
Outcome evaluation for children and adolescents on ART in Nigeria, 2007–2016

Collaborating Institutions:

Ministry of Health, National AIDS & STI Control Program (NASCP), National Action Committee on AIDS (NACA), University of Maryland School of Medicine (UMB), PEPFAR program implementing partners in Nigeria and USG PEPFAR AGENCIES (CDC, USAID, & DOD)

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Acronyms and abbreviations

µL	Microliter
AIDS	Acquired Immunodeficiency Syndrome
ALT	Alanine Aminotransferase
ART	Antiretroviral Treatment
CDC	Centers For Disease Control And Prevention
CGH	Center For Global Health
CI	Confidence Interval
CITI	Collaborative Institutional Training Initiative
CSPPro	Census and Survey Processing System
DGHT	Division of Global HIV And TB
FMOH	Federal Ministry of Health
GON	Government of Nigeria
HAART	Highly active anti retroviral therapy
HIV	Human Immunodeficiency Virus
HR	Human resources
IDEA	Implementation Dissemination Evaluation Alliance
LTFU	Lost To Follow Up
LGA	Local Government Area
MGIC	Maryland Global Initiative Corporation
mL	Milliliter
NACA	National Agency for the Control of AIDS
PEPFAR	President's Emergency Plan For AIDS Relief
PI	Principal Investigator
PLHIV	People Living With HIV
POC	Point of Contact
RNA	Ribonucleic Acid
TB	Tuberculosis
U.S.	United States
VL	Viral Load

Principal Investigators

Investigators profiles and roles

Investigators profiles and roles

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(IDEA) in monitoring all aspects of the study conducts including access to Pediatric ART facilities, data collection, management, and analyses. Interacts directly with the PEPFAR implementing partners/IPS for the Pediatric/Adolescent ART program in Nigeria to ensure compliance with the protocol and updates study team on the study progress and compliance relevant regulations.

Other investigators and collaborators (Table 1 below) support study implementation and data collection at the selected sites. They will be provided access to the ART facilities and program data, technical oversight, and ensure adherence to protocol. They will ensure that all persons involved in the conduct of the study at the sites are adequately informed about the protocol and their duties and functions. They will also participate in the analyses, interpretation, and reporting of de-identified data.

CDC investigators will not be involved in data collection activity and neither will they have access to identifiable information of the subjects. However, they are involved in the project design, protocol development and will provide technical oversight. They will also participate in analyses, interpretation and report writing of de-identified data.

Conflict of Interest Statement: The study team members whose names are listed on this page and the page below certify that they have no affiliations with or involvement in any organization or entity with a financial interest in this study.

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Sponsor Monitoring:

As the study sponsor, the Centers for Disease Control (CDC) may conduct monitoring or auditing of study activities to ensure the scientific integrity of the study and to ensure the rights and protection of study participants. Monitoring and auditing activities may be conducted by:

- CDC staff (“internal”)
- Authorized representatives of CDC (e.g., a contracted party considered to be “external”)
- Both internal and external parties

Monitoring or auditing may be performed by means of on-site visits to the Investigator’s facilities or through other communications such as telephone calls or written correspondence. The visits will be scheduled at mutually agreeable times, and the frequency of visits will be at the discretion of CDC. During the visit, any study-related materials may be reviewed and the Investigator along with the study staff should be available for discussion of findings. The study may also be subject to inspection by regulatory authorities (national or foreign) as well as the IECs/IRBs to review compliance and regulatory requirements.

Protocol Synopsis

Title	Outcome evaluation of children and adolescents on ART in Nigeria.
Background	The United States President's Emergency Plan for AIDS Relief (PEPFAR) has pioneered the expansion of antiretroviral treatment (ART) in Nigeria since 2004. As at the end of the fiscal year 2016, 34,695 children aged <15 years and 10,402 adolescents age 15 – 19 years were currently receiving life-saving ART across all PEPFAR sites in Nigeria. While Nigeria routinely reports programmatic data to meet PEPFAR's reporting requirements, the outcomes of children and adolescents receiving ART in PEPFAR sites have not been systematically assessed.
Purpose	To determine treatment outcomes and 12 months retention ART of human immunodeficiency virus (HIV)-infected children and adolescents initiated on ART in Nigeria in PEPFAR sites and proportion virally suppressed
Study Design	A retrospective cohort analysis study. Relevant patient information will be abstracted from patient's records using a data abstraction tool specially designed for the study purpose.
Study population	The study population will be a random sample of study eligible patients: HIV-positive children and adolescents aged 0 to 19 years initiated on ART between the beginning of October 2007 and end of September 2016 at any of the study sites.
Study Duration	Estimated start date for data collection is 31st July 2018. Total duration in the field will be approximately three months (See Appendix 1 for data collection tool).
Study Sites	The study will be conducted in all PEPFAR-supported health facilities who currently have at least 100 HIV-infected children and/or adolescents on ART. To achieve the required total sample size, the number of patients' records randomly selected from each site will be based on probability proportional to size sampling procedure.
Primary Objectives	<ul style="list-style-type: none">• To determine the proportion of patients with viral load suppression at 12 months after initiation of ART.• To determine the 12-month retention rate of children and adolescents initiated on ART.• To determine the rates of lost to follow-up, transferred out, and mortality at 12 months after initiation of ART• To determine the factors associated with treatment failure and attrition among HIV-positive children and adolescents initiated on ART.

1. Background

Human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS)s has significantly impacted the health of children globally since the beginning of the pandemic (Abrams et al., 2012). There are about 3.4 million children aged 15 years and below living with HIV worldwide, and more than 450,000 children receiving lifesaving antiretroviral treatment (UNAIDS, 2014). Nigeria is Africa's most populous country with an estimated population of about 186 million people (The World Bank, 2017). With an estimated HIV prevalence of 3.1% among adults aged 15-49 years, about 3.4 million people are living with HIV (PLHIV) in Nigeria including 260,000 children aged 0-14 years (UNAIDS, 2015). An estimated 240,000 adolescents (10-19) years are living with HIV in Nigeria (UNAIDS 2016).

Fifty percent of all HIV-infected children will die before their second birthday without any intervention (Dabis et al., 2001; Newell et al., 2004). The use of highly active antiretroviral therapy (HAART) among HIV-infected children and adolescents leads to decreased viral load (VL), increase, increased CD4+ T-cell count, and reduced morbidity and mortality (Bolton-Moore et al., 2007; Fassinou et al., 2004). A study conducted in Cameroon among HIV-infected children initiated on HAART reported a mortality rate of 2.9 per 100 child-years. Additionally, 70% of observed mortality occurred during the first six months of ART and the probability of survival after four years on ART was 88.7% (95% confidence interval (CI)=[84.2-93.3])(Njom Nlend & Loussikila, 2017). Factors predicting mortality were World Health Organization clinical stages III and IV disease (HR: 3.55 [1.09-13.6] and hazard ratio (HR): 7.7 [3.07-31.2]) and age at ART start less than or equal to one year (HR: 2.1 [1.01-5.08])(Njom Nlend & Loussikila, 2017). Furthermore, a cohort analysis conducted in Zambia reported that most deaths in the study among children occur in the first three months of follow up and factors associated with mortality included the presence of anemia, younger age, and lower weight-for-age z-score at study enrolment (Sutcliffe et al., 2011).

A systematic review of twelve pediatric ART studies in Africa amongst 31,877 HIV-infected children on ART, reported 12-months retention rates ranging from 71-95% (Abuogi, Smith, & McFarland, 2016). Among patients lost from care, 73% were lost to follow up (LTFU) while 27% were confirmed to have died (Abuogi et al., 2016). The predictors of attrition included younger age, shorter duration of time on ART, and severe immunosuppression (Abuogi et al., 2016).

The Government of Nigeria (GON) started the national HIV treatment program in 2002. Support from the United States (U.S) government through U.S President's Emergency Plan for AIDS Relief (PEPFAR) has contributed significantly to the expansion of HIV care and treatment services to all 36 states and the Federal Capital Territory. PEPFAR has pioneered the expansion of antiretroviral treatment (ART) in Nigeria since 2004. With the support of PEPFAR, in 2015 GON introduced Test and Start guidelines to offer ART to all PLHIV in Nigeria within two weeks of diagnosis. These guidelines also expanded ART access to all PLHIV, including all pediatric patients, regardless of CD4 cell count, an expansion of access from 2014, when those PLHIV with a CD4 cell count <500 cells/microliter became eligible for ART, and from before 2014, when only those PLHIV with a CD4 cell count <350 cells/microliter were eligible. As of the end of June 2017, 47,213 children and adolescents aged 0 to 19 years were currently receiving life-saving ART across all PEPFAR sites in Nigeria. While Nigeria routinely reports programmatic data to meet PEPFAR's reporting requirements, the outcomes of children and adolescents receiving ART at

these sites have not been systematically assessed. This study is targeted at finding out and further examining these treatment outcomes.

1.1 Aim

The primary goal of this study is to determine treatment outcomes and 12-month retention on ART of HIV-positive children and adolescents (0-19 years) initiated on ART at PEPFAR sites in Nigeria.

1.2 Objectives

- To determine the proportion of children and adolescents with VL suppression at 12 months after initiation of ART.
- To determine the 12 months retention rate of children and adolescents initiated on ART.
- To determine the rates of LTFU, transferred out, and mortality among HIV-positive children and adolescents at 12 months after initiation of ART
- To determine the factors associated with treatment failure and attrition among HIV-positive children and adolescents initiated on ART.
- To determine demographics and outcome of children and adolescents with missing charts in treatment facilities and to determine if this group differs from those patients with charts, in order to make policy recommendations in record keeping and filing systems at health facilities.

1.3. Key Questions

- What proportion of HIV-positive children and adolescents initiated on ART immediately (that is, within the two weeks specified by national Test and Start guidelines) after HIV diagnosis had VL suppression at 12 months post-initiation on ART? (The Nigerian integrated national guidelines for HIV prevention, treatment, and care defines VL suppression as less than 1,000 HIV ribonucleic acid (RNA) copies/milliliter (mL).)
- What proportion of HIV-positive children and adolescents is retained at 12 months; that is, alive and on ART at 12 months after ART start?
- What proportion of HIV-positive children and adolescents transferred out, died, or stopped ART at 12 months after initiation of ART?
- What are the patient-level factors associated with treatment failure and attrition of HIV-positive children and adolescents initiated on ART?
- What are demographic and outcome differences between patients with retrievable medical charts and those without retrievable medical charts?

1.4 Study Hypothesis

This study is predominantly a non-comparative review where simple information, such as virologic failure, retention, and attrition rates of HIV-positive children and adolescents initiated on ART, will be reported. However, we plan to study some factors that may affect these rates. We hypothesized that these factors may not be different among participants who are retained on ART or care as compared with those who have been lost to care or treatment. We hypothesize as follows:

- The level of adherence, number of missed drug pick up appointments, baseline CD4+ cell counts, duration on ART at last visit and patients' socio-demographic characteristics are not

different in those virally suppressed when compared with those with treatment failure at 12 months.

- That baseline socio-demographic characteristics, such as age, sex, and educational status in older children, are not different in those retained, and those lost to attrition.
- That baseline clinical characteristic, such as WHO clinical stage, CD4+ cell count, hemoglobin concentration, creatinine, weight, (for height?) and TB and HBV co-infection rates are not different in population lost to attrition, and those retained on ART.
- There is no difference in the median time to attrition by facility type or clinical and sociodemographic characteristics of patients.
- There is no difference in sociodemographic or clinical characteristics between patients with retrievable medical charts and those without retrievable medical charts.

In this study the level of significance $\alpha=0.05$. Where we observe a difference, the difference will be considered of statistical significance and we will not accept the null hypothesis if the p-value is less than 0.05. To reduce the probability of a type 1 error, we will use Bonferroni correction to reduce the size of our critical α when making multiple comparisons among groups.

2. Methods

2.1 Background on study population

Nigeria has 36 states and an administrative capital called the Federal Capital Territory. (Central Intelligence Agency (CIA), 2016). The States of Nigeria are divided into smaller administrative units called Local Government Area (LGA). There are 774 LGAs in Nigeria; each LGA is managed by a Local Government Council (Wikipedia contributors, 2016). PEPFAR supports the delivery of HIV/AIDS services in 534 LGAs. There is significant variation in HIV prevalence across the states and LGAs in Nigeria; estimates range from 0.6 percent in Ekiti State to 15.2 percent in Rivers State (Federal Ministry of Health (FMOH), 2012).

2.2 Study Design

This study will be a retrospective cohort study of children and adolescents initiated on ART between October 2007 and September 2016. Although our analysis will be done retrospectively, the patients' clinical data will have been entered prospectively into relevant clinical forms and ART card at the various sites.

Sources of Data: Study data will come from several sources, including electronic or paper-based as follows:

- Pediatric ART patient registers at HIV care and treatment facilities.
- Client folder/ART cards reviewed at selected sites.
- Review of pharmacy records (worksheets and daily registers).
- HIV-exposed infant follow-up registers
- Review of CD4 registers and laboratory records, if CD4 counts are not recorded in the charts.
- 12.2.1 Study population

The study populations are two groups of patients, children aged 0 to 9 years and adolescents 10 to 19 years.

2.2.2 Inclusion Criteria

All patients aged 0 to 19 years at the time of ART initiation at one of the eligible sites, who were initiated on ART between October 2007 and September 2016.

2.3. Sample Size Considerations

2.3.1 Cohort Study Sample Size

Sample Size Required to Answer Key Question: What factors are associated with retention and attrition 12 months after ART initiation?

In the pediatric ART outcomes study, we will investigate factors associated with attrition and retention at 12 months post-ART initiation. Sample size calculations discussed below will be used for 12-month retention and attrition as the outcomes of interest.

Attrition: Attrition will be defined as patients who initiated ART, who have died, been LTFU, or stopped ART indefinitely (all patients who discontinued treatment and do not wish to re-start ART) by 12 months after ART initiation.

Retention: Patients retained on ART will be defined as patients who are alive and on therapy at 12 months after initiation of ART. Patients who are documented to have transferred out of each facility will be excluded from this group, while patients transferring into a facility will be included in the appropriate cohort of the year initiated on ART. Previous studies in Africa reported the retention rate among HIV-positive children on ART to be between 71 and 95% at 12 months of follow-up (Abuogi et al., 2016). In this study, we use a conservative estimate of 75% based on routine program data of pediatric patients in Nigeria. If the 12-month retention rate of children and adolescents in ART care in Nigeria ART program is found to be 75%, the ratio of patients in retention to attrition will be 3:1.

Virologic Failure: A study in South Africa reported a virologic failure prevalence rate of 19% among all patients on ART (El-Khatib et al., 2011). A nationally-representative dataset from the National ART Program in Nigeria suggests a treatment failure rate of 20.6% among adults. Studies among children suggest failure rates than among adults, with treatment failure rates ranging from 19.3% to 32% (Bernheimer et al., 2015; Costenaro et al., 2015). Factors previously reported to be associated with virologic failure include poor adherence, missed drug pick-up appointments, tuberculosis (TB) drug interaction, drug toxicity, low baseline CD4 count at ART initiation, and prior virologic failure and ART regimen containing non-nucleoside reverse transcriptase inhibitor (Costenaro et al., 2015; Robbins et al., 2010). In this study, we will assume a virologic failure rate of 25%, a proportion in between those found in studies by Bernheimer et al and Costenaro et al..

2.3.2 Sample Size Calculation for Pediatric ART Cohort

The study is designed to answer specific questions about a cohort of HIV-infected children and adolescents on ART. Hence, the sample size calculation that will provide the data to answer these questions is adopted. We assumed the following:

- That proportion of **retained** patients on ART with viral suppression, 12 months after ART initiation is 75%
- The proportion of retained patients (that is, those who are alive and on treatment), 12 months after ART initiation is 75%. Note that this estimated proportion is across all ages within the 0–
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19 age range; there is insufficient literature or program data to make age band specific sample size calculations.

- 95% CI and a precision of 5%.
- That 20% of selected IDs will not have medical records (charts)
- Because of sampling size technique that may result in clustering of sampling, a design effect of 3.0 is applied. See Table 2 for calculation of sample size required based on the above assumptions.

Table 2: Precision of 95% Confidence Intervals (CI) around Primary Proportion of Interest (Calculated using StatCalc – EPI INFO®)

Estimated Retention Rate	Design Effect	Finite Population Correction Factor Used?	95% CI	Sample Size Required	Sample size corrected for 20% missing records
75%	3.0	No	$\pm 2.5\%$	3,432	4,289

2.5 Selection of Study Sites and Participants

2.5.1 Health Facilities

All health facilities in Nigeria supported by PEPFAR that have initiated more than 100 HIV-infected children **and/or** adolescents on ART by June 30, 2017, will be eligible for inclusion in the study. There is no reliable data on all children and adolescents ever initiated on ART and so to define our sampling frame and determine probability proportional to size sample at each site, we are using TX_Curr size as our population. A total of 1,067 sites are providing ART services to a total of 47,213 children and adolescents aged 0-19 years across all PEPFAR supported states in Nigeria as of the end of quarter three of fiscal year 2017 (See Appendix 2). Of these 1,067 sites, a total of 132 sites (12.4%) currently provide services to 100 or more HIV-infected children and adolescents and account for 29,528 (62.5%) of the 47,213 children and adolescents currently receiving ART in PEPFAR supported sites in Nigeria (See Appendix 3).

2.5.2. Defining Sample Frame of Sites

All sites in Nigeria meeting inclusion criteria will be included in the sampling frame for the study (see Appendix 3)

2.5.3 Selection of Study Sites and Participants

Multi-Stage Sampling Strategy

- **Stage 1 – Site selection:** All ART sites with 100 or more HIV-positive children and

adolescents currently on ART will be included.

- **Stage 2 - Specifying Number of Medical Records to be Selected at Each Selected Clinic**
 - We multiplied total required sample size by site selection probability to determine the number of patient records to select within each site by probability proportional to size (see Appendix 3).
- **Stage 3 - Selection of patient records.**
 - A sample frame of all patients meeting inclusion criteria will be created using patients' unique identification number in Microsoft Excel.
 - The sample frame will be divided by the sample size for the site to provide the interval for systematic sampling of charts which will be used to select subsequent charts after the first ID until the number required from that site is selected.

2.5.4. Study Confounders/Limitations:

We anticipate that missing charts and data may be a major limitation of this study. If a selected, eligible medical record is unavailable for review at the time of the site visit, clinic staff will be present during the abstraction to determine whether the record has been removed for patient tracking or other purposes, and the record will be retrieved, when possible. The study team will make every effort to locate all selected records. If retrieving a patient chart for review is not possible, the next medical record on the list of randomly ordered unique IDs will be selected until the quota for that site is reached. We anticipate that about 20% of the selected IDs will have missing charts. Therefore, a list of 25% more records than needed will be prepared so the abstractors will have enough record numbers to reach the quota.

Record of the number of missing charts and charts removed for patient tracking will form part of the report generated by this evaluation. Also, using a data abstraction form, we will abstract as much information on patients with missing charts from the ART register, pharmacy, and laboratory records as is possible. In a sub-analysis, we will attempt to define if charts are missing at random or if a pattern of "missingness" can be detected. We will compare those with charts to those with missing charts to see if the groups differ socio-demographically or behaviourally depending on the breadth of information accessible from the existing registers. This information will be used to define if the problem of missing charts biases our findings in any way. All information will assist the FMOH to generate recommendations for improvement in record keeping and filing so that patient care is optimized. We also anticipate that some sites may not routinely collect some information that the study requires. The information will be obtained as much as possible through informal discussions with key informants.

Potential Biases

No bias in data collection is anticipated, however, the retrospective nature of the evaluation makes it difficult to control for rates of missing data. We will explore various methods to manage the problem of missing data. These methods may include maximum likelihood estimation, multiple imputations, and the pattern mixture approach.

3. Data Quality Assurance, collection, and Management

3.1 Data Quality Assurance

The protocol engaged the services of the University of Maryland (UMB) office in Nigeria, the Maryland Global Initiative Corporation (MGIC) for the implementation of this study. Staff from this office with guidance and supervision from the Division of Epidemiology and Prevention, Institute of Human Virology, UMB of Medicine will collect, manage and analyze data for this study. The study implementation team is led by the project PI, the Division Head, Epidemiology, and Prevention, Institute of Human Virology, UMB School of Medicine. For best quality assurance with improved adherence to protocol, data completeness and accuracy, a stakeholders' committee (implementing partner (IP) working group) will be created to supervise the study implementation.

3.1.1 Implementing partner working group, the Implementation Dissemination Evaluation Alliance (IDEA).

Data for abstraction in this study will be sourced from electronic and paper medical records at the selected sites supported by the PEPFAR program IPs in Nigeria. Through the IDEA working group, each IP will contribute a point-of-contact (POC) person who will represent the IP and monitor adherence to protocol and implementation at the IP's supported sites. The IDEA group will supervise data abstractors training, sites activity during data abstraction and data transferred to UMB MGIC. This working group will have representatives of the Centers for Disease Control and Prevention (CDC), Nigeria and the FMOH Division of HIV/AIDS, UMB representative, and a POC from each IP. The IDEA group will supervise data collection and meet monthly to review implementation and proffer solutions to challenges encountered. The representatives of CDC, Nigeria and the FMOH will however not be involved in the data collection supervision.

3.1.2 Training

Data abstractors and the supervising IDEA group will be trained on the survey objectives and their roles in the survey, as well as the need for good quality data. The abstractors and data manager who are trained with hands-on experience in data collection, capturing, storage and human subject protection will be required to take refresher Collaborative Institutional Training Initiative (CITI) training on confidentiality and human subject protection. They will receive internal two days training on data security from the UMB School Of Medicine. Supervisors will undergo a four-day, central-level training. The IDEA group members will be required to take the CITI training on human subject protection.

3.1.3 Field supervision

During the data abstraction, the IDEA group members supervising data collection at the sites will supervise abstractors' handling of chart selection, confidential records, data de-identification, entry into the mobile device, and review abstracted data immediately after the abstraction to ensure identified mistakes and missing information are corrected, and identifiable information for exclusion are excluded before the client folder is returned or electronic record closed.

3.2. Data Collection and Training

The contract research organization's (UMB MGIC) staff are trained in data abstraction, survey interviews and human subject protection with hands-on experience in confidentiality protection in handling clinical and health data. Also, as part of the training, UMB MGIC team will pilot the medical

chart review and data abstraction at three PEPFAR supported health facilities with children and adolescents on ART less than 100 to ensure that the instruments are appropriate and that all team members are given consistent directions. Within the Health facilities with children and adolescents on ART less than 100, those with highest TX_Curr will be prioritized for the pilot so as to simulate conditions in facilities selected for the study. We will also pilot the data entry process, including generating key tables illustrating patients' clinical and social demographic factors, rates of LTFU, mortality, and retention as well as rates of virologic failure by duration on ART. We will use data generated from piloting data abstraction instruments to pilot the data entry process. The instruments and the data entry process will be revised, as necessary, before the main study data collection process starts.

The IP POCs will introduce UMB MGIC team of abstractors to the site's PEPFAR program manager and supervise the data abstraction. The site program manager together with ART clinic staff provides access to the site's data and relevant registers. Our preliminary assessment indicated that almost all the selected sites have moved from paper-based medical records keeping to electronic medical record (EMR) platforms. The UMB MGIC team of abstractors are familiar with the various EMR platforms used by the different IPs and are currently comparing the data abstraction tool to the various EMR forms to identify data elements not captured in the EMRs that would require manual abstraction from patients' medical records (paper records) and hard copies of clinic registers. Data de-identification and abstraction begin with the selection of IDs and medical records or charts of eligible patients. The total number of patients enrolled in the program at a site will constitute the sampling frame for the sample required from that site. Systematic sampling with selection interval defined by the ratio of sampling frame to the site sample size will be used to select IDs for medical chart review. IDs with missing charts will be replaced. A laptop or mobile tablet with a data collection application will be used for data collection. This device is GSM data (3G)-enabled, with 512 MB of random access memory and 8 GB of internal storage memory. It is also global positioning system-compatible and has WiFi 802.11b/g/n capacity.

De-identification and Study Identification: Data entered into the abstraction form on the device will not include patient's name, phone number, fax numbers, email, or physical addresses, health insurance number, biometric identifier or photographic images, if any. Enrollment ID will be generated and assigned during abstraction. It includes prefix 2-digit site code, patient's hospital record, and 1-digit abstractor's code, e.g., 0114553 identifies patient with hospital number 1455 enrolled from site 01 by data abstractor number 3. Medical record numbers will be retained but re-coded to allow re-tracing of patients charts if required to correct errors, missing data or data lost in the process of capturing data into the central server.

3.2.1 Data abstraction operational procedures

Charts used for the routine collection of data on HIV-positive children and adolescents on ART at HIV care and treatment sites have been reviewed and should provide all the data needed for completion of the data abstraction tool (Appendix 1). Occasionally, the following problems may occur: A chart of a selected patient who is recorded in the ART register cannot be located, even after requesting assistance from the attending clinic staff. These data will form part of the report to the FMOH. The next chart on the randomly ordered list of ART charts will then be selected for inclusion in the study. Because it is difficult for data abstractors to determine if weights, CD4 counts, VLs, haemoglobin values, or alanine aminotransferase (ALT) values are eligible for inclusion in 6 and 12-month outcome analyses,

we will attempt to collect data on all follow-up weights, CD4 counts, VLs, haemoglobin values, and ALT values, along with the date of information recorded in the patient chart. All weights should be recorded in kilograms, hemoglobin levels in grams/deciliter, and VL in RNA copies/mL.

3.2.2 Variables Collected During Data Abstraction

A list of data to be abstracted is recorded below. The data abstraction tool is documented in Appendix 1.

- **Outcome of ART and Date of Outcome**

- Still alive and on ART (retained on ART). We will record the date of the most recent visit to the healthcare facility to see the healthcare provider or pick up medicines.
- Died during ART and date of death.
- LTFU during ART (has not attended the healthcare facility in the 90 days from the date of missed appointment to see a healthcare provider or pick up medicines.) We will record the date of the most recent visit to the healthcare facility to see the healthcare provider or pick up pills.
- Transferred out to another facility during ART with documentation of the date of transfer.
- Permanently stopped ART care voluntarily or for reasons indicated in the medical chart. (Healthcare provider must indicate that he/she is aware that the patient will not be returning to further ART care.) We will record the date of stopping ART.
- Where applicable, what was the reason for permanently stopping ART, and what was the recorded cause of death?

- **Support services**

- Referral for support services: nutrition, prevention with positives, orphans and vulnerable children, psycho-social support services.
- Adherence counselling.

- **Demographic Data**

- Date of birth (month and year only), age at enrolment into HIV care, gender; village, town, or city of residence at HIV care initiation; marital status, educational level reached at the time of enrolment into HIV care, employment status at the date of enrolment into HIV care.

- **HIV Diagnosis Information**

- Date of first HIV diagnosis recorded in the chart.

- **ART Initiation Visit**

- Weight, height, hemoglobin, CD4 count, VL, clinical stage, TB status, co-trimoxazole prescription, and ART regimen at ART initiation.

- **Most Recent ART Visit**

- Weight, clinical stage, co-trimoxazole prescription, and most recent VL at the most recent

visit.

- **Regimen Changes and Drug Substitutions**
 - Was the patient’s regimen changed and, what was the reason for changing the regimen?
 - Was a drug substituted and, what was the reason for the drug substitution?
- **Follow-up Information**
 - Dates of all follow-up appointments and weights post-ART initiation.
 - Dates and values of all CD4 counts, VL, hemoglobin levels, serum creatinine, and ALT results after ART initiation
- **Adverse Events and Opportunistic Infections during ART**
 - The occurrence of adverse reactions related to ART medication. Immune Reconstitution Inflammatory Syndrome and hepatitis are the events of interest.
 - The presence of opportunistic infections after ART initiation.
- **Adherence and Drug Dosages**
 - To calculate a proxy for patient adherence, we will calculate the total number of days that any patient selected for chart review was late to pick up antiretrovirals from the pharmacy during the first six months after ART initiation. This will require review of the clinic’s pharmacy register.

3.2.6 Review of Referral Registers and/or Forms

- Referral records will be reviewed to track referrals that were not captured in the client records leading to the erroneous classification of such clients as LTFU. Data in the referral registers may help to re-classify some patients initially thought to be LTFU after medical record review as either dead, stopped ART, or transferred out.

3.2.7 Review of Laboratory Register

- If CD4 counts, hemoglobin levels, or VL is missing from the charts, the laboratory register at the clinic where all the results are recorded will be reviewed in an attempt to complete as much of the data abstraction form as possible.

3.2.8 Review of Pharmacy Register

- Once data abstractors have completed reviewing the appropriate number of charts at selected sites, the data abstractors will review the pharmacy register in order to determine a proxy for adherence for each chart reviewed as part of the study. Because review of pharmacy records will occur at the end of each day at a time suitable for the pharmacist, and because no personal identifiers such as name or clinic registration number will be abstracted onto the data abstraction forms, a “study register” which links the patient’s name to the unique study number will be created during chart review and will be destroyed as soon as the pharmacy register has been reviewed. The study register will at no time leave the care of the study team.

3.3 Chart Abstraction Logistics and Planning

- Three teams of three data abstractors and one facilitator will be identified for each state. Each team of three abstractors and one facilitator will visit a subset of clinics selected for the study.
- Prior to arrival at the clinic, the clinic manager, the local health authority, the State Health Authority and the State AIDS Control Agency will have been informed of the purpose and timing of the visit.
- When the team arrives at the clinic with a copy of an introductory letter from the FMOH, the abstractors will first meet with the clinic manager who will bring in the clinic and medical records staff to orient staff about the objectives of the evaluation.

3.4 Data Management Plan

Data collection and handling: A laptop or mobile tablet with a data collection application will be used for the collection of abstracted data and any observations from informal interactions with health workers at the sites. Trained study staff will de-identify and abstract patient-level data at the facility level, obtain consent and administer questionnaires to the health care providers. Data completeness and accuracy are checked as the data are entered into the abstraction form on the device by automated checks set up and enforced at the outset.

Data transfer and capture: Data on the laptops are transferred into the central server at the UMB MGIC office. Data will be transferred from the laptops to the central server on daily bases during data collection and abstraction. The connection between the client devices (Laptops) and the central server is protected using SSL (Secure Sockets Layer) encryption to ensure that intercepted data packets cannot be decrypted without the encoding key, making it difficult to access patient information. The central server is located in the UMB Nigeria data centre which is protect with an access controls and other industry standard physical and network security features and process. The data is entered on the collection devices and synced to the central server daily once the data entry is completed. Access to the device is limited by user credentials (passwords). The application allows data to be stored only on one central database. Data stays on the device temporarily when Internet service is disrupted and synced with the resumption of internet service. Data are encrypted as files are transferred between application and the database. Unauthorized access is further prevented by auto time-out after 5 minutes of inactivity. The data manager monitor's data transfer and upload on the desktop and central server. The manager checks data elements from each site to ensure accuracy and completeness and keep custody of the data.

Data storage and back up: Hard copies of consent forms and survey instruments will be kept in locked cabinets at the UMB MGIC office, and in secured UMB Nigeria server for electronic data. All electronic data are stored in Microsoft Excel format with a data dictionary that describes each data element. Collected data will be backed up on external data storage devices secured in a fire-proof cabinet. The lead investigator and study staff will have access to the data through user name and passwords controlled by the data manager. The data collection application store all collected survey data on the device's removable memory card and backs it up on the device's internal memory. That way, if a device fails, data can be recovered from the memory card and vice-versa. In the event of accidental loss or theft of a collection device before data are uploaded on the central server or MGIC office computers, data abstraction and collection at the affected site(s) will be repeated. After the study, written data will

be stored in a secured warehouse used by the UMB MGIC and can be made available on a week's notice. Electronic data will be stored on UMB MGIC secured servers for the entire duration of the project and 3 years after the project ends while ensuring instant availability. Written paper forms are destroyed after 3 years of storage through onsite shredding and secured destruction of shredded materials.

Data integrity and security: Data entry will be monitored at the collection sites and reviewed weekly by the Implementation Dissemination Evaluation Alliance (IDEA) at the UMB MGIC central database. Automated error checks will be set at the outset to identify data entry errors (e.g., data collection dates incompatible with the study period, outlier values, etc.). Each abstractor's data entry will be randomly and independently reviewed to look for errors or inconsistencies. We will set acceptable transcription error rates at 3% per week. If an abstractor exceeds that level on any given week, the total of their data entry for that week is reviewed. Consistent error rate above the acceptable level will require review of error patterns by the IDEA group to determine if it is the result of improper training, wrong assumptions, a problem with the data entry form itself or some other issue. Corrective action will then be taken, and the data entry errors monitored more aggressively. Access to the data on the device and on the program computers (central server) will require two levels of individual passwords, one at the user account level and one at the database level. Knowledge of the account password will be limited to each account holder and the database password will be limited to the data manager and the team lead investigator. Both passwords will be changed every 3 months. Digital databases and archives are protected from security breaches through encryption while data losses by redundancy of the system. Data shared in this study will not contain enrolment IDs.

4. Data Analysis Plan

Data will be collected in this study with the aid of a laptop or mobile tablet with a data collection application. Data collected from chart extraction will be weighted and we will control for the design of the survey. Data analysis will include frequencies, chi-square tests for categorical variables, and t-tests for continuous variables. As part of an initial descriptive analysis, a table will summarize the frequencies of demographic, immunologic, and clinical characteristics of patients at ART initiation.

Primary Analysis: The primary analyses needed to answer the key questions of this study are listed below.

4.1 Determining Virologic Failure, Retention Rates, and Weight Gain at 12 Months of ART Follow-up

The proportion of patients with viral suppression 12 months after initiating ART will be reported. Additionally, the proportion of patients who are alive and on ART at 12 months will be reported with appropriate 95% CIs. In addition, of those not retained in ART at the time points of interest, the proportion documented to have died, been LTFU, or stopped ART along with appropriate 95% CIs, will be reported. For those patients who are retained on ART, 12 months after ART initiation, we will calculate the median gain in CD4 count and weight from baseline and report these medians with appropriate inter-quartile ranges. Of these patients retained at 12 months of ART, we will determine the proportion of missing CD4 counts at the time points of interest. Kaplan-Meier survival curves will be used to graphically illustrate patient retention on ART over time. The event of interest will be

attrition, which for this study is defined as died, LTFU, or stopping ART. Patients who transferred out of care at each facility will be excluded from this analysis.

4.2 Secondary Analyses

In a secondary analysis, we will calculate adjusted and unadjusted rate ratios for all patient-level characteristics with respect to virologic failure and outcomes of patient retention, weight gain, and median CD4 increase by 12 months of therapy. These values will be presented in table format. Our analysis will account for the complex study design, and clustering in the sample. We will also apply a finite population correction factor $\sqrt{1-f}$. Where $f=n/N$, n =sample size and N =total population. However, because N is huge, we expect that f will approach zero. Furthermore, since our sample size is large we expect our standard error to be low as well.

In another secondary analysis, we will compare proportions of patients with key demographics and outcomes of children and adolescents among those with missing charts in treatment facilities with those with irretrievable charts, using chi-square analyses.

4.3 Data Flow

Two databases will be created, for the data from chart abstraction during the study and for data from informal interactions/observations. The coordinating team will send aggregate data reports (from the national sample, not site-specific) to the ART sites that are involved in the evaluation. However, all original data will remain at the central level.

4.4 Quality Control

Trained data entry clerks, who will be hired by the IP, will double-enter data from the abstraction forms into the electronic database. The database will have built-in checks that will not accept erroneous values.

4.5 Determining Risk Factors Associated with Retention and Attrition 12 months after ART Initiation:

Amongst other variables, we will investigate the association between low baseline CD4 count (<200 cells/ μ L), type of HIV-infection, poor adherence, type of initial ART regimen, TB infection at ART initiation, and attrition at 12 months of ART follow-up. To define the significance of each risk factor for attrition we will calculate adjusted and unadjusted odds ratios through bivariate and multivariate analyses and report these odds ratios with appropriate 95% CIs.

4.6 Data Ownership, Disposition and Results Dissemination

The database will be co-owned by the Nigerian FMOH and UMB. At the end of each site visit, each team supervisor will collect all completed data abstraction forms and store the forms in a locked boxes. All completed data abstraction forms will be transported in locked boxes to MGIC Abuja office. The data collection forms will be stored in a locked cabinet at the UMB MGIC office in Abuja. Hard copies of forms will be kept for three years. After the expiration date, the paper forms will be shredded. After the evaluation, the evaluation IP working group will work with FMOH, CDC, Nigeria, and other relevant stakeholders to assess the findings and evolve a joint framework for interpretation and information dissemination tailored towards service delivery that matches the unique goals of the ART program in Nigeria. We will explore effective mechanisms for information sharing across target audiences (policy or decision makers, program implementers, and PLHIV in Nigeria). The new knowledge created will be

shared in interactive group discussions, conferences, and seminars, and will be published in reputable peer review journals. A final evaluation report will be produced in alignment with the PEPFAR Evaluations Standards of Practice requirements and posted (in English) on a publicly-accessible website within 90 days of clearance. The database will be maintained on the firewalled server at the UMB MGIC office with access granted upon request and approval by FMOH, CDC, and UMB.

5. Ethical Considerations

5.1 Chart Review and Pharmacy Register Review

5.1.1 Informed Consent

Request for Waiver:

According to 45 CFR 46.116 (d):

(d) An IRB may approve a consent procedure which does not include, or which alters, some or all of the elements of informed consent set forth in this section, or waive the requirements to obtain informed consent provided the IRB finds and documents that:

- (1) The research involves no more than minimal risk to the subjects;*
- (2) The waiver or alteration will not adversely affect the rights and welfare of the subjects;*
- (3) The research could not practicably be carried out without the waiver or alteration; and*
- (4) Whenever appropriate, the subjects will be provided with additional pertinent information after participation.*

We are requesting a waiver of informed consent for medical record abstraction for this study. The waiver is appropriate because: (1) the studies are retrospective in nature, involve no more than minimal risk to human subjects, and no personal identifiers will be collected; (2) the studies will not adversely affect the rights and welfare of the subjects; (3) the studies could not practicably be carried out without the waiver because it is not possible to track down and obtain consent from selected clinic patients; and (4) if tracing of patients to their homesteads was attempted, this might reasonably constitute a violation of privacy and confidentiality.

5.1.2 Benefit for Program

It is rational to expect that the majority of patients included in this program evaluation, those who remain alive and on ART will indirectly benefit from the assessment through improvements made in the quality of the HIV care and treatment program. Improvements in the program are, however, dependent on a number of other variables, including the availability of financial, human, and other resources. Results of the study will be shared with all the sites and key stakeholders in the country.

5.1.3 Confidentiality

No personal identifiers that can be traced back to clinic patients, such as patient name or clinic registration number will be collected during chart extraction. There is a potential risk of loss of confidentiality since data abstractors will be reviewing medical records. To reduce risk of loss of confidentiality, data abstractors will be trained on the importance of maintaining confidentiality of patients whose charts are reviewed and will sign a document indicating their agreement to maintain this confidentiality (see Appendix 4). Hard copies of the data extraction forms will be kept in a locked cabinet, the key to which will be held by the principal investigator (PI). Hard copies of the data

extraction forms will be kept for three years after the construction and cleaning of the electronic database (or after the end of the study). At the expiration date, the paper forms will be shredded. The data, once computerized using the data entry tool, will be kept by the investigators on personal computers with password-protected login screens. The data will be analysed and interpreted in a collaborative manner, under the leadership of the PI.

5.1.4 Reporting of Adverse Events

Serious adverse events in the course of study implementation must be reported accordingly using the Serious Adverse Events (SAE) Report Form – see Appendix 5. This must be signed and dated by the principal investigator(s).

5.2. Institutional Review Board Approval

The final protocol will be submitted to the National Health Research Ethics Committee in Nigeria, and the CDC Division of Global HIV and TB (DGHT), for review and approval before the implementation phase starts.

6. Study timeline and budget

	2017		2018												2019			
	1	1													1	2	3	4
Activity	1	2	1	2	3	4	5	6	7	8	9	10	11	12				
Stakeholders engagement and IDEA formation																		
Protocol development and endorsement by stakeholders																		
Ethics review of protocol in Nigeria and Atlanta																		
Hiring of data abstractors																		
Training of data abstractors and IDEA																		
Establish program start dates at the selected sites																		
Pilot data abstraction and collection tools at three sites																		
Develop implementation plan with IDEA																		
Conduct data abstraction and interviews																		
Clean and analyze data																		
Interpret findings																		
Discuss results with stakeholders																		
Present findings in scientific meetings and publish																		

The budget and the budget justification for this activity are part of a larger cooperative agreement between UMB and CDC for the SHIELD grant. However, the total cost of Pediatric ART outcome evaluation is estimated at \$300,000

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8. Appendices

Appendix 1: ART Data Abstraction Tool

Participant identifier: NCAS/./././... __ A __ __ __ Name and type of Facility: _____

Abstractor's Name: _____

Date of Abstraction: DD / MM / YY

A. SUBJECT DEMOGRAPHY	
1. Sex:	<input type="checkbox"/> Male <input type="checkbox"/> Female
2. Date of Birth:	DD / MM / YY (cannot be missing)
3. Age at and date of enrollment in ART program:	DD / MM / YY ____ Years (cannot be missing)
4a. Village, town, or city of residence at enrolment	
5. Parent HIV status:	<input type="checkbox"/> HIV positive <input type="checkbox"/> HIV negative <input type="checkbox"/> Missing/Unknown
6. Patient education level at time of enrollment in ART program:	<input type="checkbox"/> None <input type="checkbox"/> Primary school <input type="checkbox"/> Secondary school <input type="checkbox"/> Post-Secondary <input type="checkbox"/> University <input type="checkbox"/> Other, specify: _____ <input type="checkbox"/> Missing
8. Was patient pregnant at time of enrollment in ART program?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A (male) <input type="checkbox"/> Missing
9. Did patient start ART at a different clinic BEFORE transferring into this clinic?	<input type="checkbox"/> No (skip to question 12) <input type="checkbox"/> Yes, if yes: date of transfer in: ____ / ____ / ____ <input type="checkbox"/> Missing
10. If patient is a "transfer in", enter the dates of HIV ART initiation at previous facility (if available).	ART Initiation: DD / MM / YY <input type="checkbox"/> Missing
11. Name of the ART regimen initiated at previous facility?	____ / ____ / ____ <input type="checkbox"/> Missing

B. CLINICAL INFORMATION		
12. Date of first confirmed HIV Positive test:	DD / MM / YY <input type="checkbox"/> Missing	
14. Patient height/length:	_____ Meters <input type="checkbox"/> Missing	
15. Patient weight at start of ART:	_____ kg <input type="checkbox"/> Missing	
16. Date eligible for ART:	DD / MM / YY <input type="checkbox"/> Missing	
17. Date ART started:	DD / MM / YY (cannot be missing)	
18. Eligibility criteria for ART: (check all that apply)	<input type="checkbox"/> Clinically only <input type="checkbox"/> CD4+cell count <input type="checkbox"/> Missing <input type="checkbox"/> HIV-positive test <input type="checkbox"/> Other, specify _____	
19. CD4+ cell count/% at start of ART:	_____ cells/ μ L /% <i>Date of test:</i> DD / MM / YY <input type="checkbox"/> Missing	
20. Clinical stage at start of ART:	<input type="checkbox"/> Stage I <input type="checkbox"/> Stage II <input type="checkbox"/> Stage III <input type="checkbox"/> Stage IV <input type="checkbox"/> Missing	
21. TB status at start of ART:	<input type="checkbox"/> No TB <input type="checkbox"/> On INH prophylaxis <input type="checkbox"/> Presumed TB <input type="checkbox"/> Prior history of TB treatment <input type="checkbox"/> On TB treatment <input type="checkbox"/> Missing	
22. For patient on INH prophylaxis, was the patient on INH at last visit?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Missing	
23. Opportunistic infections during ART treatment and dates of diagnosis (dx): (check all that apply)	<input type="checkbox"/> Oral/oropharyngeal candidiasis <input type="checkbox"/> Chronic diarrhea <input type="checkbox"/> Tuberculosis (pulm/extrapulm)	<i>date of dx,</i> DD / MM / YY <i>date of dx,</i> DD / MM / YY <i>date of dx,</i> DD / MM / YY

	<input type="checkbox"/> PCP <input type="checkbox"/> Cryptococcosis <input type="checkbox"/> Kaposi sarcoma <input type="checkbox"/> Herpes zoster <input type="checkbox"/> Vaginal thrush <input type="checkbox"/> Herpes simplex <input type="checkbox"/> Other, specify: <input type="checkbox"/> No documented OIs	<i>date of dx, DD / MM / YY</i> <i>date of dx, DD / MM / YY</i> <i>date of dx, DD / MM / YY</i> <i>date of dx, DD / MM / YY</i> <i>date of dx, DD / MM / YY</i> <i>date of dx, DD / MM / YY</i> <i>date of dx, DD / MM / YY</i>
24. History of sexually-transmitted infections before ART initiation: (Only if adolescent) *10 – 19 years	<input type="checkbox"/> Gonorrhea <input type="checkbox"/> Chlamydia <input type="checkbox"/> Syphilis <input type="checkbox"/> Herpes <input type="checkbox"/> Other (s), specify _____ <input type="checkbox"/> No history of sexually transmitted infection	
25. History of other chronic illnesses e.g., diabetes, kidney disease, etc.:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Missing If yes, please specify: 1. _____ 2. _____ 3. _____	
26. Was patient on cotrimoxazole (CTX) at start of ART?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Missing	
27. Was patient on cotrimoxazole (CTX) at last visit?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Missing	
C. ART REGIMEN		
28. If a drug is changed in a regimen (substitution) or if the whole regimen is changed (switch), give date of the change, old and new regimens, and reason(s) for change. Use the below list to pick the reason (s) for change:		

1 = Toxicity 2 = Pregnancy 3 = Suspicion of pregnancy 4 = Active TB
 5 = New medicine available 6 = Break in supply of a drug 7 = Other, please specify

If documentation shows no regimen changes, tick here: ☐ NO REGIMEN CHANGES

Date of change	Old Regimen	New Regimen	Reason(s) for change	(Enter appropriate number)
DD / MM / YY				
DD / MM / YY				1a. d4t-3TC-NVP
DD / MM / YY				1b. d4t-3TC-EFV
DD / MM / YY				1c. TDF-3TC-NVP
DD / MM / YY				1d. TDF-3TC-EFV
DD / MM / YY				1e. TDF-FTC-NVP
DD / MM / YY				1f. TDF-FTC-EFV
DD / MM / YY				1g. AZT-3TC-NVP
DD / MM / YY				1h. AZT-3TC-EFV
DD / MM / YY				1j. AZT-FTC-NVP
DD / MM / YY				1k. AZT-FTC-EFV
DD / MM / YY				
DD / MM / YY				2a. ABC-ddI-SQV/r
DD / MM / YY				2b. TDF-ddI-IDV/r
DD / MM / YY				2c. TDF-3TC-LPV/r
DD / MM / YY				2d. TDF-3TC-IDV/r
DD / MM / YY				2e. TDF-3TC-SQV/r
DD / MM / YY				2f. TDF-FTC-LPV/r
DD / MM / YY				2g. TDF-FTC-IDV/r
DD / MM / YY				2h. TDF-FTC-SQV/r
DD / MM / YY				2i. TDF-3TC-ATV/r
DD / MM / YY				2j. TDF-FTC-ATV/r

DD/MM/YY				2k. AZT-TDF-3TC-LVP/r
DD/MM/YY				2l. AZT-TDF-3TC
DD/MM/YY				2m. AZT-FTC-TDF-LVP/r
DD/MM/YY				2n. AZT-3TC-ATV/r
DD/MM/YY				2o. AZT-FTC-ATV/r
DD/MM/YY				3a. Other, specify: / /
DD/MM/YY				_____
DD/MM/YY				

D. ART INTERRUPTIONS AND ADVERSE EVENTS

29. Any history of stopping ART use?	<input type="checkbox"/> <input type="checkbox"/> If yes, enter 1 st stop date: DD/MM/YY <input type="checkbox"/> <input type="checkbox"/> If yes, enter 1 st restart date: DD/MM/YY <input type="checkbox"/> <input type="checkbox"/> If stopped a 2 nd time, enter 2 nd stop date: DD/MM/YY <input type="checkbox"/> <input type="checkbox"/> If stopped a 2 nd time, enter 2 nd start date: DD/MM/YY <input type="checkbox"/> <input type="checkbox"/> If stopped a 3 rd time, enter 3 rd stop date: DD/MM/YY <input type="checkbox"/> <input type="checkbox"/> If stopped a 3 rd time, enter 3 rd start date: DD/MM/YY <input type="checkbox"/> <input type="checkbox"/> No – No history of stopping ART use
30. If patient stopped ART , what was the reason?	<input type="checkbox"/> Developed active TB DD/MM/YY <input type="checkbox"/> Drug toxicity/intolerance DD/MM/YY <input type="checkbox"/> IRIS DD/MM/YY <input type="checkbox"/> Other, _____ DD/MM/YY <input type="checkbox"/> Unknown
31. Any documented adverse events to ART that patient developed?	<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, check all that apply: <input type="checkbox"/> Severe rash <input type="checkbox"/> IRIS

	<input type="checkbox"/> Anemia <input type="checkbox"/> Hepatitis <input type="checkbox"/> Neuropathy <input type="checkbox"/> Renal Impairment <input type="checkbox"/> Other, specify: _____
--	--

E. FOLLOW UP STATUS

32. List the dates of **ALL** scheduled and actual clinic visits and enter weights, follow-up status for each prior visit.

For follow up status use the following codes: **1 = On treatment** **2 = Dead** **3 = Stopped ART**
4 = Lost to follow-up **5 = Transferred out** **6 = Restarted ART** **7 = Other, specify** _____
8 = Missing

Scheduled date	Actual Visit Date	Weight & Height		Follow-up status
DD / MM / YY	DD / MM / YY	___kg	<input type="checkbox"/> Missing	
		___cm	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	
DD / MM / YY	DD / MM / YY	___Kg	<input type="checkbox"/> Missing	

F. COUNSELLING & SUPPORT SERVICES

Did patient receive any of the following?

	<input type="checkbox"/> Yes, No. of times _____ <input type="checkbox"/> No <input type="checkbox"/> Missing
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33. Pre-ART counselling

34. Counseling at ART initiation	<input type="checkbox"/> Yes, No. of times ____ <input type="checkbox"/> No <input type="checkbox"/> Missing
35. Any adherence counseling during follow-up	<input type="checkbox"/> Yes, No. of times ____ <input type="checkbox"/> No <input type="checkbox"/> Missing
36. Does patient attend a support group?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Missing If yes, please specify: _____
37. Support services used by the patient since initiation of ART (<i>check all that apply</i>)	<input type="checkbox"/> Home-based care <input type="checkbox"/> Nutritional support <input type="checkbox"/> Community-based support groups <input type="checkbox"/> OVC <input type="checkbox"/> Psychosocial services <input type="checkbox"/> Other, please specify: _____ <input type="checkbox"/> Not using any support services <input type="checkbox"/> Missing
38. Does patient use condoms?	<input type="checkbox"/> Always condoms <input type="checkbox"/> Most of the time <input type="checkbox"/> Occasionally <input type="checkbox"/> Does not use <input type="checkbox"/> Not sexually active <input type="checkbox"/> Not assessed <input type="checkbox"/> Missing

G. PHARMACY REGISTER

39. List dates of **ALL** ARV collected, please record date refill given, ARV regimen (use ARV codes from question 28), and number of days for which ARV prescription is given (use the last page if more space is needed)

Date	Regimen	# days of prescription	Date	Regimen	# days of prescription
DD / MM / YY			DD / MM / YY		
DD / MM / YY			DD / MM / YY		
DD / MM / YY			DD / MM / YY		
DD / MM / YY			DD / MM / YY		
DD / MM / YY			DD / MM / YY		

DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		

H. LABORATORY RESULTS

40. Please record the test dates and values of **ALL** CD4 **cells/μL** counts, viral loads (VL) **copies/mL**, Hemoglobin (Hb) **g/dL** levels, alanine aminotransferase (ALT) **IU/L**, and Serum Creatinine (Cr) **mol/L** or **mg/dL** (indicate the unit), for this patient.

Visit #	CD4+ cell count (μL)	Date	VL(copies/mL)	Date	Hb (g/dL)	Date	ALT IU/L	Date	Cr (mol/L or mg/dL)	Date
1		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
2		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
3		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
4		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
5		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
6		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
7		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
8		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
9		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
10		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
11		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY
12		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY		DD/MM/YY

41. Hepatitis B status	<input type="checkbox"/> Antibody positive <input type="checkbox"/> Antigen positive <input type="checkbox"/> Negative <input type="checkbox"/> Unknown <input type="checkbox"/> Missing
	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Unknown <input type="checkbox"/> Missing Date of test: DD/MM/YY
42. Hepatitis C status	<input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Unknown <input type="checkbox"/> Missing Date of test: DD/MM/YY

43. Date of last clinic visit:	DD / MM / YY
44. Patient's outcome at the last visit?	<input type="checkbox"/> Died, <i>date of death:</i> DD / MM / YY <input type="checkbox"/> Alive, on ART <input type="checkbox"/> Transferred out, <i>date of transfer out:</i> DD / MM / YY <input type="checkbox"/> Stopped ART, <i>date of voluntarily stopping care:</i> DD / MM / YY <input type="checkbox"/> Lost to follow up
45. If patient died, what was the documented cause of death?	<div> <input type="checkbox"/> Pneumonia (not Pulmonary TB/PCP) <input type="checkbox"/> Cryptococcal meningitis </div> <div> <input type="checkbox"/> Acute diarrhoea <input type="checkbox"/> Chronic diarrhoea </div> <div> <input type="checkbox"/> Pulmonary TB <input type="checkbox"/> Extrapulmonary TB </div> <div> <input type="checkbox"/> Other, specify: _____ <input type="checkbox"/> Unknown <input type="checkbox"/> Missing </div>

[illegible]

DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	
DD/MM/YY	DD/MM/YY	___Kg	<input type="checkbox"/> Missing	

If additional space is needed for **question 39**, please use the space below

<i>Continuation from page 5, question 39</i>					
Date	Regimen	# days of prescription	Date	Regimen	# days of prescription
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		

DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		
DD/MM/YY			DD/MM/YY		

If additional space is needed for **question 40**, please use the space below

Visit #	CD4+ cell count (/µL)	Date	VL (copies/mL)	Date
13		DD/MM/YY		DD/MM/YY
14		DD/MM/YY		DD/MM/YY
15		DD/MM/YY		DD/MM/YY
16		DD/MM/YY		DD/MM/YY
17		DD/MM/YY		DD/MM/YY
18		DD/MM/YY		DD/MM/YY
19		DD/MM/YY		DD/MM/YY
20		DD/MM/YY		DD/MM/YY
21		DD/MM/YY		DD/MM/YY
22		DD/MM/YY		DD/MM/YY
23		DD/MM/YY		DD/MM/YY
24		DD/MM/YY		DD/MM/YY
25		DD/MM/YY		DD/MM/YY
26		DD/MM/YY		DD/MM/YY
27		DD/MM/YY		DD/MM/YY
28		DD/MM/YY		DD/MM/YY
29		DD/MM/YY		DD/MM/YY
30		DD/MM/YY		DD/MM/YY

31		DD/MM/YY		DD/MM/YY
32		DD/MM/YY		DD/MM/YY
33		DD/MM/YY		DD/MM/YY
34		DD/MM/YY		DD/MM/YY
35		DD/MM/YY		DD/MM/YY
36		DD/MM/YY		DD/MM/YY
37		DD/MM/YY		DD/MM/YY
38		DD/MM/YY		DD/MM/YY
39		DD/MM/YY		DD/MM/YY
40		DD/MM/YY		DD/MM/YY
41		DD/MM/YY		DD/MM/YY
42		DD/MM/YY		DD/MM/YY
43		DD/MM/YY		DD/MM/YY
44		DD/MM/YY		DD/MM/YY
45		DD/MM/YY		DD/MM/YY
46		DD/MM/YY		DD/MM/YY
47		DD/MM/YY		DD/MM/YY
48		DD/MM/YY		DD/MM/YY
49		DD/MM/YY		DD/MM/YY
50		DD/MM/YY		DD/MM/YY
51		DD/MM/YY		DD/MM/YY
52		DD/MM/YY		DD/MM/YY
53		DD/MM/YY		DD/MM/YY
54		DD/MM/YY		DD/MM/YY
55		DD/MM/YY		DD/MM/YY

Appendix 2: Children and Adolescent Outcome Study Sample Frame: all PEPFAR sites with children and adolescent TX_CURR, as of end of June 2017

State	LGA	Site	TX_CURR <1	TX_CURR 1:9	TX_CURR 10:14	TX_CURR 15:19	Total
Benue	be Makurdi	Federal Medical Center - Makurdi	0	204	272	173	649
Lagos	la Lagos Island	Massey Street Children's Hospital	2	276	250	102	630
Benue	be Gboko	Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Mkar	0	285	208	121	614
Borno	bo Jere	University of Maiduguri Teaching Hospital	12	85	82	355	534
Plateau	pl Jos North	Jos University Teaching Hospital	0	130	231	167	528
Kano	kn Tarauni	Aminu Kano Teaching Hospital - Kano	0	160	171	171	502
Lagos	la Mushin	Lagos University Teaching Hospital (LUTH)	2	181	190	122	495
Lagos	la Lagos Mainland	Nigerian Institute of Medical Research (NIMR)	1	182	190	111	484
Oyo	oy Ibadan North	University College Hospital	2	163	185	130	480
Benue	be Ukum	St. Anthony's Hospital - Zaki Biam	0	272	120	80	472
Adamawa	ad Yola North	Yola Specialist Hospital	6	251	103	107	467
Benue	be Vandeikya	Vandeikya General Hospital	1	208	144	86	439
Lagos	la Ikeja	Lagos State University Teaching Hospital	1	182	145	81	409
Nasarawa	na Lafia	Dalhau Araf Specialist Hospital	1	181	128	89	399
FCT	fc Gwagwalada	University Of Abuja Teaching Hospital - Gwagwalda	0	133	164	100	397
Benue	be Gwer East	St. Vincents Hospital	0	205	118	57	380
Benue	be Tarka	Wannune General Hospital	0	236	87	53	376
Adamawa	ad Mubi South	Mubi General Hospital	1	188	75	109	373
Benue	be Ukum	Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital- Zaki Biam	0	231	75	62	368
Benue	be Ukum	Sankera General Hospital	0	215	78	75	368
Benue	be Makurdi	Bishop Murray Medical Center	0	187	120	51	358
Benue	be Kwande	Adikpo General Hospital	0	212	92	51	355
Benue	be Kwande	St. Monica's Hospital - Adikpo	0	171	109	72	352
Benue	be Vandeikya	St. Thomas Hospital - Ihugh	0	175	121	56	352
Edo	ed Egor	University of Benin Teaching Hospital (UBTH)	1	98	147	99	345
Anambra	an Nnewi North	Nnamdi Azikiwe University Teaching Hospital	0	84	146	102	332
Rivers	ri Obio-Akpor	University of Port Harcourt Teaching Hospital	1	158	101	64	324
Niger	ni Chanchaga	GEN.HOSPITAL Chanchaga	1	155	100	64	320
Kano	kn Kano Municipal	Hasiya Bayero Paediatric Hospital	1	169	112	34	316

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Adamawa	ad Yola South	Yola Federal Medical Centre	2	116	128	67	313
Kaduna	kd Giwa	Ahmadu Bello University Teaching Hospital - Shika	0	87	109	94	290
Benue	be Makurdi	Northbank General Hospital	0	157	76	52	285
Lagos	la Badagry	Badagry General Hospital	4	127	98	44	273
Cross River	cr Calabar Municipal	Calabar General Hospital	0	143	61	63	267
Gombe	go Gombe	Gombe State Specialist Hospital	0	132	71	64	267
Kaduna	kd Kaduna South	Gwamna Awan General Hospital	1	135	87	43	266
Benue	be Logo	Ugba General Hospital	2	157	70	36	265
Plateau	pl Jos North	Faith Alive Foundation	0	81	98	76	255
Bauchi	ba Bauchi	Abubakar Tafawa Balewa University Teaching Hospital	0	103	89	55	247
Kano	kn Kano Municipal	Murtala Mohammed Specialist Hospital	1	101	90	53	245
Kaduna	kd Kaduna South	Yusuf Dantsoho Memorial Hospital	4	118	79	43	244
Gombe	go Gombe	Federal Medical Center - Gombe	0	69	95	74	238
Kaduna	kd Kaduna North	Barau Dikko Specialist Hospital	3	57	116	56	232
Lagos	la Ajeromi-Ifelodun	Ajeromi General Hospital	3	140	50	38	231
Plateau	pl Jos North	Plateau State Specialist Hospital	0	88	84	58	230
Akwa Ibom	ak Oron	Oron General Hospital (Iquita)	4	114	46	64	228
Enugu	en Nkanu West	University Of Nigeria Teaching Hospital (UNTH)	0	90	81	57	228
Kaduna	kd Jema'a	Kafanchan General Hospital	0	107	85	33	225
Kaduna	kd Kaduna South	St. Gerald's Hospital - Kaduna	0	60	102	61	223
FCT	fc Abuja Municipal Area Council	Asokoro District Hospital	0	104	60	50	214
Benue	be Otukpo	Oturkpo General Hospital	0	85	66	57	208
Delta	de Ika South	Agbor Central Hospital	2	100	71	33	206
Benue	be Gboko	Gboko East Comprehensive Health Center	1	124	31	44	200
Yobe	yo Potiskum	Potiskum General Hospital	0	99	39	62	200
Rivers	ri Ahoada East	Ahoada General Hospital	0	123	46	28	197
Akwa Ibom	ak Uyo	University Teaching Hospital	4	106	64	22	196
Benue	be Logo	Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Anyiin	0	63	86	46	195
Nasarawa	na Akwanga	Our Lady of Apostles Hospital - Akwanga	1	90	75	29	195
Enugu	en Igbo Eze North	Enugu-Ezike District Hospital	0	100	51	38	189
Nasarawa	na Keffi	Federal Medical Center - Keffi	0	61	54	69	184

Akwa Ibom	ak Ikot Ekpene	Ikot Ekpene General Hospital	0	86	53	44	183
Edo	ed Etsako West	Auchi Central Hospital	0	108	48	26	182
FCT	fc Abuja Municipal Area Council	National Hospital - Abuja	0	28	58	96	182
Imo	im Owerri Municipal	Federal Medical Center - Owerri	0	79	58	42	179
Nasarawa	na Karu	Mararaba Guruku Medical Center	0	91	54	33	178
Oyo	oy Ibadan North	Adeoyo Maternity Hospital	1	105	55	16	177
Cross River	cr Ogoja	Ogoja General Hospital	0	81	59	33	173
Benue	be Ukum	Woma Clinic and Maternity	0	112	23	35	170
FCT	fc Bwari	Daughters of Charity (DOC) Hospital - Kubwa	1	96	43	30	170
Niger	ni Suleja	GENERAL HOSP SULEJA	0	88	57	25	170
Plateau	pl Jos North	Bingham University Teaching Hospital	0	27	81	61	169
Kogi	ko Dekina	Grimmard Hospital - Anyingba	1	81	48	38	168
Osun	os Ife Central	Obafemi Awolowo University Teaching Hospital Complex	1	73	56	37	167
Bauchi	ba Bauchi	Bayara Infectious Diseases Hospital	0	82	52	32	166
Kaduna	kd Sanga	Gwantu General Hospital	3	106	35	21	165
Anambra	an Ihiala	Our Lady of Lourdes Hospital	0	72	54	38	164
Benue	be Buruku	General Hospital Buruku	0	98	38	27	163
FCT	fc Abuja Municipal Area Council	Maitama General Hospital	0	50	73	36	159
Anambra	an Onitsha North	St Charles Borromeo Hospital	0	58	49	48	155
Plateau	pl Shendam	Shendam General Hospital	0	84	32	38	154
Gombe	go Kaltungo	Kaltungo General Hospital	0	63	51	37	151
Cross River	cr Ogoja	Ogoja Catholic Maternity Hospital	1	56	67	26	150
Edo	ed Esan Central	Irrua Specialist Hospital	1	74	48	27	150
Ogun	og Abeokuta South	Federal Medical Center - Abeokuta	1	82	45	22	150
Ondo	on Owo	Federal Medical Center - Owo	0	69	63	18	150
Benue	be Gwer East	Aliade General Hospital	0	95	33	21	149
Cross River	cr Calabar Municipal	University of Calabar Teaching Hospital	2	83	38	26	149
Nasarawa	na Nasarawa	Main Town Nasarawa Primary Health Care	0	84	30	34	148
Katsina	kt Katsina	Katsina General Hospital	0	66	51	30	147

Kogi	ko Ankpa	Ankpa General Hospital	0	59	44	40	143
Benue	be Okpokwu	St. Mary's Hospital - Okpoga	0	60	46	34	140
Bauchi	ba Katagum	Azare Federal Medical Centre	2	54	43	40	139
Benue	be Gboko	Sev-Av Foundation - Gboko	4	72	41	21	138
Kaduna	kd Zaria	Hajiya Gambo Sawaba Hospital	1	73	38	25	137
Lagos	la Alimosho	Alimosho General Hospital	2	70	30	35	137
Kogi	ko Lokoja	Lokoja Federal Medical Center	1	56	51	27	135
Bayelsa	by Yenagoa	Yenagoa Federal Medical Centre	0	83	27	22	132
Nasarawa	na Akwanga	Akwanga General Hospital	2	64	42	24	132
Adamawa	ad Yola North	St. Francis Hospital	0	95	29	7	131
Kaduna	kd Chikun	Sabon Tasha General Hospital	0	68	32	30	130
Anambra	an Awka South	Anambra State University Teaching Hospital	0	52	39	38	129
Kogi	ko Ofu	Holley Memorial - Ochadamu	0	58	35	36	129
Sokoto	so Wamako	Usman DanFodio University Teaching Hosp	0	44	48	37	129
Delta	de Oshimili South	Federal Medical Center - Asaba	3	46	48	31	128
Benue	be Gwer West	General Hospital Naka	1	79	22	24	126
Enugu	en Enugu East	Annunciation Specialist Hospital- Emene	2	44	46	33	125
Nasarawa	na Nasarawa Eggon	Nasarawa Eggon General Hospital	0	72	37	16	125
Benue	be Vandeikya	Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Mbaakon	0	66	30	26	122
Ebonyi	eb Abakaliki	Federal Teaching Hospital (FETHA) - Abakaliki	1	56	37	28	122
Ebonyi	eb Ebonyi	St. Patrick Mile 4 Hospital - Abakaliki	1	52	35	32	120
Kwara	kw Ilorin East	UITH	1	58	37	23	119
Nasarawa	na Doma	Doma General Hospital	1	66	32	18	117
Katsina	kt Funtua	Funtua General Hospital	0	31	31	54	116
Ogun	og Ijebu Ode	State Hospital - Ijebu Ode	0	64	31	20	115
Enugu	en Enugu North	Enugu State University Teaching Hospital (Parklane Specialist Hospital)	0	54	31	29	114
Niger	ni Tafa	SABON WUSE GEN. HOSP	0	64	25	25	114
Benue	be Kwande	Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Jato Aka	0	57	31	25	113
Cross River	cr Calabar South	Dr Lawrence Henshaw Memorial Hospital	0	34	29	50	113
Adamawa	ad Song	Song Cottage Hospital	2	55	23	30	110
Benue	be Logo	Ugba Comprehensive Health Center	0	58	21	30	109

Adamawa	ad Gombi	Garkida General Hospital	0	50	20	38	108
Kaduna	kd Kaduna North	Kawo General Hospital	0	58	26	23	107
Benue	be Buruku	Mbagen Community Hospital - Abwa	0	61	30	15	106
Cross River	cr Ikom	Holy Family Catholic Hospital	0	60	28	18	106
Rivers	ri Port-Harcourt	Churchill Model Primary Health Centre	0	52	10	44	106
Rivers	ri Khana	Pope John Paul Clinic	1	78	22	5	106
Niger	ni Bida	FMC BIDA	2	34	38	31	105
Borno	bo Maiduguri	Maiduguri State Specialist Hospital	3	60	20	18	101
Kogi	ko Idah	Idah General Hospital	0	48	24	29	101
Kogi	ko Dekina	Kogi Diagnosis Referral Hospital	1	63	20	17	101
Akwa Ibom	ak Uruan	Ituk Mbang Methodist General Hospital	3	49	10	38	100
Benue	be Vandeikya	Sev-Av Foundation - Vandeikya	0	58	31	11	100
Gombe	go Billiri	Billiri General Hospital	0	52	22	24	98
Nasarawa	na Kokona	Garaku General Hospital	0	62	12	24	98
Ondo	on Ondo West	State Specialist Hospital - Ondo	0	60	23	15	98
Plateau	pl Mangu	Church of Christ in Nigeria (COCIN) Hospital and Rehabilitation Center	0	38	41	19	98
Benue	be Katsina-Ala	Tordonga Primary Health Center	0	52	25	20	97
Edo	ed Oredo	Faith Mediplex	0	47	30	20	97
Kogi	ko Okene	Okene General Hospital	1	50	26	20	97
Borno	bo Biu	Biu General Hospital	0	38	31	27	96
Cross River	cr Obudu	Sacred Heart Catholic Hospital	0	63	14	19	96
Edo	ed Esan North-East	Uromi Central Hospital	0	40	41	15	96
Lagos	la Ifako-Ijaiye	Ifako Ijaiye General Hospital	1	58	20	16	95
Benue	be Gwer East	St. Gregory Health Center	1	49	19	25	94
Ekiti	ek Ado-Ekiti	Ekiti State University Teaching Hospital, Ado-Ekiti	0	55	26	11	92
Ogun	og Sagamu	Olabisi Onabanjo University Teaching Hospital	0	56	20	16	92
Jigawa	jg Hadejia	Hadejia General Hospital	0	52	16	23	91
Kaduna	kd Zango-Kataf	St. Louis Hospital - Zonkwa	2	44	28	17	91
Enugu	en Enugu North	Mother of Christ Specialist Hospital	2	37	33	18	90
Ogun	og Abeokuta South	Sacred Heart Catholic Hospital, Abeokuta	0	55	25	10	90
Enugu	en Udi	Udi District Hospital	0	41	32	16	89
Ondo	on Akure South	State Specialist Hospital - Akure	0	55	23	11	89

Gombe	go Yamaltu-Deba	Infectious Disease Hospital - Zambuk	0	36	30	22	88
Niger	ni Shiroro	RURAL HOSP	0	47	27	14	88
Bauchi	ba Bauchi	Urban Maternity	0	39	24	23	86
Adamawa	ad Michika	Michika General Hospital	0	33	28	23	84
Imo	im Oru East	Awo Omamma General Hospital	0	48	20	16	84
Rivers	ri Obio-Akpor	Rumuokrushie Model Primary Health Centre	4	50	9	21	84
Sokoto	so Sokoto South	Specialist Hospital- Sokoto	0	39	17	28	84
Zamfara	za Gusau	Gusau FMC	0	42	17	25	84
Benue	be Logo	Anyiin Primary Health Center	0	55	11	16	82
Adamawa	ad Hong	Hong Cottage Hospital	1	37	12	31	81
Akwa Ibom	ak Uyo	Uyo Base Primary Health Centre	1	49	5	26	81
Akwa Ibom	ak Oron	Operational Base Primary Health Centre	1	47	3	29	80
Benue	be Konshisha	Korinya Primary Health Center	2	41	23	14	80
Benue	be Gwer West	Fr. Mathias Clinic	0	42	13	24	79
Kano	kn Tarauni	Al Noury Specialist Hospital	0	20	36	23	79
Anambra	an Anaocha	Adazi St Joseph Hospital	0	31	26	21	78
Delta	de Warri North	Assumption Catholic Hospital - Warri	3	43	18	14	78
Oyo	oy Ogbomosho South	Ogbomosho State Hospital	0	35	21	21	77
Niger	ni Lapai	RURAL HOSPITAL LAPAI	0	36	22	18	76
Akwa Ibom	ak Mbo	Enwang Primary Health Centre	0	26	9	40	75
Nasarawa	na Wamba	Wamba General Hospital	0	47	14	14	75
Cross River	cr Yakuur	Ugep General Hospital	0	33	26	15	74
Lagos	la Ojo	Ojo Primary Health Centre	1	43	17	13	74
Benue	be Ushongo	Nongu u Kristu ke Sudan hen Tiv (NKST) Health Center - Gbe	0	42	11	20	73
FCT	fc Abuja Municipal Area Council	Karshi General Hospital	0	43	18	12	73
Imo	im Aboh Mbaise	Aboh Mbaise General Hospital	0	43	17	13	73
Akwa Ibom	ak Okobo	Okobo General Hospital	0	40	10	21	71
Benue	be Buruku	Nongu u Kristu ke Sudan hen Tiv (NKST) Comprehensive Health Center - Garagbohol	0	28	15	28	71
Benue	be Gboko	Three Brothers Transport Hospital - Gboko	0	48	11	12	71

Kaduna	kd Jaba	Kwoi General Hospital	3	26	26	16	71
Katsina	kt Katsina	Federal Medical Center - Katsina	1	18	31	21	71
Oyo	oy Ibadan South-East	St. Mary's Catholic Hospital - Eleta	0	51	15	5	71
Kaduna	kd Lere	Saminaka General Hospital	1	26	18	25	70
Lagos	la Agege	Sango Primary Health Centre	1	53	8	8	70
Ebonyi	eb Afikpo North	Mater Misericordiae Hospital - Afikpo	0	37	21	11	69
Benue	be Gboko	Atuna Clinic and Maternity	0	36	14	17	67
FCT	fc Abuja Municipal Area Council	Gwarimpa General Hospital	0	40	16	11	67
Delta	de Ethiope East	St. Francis Catholic Hospital - Okpara Inland	2	36	15	13	66
Imo	im Owerri North	Holy Rosary Hospital - Emekuku	0	35	20	11	66
Imo	im Orlu	Imo State University Teaching Hospital	0	26	23	17	66
Kogi	ko Kabba Bunu	Kabba General Hospital	0	33	16	17	66
Benue	be Katsina-Ala	World Health System Sai	0	37	14	14	65
Kwara	kw Offa	Specialist Hospital	0	40	18	7	65
Delta	de Ughelli North	Ughelli Central Hospital	1	40	12	11	64
FCT	fc Abuja Municipal Area Council	Garki Hospital Abuja	0	16	32	16	64
Kebbi	ke Birnin Kebbi	Sir Yahaya Mem. Hospital	0	22	17	25	64
Kwara	kw Ilorin South	Sobi Specialist Hospital	0	43	15	6	64
Niger	ni Gurara	MCH GAWU	0	35	17	12	64
Plateau	pl Jos North	Our Lady of Apostle (OLA) Hospital - Jos	1	22	22	19	64
Jigawa	jg Jahun	Jahun General Hospital	0	25	9	29	63
Kogi	ko Omala	Abejukolo General Hospital	0	19	25	19	63
Kwara	kw Ilorin South	Children Specialist Hospital C Igboro	0	44	14	5	63
Rivers	ri Gokana	Terrebor General Hospital	0	39	13	11	63
Niger	ni Bida	GEN.HOSP BIDA	2	14	31	15	62
Rivers	ri Eleme	Agbonchia Model Primary Health Centre	0	44	6	12	62
Akwa Ibom	ak Etim Ekpo	Etim Ekpo General Hospital	1	34	15	11	61
Enugu	en Awgu	Awgu District Hospital	0	35	18	8	61
Plateau	pl Mangu	CCDP Hospital - Panyam	0	32	18	9	59
Rivers	ri Obio-Akpor	Obio-Akpor KP One Stop Shop				59	59
Anambra	an Onitsha North	Holy Rosary Hospital (Onitsha North LGA)	0	28	21	9	58
Benue	be Katsina-Ala	Gbor Comprehensive Health Center	0	28	14	16	58
Benue	be Konshisha	Nyam Ugbeh Clinic	0	23	20	15	58

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FCT	fc Abuja Municipal Area Council	Sisters of Nativity Hospital (SON) - Jikwoyi	0	39	15	4	58
Kaduna	kd Kachia	Kachia General Hospital	0	16	21	21	58
Ekiti	ek Ido-Osi	Federal Medical Center, Ido-Ekiti	0	27	16	14	57
Adamawa	ad Mayo-Belwa	Mayo Belwa Cottage Hospital	1	26	8	21	56
Benue	be Logo	Iorza Primary Health Center	0	34	5	17	56
Plateau	pl Barkin Ladi	Barkin Ladi General Hospital	0	25	19	12	56
Akwa Ibom	ak Ikot Ekpene	Ikot Ekpene Primary Health Centre	0	18	16	21	55
Akwa Ibom	ak Essien Udim	Ukana Iba St Joseph's rehabilitation Center	0	37	10	8	55
Gombe	go Funakaye	Bajoga General Hospital	1	15	7	32	55
Lagos	la Surulere	Randle General Hospital	4	21	14	16	55
Akwa Ibom	ak Etinan	Etinan General Hospital	1	38	7	8	54
Bauchi	ba Toro	Toro General Hospital	0	26	13	15	54
Plateau	pl Jos South	Vom Christian Hospital	0	32	11	11	54
Plateau	pl Qua'an Pan	St. Virgillus Catholic Rural Health Center	0	29	12	12	53
FCT	fc Bwari	Bwari General Hospital	1	20	17	14	52
Kogi	ko Olamaboro	Okpo General Hospital	0	31	10	11	52
Lagos	la Apapa	Apapa General Hospital	2	24	13	13	52
Ebonyi	eb Ezza South	Onueke General Hospital	1	30	11	9	51
Osun	os Osogbo	Ladoke Akintola Teaching Hospital - Oshogbo	0	24	17	10	51
Adamawa	ad Fufore	Fufore Cottage Hospital	0	16	11	23	50
Jigawa	jg Dutse	Dutse General Hospital	0	22	12	16	50
Kaduna	kd Birnin Gwari	Jibrin Maigwari General Hospital	1	17	13	19	50
Benue	be Logo	Igboughol Local Government Health Clinic	0	18	9	22	49
Benue	be Tarka	Nongu u Kristu ke Sudan hen Tiv (NKST) Clinic - Wannune	0	24	6	19	49
Enugu	en Enugu North	Asata Poly Clinic (Sub District Hospital)	0	28	10	11	49
Kaduna	kd Makarfi	Makarfi General Hospital	0	22	9	18	49
Plateau	pl Kanam	Dengi General Hospital	0	25	11	13	49
FCT	fc Bwari	Excellence and Friends Management Consult (EFMC) Care Center (Modern Health Hospital)	0	34	8	6	48
FCT	fc Abuja Municipal Area Council	Nyanya General Hospital	0	21	15	12	48
Kogi	ko Dekina	Dekina General Hospital	0	18	20	10	48

Lagos	la Agege	Orile Agege General Hospital	1	26	8	13	48
Niger	ni Borgu	GEN.HOSP. Bussa-New	0	19	13	16	48
Benue	be Gboko	Myom Hospital - Gboko	0	27	11	9	47
Enugu	en Nsukka	Nsukka District Hospital	0	26	15	6	47
Niger	ni Mokwa	G. HOSP MOKWA	0	30	9	8	47
Niger	ni Chanchaga	IBB SPECIALIZES HOSP	0	24	12	11	47
Plateau	pl Pankshin	Pankshin General Hospital	0	23	8	16	47
Akwa Ibom	ak Uruan	Idu-Uruan Primary Health Centre	0	21	6	18	45
Bayelsa	by Yenagoa	Niger Delta University Teaching Hospital	0	26	13	6	45
Benue	be Logo	Abeda Primary Health Center	0	16	7	22	45
Jigawa	jg Kazaure	jKazaure General Hospital	10	16	9	9	44
Anambr a	an Idemili North	Immaculate Heart Hospital (Nkpor)	1	21	8	13	43
Benue	be Makurdi	Makurdi Family Support Program Clinic	2	31	3	7	43
Delta	de Ethiope East	Erhoike Cottage Hospital	0	29	10	4	43
Jigawa	jg Birnin Kudu	Birnin-Kudu Federal Medical Centre	0	21	8	14	43
Kaduna	kd Zango-Kataf	Zango-Kataf General Hospital	0	18	17	8	43
Anambr a	an Aguata	Ekwulobia General Hospital	0	20	11	11	42
Benue	be Logo	Uzer Local Government Health Center	0	24	9	9	42
Niger	ni Rafi	GENERAL HOSP- KAGARA	0	20	7	15	42
Benue	be Ukum	Afia Comprehensive Health Center	0	23	4	13	40
Benue	be Logo	Dooshima Primary Health Centre	0	25	4	11	40
Benue	be Konshisha	Nongu u Kristu ke Sudan hen Tiv (NKST) Clinic - Ishua	0	21	9	10	40
Enugu	en Oji River	Oji River Sub District General Hospital	0	20	8	12	40
Benue	be Kwande	Avaa Gbande Memorial Clinic and Maternity	0	17	7	15	39
Kogi	ko Ajaokuta	Ajaokuta Steel Medical Clinic	0	28	6	5	39
Kwara	kw Ilorin South	Civil Services Hospitals	0	27	7	5	39
Akwa Ibom	ak Ibiono Ibom	Ibiono Handmaids Hospital	0	23	6	9	38
Benue	be Makurdi	Benue State University Teaching Hospital	0	16	8	14	38
Ebonyi	eb Ohaukwu	Ezzangbo General Hospital	0	22	5	11	38
Gombe	go Funakaye	Ashaka Cement Clinic	1	18	6	13	38
Lagos	la Ikeja	Ojodu Primary Health Care	0	27	8	3	38
Nasaraw a	na Keffi	Keffi General Hospital	0	27	5	6	38

Benue	be Buruku	Anvambe Primary Health Center	1	15	13	8	37
Benue	be Konshisha	Jirgba Primary Health Center	1	24	6	6	37
Benue	be Otukpo	St. Joseph's Hospital-Ogobia	0	15	14	8	37
Gombe	go Akko	Kashere General Hospital	0	22	4	11	37
Kano	kn Fagge	Kano Infectious Diseases Hospital	0	0	0	37	37
Kano	kn Ungogo	Waziri Shehu Gidado Hospital	0	18	8	11	37
Lagos	la Alimosho	Aregbesola Primary Health Center	1	27	4	5	37
Lagos	la Mushin	Mushin General Hospital	0	23	6	8	37
Ondo	on Akoko South West	St. Catherine's Hospital - Iwaro-Oka	0	15	13	9	37
Akwa Ibom	ak Eket	Ikot Ebak Poly Clinic	0	32	2	2	36
Benue	be Otukpo	St. Charles' Hospital	0	19	10	7	36
Benue	be Ushongo	Waapera Comprehensive Health Center	0	18	7	11	36
Kaduna	kd Kubau	Pambegua General Hospital	1	14	8	13	36
Kogi	ko Kabba Bunu	St John's Hospital Kabba	0	15	17	4	36
Kwara	kw Irepodun	Gen. Hosp. Omu-Aran	0	17	12	7	36
Nasarawa	na Lafia	Shabu Model Comprehensive Center	0	0	0	36	36
Niger	ni Wushishi	CHC ZUNGERU	0	18	9	9	36
Benue	be Katsina-Ala	Mbatyula Local Government Health Centre	0	20	6	9	35
Edo	ed Esan North-East	St. Camillus Hospital	1	4	21	9	35
Edo	ed Oredo	Stella Obasanjo Women and Children Hospital	0	26	4	5	35
Nasarawa	na Obi	Obi Primary Health Care Center - Agyragu	1	16	5	13	35
Rivers	ri Port-Harcourt	Braithwaite Memorial Specialist Hospital	0	9	2	24	35
Benue	be Logo	Wende Primary Health Center	1	18	3	12	34
Jigawa	jg Ringim	Ringim General Hospital	1	17	11	5	34
Niger	ni Rijau	GENERAL HOSPITAL T MAGAJIYA	0	21	6	7	34
Rivers	ri Ogba-Egbema-Ndoni	Omoku General Hospital	0	17	13	4	34
Benue	be Konshisha	Tse-Agbaragba Primary Health Center	0	17	8	8	33
Cross River	cr Calabar Municipal	SFH Calabar Municipal One Stop Shop				33	33
Imo	im Okigwe	Okigwe General Hospital	0	20	5	8	33
Imo	im Nwangele	St. Mary Joint Hospital - Amaigbo	0	19	7	7	33
Kogi	ko Kogi	Koton-Karfe General Hospital	1	22	9	1	33
Lagos	la Mushin	SFH Mushin One Stop Shop				33	33
Osun	os Iwo	State Hospital - Iwo	0	18	10	5	33

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Plateau	pl Langtang North	Zamko Comprehensive Health Center	1	13	6	13	33
Akwa Ibom	ak Uyo	Society for Family Health One Stop Shop, Uyo				32	32
FCT	fc Bwari	Our Lady of Fatima Hospital - Bwari	3	11	14	4	32
Gombe	go Balanga	Bam Bam Cottage Hospital	0	23	6	3	32
Gombe	go Dukku	Dukku General Hospital	0	22	2	8	32
Gombe	go Shongom	Filiya Primary Health Center	0	24	5	3	32
Imo	im Obowo	Our Lady of Mercy - Obowo	0	16	5	11	32
Kebbi	ke Koko Besse	G.Hosp.	0	10	4	18	32
Yobe	yo Nguru	Nguru Federal Medical Centre	0	9	7	16	32
Akwa Ibom	ak Ikot Ekpene	Ikot Ekpene Infectious Disease Hospital	0	14	6	11	31
Benue	be Ukum	Jordan Clinic and Maternity	0	23	2	6	31
Benue	be Konshisha	Mimi Clinic and Maternity	0	20	7	4	31
Benue	be Okpokwu	Okopga General Hospital	0	14	6	11	31
Benue	be Otukpo	Otukpo Comprehensive Health Center	0	21	5	5	31
Enugu	en Udenu	Daughters of Divine Love - Ehalumona	0	13	10	8	31
Kebbi	ke Yauri	G. Hosp.	1	15	4	11	31
Kogi	ko Lokoja	Kogi State Specialist Hospital	0	11	10	10	31
Ondo	on Odigbo	Ore General Hospital	0	20	4	7	31
Akwa Ibom	ak Etinan	Ekpene Obom QIC Rehabilitation Hosp	0	13	5	12	30
Benue	be Konshisha	Agbeede Primary Health Center	0	14	8	8	30
Benue	be Katsina-Ala	Nongu u Kristu ke Sudan hen Tiv (NKST) Primary Health Center - Kasar	0	16	4	10	30
Benue	be Katsina-Ala	Tarvachan Comprehensive Health Center	1	15	3	11	30
FCT	fc Abuja Municipal Area Council	Custom Staff Clinic	0	17	9	4	30
Nasarawa	na Karu	Uke General Hospital	0	14	5	11	30
Plateau	pl Mangu	Mangu General Hospital	0	21	5	4	30
Benue	be Ukum	Kyado Primary Health Center	0	10	2	17	29
Benue	be Konshisha	Mimidoo Clinic and Maternity - Gungul	0	13	7	9	29
Benue	be Katsina-Ala	Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Sai	0	12	8	9	29
Enugu	en Nsukka	Faith Foundation Mission Hospital - Nsukka	0	20	3	6	29
Katsina	kt Kankia	Kankia General Hospital	0	13	7	9	29
Lagos	la Lagos Island	Onikan Health Centre	0	18	6	5	29
Nasarawa	na Nasarawa	Mararaba Odege Primary Health Care Center	1	17	5	6	29

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Oyo	oy Iseyin	Iseyin General Hospital	8	0	21	0	29
Plateau	pl Bassa	Seventh Day Adventist (SDA) Hospital - Jengre	0	13	8	8	29
Akwa Ibom	ak Ibiono Ibom	Ibiono Palmer Memorial Hospital	0	22	2	4	28
Akwa Ibom	ak Ibesikpo Asutan	Nung Udoe Primary Health Centre	2	10	6	10	28
Benue	be Ushongo	Oostr-Gum Clinic and Maternity	0	21	4	3	28
Benue	be Ushongo	Ushongo Comprehensive Health Center	2	23	0	3	28
Cross River	cr Calabar Municipal	Calabar Municipal KP One Stop Shop				28	28
FCT	fc Bwari	Kubwa General Hospital	0	18	3	7	28
FCT	fc Bwari	St. Andrews Anglican Hospital - Kubwa	0	18	5	5	28
Ogun	og Yewa South	Specialist Hospital - Ilaro	1	0	27	0	28
Akwa Ibom	ak Abak	Mercy Hospital	0	14	1	12	27
Benue	be Konshisha	Akputu Primary Health Center	0	15	6	6	27
Cross River	cr Yala	Yala Lutheran Hospital	0	13	10	4	27
Delta	de Isoko South	Oleh Central Hospital	1	18	4	4	27
Kaduna	kd Kagarko	Kagarko General Hospital	0	16	3	8	27
Kaduna	kd Kaura	Kaura Rural Hospital	1	11	6	9	27
Kebbi	ke Birnin Kebbi	Federal Medical Centre	0	9	6	12	27
Lagos	la Ifako-Ijaiye	Ifako Primary Health Center	0	22	3	2	27
Nasaraw a	na Karu	Masaka Primary Health Care	4	9	6	8	27
Rivers	ri Bonny	Bonny General Hospital	0	13	10	4	27
Rivers	ri Obio-Akpor	Obio Cottage Hospital	1	20	1	5	27
Anambr a	an Idemili North	Obosi St Martin's Hospital	0	14	6	6	26
Benue	be Ushongo	Atekombo Comprehensive Health Center	0	20	3	3	26
Benue	be Gwer West	European Economic Community Health Clinic	0	11	6	9	26
Benue	be Ogbadibo	Ijadoga Otukpa General Hospital	0	14	7	5	26
Benue	be Logo	Ikyo Primary Health Center	3	20	2	1	26
Benue	be Gboko	Kator Clinic	0	14	5	7	26
Benue	be Gboko	Lord Is Saviour Clinic and Maternity	0	15	7	4	26
Benue	be Katsina-Ala	Numbeve Primary Health Centre	0	10	6	10	26
Benue	be Gboko	Royal Hospital	1	14	4	7	26

Cross River	cr Akpabuyo	Akpabuyo KP One Stop Shop_ Virtual				26	26
Delta	de Oshimili South	Okwe General Hospital	0	14	7	5	26
FCT	fc Abaji	Abaji General Hospital	0	12	6	8	26
Kano	kn Fagge	Sheikh Mohammed Jidda General Hospital	0	12	6	8	26
Lagos	la Kosofe	Gbagada General Hospital	0	13	7	6	26
Ondo	on Akoko North East	State Specialist Hospital - Ikare	0	18	3	5	26
Oyo	oy Saki West	Baptist Medical Center - Saki	0	18	5	3	26
Plateau	pl Qua'an Pan	Kwalla General Hospital	0	10	4	12	26
Cross River	cr Boki	Okundi Comprehensive Health Centre	0	16	4	5	25
Kaduna	kd Giwa	Giwa General Hospital	0	11	5	9	25
Kaduna	kd Sabon Gari	Major Ibrahim Bello Abdullahi Memorial Hospital	0	12	5	8	25
Oyo	oy Iseyin	Our Lady's Catholic Hospital - Iseyin	0	18	4	3	25
Rivers	ri Port-Harcourt	Port-Harcourt KP One Stop Shop				25	25
Adamawa	ad Guyuk	Guyuk General Hospital	1	14	5	4	24
Akwa Ibom	ak Ikono	Ikono General Hospital	0	17	3	4	24
Akwa Ibom	ak Uruan	Mbiaya Comprehensive Health Centre	0	13	6	5	24
Akwa Ibom	ak Essien Udim	Ukana Cottage Hospital	0	16	1	7	24
Benue	be Obi	Obarike-Ito General Hospital	0	14	4	6	24
FCT	fc Abuja Municipal Area Council	Evangelical Church of West Africa (ECWA) Medical Center	0	12	5	7	24
Lagos	la Eti-Osa	Falomo Police Hospital	0	8	4	12	24
Rivers	ri Eleme	Onne Model Primary Health Centre	1	9	0	14	24
Yobe	yo Bade	Gashua General Hospital	0	6	5	13	24
Anambra	an Idemili South	Oba Comprehensive Health Centre (Trauma Centre)	0	6	5	12	23
Benue	be Katsina-Ala	Igbabaka Primary Health Centre	0	16	1	6	23
Benue	be Konshisha	Igbughul Primary Health Center	0	12	4	7	23
Benue	be Katsina-Ala	Nahuta Hospital	0	11	7	5	23
Cross River	cr Akpabuyo	Akpabuyo St Joseph Hospital	0	19	1	3	23
Cross River	cr Bakassi	Ikang Primary Health Centre	0	14	2	7	23
Enugu	en Isiuza	Ikem District Hospital	0	14	4	5	23

Kano	kn Nassarawa	Ahmadiyya Muslim Hospital	0	8	8	7	23
Lagos	la Ibeju-Lekki	Ibeju-Lekki General Hospital	0	12	9	2	23
Nasarawa	na Obi	Azomeh Clinic	0	13	4	6	23
Rivers	ri Ikwerre	Isiokpo General Hospital	0	19	2	2	23
Anambra	an Dunukofia	Ukpo Comprehensive Health Centre	0	11	7	4	22
Benue	be Tarka	Nongu u Kristu ke Sudan hen Tiv (NKST) Health Center - Uchi	0	7	5	10	22
Edo	ed Etsako East	Agenebode General Hospital	1	14	6	1	22
Gombe	go Nafada-Bajoga	Nafada General Hospital	1	14	0	7	22
Kogi	ko Okehi	Obangede General Hospital	1	9	8	4	22
Niger	ni Magama	SHEHU SHAGARI GENERAL HOSPITAL NASKO	0	11	7	4	22
Akwa Ibom	ak Ikot Abasi	Base Ikot Abasi Primary Health Centre	0	16	4	1	21
Akwa Ibom	ak Okobo	Okopedi Primary Health Centre	0	14	1	6	21
Anambra	an Anambra East	Aguleri Immaculate Heart Hospital	0	17	3	1	21
Anambra	an Anaocha	Neni Comprehensive Health Centre NAUTH	0	10	6	5	21
Bauchi	ba Misau	Misau General Hospital	0	6	9	6	21
Benue	be Tarka	Kpe-Ambila Primary Health Centre	0	12	3	6	21
Borno	bo Askira-Uba	Askira General Hospital	1	10	6	4	21
Borno	bo Maiduguri	Muhammed Shuwa Memorial Hospital	0	0	21	0	21
Ebonyi	eb Ivo	Ishiagu General Hospital	0	12	4	5	21
Kano	kn Takai	Takai Comprehensive Health Center	0	9	5	7	21
Kebbi	ke Jega	Jega	0	11	6	4	21
Kwara	kw Edu	GH Lafiagi	0	6	7	8	21
Nasarawa	na Awe	Awe General Hospital	0	7	7	7	21
Plateau	pl Jos North	Solat Women Hospital	0	6	11	4	21
Akwa Ibom	ak Ukanafun	Ikot Akpa Ntuk Primary Health Centre	0	12	0	8	20
Akwa Ibom	ak Uyo	University of Uyo Medical Centre	0	7	5	8	20
Akwa Ibom	ak Uyo	Uyo Police Hospital	1	9	2	8	20
Bauchi	ba Katagum	Azare General Hospital	0	4	4	12	20
Benue	be Katsina-Ala	Abakor Primary Health Care	0	11	2	7	20

Benue	be Buruku	Tyowanye Primary Health Center	0	12	1	7	20
Benue	be Ukum	Zaki-Biam City Clinic and Maternity	0	14	2	4	20
Delta	de Warri South	St. Andrews Hospital and Maternity	0	6	9	5	20
Ebonyi	eb Ohaozara	Okposi General Hospital	0	12	4	4	20
FCT	fc Abuja Municipal Area Council	Heartland Alliance Foundation	0	0	0	20	20
FCT	fc Abuja Municipal Area Council	Lugbe Primary Health Center	0	17	2	1	20
Imo	im Ideato North	Immaculate Hospital - Urualla	0	11	6	3	20
Nasarawa	na Obi	St. Bernards Clinic - Akanga	0	12	5	3	20
Akwai Ibom	ak Urue-Offong-Oruko	Oruko General Hospital	0	11	0	8	19
Anambra	an Oyi	Umunya Comprehensive Health Centre	0	13	2	4	19
Benue	be Katsina-Ala	Adikpo Katsina-Ala Primary Health Centre	0	12	2	5	19
Benue	be Katsina-Ala	Mbasar Primary Health Centre	0	9	4	6	19
Benue	be Apa	Ugbokpo General Hospital	4	10	2	3	19
Cross River	cr Calabar South	Calabar South KP One Stop Shop- Virtual				19	19
Imo	im Mbaitoli	Mbieri General Hospital	0	11	3	5	19
Imo	im Ngor Okpala	Ngor Okpala General Hospital	0	10	5	4	19
Kano	kn Tudun Wada	Tudun Wada General Hospital	1	10	1	7	19
Lagos	la Eti-Osa	St. Kizito Clinic	0	11	4	4	19
Nasarawa	na Awe	Jatau Clinic	0	11	5	3	19
Nasarawa	na Akwanga	Mochu Clinic	0	7	5	7	19
Oyo	oy Ibadan South-West	St. Anne's Anglican Hospital - Molete Ibadan	0	7	11	1	19
Sokoto	so Sokoto South	Maryam Abacha Women & Children Hospital	2	10	2	5	19
Adamawa	ad Toungo	Toungo Cottage Hospital	0	10	1	7	18
Anambra	an Awka South	Regina Caeli Hospital	1	8	4	5	18
Benue	be Konshisha	Agidi Primary Health Centre	0	11	1	6	18
Benue	be Buruku	Agwabi Primary Health Center	0	8	7	3	18
Benue	be Makurdi	Atighir Local Government Health Center	1	10	3	4	18
Benue	be Konshisha	Bonta Family Support Program Clinic	0	14	0	4	18
Benue	be Ushongo	Mayange Primary Health Care	0	9	3	6	18

Benue	be Agatu	Obagaji General Hospital	0	7	7	4	18
Cross River	cr Biase	Akpet Central Cottage Hospital	0	9	6	3	18
FCT	fc Bwari	Kogo Primary Health Center	1	8	5	4	18
FCT	fc Kwali	Kwali General Hospital	0	10	2	6	18
Kaduna	kd Soba	Maigana General Hospital	0	8	6	4	18
Kano	kn Nassarawa	Mohammad Abdullahi Wase Specialist Hospital Nassarwa	0	10	5	3	18
Kogi	ko Dekina	Maria Goretti Hospital	0	8	4	6	18
Nasarawa	na Lafia	Diamond Clinic - Lafiya	1	6	3	8	18
Akwa Ibom	ak Ibeno	Ibeno Cottage Hospital	0	9	3	5	17
Akwa Ibom	ak Obot Akara	Nto Edino Comprehensive Health Centre	0	14	1	2	17
Anambra	an Nnewi North	Nnewi Diocesan Hospital	3	2	7	5	17
Anambra	an Aguata	Umuchu Visitation Hospital	0	7	4	6	17
Benue	be Ushongo	Hegha Comprehensive Health Center	0	9	5	3	17
Benue	be Katsina-Ala	Nguher Clinic	0	9	5	3	17
Benue	be Ushongo	Nongu u Kristu ke Sudan hen Tiv (NKST) Clinic -Aku	3	6	3	5	17
Benue	be Buruku	Nongu u Kristu ke Sudan hen Tiv (NKST) Primary Health Center - Biliji	0	10	3	4	17
Benue	be Gwer West	St. Francis Primary Health Center - Agagbe	0	7	0	10	17
Cross River	cr Calabar South	Ekpo Abasi Primary Health Centre	2	4	0	11	17
Delta	de Ughelli South	Otu-Jeremi General Hospital	0	15	0	2	17
FCT	fc Abuja Municipal Area Council	Federal Staff Hospital - Jabi	0	9	5	3	17
Gombe	go Yamaltu-Deba	Deba General Hospital	0	10	1	6	17
Kano	kn Bichi	Bichi General Hospital	0	7	4	6	17
Kano	kn Sumaila	Sumaila General Hospital	0	6	1	10	17
Kogi	ko Ofu	Ugwolawo General Hospital	0	10	4	3	17
Niger	ni Lavun	GENERAL HOSP KUTIGI KUTIGI	0	7	5	5	17
Ogun	og Ipokia	Idi Iroko General Hospital	1	0	16	0	17
Plateau	pl Mikang	Tunkus General Hospital	0	13	3	1	17
Rivers	ri Degema	Degema General Hospital	0	8	5	4	17
Zamfara	za Gusau	Yerima Bakura Specialist Hospital	1	8	2	6	17
Bayelsa	by Brass	Okpoama Cottage Hospital	0	12	2	2	16

Benue	be Buruku	Anonghul Primary Health Center	0	11	3	2	16
Benue	be Tarka	Asukunya Primary Health Center	0	12	0	4	16
Benue	be Ohimini	Idekpa General Hospital	0	13	0	3	16
Benue	be Makurdi	Ushakaa Hospital	0	9	1	6	16
Cross River	cr Abi	Eja Memorial Hospital	0	9	4	3	16
Cross River	cr Obubra	Obubra Maternal and Child Health Clinic	1	11	3	1	16
Cross River	cr Obudu	Obudu Clinic	0	11	2	3	16
Delta	de Uvwie	Ekpan General Hospital	0	9	1	6	16
Delta	de Aniocha South	Ogwashi-uku General Hospital	0	9	4	3	16
Delta	de Ukwuani	Umutu Government Hospital	0	12	2	2	16
Edo	ed Orhionmwon	Ossiomio Specialist Hospital	0	10	2	4	16
FCT	fc Abuja Municipal Area Council	Idu Karimo Primary Health Center	0	10	3	3	16
Kebbi	ke Argungu	G.Hosp. Arg.	0	1	4	11	16
Nasarawa	na Karu	Nakowa Clinic	1	14	1	0	16
Nasarawa	na Doma	Sabo Clinic	0	7	3	6	16
Nasarawa	na Lafia	Voice of Islam Hospital	0	11	3	2	16
Ondo	on Akure South	Mother And Child Hospital - Akure	0	13	1	2	16
Akwa Ibom	ak Nsit Ibom	Afaha Effiong OP Base Model Primary Health Centre	0	11	0	4	15
Akwa Ibom	ak Ibesikpo Asutan	Ibesikpo Asutan KP One Stop Shop- Virtual				15	15
Bauchi	ba Tafawa-Balewa	Tafawa-Balewa General Hospital	0	0	0	15	15
Benue	be Logo	Mchia Local Government Health Center	0	9	1	5	15
FCT	fc Abuja Municipal Area Council	The Crown Hospital	0	12	1	2	15
Kaduna	kd Kachia	Doka Primary Health Center	0	9	3	3	15
Lagos	la Alimosho	Ipaja Primary Health Center	0	10	2	3	15
Nasarawa	na Obi	Evangelical Reformed Church of Christ (ERCC) Clinic - Murya	0	9	4	2	15
Nasarawa	na Karu	K-Health (Adult Adolescent Program)	0	0	1	14	15
Osun	os Irewole	Ikire Specialist Hospital	0	9	3	3	15
Rivers	ri Etche	Umuebule Cottage Hospital	0	12	2	1	15

Akwa Ibom	ak Nsit Atai	Nsit Atai Primary Health Centre	0	8	1	5	14
Benue	be Logo	Gboragayo Primary Health Centre	0	5	5	4	14
Benue	be Ushongo	Kartyo Comprehensive Health Center	0	5	4	5	14
Benue	be Gboko	St. Luke's Hospital	0	6	5	3	14
Delta	de Oshimili North	Ibusa General Hospital	0	6	6	2	14
Ebonyi	eb Izzi	St. Vincent Hospital - Ndubia	0	5	4	5	14
Edo	ed Ovia South-West	Usen General Hospital	0	8	2	4	14
FCT	fc Bwari	Dei Dei Comprehensive Health Center	1	3	3	7	14
Gombe	go Balanga	Talase General Hospital	0	5	6	3	14
Oyo	oy Irepo	Kisi General Hospital	0	0	14	0	14
Zamfara	za Shinkafi	Shinkafi Gen Hosp	0	7	5	2	14
Akwa Ibom	ak Ini	Ikpe Ikot Nkon General Hospital	7	3	0	3	13
Akwa Ibom	ak Onna	Onna Comprehensive Health Centre	0	11	1	1	13
Akwa Ibom	ak Abak	Uduak Abasi Clinic	0	2	0	11	13
Anambr a	an Idemili North	Iyi-Enu Hospital	1	4	1	7	13
Anambr a	an Orumba South	Umunze Immaculate Heart Hospital	1	4	5	3	13
Benue	be Konshisha	Hope Hospital - Gungul	0	9	3	1	13
Benue	be Ushongo	Tseghem Comprehensive Health Center	0	5	3	5	13
Benue	be Konshisha	Tyoate Comprehensive Health Center	0	9	3	1	13
Benue	be Buruku	Uga Primary Health Center	2	8	1	2	13
Borno	bo Askira-Uba	Lassa General Hospital	0	3	8	2	13
Cross River	cr Yala	Okpoma General Hospital	0	5	5	3	13
Enugu	en Enugu South	The Good Shepherd Hospital - Uwani	0	11	1	1	13
FCT	fc Abuja Municipal Area Council	Evangelical Church of West Africa (ECWA) Health Clinic - Kabusa	0	10	1	2	13
Imo	im Mbaitoli	Ogwa General Hospital	0	8	3	2	13
Kaduna	kd Zaria	National Tuberculosis And Leprosy Training Center - Zaria	0	0	1	12	13
Kano	kn Kumbotso	Kumbotso Comprehensive Health Center	0	4	6	3	13
Nasarawa	na Obi	Heartland Alliance Foundation	0	0	0	13	13
Nasarawa	na Karu	Kpamu Shammah Hospital	0	8	3	2	13

Nasarawa	na Lafia	Sauki Hospital	0	8	2	3	13
Oyo	oy Olorunsogo	Igbeti General Hospital	1	0	12	0	13
Oyo	oy Kajola	Okeho General Hospital	0	0	13	0	13
Rivers	ri Obio-Akpor	Eneka Model Primary Health Centre	1	9	1	2	13
Rivers	ri Obio-Akpor	Rumuepirikom Model Primary Health Centre	3	5	2	3	13
Zamfara	za Kaura Namoda	Kaura Namoda General Hospital	0	8	4	1	13
Akwa Ibom	ak Oruk Anam	Ikot Okoro General Hospital	0	7	2	3	12
Akwa Ibom	ak Abak	Ukpom Abak General Hospital	0	8	1	3	12
Akwa Ibom	ak Etim Ekpo	Utu Etim Ekpo Divine Love Hospital	0	10	2	0	12
Benue	be Buruku	Township Clinic	2	4	4	2	12
Delta	de Isoko South	Uzere Cottage Hospital	0	8	1	3	12
Edo	ed Akoko Edo	Igarra General Hospital	0	8	1	3	12
Ekiti	ek Ikere	Ikere Ekiti State Specialist Hospital	1	9	1	1	12
FCT	fc Abuja Municipal Area Council	Mpape Primary Health Center	1	2	1	8	12
FCT	fc Abuja Municipal Area Council	National Institute For Pharmaceutical Research - Idu	0	0	0	12	12
Imo	im Aboh Mbaize	Holy Rosary Hospital Ogbor Nguru	0	4	6	2	12
Jigawa	jg Birnin Kudu	jBirnin Kudu General Hospital	0	6	0	6	12
Kano	kn Gwarzo	Gwarzo General Hospital	0	4	1	7	12
Nasarawa	na Obi	Ikon Allah Iroh Hospital	0	6	4	2	12
Rivers	ri Obio-Akpor	Rumuodomaya Model Primary Health Centre	0	7	2	3	12
Akwa Ibom	ak Ibiono Ibom	Use Abat St. Theresa's Hospital	0	7	0	4	11
Akwa Ibom	ak Uyo	Uyo Heartland Alliance Community Centre				11	11
Bauchi	ba Dass	Dass General Hospital	0	3	5	3	11
Benue	be Tarka	Gwarche Primary Health Centre	0	7	3	1	11
Benue	be Buruku	Jingir Primary Health Center	1	4	2	4	11
Benue	be Makurdi	Jor Maternal and Child Health Clinic	0	2	4	5	11
Benue	be Otukpo	Sev-Av Foundation - Otukpo	0	5	3	3	11
Benue	be Tarka	Tiortyu Local Government Health Center	1	7	2	1	11
Cross River	cr Bakassi	Bakassi KP One Stop Shop- Virtual				11	11

Delta	de Udu	Otor Udu General Hospital	0	7	0	4	11
Delta	de Ika North East	Umunede General Hospital	0	4	2	5	11
Kogi	ko Bassa	Oguma General Hospital	0	9	1	1	11
Lagos	la Ajeromi-Ifelodun	Tolu Primary Health Centre	2	3	1	5	11
Nasarawa	na Keffi	Imani Clinic	0	9	2	0	11
Ogun	og Yewa South	St. Mary's Clinic - Ajilete	0	9	2	0	11
Sokoto	so Sokoto North	Women and Children Welfare Clinic	0	6	4	1	11
Akwa Ibom	ak Ikot Ekpene	Ikot Ekpene KP One Stop Shop- Virtual				10	10
Benue	be Kwande	Icheen Clinic and Maternity	0	5	2	3	10
Benue	be Katsina-Ala	Ikpaukur Local Government Health Center	0	3	3	4	10
Benue	be Gwer West	Jimba Primary Health Center	0	6	0	4	10
Benue	be Konshisha	Uboagere Comprehensive Health Center	0	5	3	2	10
Delta	de Bomadi	Bomadi General Hospital	0	6	1	3	10
Ebonyi	eb Izzi	Sudan United Mission Hospital - Onuenyim	0	9	1	0	10
FCT	fc Abuja Municipal Area Council	Medical Missions of Mary - Lugbe	0	5	3	2	10
Kaduna	kd Kachia	Doka Rural Hospital	0	4	2	4	10
Kaduna	kd Kajuru	Idon Rural Hospital	0	6	2	2	10
Kaduna	kd Chikun	Sabo Tsaha Primary Health Center	0	4	2	4	10
Katsina	kt Mani	Mani General Hospital	0	5	4	1	10
Lagos	la Agege	Agege KP One Stop Shop				10	10
Lagos	la Lagos Mainland	Lagos State Mainland Hospital	0	0	0	10	10
Osun	os Ede South	Ede Specialist Hospital	0	6	2	2	10
Osun	os Osogbo	Our Lady of Fatima Catholic Hospital - Jaleyemi	0	7	3	0	10
Rivers	ri Abua-Odual	Abua General Hospital	0	8	0	2	10
Rivers	ri Port-Harcourt	New Mile one Hospital	0	7	1	2	10
Rivers	ri Okrika	Okrika KP One Stop Shop- Virtual				10	10
Benue	be Gwer West	Abiam Family Support Program Clinic	0	1	1	7	9
Benue	be Ushongo	Akerior Comprehensive Health Center	1	5	0	3	9
Delta	de Ethiope West	Oghara General Hospital	0	7	2	0	9
Delta	de Oshimili South	St. Rebecca Clinic	0	3	1	5	9
Edo	ed Akoko Edo	Ibillo General Hospital	1	7	0	1	9
FCT	fc Bwari	Omega Hospital	0	4	0	5	9
Kaduna	kd Igabi	Jaji Comprehensive Health Center	0	5	0	4	9

Kano	kn Kura	Kura General Hospital	0	1	1	7	9
Katsina	kt Jibia	Jibia General Hospital	0	1	0	8	9
Lagos	la Mushin	Palm Avenue Primary Health Center	0	5	2	2	9
Nasarawa	na Lafia	Graceland Clinic - Lafiya	0	1	2	6	9
Ondo	on Ilaje	Igbokoda General Hospital	0	3	2	4	9
Plateau	pl Jos East	Angware General Hospital	0	6	2	1	9
Plateau	pl Jos South	Dadin Kowa Comprehensive Health Center	0	6	2	1	9
Rivers	ri Obio-Akpor	Rumuigbo Model Primary Health Centre	0	6	2	1	9
Rivers	ri Port-Harcourt	Society for Family Health One Stop Shop, PH				9	9
Anambra	an Ogbaru	Okpoko St Luke's Diocesan Hospital	1	3	1	3	8
Anambra	an Ekwusigo	Orafite General Hospital	0	4	0	4	8
Bayelsa	by Nembe	Nembe General Hospital	0	3	1	4	8
Benue	be Gwer West	Aondana Health Clinic	1	6	1	0	8
Benue	be Ushongo	Phesset Clinic	0	5	0	3	8
Benue	be Tarka	Tse-Akiishi Primary Health Center	0	7	0	1	8
Benue	be Ushongo	Yaakar Comprehensive Health Center	0	2	1	5	8
Benue	be Ushongo	Yimase Clinic	0	1	4	3	8
Delta	de Ughelli North	Agbarho Primary Health Center - General Hospital	0	6	1	1	8
Delta	de Ika South	Agbor-Aladinma General Hospital	0	6	1	1	8
Delta	de Ethiope East	Turberculosis Referral Center - Eku	0	2	4	2	8
Ebonyi	eb Ikwo	Rural Improvement Hospital - Ikwo	0	7	1	0	8
Enugu	en Enugu East	Iji Nike Cottage Hospital	0	4	3	1	8
FCT	fc Abuja Municipal Area Council	Faith Medical Center - Karimo	0	3	1	4	8
FCT	fc Abuja Municipal Area Council	Gwagwa Primary Health Center	0	4	1	3	8
Imo	im Ideato North	Osina Community Hospital	0	5	3	0	8
Kano	kn Fagge	Khadijat Memorial Hospital (FGE)	0	6	1	1	8
Kano	kn Rano	Rano General Hospital	0	3	1	4	8
Kano	kn Bebeji	Tiga General Hospital	0	3	2	3	8
Katsina	kt Batsari	Batsari General Hospital	0	1	2	5	8
Katsina	kt Musawa	Musawa General Hospital	0	4	1	3	8
Nasarawa	na Lafia	Aboki Clinic	0	4	0	4	8

Nasarawa	na Karu	Anointed Clinic	0	8	0	0	8
Nasarawa	na Obi	Imon Primary Health Center	0	0	3	5	8
Nasarawa	na Karu	Mission Hospital	0	2	1	5	8
Ogun	og Ikenne	Babcock University Teaching Hospital	0	5	0	3	8
Ogun	og Ifo	Ifo General Hospital	0	0	2	6	8
Ondo	on Idanre	Idanre General Hospital	0	5	1	2	8
Osun	os Ife Central	Seventh Day Adventist Hospital - Ile-Ife	0	7	1	0	8
Rivers	ri Bonny	Bonny KP One Stop Shop- Virtual				8	8
Rivers	ri Port-Harcourt	Elekahia Model Primary Health Centre	0	4	2	2	8
Anambra	an Aguata	Igboukwu Diocesan Hospital	0	4	2	1	7
Benue	be Gwer West	Mbalosu Primary Health Centre	0	3	2	2	7
Benue	be Gwer West	Nakar Gwer West Comprehensive Health Center	0	3	4	0	7
Benue	be Makurdi	Yima Hospital	0	3	3	1	7
Cross River	cr Odukpani	Ikot Effiong Otop Comprehensive Health Centre (UCTH Annex)	0	3	1	3	7
Delta	de Ukwuani	Obiaruku General Hospital	0	6	1	0	7
Delta	de Okpe	Orerokpe General Hospital	0	3	3	1	7
Ebonyi	eb Ishielu	Maria Ines Hospital - Ezillo	0	5	2	0	7
Edo	ed Orhionmwon	Oben Cottage Hospital	0	4	0	3	7
Edo	ed Esan South-East	Ubiaja General Hospital	0	2	3	2	7
Imo	im Ohaji Egbema	General Hospital Egbema	0	6	1	0	7
Kaduna	kd Kaduna South	Jowako Hospital	0	4	2	1	7
Kaduna	kd Igabi	Turunku Rural Hospital	0	3	1	3	7
Kano	kn Dambatta	Danbatta General Hospital	0	3	3	1	7
Kano	kn Dawakin Kudu	Dawakin Kudu General Hospital	0	0	1	6	7
Kano	kn Gaya	Gaya General Hospital	0	3	1	3	7
Kano	kn Karaye	Karaye Comprehensive Health Center	0	3	1	3	7
Katsina	kt Ingawa	Ingawa General Hospital	0	0	1	6	7
Kogi	ko Dekina	Egume General Hospital	0	4	0	3	7
Lagos	la Ajeromi-Ifelodun	Akere Primary Health Centre	0	3	0	4	7
Lagos	la Lagos Mainland	Harvey Road Comprehensive Health Centre	0	2	0	5	7
Lagos	la Lagos Island	Lagos General Hospital	0	0	0	7	7
Lagos	la Lagos Mainland	Redeemed Aid Programme Action Committee CSO (Lagos)	2	4	1	0	7

Nasarawa	na Nasarawa	Adonai Hospital	0	6	1	0	7
Nasarawa	na Kokona	Mak-Lin Clinic	0	2	3	2	7
Nasarawa	na Kokona	Minlap Clinic	0	3	1	3	7
Nasarawa	na Doma	New Era Clinic	0	4	3	0	7
Ogun	og Yewa North	Ayetoro General Hospital	1	3	3	0	7
Ogun	og Yewa South	Isaga Owode Health Center	0	0	7	0	7
Rivers	ri Ogba-Egbema-Ndoni	Erema General Hospital	0	4	0	3	7
Rivers	ri Port-Harcourt	Ozuboko Model Primary Health Centre	0	2	1	4	7
Sokoto	so Tambuwal	General Hospital Dogon Daji	0	3	1	3	7
Akwa Ibom	ak Uruan	Ekpene Ibia Primary Health Center	0	0	1	5	6
Akwa Ibom	ak Oron	Esin U0ot Primary Health Centre	0	3	0	3	6
Akwa Ibom	ak Onna	Ikot Eko Ibon General Hospital	0	5	1	0	6
Akwa Ibom	ak Uyo	Ikot Okubo Primary Health Centre	0	4	0	2	6
Akwa Ibom	ak Mkpato Enin	Mkpato Enin Primary Health Centre	0	3	1	2	6
Akwa Ibom	ak Uyo	Oku Model Health Centre Uyo	4	0	0	2	6
Bayelsa	by Ogbia	Otuasega Cottage Hospital	0	5	0	1	6
Benue	be Tarka	Aso Comprehensive Health Center	0	3	1	2	6
Benue	be Makurdi	City Hospital	0	4	0	2	6
Benue	be Gwer West	Kwashon Primary Health Centre	0	1	1	4	6
Benue	be Makurdi	Onmba Aondo Comprehensive Health Center	0	2	0	4	6
Benue	be Otukpo	St. Daniel Hospital	0	3	1	2	6
Cross River	cr Calabar Municipal	Ikot Ekpo Health Post (Ward 10)	0	3	1	2	6
Delta	de Aniocha North	Issele-Ukwu General Hospital	0	4	2	0	6
Ekiti	ek Irepodun-Ifelodun	Iyin Ekiti General Hospital	1	4	1	0	6
FCT	fc Abuja Municipal Area Council	Federal Staff Hospital - Gwarimpa	0	4	2	0	6
FCT	fc Abuja Municipal Area Council	Kabusa Primary Health Center	0	0	0	6	6
FCT	fc Bwari	Sumit Hospital	0	2	3	1	6
Gombe	go Gombe	Doma Hospital	0	2	0	4	6

Jigawa	jg Dutse	Rasheed Shekoni Specialist Hospital	0	2	2	2	6
Kaduna	kd Kaduna North	Badarawa Primary Health Center	0	5	1	0	6
Kaduna	kd Kudan	Hunkuyi General Hospital	0	4	0	2	6
Kaduna	kd Kaduna North	Muslim Specialist Hospital	0	4	0	2	6
Kaduna	kd Kaura	Turaki Buga Memorial Hospital	0	3	0	3	6
Kano	kn Dawakin Tofa	Dawakin Tofa General Hospital	0	5	0	1	6
Kano	kn Gezawa	Gezewa General Hospital	0	1	0	5	6
Kano	kn Kano Municipal	Nuhu Bamalli Maternity Hospital	0	0	0	6	6
Katsina	kt Kankara	Kankara General Hospital	0	3	2	1	6
Lagos	la Apapa	Olojowon Primary Health Centre	0	5	0	1	6
Nasarawa	na Lafia	Doma Road Primary Health Care Center	0	0	0	6	6
Nasarawa	na Nasarawa	Nasara Clinic, Ara	0	5	0	1	6
Nasarawa	na Lafia	Oshyegba Medical Center	1	1	3	1	6
Ogun	og Ado-Odo Ota	Ota Primary Health Center	0	0	6	0	6
Ondo	on Akoko South East	Ipe Akoko General Hospital	0	6	0	0	6
Rivers	ri Obio-Akpor	Iriebe Primary Health Centre	0	6	0	0	6
Sokoto	so Tambuwal	General Hospital Tambuwal	0	3	2	1	6
Akwa Ibom	ak Ibiono Ibom	Ibiono Ibom KP One Stop Shop- Virtual				5	5
Akwa Ibom	ak Uyo	Mbak Etoi Primary Health Centre	0	1	0	4	5
Akwa Ibom	ak Oron	Priscon Clinic	0	1	1	3	5
Anambra	an Nnewi South	Amichi Diocesan Hospital	0	3	1	1	5
Anambra	an Onitsha South	Onitsha Pieta Hospital	1	1	1	2	5
Bayelsa	by Brass	Twon-Brass General Hospital	0	2	1	2	5
Benue	be Konshisha	Dio Primary Health Center	0	4	1	0	5
Benue	be Ado	Igumale General Hospital	0	3	2	0	5
Benue	be Konshisha	Royal Clinic and Maternity Wuese	0	2	2	1	5
Borno	bo Bayo	Briyel General Hospital	0	1	1	3	5
Cross River	cr Calabar South	Mambo Clinic	0	0	0	5	5
Delta	de Aniocha North	Onicha-Olona General Hospital	0	4	0	1	5
Delta	de Isoko North	Owhelogbo Government Hospital	1	2	1	1	5

Delta	de Isoko North	St. Mary's Clinic And Maternity - Ozoro	0	2	1	2	5
Ebonyi	eb Abakaliki	Mercy Hospital and Maternity	0	4	1	0	5
FCT	fc Kwali	Dabibako Primary Health Center	0	3	0	2	5
FCT	fc Abuja Municipal Area Council	Gidan Mangoro Primary Health Center	0	3	1	1	5
FCT	fc Gwagwalada	Joefag Alheri Clinic and Maternity	0	4	0	1	5
FCT	fc Bwari	Sabon Gari Primary Health Center	0	2	2	1	5
Gombe	go Gombe	Musaba Clinic	0	3	0	2	5
Kano	kn Doguwa	Doguwa General Hospital	0	1	1	3	5
Lagos	la Ajeromi-Ifelodun	Amukoko Primary Health Centre	0	1	2	2	5
Lagos	la Ifako-Ijaiye	Ancilla Catholic Hospital	0	2	2	1	5
Lagos	la Eti-Osa	Eti-Osa KP One Stop Shop				5	5
Lagos	la Alimosho	Gowon Estate Hospital - Ipaja	0	5	0	0	5
Lagos	la Ajeromi-Ifelodun	Layeni Primary Health Centre	0	3	0	2	5
Lagos	la Ajeromi-Ifelodun	Tolu Medical Centre	0	3	1	1	5
Nasarawa	na Karu	Best Clinic	0	5	0	0	5
Nasarawa	na Keana	Keana General Hospital	0	5	0	0	5
Nasarawa	na Lafia	Kowa Hospital	0	1	2	2	5
Nasarawa	na Keffi	Shukura Specialist Hospital	0	3	2	0	5
Nasarawa	na Kokona	Tamaiko Clinic	0	1	1	3	5
Rivers	ri Obio-Akpor	College of Health Technology Clinic	0	5	0	0	5
Rivers	ri Degema	Degema KP One Stop Shop- Virtual				5	5
Rivers	ri Ogba-Egbema-Ndoni	Gbeye Clinic	0	2	1	2	5
Rivers	ri Port-Harcourt	Mgbundukwu (Okija) Model Primary Health Centre	0	2	0	3	5
Akwa Ibom	ak Uyo	Ikot Ayan Ikono Primary Health Centre	0	0	1	3	4
Anambra	an Nnewi South	Osumenyi Visitation Hospital	0	3	1	0	4
Bauchi	ba Jama'are	Jama'are General Hospital	0	0	1	3	4
Benue	be Tarka	Aboho Primary Health Centre	0	2	1	1	4
Benue	be Buruku	Anzembe Clinic	0	1	0	3	4
Benue	be Ushongo	Ikumbur Memorial clinic	0	0	1	3	4
Benue	be Makurdi	King Cross Clinic and Maternity	0	3	0	1	4

Benue	be Buruku	Kur Primary Health Center	0	2	1	1	4
Benue	be Konshisha	Leke Clinic and Maternity	0	2	0	2	4
Benue	be Gwer West	Mbaier Health Centre	0	2	1	1	4
Benue	be Makurdi	Multicare Hospital	0	3	0	1	4
Benue	be Katsina-Ala	Nagu Primary Health Centre	0	2	1	1	4
Benue	be Tarka	Tse-Tiah Primary Health Centre	0	1	1	2	4
Benue	be Konshisha	Usaka Health Clinic Tsuwe	0	3	0	1	4
Cross River	cr Calabar Municipal	Emmanuel Infirmary	1	2	0	1	4
Cross River	cr Ogoja	Ogoja Santa Maria Clinic	0	4	0	0	4
Delta	de Ndokwa West	Ashaka Government Hospital	0	2	1	1	4
Delta	de Ethiope West	Delta State University Teaching Hospital	0	2	2	0	4
Ekiti	ek Oye	Oye Ekiti General Hospital	0	1	0	3	4
Enugu	en Oji River	Achi Joint Hospital	0	2	0	2	4
FCT	fc Bwari	Bwari Medical Center	0	3	1	0	4
FCT	fc Abuja Municipal Area Council	Cornelian Maternity and Rural Health - Gidan Mangoro	0	3	1	0	4
FCT	fc Abuja Municipal Area Council	Getwell Hospital	0	4	0	0	4
FCT	fc Abuja Municipal Area Council	Jikwoyi Medical Center	0	1	1	2	4
FCT	fc Abuja Municipal Area Council	Police Clinic - Abuja	0	0	0	4	4
Gombe	go Gombe	Miyetti Hospital	0	2	1	1	4
Gombe	go Kaltungo	Tula Cottage Hospital	0	2	2	0	4
Kaduna	kd Chikun	Kujama Rural Hospital	0	1	0	3	4
Kogi	ko Ijumu	Iyamoye General Hospital	0	2	1	1	4
Kogi	ko Ijumu	Iyara Comprehensive Health Center	0	2	1	1	4
Kwara	kw Ilorin West	Adewole Cottage	0	0	1	3	4
Lagos	la Mushin	Ajeabo Primary Health Center	0	3	1	0	4
Lagos	la Alimosho	Christ the King Catholic Hospital - Akowonjo	0	2	0	2	4
Lagos	la Apapa	Ijora Primary Health Centre	0	2	0	2	4
Lagos	la Eti-Osa	Iru Primary Health Center	0	3	1	0	4
Nasarawa	na Lafia	Barkin Abdullahi Primary Health Center	0	0	0	4	4
Nasarawa	na Doma	Doma Primary Health Center	0	0	0	4	4

Nasarawa	na Lafia	Gidan Maiakuya Primary Health Center	0	0	0	4	4
Nasarawa	na Akwanga	Gudi Primary Health Care Center	0	2	1	1	4
Nasarawa	na Nasarawa	Loko Primary Health Center	0	0	2	2	4
Nasarawa	na Lafia	M&D Hospital	0	2	0	2	4
Nasarawa	na Lafia	Olivet Medical Center	0	3	1	0	4
Nasarawa	na Nasarawa Eggon	Omatdefu Clinic and Maternity	0	2	1	1	4
Nasarawa	na Doma	Zumunta Yelwa Ediya Clinic	0	1	0	3	4
Ondo	on Ose	Ido-Ani General Hospital	0	1	3	0	4
Ondo	on Akure North	Iju Itaogbolu General Hospital	0	3	0	1	4
Rivers	ri Andoni	Ngo General Hospital	0	3	0	1	4
Rivers	ri Port-Harcourt	Orogbum Primary Health Centre	0	2	1	1	4
Akwa Ibom	ak Abak	Abak KP One Stop Shop_ Virtual				3	3
Akwa Ibom	ak Ibesikpo Asutan	Akpautong Mt. Camel Hospital	0	2	1	0	3
Akwa Ibom	ak Ikot Ekpene	Demak Clinic	0	1	0	2	3
Akwa Ibom	ak Oron	Eyo Abasi Health Post	0	0	0	3	3
Akwa Ibom	ak Oron	Idua Assang Health Post	0	0	0	3	3
Akwa Ibom	ak Uyo	Ifa Ikot Health Centre	0	0	0	3	3
Akwa Ibom	ak Etinan	Ikot Obio Inyang Primary Health Centre	0	0	0	3	3
Akwa Ibom	ak Oron	St Patricks Clinic	0	1	0	2	3
Anambra	an Awka South	Awka Faith Hospital	0	3	0	0	3
Anambra	an Anambra East	Umueri Diocesan Hospital and Maternity	0	2	1	0	3
Bauchi	ba Bauchi	Reemee Clinic	0	2	0	1	3
Bayelsa	by Yenagoa	Igbogene Tuberculosis and Leprosy Referral Centre	0	1	0	2	3
Benue	be Oju	Bethesda Hospital - Ikachi	0	2	0	1	3
Benue	be Makurdi	Jolua Hospital	0	2	1	0	3
Benue	be Buruku	Sahara Clinic	0	0	2	1	3

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Cross River	cr Calabar South	Anantigha Primary Health Centre	0	0	0	3	3
Cross River	cr Calabar Municipal	Calabar Women and Children Hospital	0	2	0	1	3
Cross River	cr Calabar South	Goldie Clinic	0	1	1	1	3
Cross River	cr Abi	Igbo-Imabana Model Primary Health Centre	0	3	0	0	3
Cross River	cr Calabar South	Mount Zion Medical Centre	0	1	2	0	3
Delta	de Ndokwa West	Brema Hospital - Kwale	0	3	0	0	3
Delta	de Oshimili North	Ebu General Hospital	0	2	1	0	3
Delta	de Aniocha South	Isheagu General Hospital	0	2	1	0	3
Delta	de Patani	Patani General Hospital	0	3	0	0	3
Ebonyi	eb Afikpo North	Afikpo Medical Center	0	2	0	1	3
Ekiti	ek Emure	Emure Ekiti General Hospital	0	3	0	0	3
Ekiti	ek Ilejemeje	Iye Ekiti General Hospital	0	3	0	0	3
Ekiti	ek Ekiti East	Omuo Ekiti General Hospital	0	1	2	0	3
FCT	fc Gwagwalada	Gwagwalada Township Clinic	0	0	0	3	3
FCT	fc Abuja Municipal Area Council	Kagini Primary Health Center	0	3	0	0	3
FCT	fc Abuja Municipal Area Council	King's Care Hospital	0	2	1	0	3
FCT	fc Gwagwalada	Living Rock Hospital and Maternity	0	3	0	0	3
FCT	fc Abuja Municipal Area Council	Pigba Medical Center	0	2	0	1	3
FCT	fc Abuja Municipal Area Council	Rapha Hospital	0	2	1	0	3
FCT	fc Abuja Municipal Area Council	Ruz Medical and Diagnostic Centre	0	1	1	1	3
Kaduna	kd Kaduna South	Barnawa Primary Health Center	0	1	2	0	3
Kaduna	kd Kaduna South	Maneks Hospital	0	2	1	0	3
Kaduna	kd Kaduna North	Zakari Isah Memorial Clinic	0	2	0	1	3
Kogi	ko Ogori-Magongo	Ogori General Hospital	0	1	2	0	3
Lagos	la Amuwo-Odofin	Agboju Primary Health Center	0	1	0	2	3
Lagos	la Lagos Mainland	Lagos Mainland KP One Stop Shop- Virtual				3	3
Lagos	la Alimosho	Mary the Queen Hospital - Akowonjo	0	2	1	0	3
Lagos	la Agege	Promise Medical Centre	0	2	1	0	3
Nasarawa	na Lafia	Adogi Primary Health Care	0	0	0	3	3

Nasarawa	na Lafia	Agu Hospital	0	0	0	3	3
Nasarawa	na Karu	Al-Kawari Hospital	0	1	2	0	3
Nasarawa	na Karu	Alheri Clinic and Maternity	0	2	1	0	3
Nasarawa	na Nasarawa	Alpha Medical Center	0	1	1	1	3
Nasarawa	na Keffi	Amosun Maternity Hospital	0	1	1	1	3
Nasarawa	na Lafia	Angbas Clinic	0	1	1	1	3
Nasarawa	na Karu	Auta Primary Health Center	0	0	0	3	3
Nasarawa	na Nasarawa	Dehi Hospital and Maternity	0	2	1	0	3
Nasarawa	na Nasarawa	Henad Medical Center	0	2	1	0	3
Nasarawa	na Karu	Mayday Specialist Hospital and Maternity	0	2	1	0	3
Nasarawa	na Lafia	Namu Clinic	0	2	0	1	3
Nasarawa	na Lafia	New Market Road Primary Health Center	0	0	0	3	3
Nasarawa	na Doma	Owoche Clinic and Maternity	0	0	1	2	3
Nasarawa	na Akwanga	Rinze Primary Health Care Center	0	0	0	3	3
Ondo	on Ondo East	Bolorunduro General Hospital	0	1	2	0	3
Ondo	on Okitipupa	Okitipupa State Specialist Hospital	0	0	0	3	3
Ondo	on Owo	Owo General Hospital	0	1	0	2	3
Osun	os Ila	Ila Orangun State Hospital	0	2	0	1	3
Plateau	pl Kanke	Amper Central Primary Health Care Center	0	1	1	1	3
Rivers	ri Obio-Akpor	Meridian Hospital	0	2	0	1	3
Rivers	ri Port-Harcourt	Police Medical Clinic	0	1	1	1	3
Akwa Ibom	ak Ikot Ekpene	Abiakpo Ikot Essien Health Centre	0	0	0	2	2
Akwa Ibom	ak Uyo	Ifa Atai Health Post	0	0	0	2	2
Akwa Ibom	ak Uruan	Ikot Otoenyie Health Post	0	0	0	2	2
Akwa Ibom	ak Okobo	Ima Abasi Maternity Home- Ekeya	0	0	0	2	2

Akwa Ibom	ak Okobo	Mbokpu Oduobo Primary Health Centre	0	0	0	2	2
Akwa Ibom	ak Uruan	Ndon Ebom Primary Health Center	1	1	0	0	2
Akwa Ibom	ak Ibiono Ibom	Nsan Health Centre	0	0	0	2	2
Akwa Ibom	ak Uruan	Nwaniba Primary Health Centre	2	0	0	0	2
Akwa Ibom	ak Obot Akara	Obot Akara KP One Stop Shop- Virtual				2	2
Akwa Ibom	ak Obot Akara	Obot Akara Primary Health Centre	0	0	0	2	2
Akwa Ibom	ak Urue-Offong-Oruko	Oyoku Ibigi Health Centre	0	0	0	2	2
Akwa Ibom	ak Uyo	Precious Seed Clinic	0	1	1	0	2
Akwa Ibom	ak Uruan	Use Primary Health Centre	0	1	0	1	2
Benue	be Ushongo	Faith Health Clinic - Atoga	0	1	0	1	2
Benue	be Ukum	King of Kings Clinic and Maternity	0	0	1	1	2
Benue	be Konshisha	Luter Health Clinic	0	2	0	0	2
Benue	be Gwer West	Mbashija Primary Health Centre	0	0	0	2	2
Benue	be Otukpo	Salem Hospital	0	1	1	0	2
Benue	be Katsina-Ala	Seafa Clinic and Maternity	1	0	0	1	2
Benue	be Ushongo	Yanibo Clinic	0	0	1	1	2
Cross River	cr Calabar South	Akani Esuk Health Centre	0	1	0	1	2
Cross River	cr Calabar South	Anderson Primary Health Centre	0	1	1	0	2
Cross River	cr Calabar Municipal	Bakor Medical centre	0	0	1	1	2
Cross River	cr Calabar South	Cross River University of Science and Technology	0	0	0	2	2
Cross River	cr Calabar Municipal	Ishie Health Post	0	1	0	1	2
Cross River	cr Calabar Municipal	Kasuk Health Centre	0	1	0	1	2
Cross River	cr Odukpani	Ukpem General Hospital	0	2	0	0	2
Cross River	cr Calabar Municipal	University of Calabar Medical Centre	0	0	0	2	2
Cross River	cr Calabar Municipal	Victoria Itam Specialist Hospital	0	2	0	0	2

Delta	de Ethiopie East	Abraka General Hospital	0	0	2	0	2
Delta	de Oshimili North	Akwukwu-Igbo General Hospital	0	2	0	0	2
Delta	de Ika North East	Owa-Alero General Hospital	0	2	0	0	2
Delta	de Warri South	Sage Clinic	0	1	0	1	2
Ebonyi	eb Afikpo South	Life Care Clinic	0	1	1	0	2
Ebonyi	eb Ohaukwu	Little Seed Hospital	0	1	1	0	2
Ekiti	ek Ekiti South-West	Ilawe Ekiti Comprehensive Health Center	0	1	1	0	2
FCT	fc Abuja Municipal Area Council	Atlas Medical Center	1	0	0	1	2
FCT	fc Gwagwalada	Diamond Crest Hospital and Maternity	0	1	0	1	2
FCT	fc Abuja Municipal Area Council	EFAB Medical Center	0	2	0	0	2
FCT	fc Bwari	Laura Hospital and Maternity	0	1	0	1	2
FCT	fc Bwari	Lurcia Well Hospital Limited	0	2	0	0	2
FCT	fc Bwari	M-Dali Hospital	0	1	0	1	2
FCT	fc Abuja Municipal Area Council	Massan Clinic Limited	0	0	2	0	2
Kaduna	kd Kaduna South	Harmony Hospital	0	0	0	2	2
Kaduna	kd Kaura	Manchok Maternal and Child Health Clinic	0	2	0	0	2
Katsina	kt Katsina	Alheri Clinic	0	1	1	0	2
Katsina	kt Malumfashi	Malumfashi Maternal and Child Health Clinic	0	0	2	0	2
Kogi	ko Okene	Okengwe General Hospital	0	2	0	0	2
Lagos	la Surulere	Akerela Primary Health Centre	0	1	1	0	2
Lagos	la Agege	Mobonike Hospital	0	2	0	0	2
Lagos	la Alimosho	Mother Theresa Medical Center - Idimu	0	2	0	0	2
Lagos	la Agege	Odunbaku Primary Health Centre	0	2	0	0	2
Lagos	la Agege	Unita Hospital	1	0	1	0	2
Nasarawa	na Keffi	Anguwan Waje Primary Health Care	0	0	0	2	2
Nasarawa	na Lafia	Assakio Primary Health Center	0	0	0	2	2
Nasarawa	na Karu	Gidan Zakara Primary Health Center	0	0	0	2	2
Nasarawa	na Lafia	Immanuela Clinic	0	1	0	1	2
Nasarawa	na Karu	Karu Primary Health Center	0	0	0	2	2
Nasarawa	na Karu	Maraba Gurku Primary Health Center	0	0	0	2	2

Nasarawa	na Obi	Mother and Child Welfare Clinic 1	0	0	0	2	2
Nasarawa	na Nasarawa	Nasarawa Medical Center	0	1	1	0	2
Nasarawa	na Lafia	Polytechnic Clinic	0	1	1	0	2
Nasarawa	na Doma	Rukubi Primary Health Center	0	0	0	2	2
Nasarawa	na Obi	Tudun Adabu Primary Health Center	0	0	0	2	2
Nasarawa	na Lafia	Tudun Gwandara Primary Health Center	0	0	0	2	2
Ondo	on Akoko North West	Irun Akoko General Hospital	0	1	1	0	2
Ondo	on Akoko South West	Iwaro-Oka General Hospital - Akoko	0	1	1	0	2
Rivers	ri Akuku Toru	Akuku Toru KP One Stop Shop- Virtual				2	2
Rivers	ri Obio-Akpor	Eliozu Model Primary Health Centre	0	0	0	2	2
Rivers	ri Port-Harcourt	Megacare Hospital	0	2	0	0	2
Rivers	ri Eleme	Onne Medical Centre	0	1	0	1	2
Rivers	ri Port-Harcourt	St Patricks Hospital	0	1	0	1	2
Akwa Ibom	ak Urue-Offong-Oruko	Base Urue Offong Primary Health Centre	0	0	0	1	1
Akwa Ibom	ak Abak	Ebom Primary Health Center	0	0	0	1	1
Akwa Ibom	ak Ikono	Ediene I Health Centre	0	0	0	1	1
Akwa Ibom	ak Essien Udim	Essien Udim KP One Stop Shop- Virtual				1	1
Akwa Ibom	ak Ikono	Etip Ediene Primary Health Centre	0	0	0	1	1
Akwa Ibom	ak Udung Uko	Eyo Okponung Primary Health Centre	0	0	0	1	1
Akwa Ibom	ak Oruk Anam	Family Foundation Clinic	0	0	0	1	1
Akwa Ibom	ak Uruan	Ibiaku Isshiet Primary Health Centre	0	0	0	1	1
Akwa Ibom	ak Ikono	Ibiaku Primary Health Centre (BASE)	0	0	0	1	1
Akwa Ibom	ak Uruan	Ibiaku-Uruan Primary Health Centre	0	1	0	0	1
Akwa Ibom	ak Uyo	Idoro Obio Health Centre	0	0	0	1	1
Akwa Ibom	ak Esit Eket	Idung Assan Health Centre	0	0	0	1	1

Akwa Ibom	ak Eastern Obolo	Iko Town Primary Health Centre	0	0	0	1	1
Akwa Ibom	ak Oruk Anam	Ikot Esenam Health Centre	0	0	0	1	1
Akwa Ibom	ak Essien Udim	Ikot Ide Health Centre	0	0	0	1	1
Akwa Ibom	ak Obot Akara	Ikot Utu Model Primary Health Centre	0	0	0	1	1
Akwa Ibom	ak Nsit Atai	Iwok Nsit Health Post	0	0	0	1	1
Akwa Ibom	ak Ukanafun	Northern Afaha Health Centre	0	0	0	1	1
Akwa Ibom	ak Nsit Ubium	Nsit Ubium Primary Health Centre	0	0	0	1	1
Akwa Ibom	ak Obot Akara	Nto Edino Primary Health Centre	0	0	1	0	1
Akwa Ibom	ak Obot Akara	Nto Ide Health Post	0	0	0	1	1
Akwa Ibom	ak Ikono	Nung Ukim Health Centre	0	0	0	1	1
Akwa Ibom	ak Oruk Anam	Oruro Anam KP One Stop Shop- Virtual				1	1
Akwa Ibom	ak Uyo	Our Lady of Lourdes Infirmary	0	0	0	1	1
Akwa Ibom	ak Uyo	Sheltered Specialist Hospital	0	0	0	1	1
Anambr a	an Idemili South	Ebenesi Nnobi Primary Health Centre	0	0	0	1	1
Anambr a	an Idemili North	Nkpor Crown Hospital Maternity	0	0	1	0	1
Anambr a	an Idemili South	Ojotu Uno Primary Health Centre	0	0	0	1	1
Bauchi	ba Bauchi	Kofar Wase Primary Health Centre	0	0	0	1	1
Bauchi	ba Bauchi	Ni'ima Consultant	0	0	0	1	1
Bauchi	ba Bauchi	Pohlycon Clinic	0	0	0	1	1
Bauchi	ba Bauchi	State Low Cost Primary Health Centre	0	0	0	1	1
Benue	be Konshisha	Ada Model	0	0	0	1	1
Benue	be Ushongo	Baki Clinic	0	0	0	1	1
Benue	be Makurdi	Grace Cottage Hospital	0	0	1	0	1
Benue	be Makurdi	Hope Hospital	0	1	0	0	1
Benue	be Otukpo	Ihotu Clinic And Maternity	0	0	0	1	1
Benue	be Gwer West	Mbaakem Health Centre	0	1	0	0	1

Benue	be Otukpo	Methodist Hospital - Ogoli Ugboju	0	0	1	0	1
Benue	be Konshisha	Mhen Health Clinic Jov-Mbavaa	0	1	0	0	1
Benue	be Konshisha	Mkaa Health Clinic and Maternity	0	0	0	1	1
Benue	be Otukpo	Nazareth Hospital	1	0	0	0	1
Benue	be Buruku	Otsafu Primary Health Center	0	1	0	0	1
Benue	be Makurdi	Queens Clinic	0	0	1	0	1
Benue	be Makurdi	Sandra Hospital	0	1	0	0	1
Cross River	cr Calabar South	Calabar South Family Health Centre	0	0	1	0	1
Cross River	cr Calabar Municipal	Diamond Hill Health Centre	0	0	0	1	1
Cross River	cr Calabar Municipal	Ekorinim Health Centre	0	1	0	0	1
Cross River	cr Calabar South	Evangel Model Clinic	0	0	0	1	1
Cross River	cr Calabar Municipal	Faith Foundation Clinic	0	0	0	1	1
Cross River	cr Bakassi	First Contact Clinic and Maternity	0	0	1	0	1
Cross River	cr Calabar Municipal	Nyahasang Health Centre	0	0	1	0	1
Cross River	cr Calabar Municipal	Police Medical Clinic	0	0	0	1	1
Cross River	cr Calabar Municipal	Progress Clinic	0	0	0	1	1
Delta	de Warri North	Koko General Hospital	0	0	0	1	1
Ebonyi	eb Abakaliki	Police Clinic - Abakaliki	0	1	0	0	1
Ebonyi	eb Afikpo North	Romec Hospital and Maternity	0	1	0	0	1
Ekiti	ek Ijero	Ijero Ekiti State Specialist Hospital	0	0	0	1	1
Enugu	en Enugu East	Eastern Nigeria Medical Center	0	0	0	1	1
FCT	fc Bwari	Apex Specialist Hospital	0	0	0	1	1
FCT	fc Abuja Municipal Area Council	Asher Hospital & Maternity	0	1	0	0	1
FCT	fc Abuja Municipal Area Council	Bismol Hospital and Maternity	0	1	0	0	1
FCT	fc Abuja Municipal Area Council	Diamond Medical Center	0	1	0	0	1
FCT	fc Bwari	Divine Winners Clinic And Maternity	0	0	0	1	1
FCT	fc Bwari	Dominion Hospital	0	0	1	0	1
FCT	fc Abuja Municipal Area Council	Fereprod Medical Center	0	1	0	0	1

FCT	fc Bwari	Fill Medical Center	0	0	1	0	1
FCT	fc Bwari	Goodness Land Clinic and Maternity	0	1	0	0	1
FCT	fc Abuja Municipal Area Council	Iddo Pada Primary Health Center	0	0	0	1	1
FCT	fc Abuja Municipal Area Council	Jahi Primary Health Center	0	0	1	0	1
FCT	fc Abuja Municipal Area Council	Jikwoyi Primary Health Center	0	1	0	0	1
FCT	fc Abuja Municipal Area Council	Kapital Hospital	0	0	0	1	1
FCT	fc Abuja Municipal Area Council	Kuchingoro Primary Health Center	0	0	0	1	1
FCT	fc Gwagwalada	Minat Clinic	0	0	1	0	1
FCT	fc Abuja Municipal Area Council	Paafag Hospital	0	0	1	0	1
FCT	fc Abuja Municipal Area Council	Pan-Raf Hospital	0	1	0	0	1
FCT	fc Bwari	Police clinic Dei Dei	0	0	1	0	1
FCT	fc Abuja Municipal Area Council	Rouz Hospital and Maternity	0	0	0	1	1
FCT	fc Abuja Municipal Area Council	Shereti Primary Health Center	0	0	0	1	1
FCT	fc Gwagwalada	Viewpoint Hospital	0	0	1	0	1
FCT	fc Abuja Municipal Area Council	Yabisam Hospital	0	1	0	0	1
FCT	fc Gwagwalada	Yimi Primary Health Center	0	0	0	1	1
Kaduna	kd Zaria	Anna-Kitcher Hospital	0	1	0	0	1
Kaduna	kd Kauru	Kauru Rural Hospital	0	0	1	0	1
Kaduna	kd Kaduna South	Virtual Hospital	0	1	0	0	1
Kano	kn Dala	Dala Maternal and Child Health Clinic	0	0	0	1	1
Kano	kn Rogo	Rogo General Hospital	0	1	0	0	1
Katsina	kt Katsina	Abdull Jalil's (A.J.S.) Out Patient Clinic	0	0	0	1	1
Lagos	la Apapa	Ahamadiyya Muslim Hospital	0	0	1	0	1
Lagos	la Surulere	Coker Aguda Primary Health Centre	1	0	0	0	1
Lagos	la Agege	DUNIA Hospital	0	0	1	0	1
Lagos	la Ajeromi-Ifelodun	Faleti Medical Centre	0	1	0	0	1
Lagos	la Ajeromi-Ifelodun	Ibafon Primary Health Centre	0	0	0	1	1
Lagos	la Lagos Island	Iga Idugaran Primary Health Centre	0	1	0	0	1
Lagos	la Ikeja	Ikeja KP One Stop Shop				1	1

Lagos	Ia Lagos Island	Lagos Island One Stop Shop- Virtual				1	1
Lagos	Ia Kosofe	Iketu Primary Health Centre	0	0	0	1	1
Lagos	Ia Mushin	Mushin KP One Stop Shop				1	1
Lagos	Ia Apapa	Sacred Heart Clinic	0	0	0	1	1
Lagos	Ia Shomolu	Shomolu General Hospital	0	0	1	0	1
Lagos	Ia Shomolu	Shomolu KP One Stop Shop- Virtual				1	1
Lagos	Ia Ikeja	St. Leo Medical Centre	0	1	0	0	1
Nasarawa	na Karu	Alheri Clinic and Maternity_U Turn (Karu)	0	0	0	1	1
Nasarawa	na Nasarawa	Alumbugu Memorial Clinic	0	1	0	0	1
Nasarawa	na Karu	Aso Panda Primary Health Care Center	0	0	0	1	1
Nasarawa	na Keffi	Blessed Trinity Clinic	0	1	0	0	1
Nasarawa	na Karu	City International	0	1	0	0	1
Nasarawa	na Karu	Gora Primary Health Center	0	0	0	1	1
Nasarawa	na Lafia	Gosha Clinic And Maternity	0	1	0	0	1
Nasarawa	na Obi	Imani Clinic	0	1	0	0	1
Nasarawa	na Karu	Karshi Primary Health Center	0	0	0	1	1
Nasarawa	na Lafia	Lafia Clinic	0	0	0	1	1
Nasarawa	na Karu	Maraba Clinic and Maternity	0	1	0	0	1
Nasarawa	na Karu	Maranatha Hospital- Karu	0	1	0	0	1
Nasarawa	na Karu	Nisi Hospital	0	0	0	1	1
Nasarawa	na Karu	Ojone Favour	0	0	1	0	1
Nasarawa	na Doma	Okpatte Primary Health Center	0	0	0	1	1
Nasarawa	na Akwanga	Orient Hospital	0	0	1	0	1
Nasarawa	na Akwanga	Royal Hospital - Akwanga	0	1	0	0	1
Nasarawa	na Lafia	Sadanji Medical Center	0	0	0	1	1

Nasarawa	na Doma	Shalom Clinic	0	1	0	0	1
Ondo	on Ile Oluji Okeigbo	Ile-Oluji General Hospital	0	0	0	1	1
Plateau	pl Jos North	Police Clinic	0	1	0	0	1
Rivers	ri Port-Harcourt	Bunduama Model Primary Health Centre	0	1	0	0	1
Rivers	ri Port-Harcourt	Hearth Health Hospital	0	0	1	0	1
Rivers	ri Tai	Kpite Model Primary Health Centre	0	0	0	1	1
Rivers	ri Eleme	Morning Star Hospital	0	0	0	1	1
Rivers	ri Obio-Akpor	Pathfare Clinic	0	1	0	0	1
Rivers	ri Port-Harcourt	Princess Medical Centre	0	1	0	0	1
Rivers	ri Ahoada East	Ula Upata Beulah Clinic	0	0	0	1	1
Sokoto	so Sokoto North	Holy Family Clinic	0	0	0	1	1
		Total	290	22,175	13,110	11,638	47,213

Appendix 3: Selection probability and site sample of selected sites for Children and Adolescent Outcome Study, based on TX_CURR as of end of June 2017

Site	TX_CURR <1	TX_CURR 1:9	TX_CURR 10:14	TX_CURR 15:19	Total	Selection Probability	Site sample
Federal Medical Center – Makurdi	0	204	272	173	649	0.021979	94
Massey Street Children's Hospital	2	276	250	102	630	0.021336	92
Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Mkar	0	285	208	121	614	0.020794	89
University of Maiduguri Teaching Hospital	12	85	82	355	534	0.018085	78
Jos University Teaching Hospital	0	130	231	167	528	0.017881	77
Aminu Kano Teaching Hospital – Kano	0	160	171	171	502	0.017001	73
Lagos University Teaching Hospital (LUTH)	2	181	190	122	495	0.016764	72
Nigerian Institute of Medical Research (NIMR)	1	182	190	111	484	0.016391	70
University College Hospital	2	163	185	130	480	0.016256	70
St. Anthony's Hospital - Zaki Biam	0	272	120	80	472	0.015985	69
Yola Specialist Hospital	6	251	103	107	467	0.015815	68
Vandeikya General Hospital	1	208	144	86	439	0.014867	64
Lagos State University Teaching Hospital	1	182	145	81	409	0.013851	59
Dalhatu Araf Specialist Hospital	1	181	128	89	399	0.013513	58
University Of Abuja Teaching Hospital - Gwagwalda	0	133	164	100	397	0.013445	58
St. Vincents Hospital	0	205	118	57	380	0.012869	55
Wannun General Hospital	0	236	87	53	376	0.012734	55
Mubi General Hospital	1	188	75	109	373	0.012632	54
Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital- Zaki Biam	0	231	75	62	368	0.012463	53
Sankera General Hospital	0	215	78	75	368	0.012463	53
Bishop Murray Medical Center	0	187	120	51	358	0.012124	52
Adikpo General Hospital	0	212	92	51	355	0.012022	52
St. Monica's Hospital – Adikpo	0	171	109	72	352	0.011921	51
St. Thomas Hospital – Ihugh	0	175	121	56	352	0.011921	51
University of Benin Teaching Hospital (UBTH)	1	98	147	99	345	0.011684	50
Nnamdi Azikiwe University Teaching Hospital	0	84	146	102	332	0.011244	48
University of Port Harcourt Teaching Hospital	1	158	101	64	324	0.010973	47
GEN.HOSPITAL Chanchaga	1	155	100	64	320	0.010837	46
Hasiya Bayero Paediatric Hospital	1	169	112	34	316	0.010702	46
Yola Federal Medical Centre	2	116	128	67	313	0.0106	45
Ahmadu Bello University Teaching Hospital - Shika	0	87	109	94	290	0.009821	42
Northbank General Hospital	0	157	76	52	285	0.009652	41

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Badagry General Hospital	4	127	98	44	273	0.009245	40
Calabar General Hospital	0	143	61	63	267	0.009042	39
Gombe State Specialist Hospital	0	132	71	64	267	0.009042	39
Gwamna Awan General Hospital	1	135	87	43	266	0.009008	39
Ugba General Hospital	2	157	70	36	265	0.008975	38
Faith Alive Foundation	0	81	98	76	255	0.008636	37
Abubakar Tafawa Balewa University Teaching Hospital	0	103	89	55	247	0.008365	36
Murtala Mohammed Specialist Hospital	1	101	90	53	245	0.008297	36
Yusuf Dantsoho Memorial Hospital	4	118	79	43	244	0.008263	35
Federal Medical Center – Gombe	0	69	95	74	238	0.00806	35
Barau Dikko Specialist Hospital	3	57	116	56	232	0.007857	34
Ajeromi General Hospital	3	140	50	38	231	0.007823	34
Plateau State Specialist Hospital	0	88	84	58	230	0.007789	33
Oron General Hospital (Iquita)	4	114	46	64	228	0.007721	33
University Of Nigeria Teaching Hospital (UNTH)	0	90	81	57	228	0.007721	33
Kafanchan General Hospital	0	107	85	33	225	0.00762	33
St. Gerald's Hospital – Kaduna	0	60	102	61	223	0.007552	32
Asokoro District Hospital	0	104	60	50	214	0.007247	31
Oturkpo General Hospital	0	85	66	57	208	0.007044	30
Agbor Central Hospital	2	100	71	33	206	0.006976	30
Gboko East Comprehensive Health Center	1	124	31	44	200	0.006773	29
Potiskum General Hospital	0	99	39	62	200	0.006773	29
Ahoada General Hospital	0	123	46	28	197	0.006672	29
University Teaching Hospital	4	106	64	22	196	0.006638	28
Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Anyiin	0	63	86	46	195	0.006604	28
Our Lady of Apostles Hospital - Akwanga	1	90	75	29	195	0.006604	28
Enugu-Ezike District Hospital	0	100	51	38	189	0.006401	27
Federal Medical Center – Keffi	0	61	54	69	184	0.006231	27
Ikot Ekpene General Hospital	0	86	53	44	183	0.006198	27
Auchi Central Hospital	0	108	48	26	182	0.006164	26
National Hospital – Abuja	0	28	58	96	182	0.006164	26
Federal Medical Center – Owerri	0	79	58	42	179	0.006062	26
Mararaba Guruku Medical Center	0	91	54	33	178	0.006028	26
Adeoyo Maternity Hospital	1	105	55	16	177	0.005994	26
Ogoja General Hospital	0	81	59	33	173	0.005859	25
Woma Clinic and Maternity	0	112	23	35	170	0.005757	25

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Daughters of Charity (DOC) Hospital - Kubwa	1	96	43	30	170	0.005757	25
GENERAL HOSP SULEJA	0	88	57	25	170	0.005757	25
Bingham University Teaching Hospital	0	27	81	61	169	0.005723	25
Grimmard Hospital – Anyingba	1	81	48	38	168	0.00569	24
Obafemi Awolowo University Teaching Hospital Complex	1	73	56	37	167	0.005656	24
Bayara Infectious Diseases Hospital	0	82	52	32	166	0.005622	24
Gwantu General Hospital	3	106	35	21	165	0.005588	24
Our Lady of Lourdes Hospital	0	72	54	38	164	0.005554	24
General Hospital Buruku	0	98	38	27	163	0.00552	24
Maitama General Hospital	0	50	73	36	159	0.005385	23
St Charles Borromeo Hospital	0	58	49	48	155	0.005249	23
Shendam General Hospital	0	84	32	38	154	0.005215	22
Kaltungo General Hospital	0	63	51	37	151	0.005114	22
Ogoja Catholic Maternity Hospital	1	56	67	26	150	0.00508	22
Irrua Specialist Hospital	1	74	48	27	150	0.00508	22
Federal Medical Center – Abeokuta	1	82	45	22	150	0.00508	22
Federal Medical Center – Owo	0	69	63	18	150	0.00508	22
Aliade General Hospital	0	95	33	21	149	0.005046	22
University of Calabar Teaching Hospital	2	83	38	26	149	0.005046	22
Main Town Nasarawa Primary Health Care	0	84	30	34	148	0.005012	21
Katsina General Hospital	0	66	51	30	147	0.004978	21
Ankpa General Hospital	0	59	44	40	143	0.004843	21
St. Mary's Hospital – Okpoga	0	60	46	34	140	0.004741	20
Azare Federal Medical Centre	2	54	43	40	139	0.004707	20
Sev-Av Foundation – Gboko	4	72	41	21	138	0.004674	20
Hajiya Gambo Sawaba Hospital	1	73	38	25	137	0.00464	20
Alimosho General Hospital	2	70	30	35	137	0.00464	20
Lokoja Federal Medical Center	1	56	51	27	135	0.004572	20
Yenagoa Federal Medical Centre	0	83	27	22	132	0.00447	19
Akwanga General Hospital	2	64	42	24	132	0.00447	19
St. Francis Hospital	0	95	29	7	131	0.004436	19
Sabon Tasha General Hospital	0	68	32	30	130	0.004403	19
Anambra State University Teaching Hospital	0	52	39	38	129	0.004369	19
Holley Memorial - Ochadamu	0	58	35	36	129	0.004369	19
Usman DanFodio University Teaching Hosp	0	44	48	37	129	0.004369	19
Federal Medical Center - Asaba	3	46	48	31	128	0.004335	19

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General Hospital Naka	1	79	22	24	126	0.004267	18
Annunciation Specialist Hospital- Emene	2	44	46	33	125	0.004233	18
Nasarawa Eggon General Hospital	0	72	37	16	125	0.004233	18
Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Mbaakon	0	66	30	26	122	0.004132	18
Federal Teaching Hospital (FETHA) - Abakaliki	1	56	37	28	122	0.004132	18
St. Patrick Mile 4 Hospital - Abakaliki	1	52	35	32	120	0.004064	17
UITH	1	58	37	23	119	0.00403	17
Doma General Hospital	1	66	32	18	117	0.003962	17
Funtua General Hospital	0	31	31	54	116	0.003928	17
State Hospital - Ijebu Ode	0	64	31	20	115	0.003895	17
Enugu State University Teaching Hospital (Parklane Specialist Hospital)	0	54	31	29	114	0.003861	17
SABON WUSE GEN. HOSP	0	64	25	25	114	0.003861	17
Nongu u Kristu ke Sudan hen Tiv (NKST) Hospital - Jato Aka	0	57	31	25	113	0.003827	16
Dr Lawrence Henshaw Memorial Hospital	0	34	29	50	113	0.003827	16
Song Cottage Hospital	2	55	23	30	110	0.003725	16
Ugba Comprehensive Health Center	0	58	21	30	109	0.003691	16
Garkida General Hospital	0	50	20	38	108	0.003658	16
Kawo General Hospital	0	58	26	23	107	0.003624	16
Mbagen Community Hospital - Abwa	0	61	30	15	106	0.00359	15
Holy Family Catholic Hospital	0	60	28	18	106	0.00359	15
Churchill Model Primary Health Centre	0	52	10	44	106	0.00359	15
Pope John Paul Clinic	1	78	22	5	106	0.00359	15
FMC BIDA	2	34	38	31	105	0.003556	15
Maiduguri State Specialist Hospital	3	60	20	18	101	0.00342	15
Idah General Hospital	0	48	24	29	101	0.00342	15
Kogi Diagnosis Referral Hospital	1	63	20	17	101	0.00342	15
Ituk Mbang Methodist General Hospital	3	49	10	38	100	0.003387	15
Sev-Av Foundation - Vandeikya	0	58	31	11	100	0.003387	15
Total	111	13426	9244	6747	29528	1	4289
% of total	0.4%	45.5%	31.3%	22.8%	100.0%		

Appendix 4: Statement of Intent to Maintain Confidentiality

I, will at all times maintain the confidentiality of the patients whose charts are reviewed, and the health workers, who are interviewed, as part of this evaluation. At no time will I disclose the names of patients whose charts are reviewed, or any information within the charts. At no time will I disclose the names of health workers interviewed, or any details of the interview. Charts will be reviewed in a private location. If there are questions related to the chart review, these will be discussed with the team facilitator or site manager in a private location. No names will be written on the data abstraction forms or on the interview sheets. The study register will be destroyed as soon as the pharmacy register has been reviewed. Once the evaluation is complete, names of patients, or data within individual charts, or details of interviews, will not be discussed with anyone.

Signed by:.....

Place:.....

Date:.....

Witness 1:.....

Witness 2:.....

Serious Adverse Event (SAE) Report Form

Protocol Number: _____

Site Name: _____

Pt ID: _____

___ / ___ / ___
d d m m m y y y y

- ☐ Device (specify): _____
- ☐ Surgery (specify): _____
- ☐ Behavioral/lifestyle (specify): _____

9. Relationship of event to intervention:

- ☐ Unrelated (clearly not related to the intervention)
- ☐ Possible (may be related to intervention)
- ☐ Definite (clearly related to intervention)

10. Was study intervention discontinued due to event? ☐ Yes ☐ No

11. What medications or other steps were taken to treat the SAE?

12. List any relevant tests, laboratory data, and history, including preexisting medical conditions:

13. Type of report:

- ☐ Initial
- ☐ Follow-up
- ☐ Final

Signature of principal investigator: _____ Date: _____

