnostic testing was not negatively impacted.

Across the implementing facilities, all patients seeking health services were triaged and screened for TB & COVID-19 at different service delivery points, using a standard TB/COVID-19 screening checklist developed from the national COVID-19 and TB Algorithm. Presumptive patients are referred to the DOTS where they produce sputum and then escorted to COVID-19 sample collection site within the facility. After the necessary documentation is completed, samples are moved to Gene-Xpert laboratory for TB and COVID-19 test. TB positive patients were linked to treatment at the DOTS facilities and placed on DSD model (MMD), where the patients who are PLHIVs had their ART aligned with their TB treatment (spaced appointment system) to limit frequent hospital visits and reduce risk of exposure to COVID-19. Patients on this model were remotely monitored for treatment adherence and adverse events at different intervals with appropriate documentation.

Patients positive for COVID-19 are referred to disease surveillance and notification officer for appropriate care and treatment.

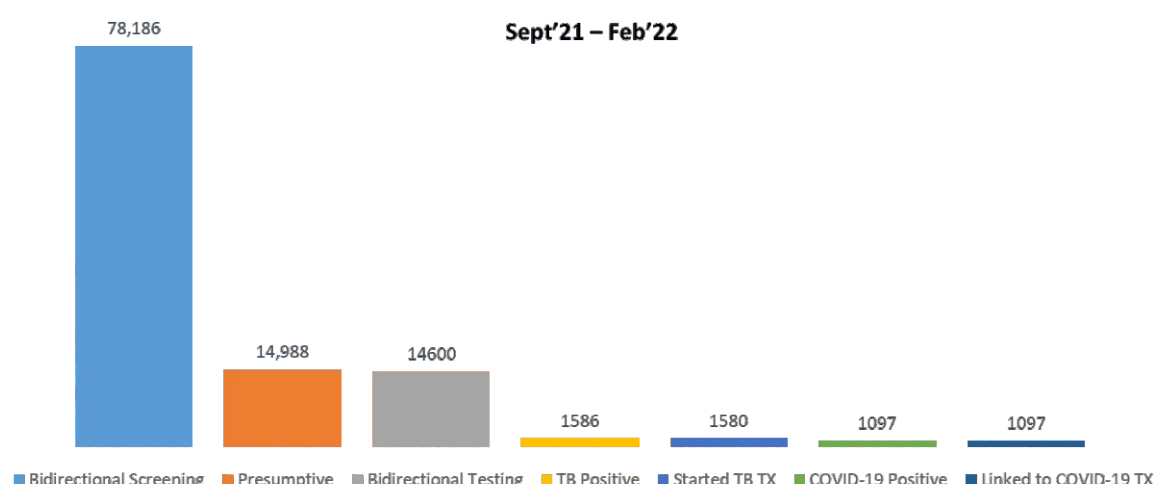


FIGURE 5. 6: TB AND COVID-19 CASE FINDING ACHIEVEMENT IN THE 30 SELECTED FACILITIES IN BENUE AND PLATEAU STATES.

5.6.3: APIN Data management strategies during COVID-19 pandemic lock-down

APIN deployed four strategies to keep the HIV program across the supported States running without interruption during the COVID-19 pandemic. These strategies are;

- **Implementation of NCDC COVID-19 Infection Prevention and Control advisory:** APIN activated strict implementation of NCDC IPC advisory across its health facilities. These were done through the remote staff training on the COVID-19 IPC measures, Provision of PPE and adherence to IPC measures among Strategic Information Staff, enhancing and promoting physical distancing, setup hand washing stations at different points, provision of Job aids in key locations and service points and provision of temporary expanded waiting area across the facilities to improve physical distancing. Intermittent COVID-19 testing for SI facility staff to identify COVID-19 asymptomatic staff. COVID-19 vaccination for SI field staff to reduce COVID-19 infection severity.
- **Job rotation and Task shifting mechanism:** APIN SI adopted job rotation and task shifting approach to sustain data collection and management at the facility level. Roles were re-calibrated to reduce staff frequency visit to the facility. More robust remote capacity building were provided to facility M&E and program Staff to accommodate tasking shift approach while they were engaged in multiply task with remote support provided.
- **Use of Mobile Technology to carry out offsite Data Validation:** APIN leveraged on the use of mobile technology for off-site data validation and collation during COVID-19 lock down. Data capturing modalities were discussed with the facility M&E officers using whatsapp group and telephones. Mentor-ship was provided via these media to facilitate task shifting. Program staff were given access the EMT remotely and were provided with the source documents (registers) via the whatsapp to enable data entry into the EMR. Data validation were done remotely using the electronic register shared using mobile technology and occasionally at the facility during sites visit.
- **Enhanced Information Management System:** APIN instituted real-time program data collection, analysis and reporting system using the local Government and Facility based multi-disciplinary team. Data entry and reviews were conducted on daily basis on the EMR. The State/HQ technical teams conduct daily situation room meetings to benchmark site performance against assigned targets; provide prompt feedback to LG-based teams on the ground for immediate remediation. In addition, the entire team holds weekly virtual meetings via zoom on Mondays to share programmatic progress, challenges, lessons learned, and next steps and provide biweekly rational on-site technical assistance visit to resolve pending issues and provide technical support.

5.7: Cervical Cancer Screening: The APIN experience

Nigeria currently has very few screening programs available to meet the needs of the populace. To address this gap, APIN Public health Initiatives with support from PEPFAR/CDC introduced cervical cancer screening using VIA into its routine HIV program in December 2019. The program started with a pilot phase in two APIN-supported tertiary institutions; Jos University Teaching Hospital (JUTH) in Plateau state and University College Hospital (UCH) in Oyo State. Integrated routine free cervical cancer screening services were offered to women living with HIV aged 15 to 49 years at these pilot sites. The capacity of HCWs in both facilities was built on VIA screening techniques. The pilot phase was a learning process for expansion to other sites. Following the pilot phase, APIN conducted a site assessment and implementation readiness for the cervical cancer screening program. Each proposed site was assessed using the WHO's Service Availability and Readiness Assessment (SARA) tool which assessed domains such as human resources, adherence to protocol, equipment and commodities, diagnostics, infrastructure, and service availability. The domains' weighted average was computed for each site, and the findings from the assessment informed the phase 1 expansion.

Cervical cancer state focal persons were identified across APIN offices in the seven APIN-supported States. These officers were trained as trainers of trainees by certified national trainers using an adapted WHO cervical cancer screening agenda. With support from the APIN's state leadership, the state cervical cancer focal persons engaged the management of the selected sites via an informal leadership climate assessment. The engagement was to get their commitments to drive the process at the site level. Understanding patient flow for cervical cancer screening among women living with HIV (WLHIV) at clinics and including cervical cancer screening health talks within the general HIV health talks were two main lessons learned from the pilot phase. Three expansion phases of the cervical cancer project have occurred, leading to the establishment of 86 implementing health facilities across the seven APIN-supported states spread across North-central (Benue and Plateau States) and South-West (Oyo, Osun, Ogun, Ondo, and Ekiti) geo-political zones of Nigeria. The screening did not involve any out-of-pocket payment from the clients

The cervical cancer screening project recorded a total of 27,182 women who were screened for cervical cancer over the FY20–FY22 SAPR across the implementing sites. A total of 1,589 suspected VIA/VILI positive precancerous lesions were identified. Of these, 820 confirmed positive precancerous lesions recorded by state-based obstetrician and gynaecologist (OBGYN) specialists who treated the women using thermal ablation. *Additional Information on this can be found on the Mini projects book.*

5.8: Integration of gender into HIV programming

APIN integrated gender-based issues across the HIV care continuum, including ensuring the availability and accessibility of appropriate gender-based violence (GBV) services across its supported states. In addition, post-GBV services were provided regardless of sex, gender identity, sexual orientation, marital status, age, disability, race, religion, or ethnicity in APIN-supported facilities and communities. APIN also improved service providers' capacity to screen for IPV and institutionalized routine enquiries for IPV while providing HTS, ANC, and HIV care and treatment services to all HIV populations of interest, including key populations. APIN ensured monitoring for adverse events during service provision and also supported service providers to provide first-line support services using the WHO "LIVES" approach (Listening, Inquiring, Validating, Ensuring Safety, and Support through referrals). Healthcare workers at supported facilities were trained on the GBV minimum care package, which includes counseling, treatment of injuries, STI screening and treatment, HTS, post-exposure prophylaxis (PEP, if the client is reached within 72 hours), PrEP, emergency contraceptives (if the client is reached within 120 hours), and GBV referrals. In all, a total of 1500 GBV/IT/OVC service providers were trained between FY18 and FY22.

APIN provided all the necessary support to service providers on how to ask about Intimate Partner Violence (IPV) and Sexual Violence, identify violence against children as well as strategies to maintain

privacy and confidentiality, document relevant medical history, treatment for other injuries, provision of EC, HIV screening, and referrals. Services/Referral directories were made available and clients were linked to needed services onsite or offsite. The CDC Gender-Based Violence Quality Assurance Tool was used at APIN-supported facilities to assess knowledge and monitor the quality-of-service provision. CBOs working with key populations were targeted for active violence identification through gender officers at the CBO level and paralegal volunteers at the community level. APIN prioritized and supported the referral of program participants who disclosed an experience of violence to appropriate clinical and non-clinical services.

APIN collaborated and provided technical support to various groups of project stakeholders, including Gender Desk officers in government establishments, healthcare workers, CSOs, and service providers in all its supported states on GBV services, including M&E reporting systems. APIN also strengthened data availability for national gender program decision-making by supporting GBV situation rooms at the Ministry of Women's Affairs in all supported states. The collaboration with the Ministry of Women Affairs, Sexual Assault and Respond centres, police, legal systems, and community structures led to the creation of a Gender Community of Practice meeting to foster understanding of relevant PEPFAR gender/GBV indicators, review GBV data collection tools (DCT), strengthen collaboration with GBV advocates and actors, and promote an effective referral pathway for GBV case management.

The Gender Norms package was delivered through support groups, KP-led meetings, OVC, kids' clubs, PLHIV support groups, religious bodies as well as adolescent-led groups to increase community awareness through dialogues and collaboration with these networks/groups. Adequate services were ensured for all KPs regardless of age were provided and any report of experience of violence was treated promptly. Providers were trained never to force clients to undergo any examination unless it was life-threatening and clients were aware of their right to decline any component of the examinations, they were not comfortable with.

Special Days/Events such as annual International Women's Day, 16 Days of Activism against GBV, and International Men's Day were leveraged as avenues to increase community awareness of the need to address and report GBV cases. The avenues used to increase community awareness included dialogue and collaboration with networks, radio programs, television, and social media to reach adolescents and young people. Over 250 women and young people across APIN-supported states who were survivors of GBV were empowered with information to seek help and take action on issues around GBV. However, male involvement was a challenge and negatively affected the uptake of services by women such as FP and ANC. The non-availability of a functional safe place for survivors of gender-based violence, especially key population members in most states in the country, also constituted a challenge.

5.9: Project Accountability and Reporting

In January 2019, APIN implemented DHIS2 as a data management tool. Prior to the implementation of DHIS2, APIN managed its data using an in-house mHealth platform. Due to the platform's inadequacies, it became necessary to develop a platform that was better suited to managing health information, such as that for APIN's HIV program in the eight states where implementation was occurring at the time. The first version to be implemented was 2.30. The deployment of the platform coincided with the CDC's directive for implementing partners to adopt DHIS2 as the recommended data management system. The ability to move data across partners' platforms and DATIM (Data for Accountability, Transparency, and Impact) using DHIS2's data import and export mechanism was one of the most obvious advantages. This functionality and the instructions would eventually eliminate the need for quarterly manual data entry into DATIM for reporting partner efforts across all indicators.

In October 2017, when the GH1753 iCARES implementation began, approximately 715 facilities in the eight APIN-supported states were implementing the APIN iCARES project at the time. Data collected

across all thematic areas were manually entered quarterly, semi-annually, and annually into DATIM using the data entry app on the DATIM platform. This was error-prone, laborious, and cumbersome, and resulted in numerous data quality issues. The process also required multiple layers of checks and was extremely time-consuming. Therefore, the implementation of DHIS2 and utilization of the data export and import capabilities was a very welcome change. This, however, was not without its difficulties. Given the limited capacity for deployment and use of DHIS2 internally as well as the complexity of the HIV program, it was initially challenging. Other obstacles included the requirement for IPs to report through internal DHIS2 systems, which imposed an additional burden on the deployment timeline for DHIS2. Priority was given to quarterly and semi-annual reportable indicators for setting up custom forms as well as creating logic and consistency checks that ensured validation rules were adhered to and violations were identified to avoid data quality issues.

5.10: Deploying DHIS for SURGE Reporting

The surge strategy, which was employed to expedite state saturation, presented enormous reporting challenges. One of the challenges was the requirement for weekly reporting to enable closer monitoring of efforts to meet the targets representing the unmet need necessary for saturation. APIN deployed DHIS2 as an alternative to the conventional Excel template method for data management. This required the creation of a weekly template on the institutional DHIS2 platform in order to aggregate data from all facilities and LGAs as required. Managing excel files mechanically from all seven states and over 200 facilities was error-prone. This approach eliminated the use of numerous excel templates that would have been difficult to merge and compile over time. Using the DHIS2 platform also made it possible to obtain retrospective data that could be used to create a dashboard for monitoring weekly trends and even foreseeing future quarter achievement levels in terms of meeting the targets and thereby reducing the unmet need. In addition, the state teams could assert ownership of the data, thereby promoting data ownership, demand, and utilization for informing programmatic decisions that positively influenced implementation. In addition, the use of favourites in the pivot table app of the DHIS2 platform and the implementation of weekly concurrence checks facilitated the completion of concurrence checks for weekly non-treatment and treatment numbers, resulting in high concurrence levels among the M&E and HI teams reporting and presenting opportunities for mentoring and training where concurrence levels were lower than desired. In general, the strategy improved teamwork, collaboration, and data quality.

5.11: Continuous Quality Improvement efforts.

The quality management team at APIN has established a continuous quality improvement (CQI) multi-disciplinary team (MDT) at all levels, including APIN headquarters, state offices, and program sites. The CQI MDT of the facility is comprised of focal individuals from all departments, PLHIV representatives, and state clinical mentors. The CQI MDT meets monthly, or more frequently during project execution, to utilize data for improvement. The CQI MDT at the headquarters and state offices facilitated support for facility teams.

During this grant cycle, two CQI methodologies – the Model for Improvement (MFI) and the Six SIGMA – were used extensively to make CQI the first option for closing identified programmatic gaps. The steps involved in the CQI include:

1. Analyzing programmatic data to identify gaps;
2. Identifying improvement objectives and goals;
3. Developing facility- or program-specific change concepts
4. Developing metrics for measurement
5. Implementing and measuring changes through continuous 'plan-do-study-act' (PDSA) cycles.

The use of CQI approaches, as illustrated by two cases presented below, resulted in improved performance and enabled teams to address gaps in project implementation.

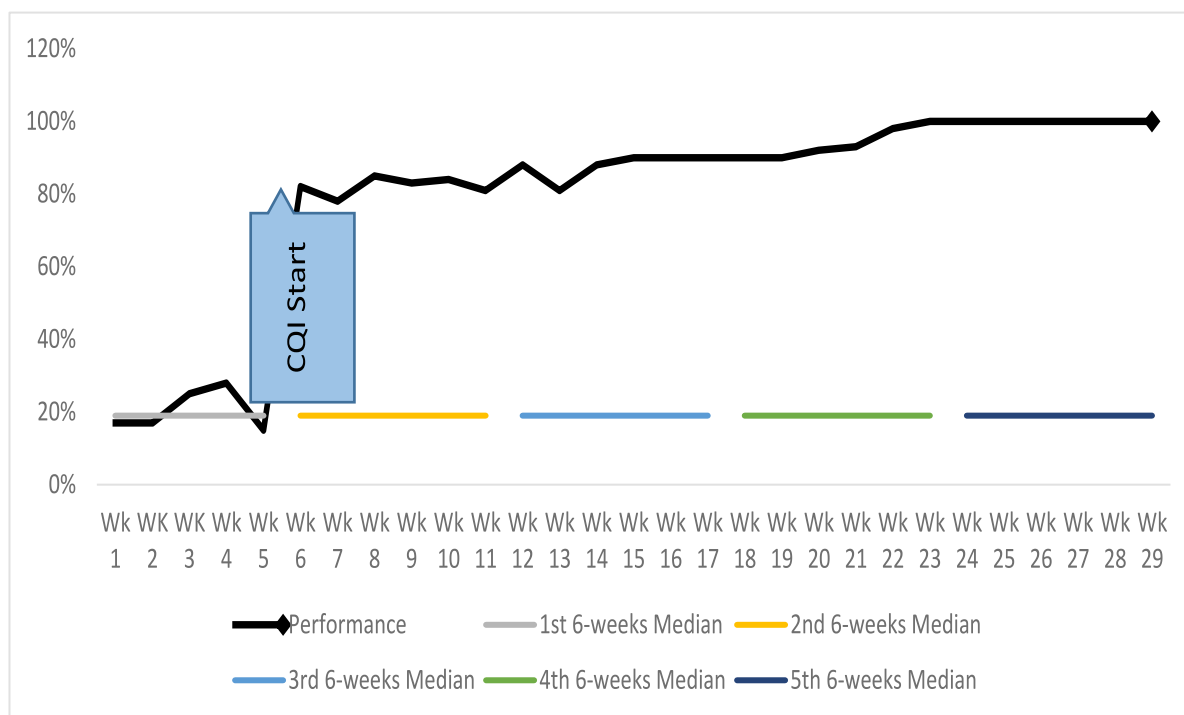


FIGURE 5. 7: CHANGES IN TPT INITIATION RATE AT LAUTH AFTER INITIATING CQI

The impact of CQI MDTs: Case II

Box II

At the beginning of FY22, CCDP Panyam had one of the highest rates of treatment interruptions among ART patients. In January 2022, the facility's CQI MDT initiated a CQI project to close the gaps, after a number of interventions to alter the narrative yielded minimal results. The objective was to reduce the IIT rate from 1.6% to below 1% by June 30, 2022.

Problem Identified: 1.6% of clients on ART experienced

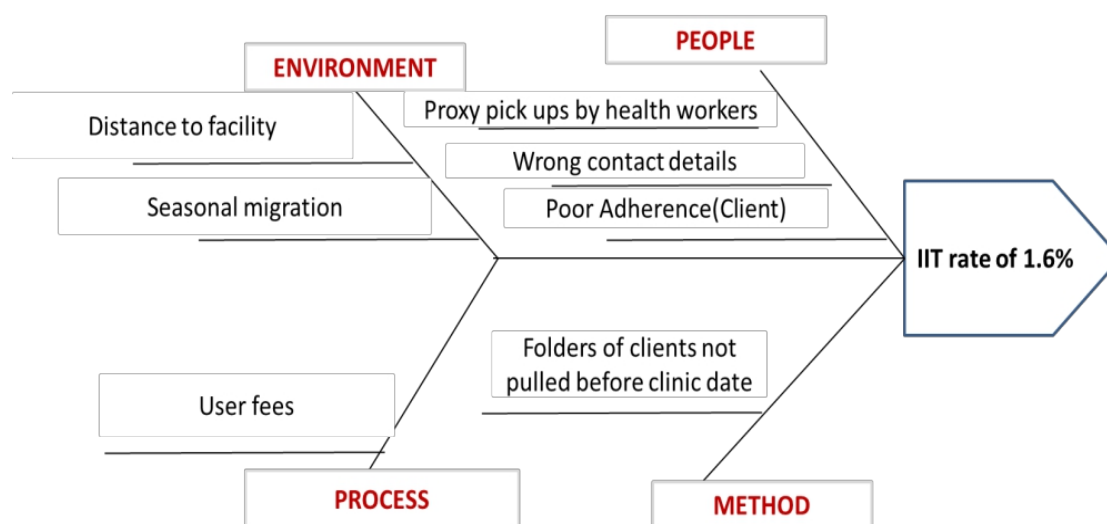


FIGURE 2: ROOT CAUSE ANALYSIS

Following analyses, it was observed that many patients had wrong contact details which made tracking for pre and missed appointments difficult. Additionally, there are issues with pre-appointment planning as well documentation of community ART refills.

Change idea(s): Enhanced pre-appointment reminders were implemented for clients with valid contact information, and processes were implemented to revalidate contacts. Appointment dates given in the clinic had to be synchronized with those generated by the EMR. Another intervention given priority was the

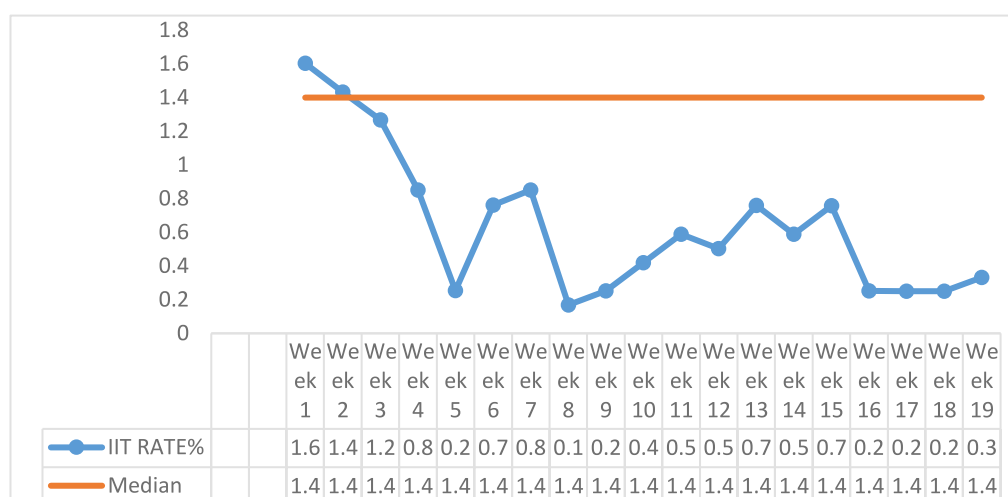


FIGURE 5. 8: CHANGES IN IIT RATE AT CCPD PANYAM AFTER INITIATING CQI

5.12: Patient Biometric System

Towards ensuring that the exact number of PLHIV on treatment in Nigeria is known, and to address the growing concerns that PLHIV on treatment could be assessing care from two or more facilities, APIN Public Health Initiative commenced the Patient Biometric Solution (PBS) in 2018 – the first implementing partner (IP) to do so in Nigeria.

The idea of implementing patient identity management and

PBS Options



Iris scan



Vein scan



Facial recognition

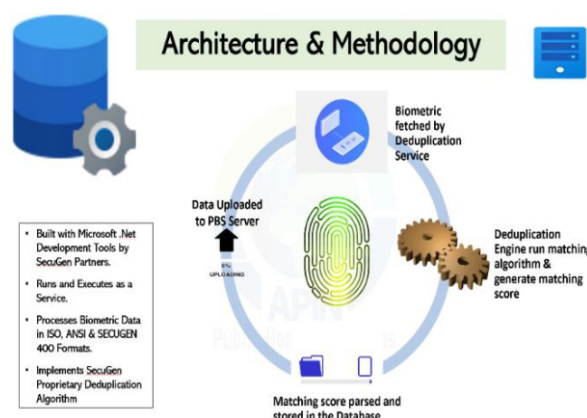


Fingerprint

accountability

system through biometrics came when it was observed and became obvious that clients were roaming from one facility to another and presenting as ART naïve clients not yet on treatment whereas, they were receiving treatment in other facilities. This action of roaming or double registration casts some doubt on the accuracy of

reported treatment numbers, and also the quality of care patients are supposed to receive in treatment centres. Several biometrics options like iris scan, vein scan, facial recognition, and fingerprints were considered before the fingerprint was selected as the best option based on simplicity and easily accessible technology, best suited for our environment. The economic viability and availability of funds also played a major role in



Making History!

APIN Public Health Initiative in 2018 became the 1st implementing partner to commence the Patient Biometric Solution in Nigeria

the decision taken to adopt fingerprint technology, and in 2017, APIN management approved the

engagement of IT consultants in the field of Biometric Technology to develop the first Biometrics Application to be used in a Public Health setting in Nigeria. The fingerprint biometric technology was deployed across the eight-APIN supported states, to uniquely identify people living with HIV by capturing a minimum of two fingerprints (right and left thumb). This biometrics architecture was an application software written using Microsoft.NET Development tools that runs and executes as a service on a dedicated computer system and processed biometrics data in ISO, ANSI, and SecuGen 400 formats; this application aimed at real-time patient deduplication before enrolment into the ART treatment program.

At the end of 2018, APIN successfully captured over 99% of all patients on treatment into the APIN PBS Server using Secugen device to capture the right and left thumbs of patients on treatment, in eight supported states in Nigeria. APIN was in the process of implementing the de-duplication algorithm based on the 2 fingers already captured on the APIN legacy EMR systems when the CDC and all other implementing partners adopted the Nigeria Medical Records System (NMRS) as a standardized EMR system that must be implemented by all IPs from 2019. NMRS has an inbuilt module that allows up to 10 biometric fingerprints to be captured. Based on this, CDC Nigeria directed all IPs to implement 6-10 fingers biometric at the first instance and later the 10 fingers starting in 2019. In rolling out this initiative, APIN engaged relevant stakeholders in the supported states to get their buy-in on the need for PBS and the modalities for its implementation. Subsequently, staff was engaged and trained on the use of the tools for PBS implementation. SecuGen device, an automatic finger placement detection technology, was deployed to all the supported sites and service providers ensured that the fingerprints of the clients were appropriately captured.

A multidisciplinary approach model was also used to prevent missed opportunities with the engagement of all cadres of caregivers as gatekeepers such that the biometric of a client is first validated before a client is offered ART and other services as required. Overall, APIN has achieved 96% capturing of active clients on HIV treatment across its supported states at the end of FY22.

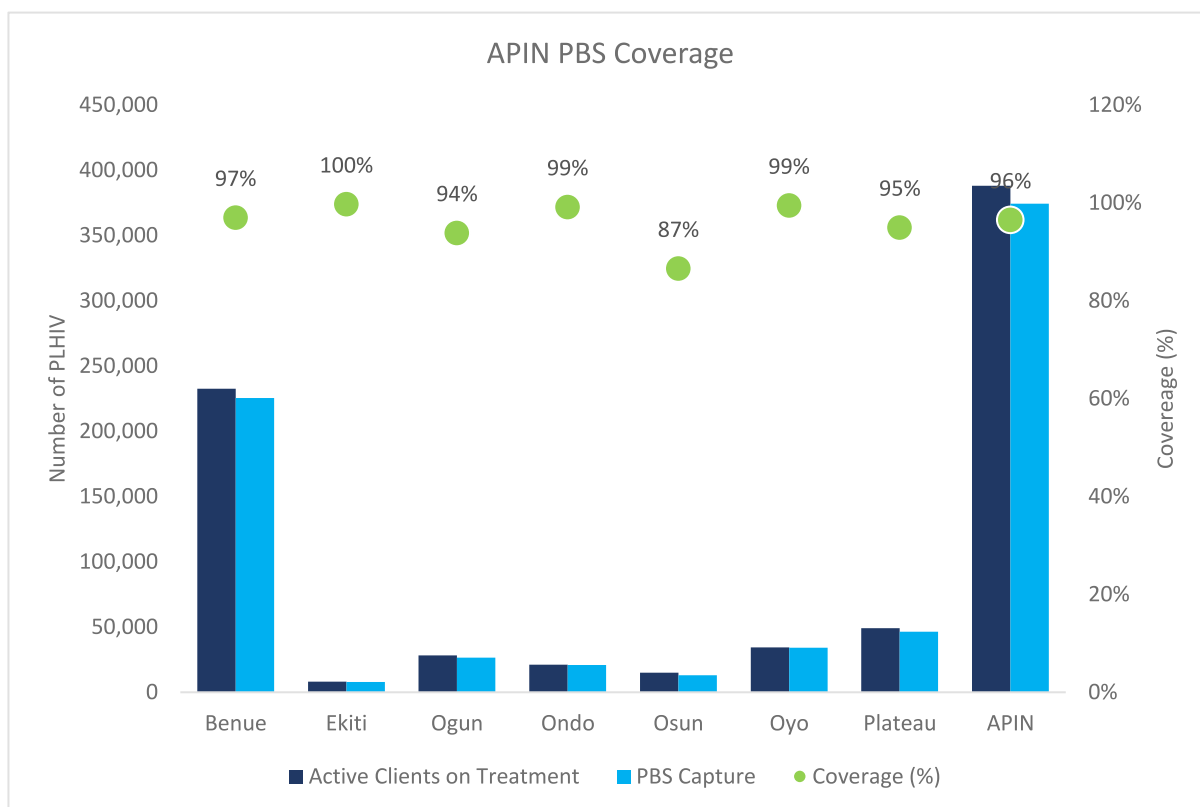


Figure 5. 9: Patient Biometric System Coverage Across APIN-supported States.

The challenges faced in the implementation of the PBS include, the failure in capturing some fingerprints in the paediatrics age group (0 to 5 years), difficulty in capturing some patients due to eroded fingerprints, amputees, difficulty in capturing clients at hard-to-reach or security-challenged areas as well as patients identified from community testing efforts during the weekends. However, APIN has always achieved between 98 - 100% PBS captured of newly enrolled on ART clients. When completed, the benefits and prospects of PBS cannot be over-emphasized, it will allow proper accountability of program numbers and resources deployed in our program. Patient care, management and monitoring will be more effective; while patients will have the liberty to pick up ART drugs wherever they go and where ART services are available. Furthermore, our program donors and funder will have indisputable faith and confidence in all our services offered as well as the data reported.

6. Challenges



6.0: Challenges and Lessons Learned

6.1: Challenges in Project Implementation

Despite the numerous successes recorded during the grant cycle, there were a few challenges that threatened APIN's progress towards achieving set program goals. However, APIN, through innovative thinking adopted mitigation measures to address such challenges and mitigate their impact on the program. This section discusses some of the challenges faced and measures adopted to address them.

◆ User Fees as a Barrier to Linkage and Retention

Despite APIN's commitment to securing the waiver of user fees for PLHIV, user fees continued to serve as a barrier to optimum linkage and retention in care of clients at some supported facilities across APIN-supported states. This was mostly due to bureaucracies in the site governance structures and the dependence on user fees for operational running of sites and remuneration of healthcare workers at such facilities. To address this challenge, APIN, through its state offices, ensured continuous advocacy to site leadership and state governments on fee removal or subsidy.

◆ High Interruption in Treatment Rate

By the end of FY20, APIN had an average Interruption in Treatment (IIT) rate of 3%, which is higher than the 2% benchmark. At the end of the first quarter of FY21, the IIT rate had further increased to 3.9%. To address this challenge of poor retention in care and mitigate its potential impacts on the HIV continuum of care, APIN adopted several innovative approaches, including:

- Use of smart card technologies to increase clients' access to treatment
- Conduct of Patient Satisfaction Survey (PSS) to identify and address factors contributing to interruption in treatment
- Weekly generation of appointment line list
- Daily follow up of missed appointment clients
- Weekly generation of IIT line list for tracking of IIT clients
- Use of Case management teams to optimize the quality of care provided to clients.

These strategies resulted in improvement in clients' retention in care across APIN supported states, and by the end of FY22 Q3, APIN had an average IIT rate of 1%, which is less than the 2% benchmark.

◆ Inadequate Guidance on the Implementation of Differential Service Delivery (DSD) Models

The implementation of certain DSD models of care was initially challenging as there was no clear national operational guidance within the first two years of its recommendation. Improvised Monitoring and Evaluation (M&E) systems were largely paper-based and ran parallel to existing systems. APIN, however, addressed this challenge by adapting existing tools such as pharmacy daily worksheet as well as developing a register that integrated all DSD models. Specific adaptations made to the existing APIN M&E systems during the implementation period included:

- Updating the existing Electronic Medical Record to capture key elements of CART delivery models.
- Introduction of new tools to capture services provided to patients under the varied differentiated ART delivery models, including those taking place outside the clinical setting.
- Establishing an effective data flow between new tools/differentiated ART delivery settings and the patient HIV medical record.
- Establishment and definition of indicators to be routinely reported that adequately described uptake and outcomes of diverse facility- and community-based ART delivery services.

- Development and implementation of tools and systems to generate data summaries for CART delivery models, including data for calculating new indicators to enable the evaluation of the program.

APIN was able to keep track of her progress because of the extensive work done on M&E in the early phase of implementation. This made APIN a reference point for DSD M&E during the situational analysis conducted in 2018 and subsequent national program DSD workshops, where many of APIN's ad-hoc tools were adapted for national use. APIN also made significant contributions to the development of national DSD guidance as a member of the national DSD sub-committee.

APIN's DSD implementation approaches gave due consideration to the elements of DSD (sub-population, clinical characteristics, and context) and its building blocks (what, who, when, where). The program achieved remarkable progress towards complete scale-up of 3-6 multi-month dispensing (MMD) of ART and decentralized distribution for all PLHIV including PBFW and children. All newly initiated patients are placed on MMD3 while current ART clients are upgraded to MMD6 or MMD3-5. Another important component of the scale-up process was aligning ART pick-up with VL sampling, which had significant impact on the 3rd 95% target. Ensuring this alignment helped to minimize missed viral load sampling opportunities and, thus, improved viral load coverage.

◆ **Non-Disclosure of HIV Status to HIV Positive Paediatrics and Adolescents**

The challenge of HIV status non-disclosure impacted negatively on retention and Viral Load Suppression (VLS) during the grant cycle. Parents and caregivers were often reluctant to tell children about their HIV status. However, through the APIN OTZ club meetings and OTZ trainings (for healthcare workers, caregivers, and adolescents), APIN educated caregivers and adolescent champions (peer educators) on how to provide structured support to CALHIV for medication adherence and VLS.

Some of the other challenges encountered in the course of program implementation and actions taken are highlighted in Table 6.1.

TABLE 6. 1: Selected challenges faced by APIN in program implementation, their impacts, and the actions taken to address them.

Challenge	Impact	Remedial Action
Patients' stigmatization and discrimination	Limited uptake of community ART models in some south-west states	Continual client education and healthcare worker sensitization
Seasonal migratory tendencies of clients to neighbouring states	Interruption in treatment of such clients	Scale-up of MMD6 and per-appointment tracking of clients
Reluctance of some facilities to scale up community-based models because of potential loss of revenue in facilities dependent on user fees	Limited uptake of community-based DSD models	Targeted advocacy to facility management on the benefits of DSD models of care
Reluctance of healthcare workers (HCWs) in some tertiary facilities to place new clients on MMD3	Limited uptake of MMD3 among new clients	Continued advocacy to HCWs with evidence-based comparative analysis of retention status of new clients on MMD3 vs those on <1mth (preliminary findings showed that the former did not jeopardize Continuity of Treatment (CoT) of new clients.

7. Lesson Learned

7.0: Lessons learned

The challenges encountered during program implementation served to stimulate program units towards innovations and adoption of non-conventional approaches to ensure optimum program performance. Some key lessons learned include:

7.1 General Program Implementation

◆ **Continuous multilevel stakeholders' engagement is key to ensuring successful implementation and sustainability of public health interventions.**

APIN's engagement of relevant stakeholders at the state and facility levels in planning, implementation and monitoring of program activities helped secure the buy-in of key stakeholders into the program and promote local state ownership, which is crucial to sustain the gains of HIV program implementation in Nigeria. Critical outputs of key stakeholder engagement and advocacy across APIN-supported states during the grant cycle included the successful waiver of user fees for PLHIV at many APIN-supported facilities to address barriers to retention and the provision of government-owned facilities to serve as One Stop Shops for Key populations in Ogun and Osun States. APIN's remarkable performance on TB indicators, which is a by-product of the organization's sustained collaborative efforts with the State Tuberculosis and Leprosy Control Program (STBLCP) to address identified TB-related gaps in the HIV program, also illustrates the power of effective stakeholder engagement.

Continuous engagements with ART facility leaderships during routine site visits and review meetings across APIN-supported states also contributed significantly to the overall success recorded during the grant cycle. By taking ownership of the HIV program, the ART facility leadership across APIN-supported sites helped fast track and sustain the achievement of program goals.

◆ **Expansion of public health programming to include Community Based Organizations (CBOs) and Civil Society Organization (CSOs) can help fast-track the achievement of program goals.**

APIN, throughout the grant cycle, optimized collaborations with relevant CSOs and CBOs to expand coverage and access to comprehensive HIV-related services for underserved populations such as paediatrics and adolescents and Key Populations (KP). Using leaders of KP networks to drive demand and uptake of PrEP helped to scale up PrEP coverage across APIN-supported states. Another program area that benefitted significantly from collaborations with CSOs is the Orphan, Vulnerable Children (OVC) program. Continuous engagement of the Network of People Living with HIV/AIDs in Nigeria (NEPHWAN) across APIN-supported states also strengthened the implementation of Differentiated Service Delivery (DSD) throughout the grant cycle. Leveraging the community presence and networks of such CSOs and CBOs helped APIN achieve her goal of reaching underserved communities with comprehensive, holistic and targeted care.

◆ **Data-driven monitoring of public health interventions at state, LGA and site levels allows for prompt response to programmatic challenges and a more efficient utilization of limited resources.**

Monthly sharing of Target and Achievement (T&A) dashboard with the APIN state teams provided a constant opportunity to review strategies for successful program implementation. Such consistent data review enhanced the timely identification and resolution of programmatic gaps. APIN also supported the state Primary Healthcare Boards to strengthen their COVID-19 vaccination monitoring and evaluation systems by providing technical assistance on the use of granular data. APIN state teams also participated at state-level data review meetings where such granular data were used to make informed decisions on the allocation and reallocation of resources. This allowed for a more efficient utilization of resources and fostered accountability of vaccination teams and LGA teams across the APIN supported states.

- ◆ **Demonstrable political will at the state and grass root levels are valuable drivers of public health interventions.**

Leveraging her expertise in stakeholder engagement and advocacy, APIN, through her state offices, collaborated with state Primary Healthcare Boards to advocate for the buy-in of political leaders at the state, LGA and ward levels regarding COVID-19 vaccination drive across APIN-supported states. APIN also provided logistics support to some ward councillors and LGA chairmen to drive community mobilization for improved vaccination coverage. The highest achievements were seen in states that demonstrated strong political will by the involvement of top state, LGA and ward political leaders in advocacy, communication and social mobilization activities as well as monitoring and supervision of vaccination activities. Hence, future public health programs should adequately consider state and community gatekeeping structures as valuable tools towards improving the acceptability and coverage of public health interventions.

7.2: Service Delivery

- ◆ **The design and implementation of public health programs must allow for versatility and responsiveness to emergencies that can threaten the gains of program interventions.**

The COVID-19 pandemic and its effect on the health sector and economy served to test the resilience and versatility of HIV programming in Nigeria. In APIN-supported states, the adoption of innovative strategies helped prevented interruptions in the delivery of HIV services and ensured continuity of treatment despite the COVID-19-associated lock down. APIN adopted home and community ART refill services for different sub-populations, and leveraged virtual communication platforms to provide adherence and enhanced adherence counseling to patients to ensure adherence for optimum patient outcomes. Such strategies helped to minimize the negative impacts of the COVID-19 pandemic on HIV programming across APIN-supported states.

- ◆ **In optimizing Continuity on Treatment (CoT) and uptake of viral load testing, there is no one-size-fits-all approach – client specific needs must be adequately considered.**

Apart from its impact on clinic load and congestion, APIN's implementation of Differentiated Service Delivery (DSD) models of ART service delivery was a game changer in the client-centred retention drive. Following clear identification and understanding of clients' needs, APIN-supported facilities ensured and sustained improved retention through synchronization of appointments in instances of mother-infant pair or family bloc appointments and operation of age-specific clinics, particularly for Children and Adolescent Living with HIV (CALHIV).

For viral load testing, APIN adopted flexible and innovative approaches, such as *sunrise bleeding*, *moonlight bleeding*, *Gbedu bleeding* and *weekend bleeding* to scale up uptake of viral load testing and, consequently, viral load coverage across supported states.

- ◆ **Continuous monitoring of program interventions and provision of technical assistance across program areas is crucial for successful program implementation.**

APIN state offices ensured constant presence of APIN program staff at APIN-supported sites as a platform for continuous mentoring and on-the-job capacity building of healthcare workers towards improved program performance. As part of efforts to achieve this, APIN established a staff decentralization structure, in which program staff across the various thematic areas were domiciled within LGA clusters to perform oversight function to HIV program activities at the community and facility levels. APIN also conducted constant monitoring and supervision visits to assigned PCR laboratories. This allowed for timely identification and resolution of factors resulting in delayed Viral Load (VL) and Early Infant Diagnosis (EID) results to fast-track the achievement of program goals. The turn-around-time for VL testing results was also improved

following consistent engagement of the laboratory scientists at the ART laboratories on the need to ensure prompt sample processing and transportation during technical assistance visits to health facilities. Continuous technical assistance visits to health facilities also fast tracked the scale up of TB, PrEP and pharmacovigilance services across APIN supported states.

◆ **HIV status disclosure influences client health-seeking behaviours and facilitates engagement with support and care structures, resulting in improved patients' quality of life and outcomes.**

HIV status disclosure increased enrolment in the APIN Operation Triple Zero (OTZ) program. Clients participating in the OTZ club meetings and activities had higher rates of retention-in-care and viral suppression compared to those not participating in such meetings.

◆ **Client-led approaches prove valuable in the scale-up of program interventions and achievement of program goals.**

The involvement of Children and Adolescents Living with HIV (CALHIV) as OTZ champions in HIV program planning and implementation encouraged CALHIV to trust and buy into the HIV program, with a resultant positive effect on adherence and viral load suppression among this sub-population.

7.3: Recommendations for program intervention priorities for epidemic control and sustained services delivery moving forward.

In order to attain the 95/95/95 goal and sustain HIV service delivery beyond this target, it is recommended that communities are empowered to be able to lead, implement and monitor HIV testing programs. This will require institutional capacity building for local Community based organizations to design and implement programs beyond donor funding; building capacity of community-led organizations especially focused on priority populations such as Key population, children, adolescents and young women. APIN through this grant has been able to identify these critical community-led organizations who will be the platform for sustaining HIV response in Nigeria. APIN has through this grant also built the capacity of the Nigeria Health care workforce in various key program areas and strategies which will be invaluable beyond donor response. It is recommended that focus should be placed on empowering the health care workforce to deliver quality, lifesaving services that will contribute immensely toward sustaining HIV service delivery