NAMPROPA: The Namibia Project for Retention of Patients on ART

Results of a Quality Improvement Collaborative in 24 Health Facilities in Namibia

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HRSA Ryan White & Global HIV/AIDS Programs

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Healthqual

UCSF

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Executive Summary

Background

This report summarizes the results of the Namibia Project for Retention of Patients on ART (NAMPROPA), a quality improvement collaborative with the aim of improving retention, viral load monitoring and suppression, and hypertension screening and treatment among people living with HIV in Khomas, Ohangwena, and Zambezi Regions, Namibia. NAMPROPA was led by the Republic of Namibia's Ministry of Health and Social Services (MoHSS) with technical support from CDC-Namibia and HEALTHQUAL at the University of California, San Francisco (UCSF) and funding through the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) as part of the Health Resources and Services Administration's (HRSA) Quality Improvement Capacity for Impact Project (QICIP) award #U1NHA08599. The contents are the responsibility of HEALTHQUAL and do not necessarily reflect the views of the U.S. Government.

Key Findings

- Average monthly rates of loss to follow-up decreased by 5% from 17% in NAMPROPA's first quarter (March 2017-May 2017) to 12% in its last quarter (December 2017-February 2018).
- Between the first and last quarter of NAMPROPA, the viral load monitoring rate across participating sites increased by 11% (84% vs. 95%).
- Viral suppression (<1,000 copies/mL) across participating sites increased from 80% in NAMPROPA's first quarter to 90% in its last quarter.
- Throughout NAMPROPA implementation, an average of 14,044 ART patients per month were screened for hypertension.
- In the final six months of NAMPROPA, 1,508 ART patients were newly diagnosed with hypertension, of which 854 (57%) were initiated on antihypertensive treatment.
- HIV quality management capacity among NAMPROPA sites, as measured by organizational assessment scores, increased dramatically across all domains, with the most significant improvements seen in outcomes monitoring.

Conclusions

Results of NAMPROPA activities indicate improvements in loss to follow-up, viral load monitoring, viral suppression, and hypertension screening and treatment initiation. Moreover, NAMPROPA activities were associated with site-level improvements in HIV quality management capacity, particularly in the areas of data use and outcomes monitoring. As NAMPROPA activities are spread to other sites in CY 2018 and beyond, focused attention will be required to ensure that efficacious interventions are implemented with high fidelity at new sites, and that improvements made in existing sites are sustained.

Introduction

Of the estimated 237,126 people living with HIV (PLHIV) in Namibia, approximately 169,568 are active on antiretroviral therapy (ART). Although retention among PLHIV on ART in Namibia is approximately 80%, retention rates according to geography, age and sex are nevertheless highly variable. Moreover, rates of viral suppression—the primary objective of efforts to retain PLHIIV on ART—are likewise highly variable in Namibia, reflecting geographic-, age-, and sex-specific gaps along the cascade of HIV care and treatment. For example, while an estimated 87% of all PLHIV on ART in Namibia were virally suppressed in 2016, this figure was only 71% among PLHIV aged 15-24, suggesting that an expansion in the coverage of HIV services alone is necessary, though not sufficient, to achieve epidemic control.

Ensuring that all PLHIV on ART in Namibia, regardless of geography, age, and sex, are retained in HIV care that results in the achievement of durable viral suppression is critical to achieving the UNAIDS' 90-90-90 targets and improving the quality of life of PLHIV in Namibia. With funding through the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) as part of the Health Services and Resources Administration's (HRSA) Quality Improvement Capacity for Impact Project (QICIP), HEALTHQUAL at the University of California, San Francisco (UCSF) has partnered with the Namibia Ministry of Health and Social Services (MoHSS) to implement the Namibia Project for Retention of Patients on ART (NAMPROPA), a quality improvement collaborative with the aim of improving retention, viral load monitoring, viral suppression, and hypertension screening and treatment among PLHIV on ART in Namibia. Launched in November 2016 and formally concluded in February 2018, NAMPROPA spanned 24 health facilities in PEPFAR-designated scale-up aggressive districts in the regions of Khomas, Ohangwena, and Zambezi. In total, it is estimated that NAMPROPA sites provide HIV care to nearly one-third of all PLHIV on ART in Namibia's public sector.

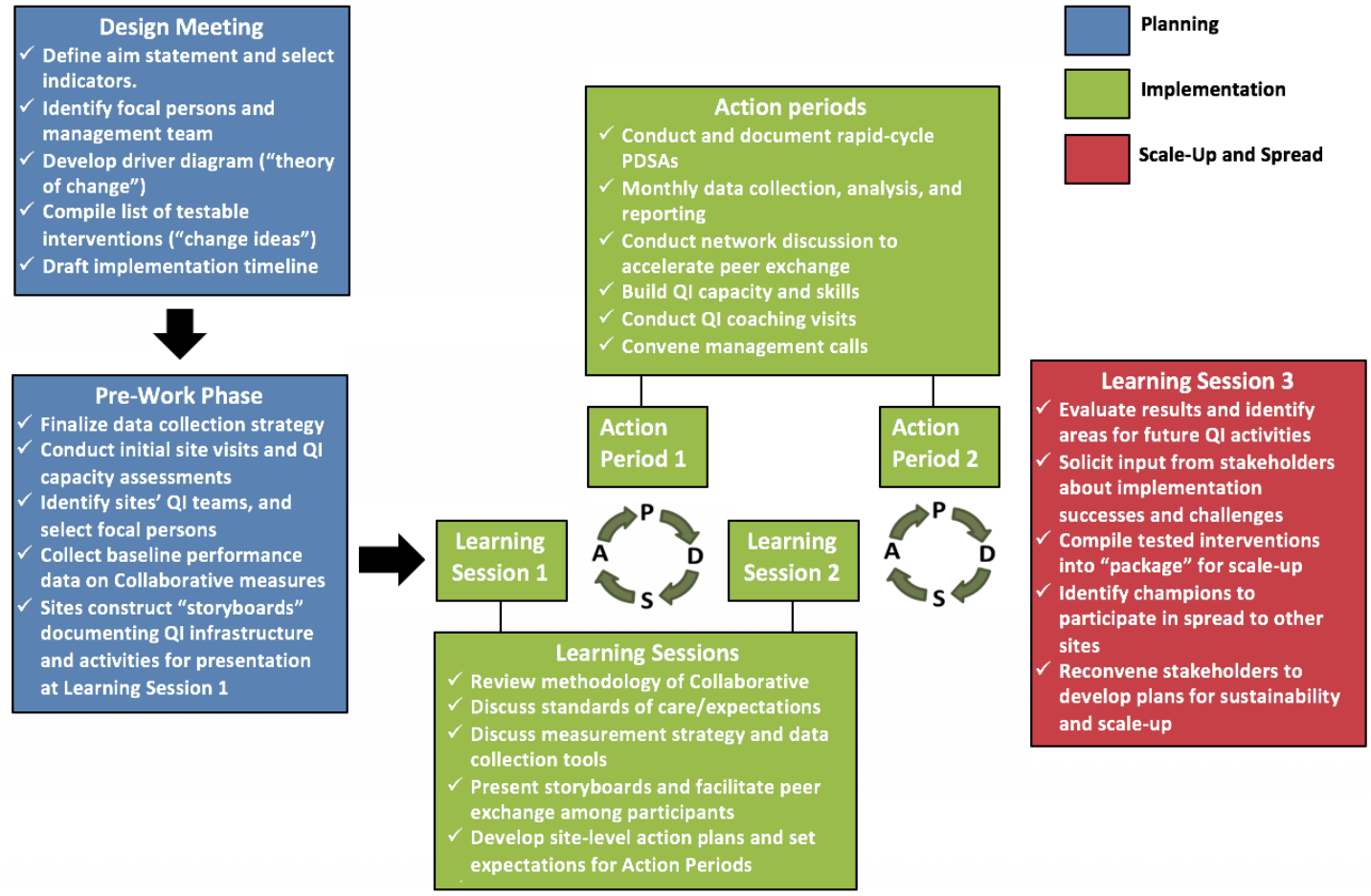
This report summarizes the design, implementation, and results of NAMPROPA from its inception in November 2016 to its formal conclusion in February 2018. In particular, it highlights the adaptation of the quality improvement collaborative model to the Namibian context, the incorporation of NAMPROPA activities into existing national quality management infrastructures and frameworks, and the utility of the collaborative methodology in integrating HIV and non-communicable disease (NCD) services. The report concludes with a summary of plans for national scale-up of NAMPROPA activities, and an analysis of resources required for sustainability.

Background

Quality Improvement Collaborative Approach

The design of the NAMPROPA Quality Improvement Collaborative (QIC) was adapted from the Institute for Healthcare Improvement's Breakthrough Series (BTS) Model (**Figure 1**), an improvement science methodology in which participating sites are convened to apply proven quality improvement (QI) methods (e.g., Plan-Do-Study-Act [PDSA] cycles, cascade analysis, process mapping, root cause analysis) to the identification and improvement of gaps in a specific area of healthcare service delivery. Originally piloted in the United States, QICs have been adapted with significant success in low- and middle-income country contexts and clinical settings as varied as HIV/AIDS, family planning and maternal and child health. Unlike traditional QI approaches in which individual projects are implemented and evaluated at individual sites over a period of months, QICs features more frequent performance measurement and smaller-scale tests of interventions, enabling sites to test multiple interventions and share experiences with peers over a compressed period of time. Through the QIC approach, accumulation of evidence-based interventions and performance improvements are therefore significantly accelerated, leading to the compilation of a "package" of proven interventions and a sustainable network of peer learning in which "all [participants] teach, and all learn." **Figure 1** outlines the structure of the NAMPROPA QIC, including key outputs associated with each step of implementation.

Figure 1. NAMPROPA QIC Structure



Indicators

Indicators were selected by MoHSS and key stakeholders, and reflect definitions outlined in the National Guidelines for Antiretroviral Therapy (2016) and the Namibia Standard Treatment Guidelines (STG) (2011) (**Table 1**)**.** All Indicators were collected by sites from new or existing data sources and reported on a monthly basis using a pre-programmed Excel spreadsheet (**Appendix**), and disaggregated by age and sex beginning in September 2017. In response to the high burden of non-communicable diseases (NCD) in Namibia and national efforts to integrate NCD and HIV care, hypertension screening and treatment were included as NAMPROPA indicators.

Table 1. NAMPROPA Indicators

Indicator	Definition	Data Source
1. Loss to follow-up (LTFU)	Proportion of patients on ART without a clinic visit or medication pickup in the last 90 days.	ePMS
2. Viral load (VL) monitoring	Proportion of eligible patients on ART who received a viral load test.	ePMS, paper registers
3. Viral suppression	Proportion of patients who received a viral load test result indicating a suppressed viral load (<1,000 RNA copies/mL).	ePMS, paper registers
4. Hypertension screening	Proportion of adult patients (>15 years) on ART who were screened for hypertension.	Paper registers
5. Hypertension treatment	Proportion of adult patients on ART newly diagnosed with hypertension who received antihypertensive treatment.	Paper registers

Site Selection

Twenty four (24) facilities in Khomas, Ohangwena, and Zambezi Regions participated in NAMPROPA (**Table 2**). Of these, 6 were tertiary healthcare facilities, 6 were secondary healthcare facilities, and 12 were primary healthcare facilities. All 24 sites had at least one registered nurse in residence, yet only 8 had an assigned physician. All participating facilities were located in PEPFAR-designated scale-up aggressive regions, defined as geographic areas with high burdens of HIV infection and significant gaps in ART coverage. In total, it is estimated that NAMPROPA facilities provide ART services to approximately 55,000 PLHIV.

Table 2. NAMPROPA Participating Sites

Region	Facility Name and Patient Volume	
Khomas	Katutura Health Center***	Otjomuise Clinic*
	Katutura Intermediate Hospital***	Robert Mugabe Clinic**
	Khomasdal Health Center**	Windhoek Central Hospital**
	Okuryangava Clinic**	
Ohangwena	Eenhana Clinic**	Ongenga Clinic*
	Ekoka Clinic*	Ongha Health Center**
	Engela Hospital***	Oshaango Clinic*
	Odibo Health Center**	Oshandi Clinic*
	Okongo Clinic*	Oshikunde Clinic*
Zambezi	Bukalo Health Center*	Ngweze Clinic*
	Katima Mulilo Clinic*	Sesheke Clinic*
	Katima Mulilo Hospital**	Sibbinda Health Center*
	Mavuluma Clinic*	

Legend: *0-999 active ART patients | **1,000-4,999 active ART patients | ***>5,000 active ART patients

QI Coaching

Participating sites received QI coaching and support from regional clinical and district nurse mentors, an existing cadre of physicians and nurses employed by the MoHSS Directorate of Special Programs (DSP) with special expertise in HIV clinical care. As part of Collaborative activities, regional mentors visited sites at a minimum of a monthly basis to review sites' performance, assist with the design, execution, and evaluation of PDSA cycles, and communicate Collaborative updates. Technical support for regional mentors in QI methods and coaching was provided by the MoHSS QM Team, IHI, and HEALTHQUAL, and monthly check-in calls between HEALTHQUAL and MoHSS were convened to monitor implementation and discuss challenges.

Key Activities

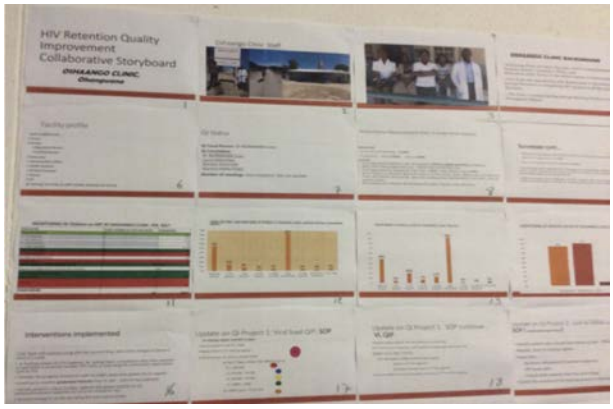
Design Meeting

The Collaborative's Design Meeting was convened in Windhoek, Namibia, from November 21-25, 2016, by MoHSS and key stakeholders from CDC-Namibia, HEALTHQUAL, IntraHealth International Namibia, I-TECH Namibia, Project Hope, and Development Aid from People to People (DAPP)/Total Control of the Epidemic (TCE). During the Meeting, attendees discussed the proposed scope, geographic focus, and duration of the Collaborative, and drafted an aim statement to guide Collaborative implementation: "**To improve retention and attain viral suppression in Khomas, Zambezi, and Ohangwena Regions to reach the 90-90-90 goals for Namibia by 31 August 2018**." In addition, Design Meeting attendees drafted the Collaborative's terms of reference and driver diagram, and selected five indicators to track Collaborative progress on a monthly basis. Furthermore, Lastly, Design Meeting attendees reviewed existing QI coaching capacity in Khomas, Ohangwena, and Zambezi Regions and discussed an approach to forming QI coaching teams.

Pre-Work Period

The pre-work period began following the conclusion of the Collaborative's Design Meeting in November 2016. During this period, regional coaching teams were identified, the Collaborative terms of reference were drafted, and initial site visits were completed. A total of 138 healthcare workers (36 in Khomas, 64 in Ohangwena, and 38 in Zambezi) comprised of physicians, nurses, pharmacists, data clerks, health assistants and field officers were reached during site visits. In addition, participating sites identified Collaborative focal persons, collected baseline performance data, and began construction of storyboards (**Figure 2**) in preparation for the first learning session.

Figure 2. NAMPROPA storyboards



Learning Session 1

The first learning session (LS) was held February 27-March 1, 2017, in Ondangwa, Namibia, bringing together 107 participants from Collaborative sites, and stakeholders from MoHSS, CDC-Namibia, IntraHealth, I-TECH, Project HOPE, DAPP, IHI, and HEALTHQUAL. During the learning session, attendees received training on Collaborative methodology and QI methods such as the Model for Improvement, run chart analysis, data collection, Collaborative indicators, process mapping, change ideas, and Plan-Do-Study-Act (PDSA) cycle planning and evaluation. In addition, teams from participating sites presented storyboards (**Figure 2**) that summarized their baseline performance data and described current QI activities. Follow-up discussions and peer exchange were facilitated by MoHSS, HEALTHQUAL and IHI advisors. Sites were encouraged to share successful interventions and approaches. The meeting concluded with revision of the Collaborative's driver diagram (see **Appendix**), dissemination of data collection tools and teams' development of implementation plans for the first action period.

Action Period 1

Activities for Action Period 1 began at the conclusion of the first LS. During this period, sites conducted rapid tests of change to improve their existing systems and processes. Data were collected, analyzed and reported on a monthly basis to track the results of their interventions. Clinical and nurse mentors conducted monthly site visits, and provided ongoing support to sites in their planning and execution of PDSA cycles. In addition, the MoHSS QM team visited sites on a quarterly basis to provide overall technical support and the Collaborative management team conducted weekly virtual meetings to monitor implementation progress. Finally, sites prepared presentations of their activities and results for LS.

Learning Session 2

The second LS was held July 4-6, 2017, in Otjiwarongo, Namibia. A total of 102 participants from Collaborative sites and MoHSS stakeholders (i.e., CDC-Namibia, HEALTHQUAL, IHI, IntraHealth International, I-TECH Namibia, Project HOPE, and DAPP/TCE) were in attendance. The aim of the second LS was to create a common learning platform for successful implementation of NAMPROPA, while specific objectives were to review progress of NAMPROPA through storyboard presentations, assess and benchmark results, and develop work plans for the second action period. During the LS, attendees received refresher training on Collaborative measures, the Model for Improvement, and PDSA implementation. In addition, Dr. Michael Mugavero, Professor of Medicine and Co-Director of the Center for AIDS Research, University of Alabama, Birmingham, delivered a virtual presentation on retention measurement and reengagement strategies, underscoring the importance of missed visits as an actionable item associated with mortality and evidence-based interventions involving peer support. Collaborative-wide data were presented by HEALTHQUAL, with visual display of regional trends for each indicator. Finally, teams from participating sites delivered presentations on their QI activities and results from the first action period, with follow-up discussions facilitated by regional nurse and clinical mentors. The meeting concluded with teams' development of implementation plans for the second action period.

Action Period 2

Activities for Action Period 2 began at the conclusion of the second LS. During this period, sites conducted rapid tests of change to improve their existing systems and processes. Data were collected, analyzed and reported on a monthly basis to track the results of their interventions. QI coaching of participating sites continued with ongoing support from the MoHSS QM team. In addition to Collaborative-wide LS, and specifically in preparation for 3rd LS, regional teams used innovative ideas such as soliciting sponsorships for food and transportation to convene facility teams to share best practices and discuss common implementation challenges. Between July 2017 and February 2018, seven regional exchange meetings (two in Khomas, three in Ohangwena, and two in Zambezi) were held with facilitation by regional clinical and nurse mentors. Finally, sites prepared presentations of their activities and results for LS.

Learning Session 3

The third LS was held February 6-8, 2018, in Otjiwarongo, with 96 participants from Collaborative sites and stakeholders from MoHSS and HEALTHQUAL. Attendees presented interventions that were tested and subsequently adopted, and discussed their relative importance, ease of implementation, and potential scalability. Small groups were convened to prioritize and rank changes in each region. The exercise involved detailed discussion and comparison of changes, leading to agreement about the best PDSA cycles which were implemented and yielded significant improvement, as well as the scale of regional implementation. These discussions culminated in the construction of a draft change package of interventions for use in scale up and spread of NAMPROPA activities to non-participating sites. To develop sustainability plans, participants were divided into groups by region to discuss proposed activities, with facility teams, while QI coaches, district and regional managers convened separately. The LS concluded with presentations of regions' strategies for sustaining NAMPROPA activities following its formal conclusion in February 2018. These strategies are summarized in table 5.

Results

Data Collection and Presentation

This section summarizes performance measurement reported by NAMPROPA sites between March 1, 2017, and February 28, 2018. It also reports one quarter of data following the formal conclusion of NAMPROPA activities. Performance measurement data for the five NAMPROPA indicators were submitted by sites to regional clinical and nurse mentors on a monthly basis. After submission, these data were reviewed by mentors and submitted to MoHSS QM team for further analysis and aggregation. Following analyses of trends, MoHSS staff liaised with regional mentors to identify focus areas for subsequent PDSAs, and target sites with low performance and/or data quality issues for immediate follow-up. In this report, NAMPROPA- and region-wide performance rates for all measures are calculated according to definitions detailed in **Table 1**, and are visualized month-to-month alongside their corresponding denominator, and site-level performance data are visualized as small multiples. Unless otherwise specified, all analyses reflect comparisons of distinct, cross-sectional panels of patients, and therefore do not intend to imply longitudinal improvements among a single cohort. Moreover, it should be noted that all data are self-reported by participating sites and have not undergone external evaluation. Finally, unless otherwise specified, all comparative analyses are reported for descriptive purposes only, and are not intended to imply statistical significance.

Data Interpretation

Small multiples of run charts are presented to display sites' month-to-month performance. However, these run charts do not feature annotations of contingent factors that may have affected monthly performance, such as medication stock-outs, significant staff-turnover, and malfunction of blood pressure monitors. These factors are documented in site-level Collaborative databases and are available for review upon request. As part of pre-work activities prior to the launch of Collaborative activities in March 2017, sites collected baseline data on the five Collaborative indicators through queries of ePMS and EDT. Owing to significant data quality issues associated with these registers, however, these data are not reported. Since no Collaborative sites were routinely collecting data to measure rates of hypertension screening and treatment at the commencement of NAMPROPA activities, baseline performance on these indicators is assumed to be zero.

Loss to Follow Up

In the first quarter of NAMPROPA implementation, participating sites reported a monthly average of 46,785 active patients on ART (**Figure 3a**). Of these patients, a monthly average of 7,833 (17%) were reported by sites as lost to follow-up (LTFU). By the final quarter of implementation, this figure had decreased to 6,596 (12%), representing a 5% decrease in Collaborative-wide LTFU rate over 12 months. In the three months following the formal conclusion of NAMPROPA activities in February 2018, improvements were maintained. Rates of LTFU were highly variable by site and region (**Figure 3b-g**) In particular, Engela and Eenhana—two high-volume sites in Ohangwena Region—reported high rates of LTFU throughout NAMPROPA implementation. As these figures are the likely artifacts of an incomplete transfer/de-duplication of patient records in ePMS at the time of HIV treatment decentralization, they should be interpreted with caution.

Figure 3a. Number of Active Patients on ART and Loss to Follow Up Rate—NAMPROPA, March 2017-May 2018

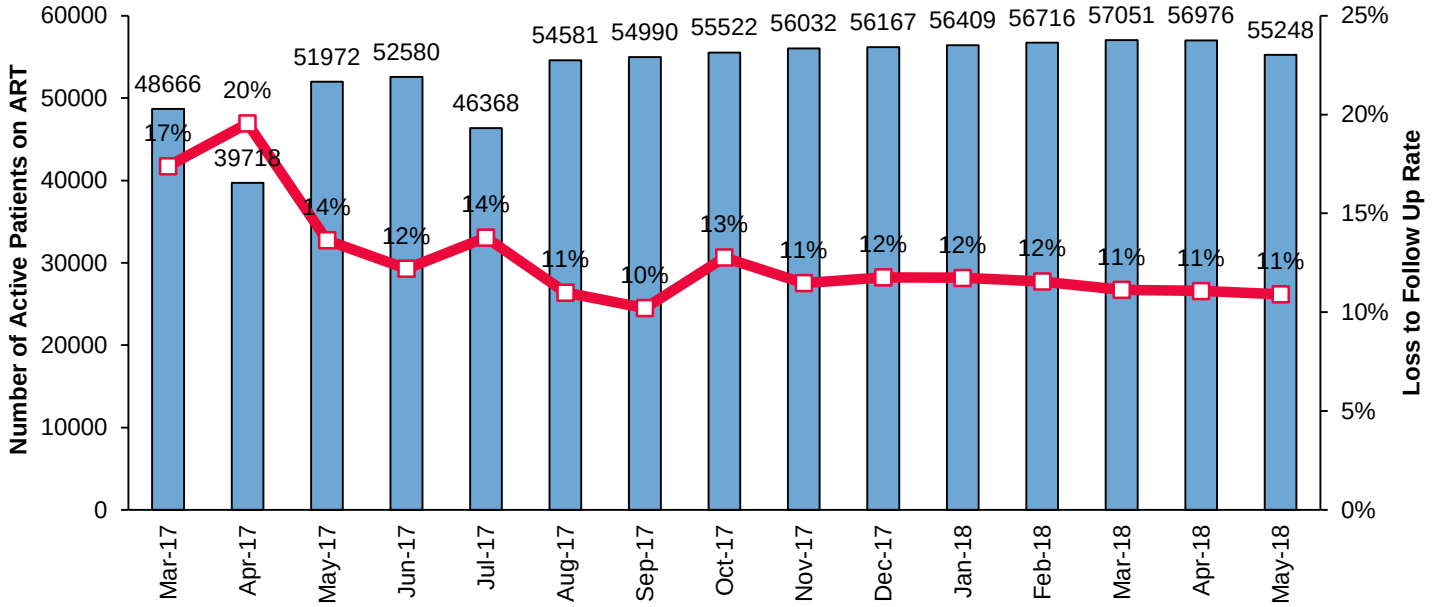
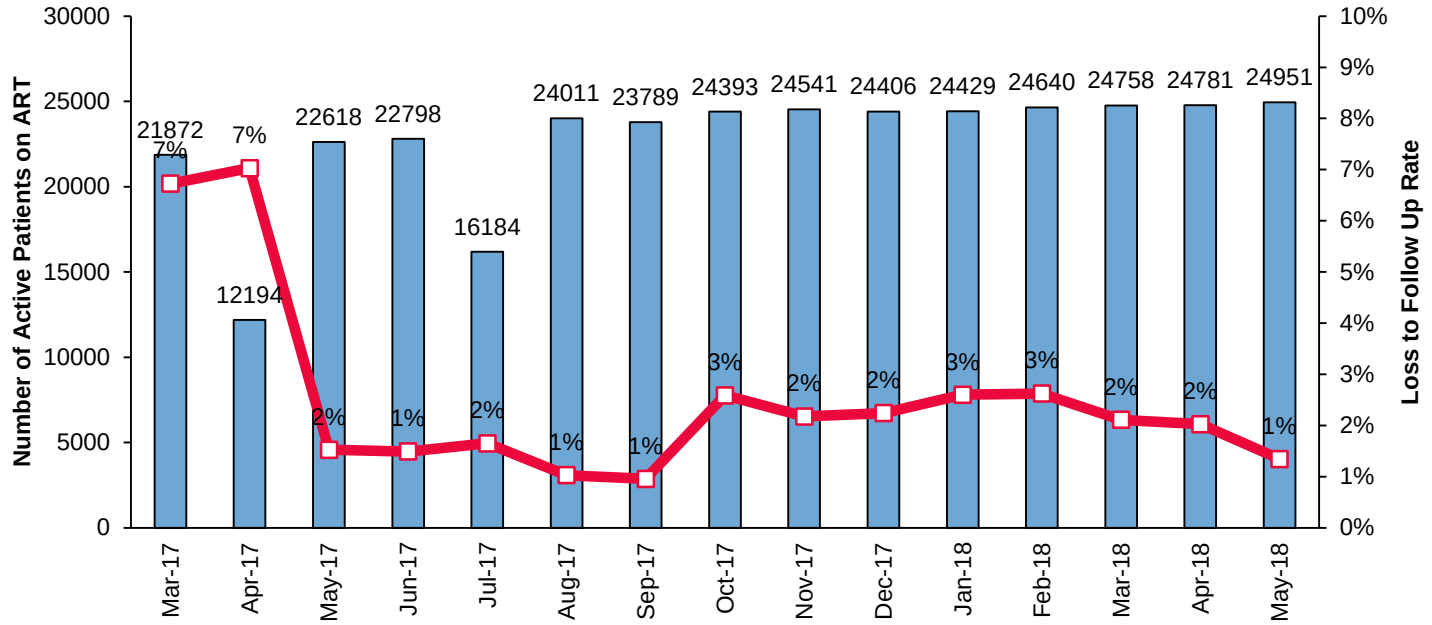


Figure 3b. Number of Active Patients on ART and Loss to Follow Up Rate—Khomas Region, March 2017-May 2018



Loss to Follow Up (Continued)

Figure 3c. Number of Active Patients on ART and Loss to Follow Up Rate—Ohangwena Region, March 2017-May 2018

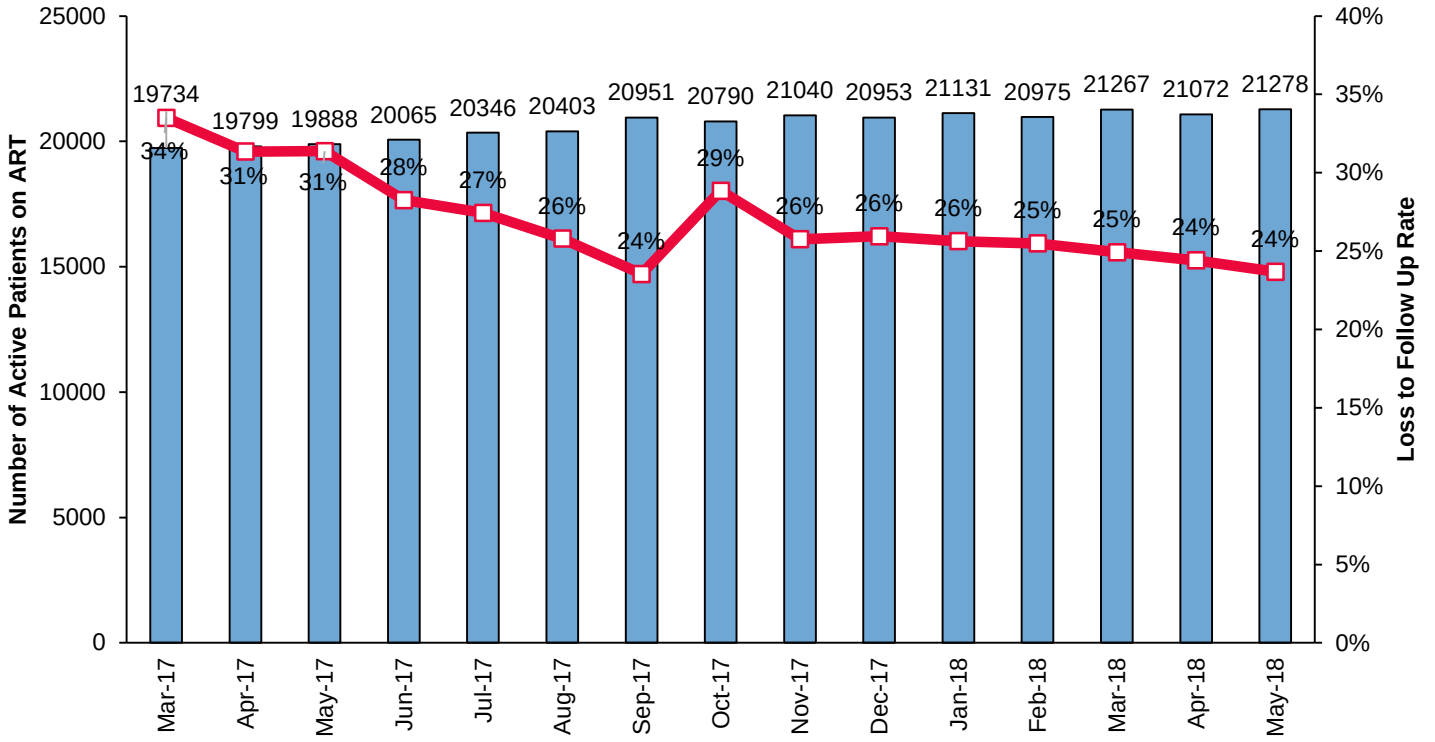
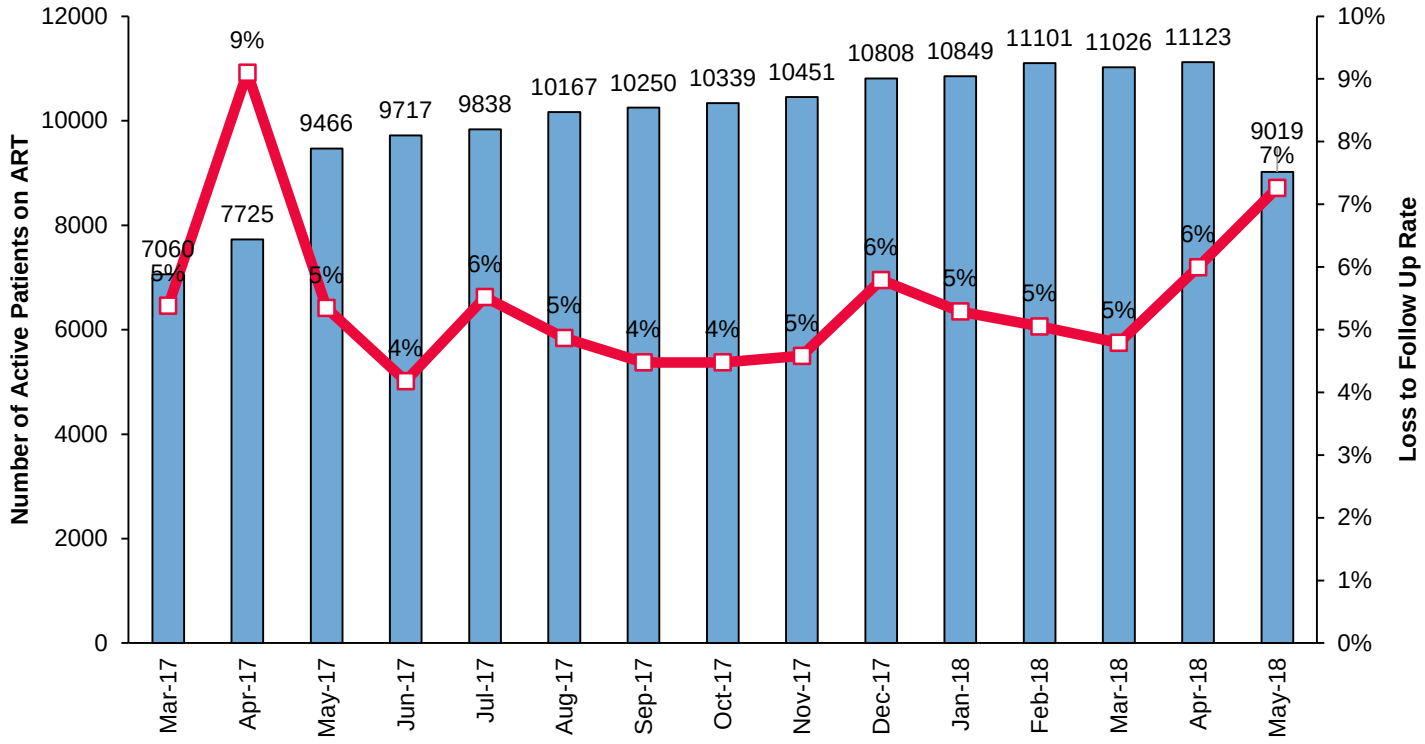
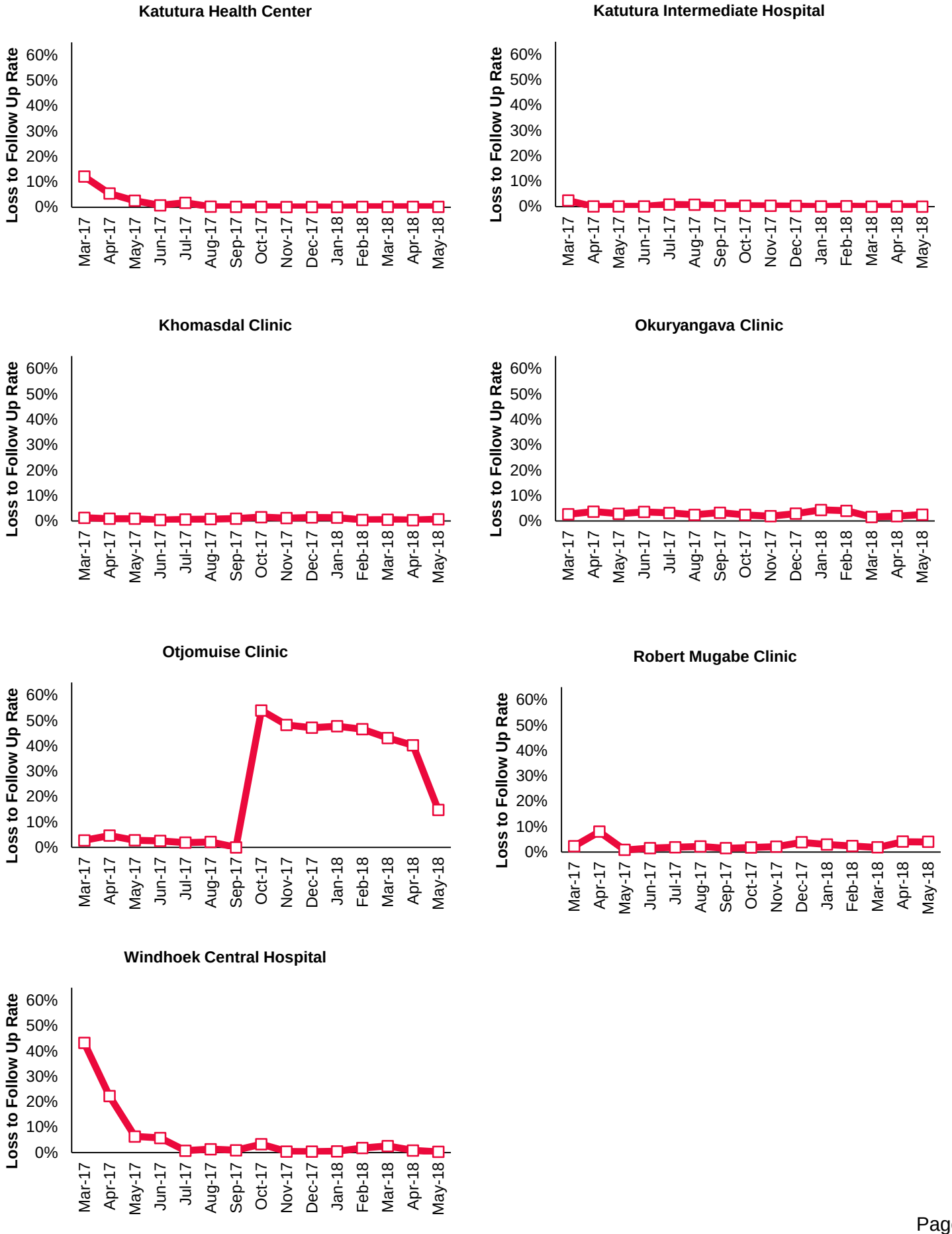


Figure 3d. Number of Active Patients on ART and Loss to Follow Up Rate—Zambezi Region, March 2017-May 2018



Loss to Follow Up (Continued)

Figure 3e. Loss to Follow Up Rate—By Site, Khomas Region, March 2017-May 2018

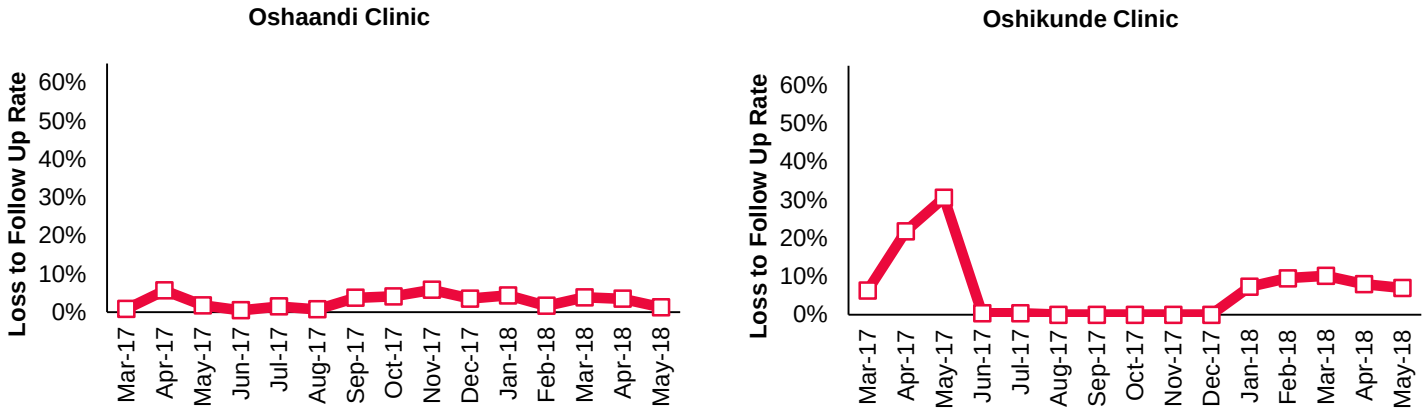


Loss to Follow Up (Continued)

Figure 3f. Loss to Follow Up Rate—By Site, Ohangwena Region, March 2017-May 2018

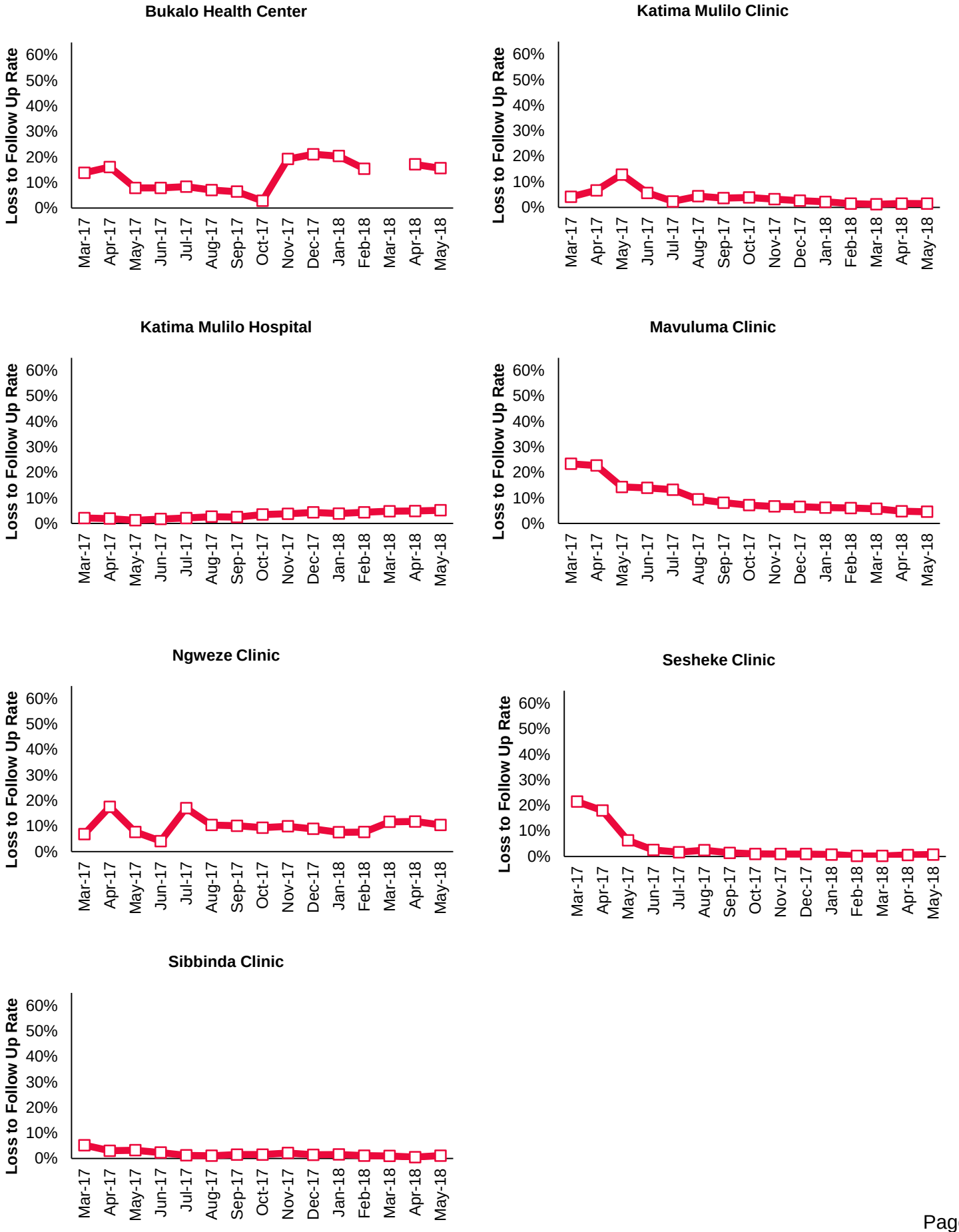
Loss to Follow Up (Continued)

Figure 3f. Loss to Follow Up Rate—By Site, Ohangwena Region, March 2017-May 2018 (Continued)



Loss to Follow Up (Continued)

Figure 3g. Loss to Follow Up Rate—By Site, Zambezi Region, March 2017-May 2018



Viral Load Monitoring

Between March 2017 and May 2017, 12,678 ART patients were eligible for viral load monitoring (**Figure 4a**). Of these, 10,642 received a viral load (VL) test, corresponding to a VL monitoring rate of 84% in NAMPROPA's first quarter. In the final quarter of NAMPROPA, 12,564 (95%) of all eligible patients were successfully monitored—an 11% increase compared to the first quarter. Data collected following the formal end of NAMPROPA activities indicated that improvements were sustained. Site-level and regional variability was generally modest (**Figure 4b-g**), with the majority of sites consistently reporting VL monitoring rates above 85%.

Figure 4a. Number of Active Patients on ART Eligible for a VL Test and VL Monitoring Rate—NAMPROPA, March 2017-May 2018

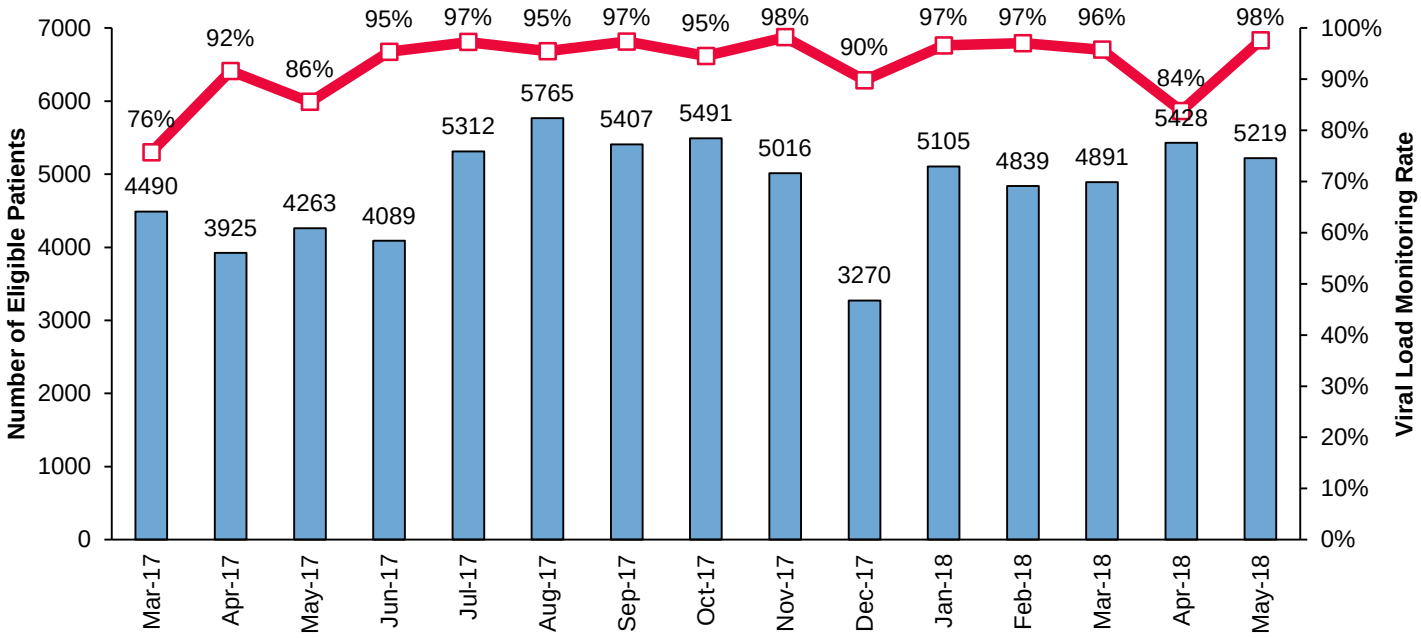
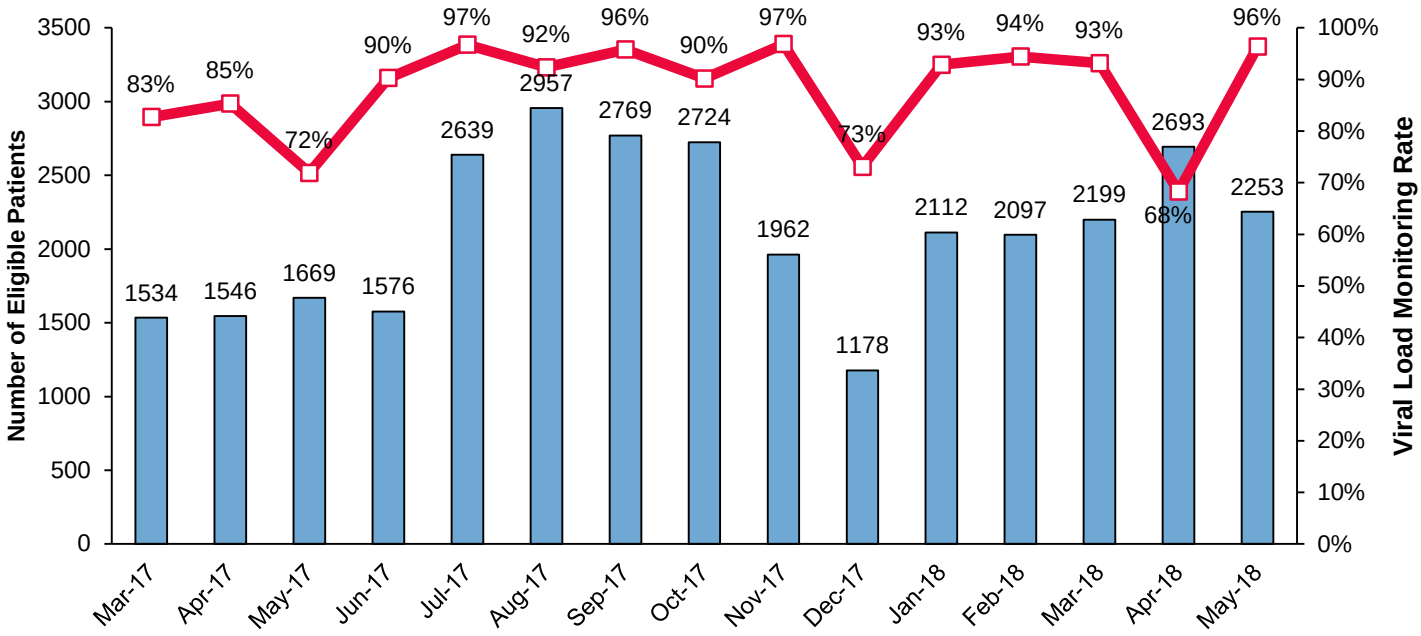


Figure 4b. Number of Active Patients on ART Eligible for a VL Test and VL Monitoring Rate—Khomas Region, March 2017-May 2018



Viral Load Monitoring (Continued)

Figure 4c. Number of Active Patients on ART Eligible for a VL Test and VL Monitoring Rate—Ohangwena Region, March 2017-May 2018

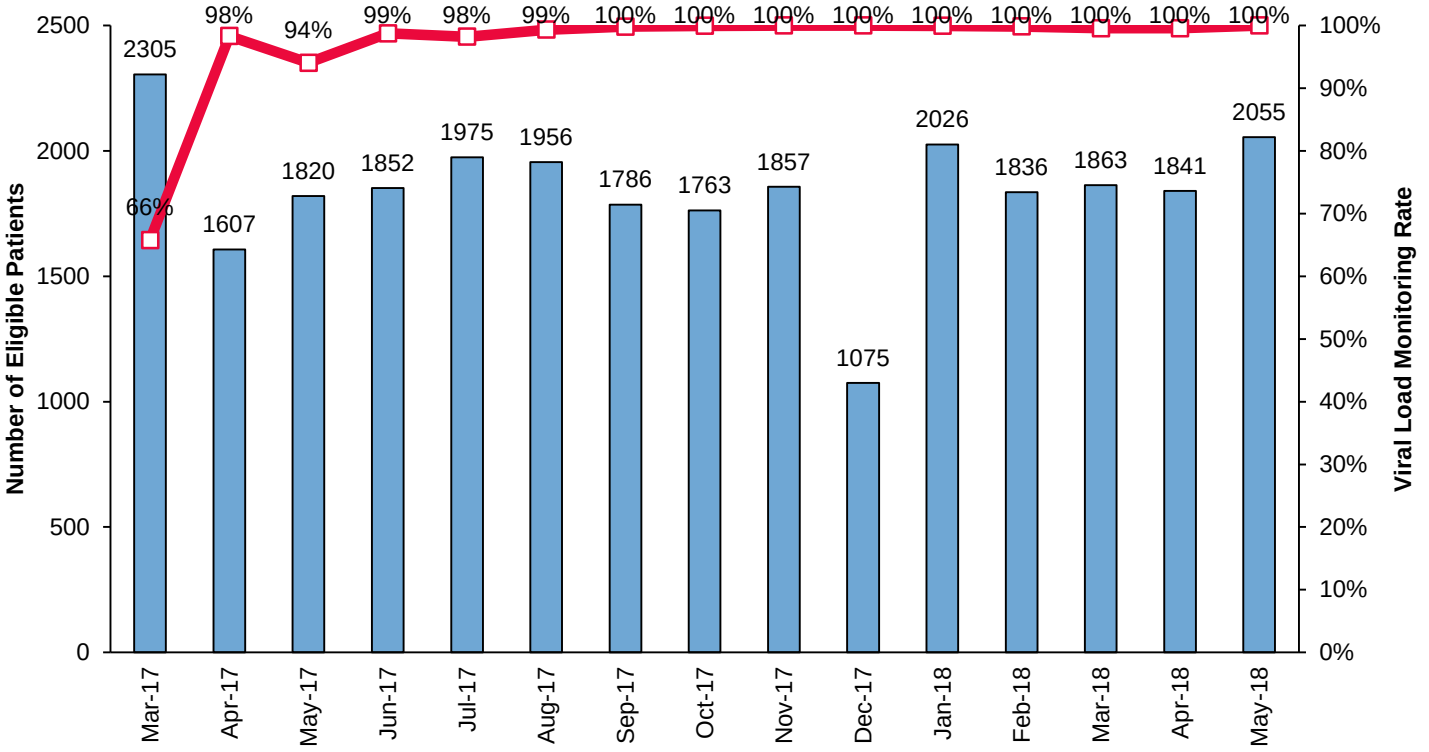
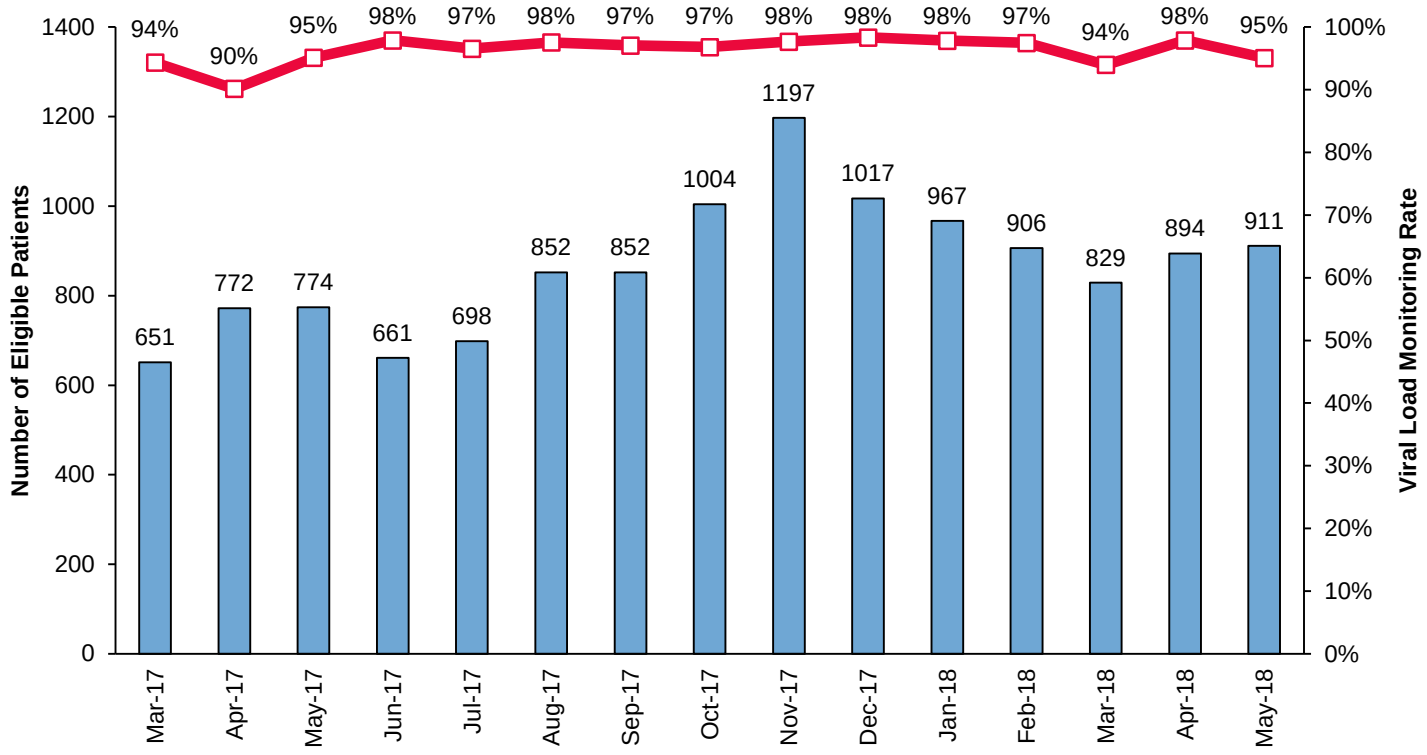
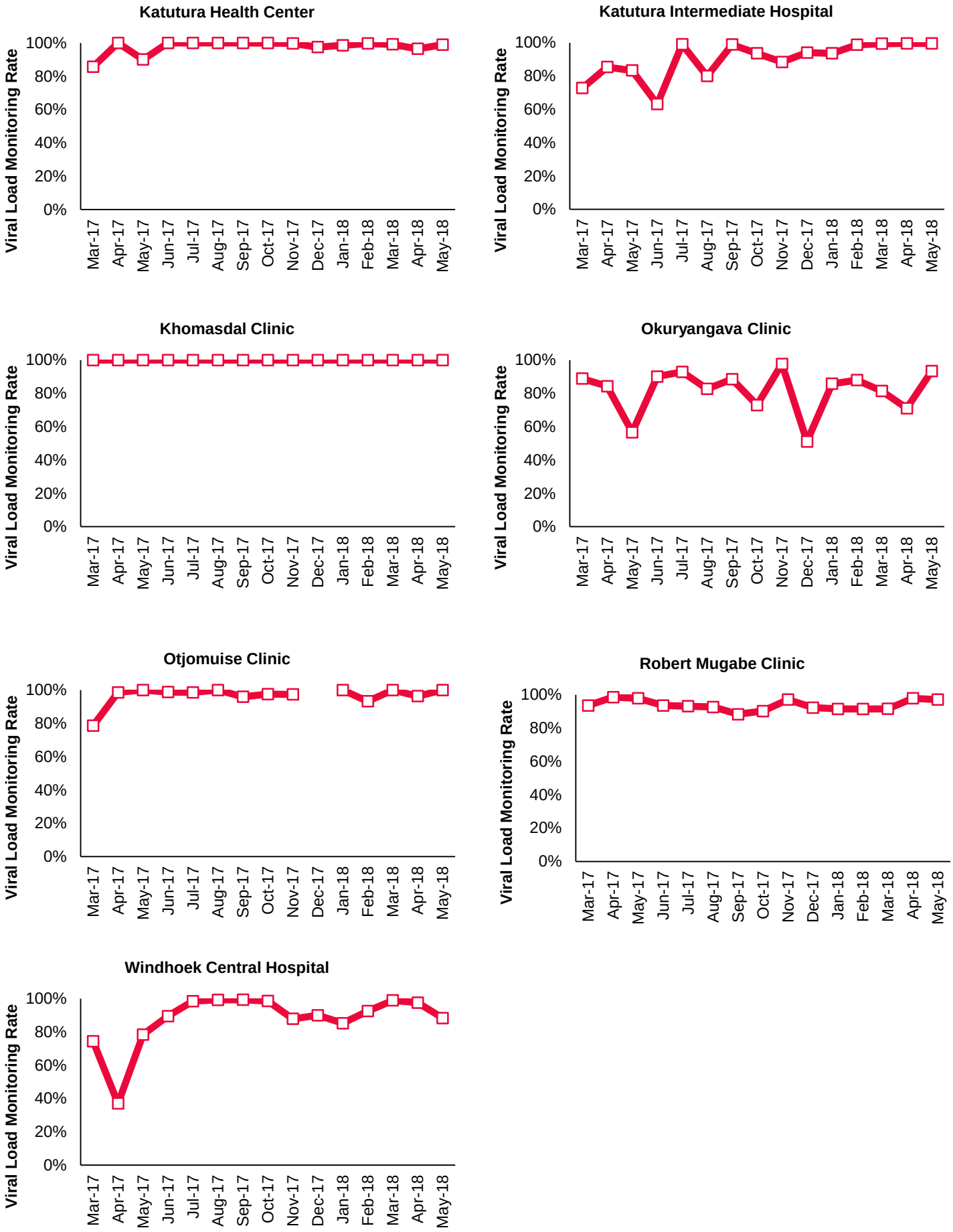


Figure 4d. Number of Active Patients on ART Eligible for a VL Test and VL Monitoring Rate—Zambezi Region, March 2017-May 2018



Viral Load Monitoring (Continued)

Figure 4e. VL Monitoring Rate—By Site, Khomas Region, March 2017-May 2018

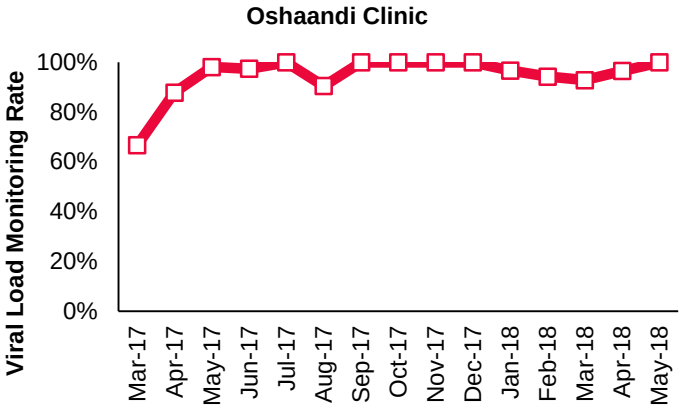


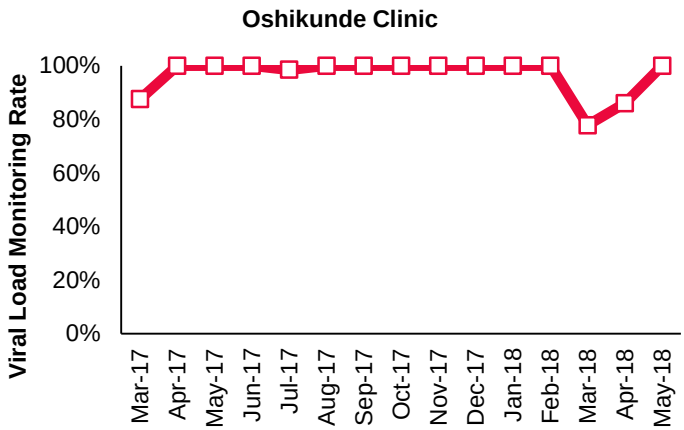
Viral Load Monitoring (Continued)

Figure 4f. Viral Load Monitoring Rate—By Site, Ohangwena Region, March 2017-May 2018

Viral Load Monitoring (Continued)

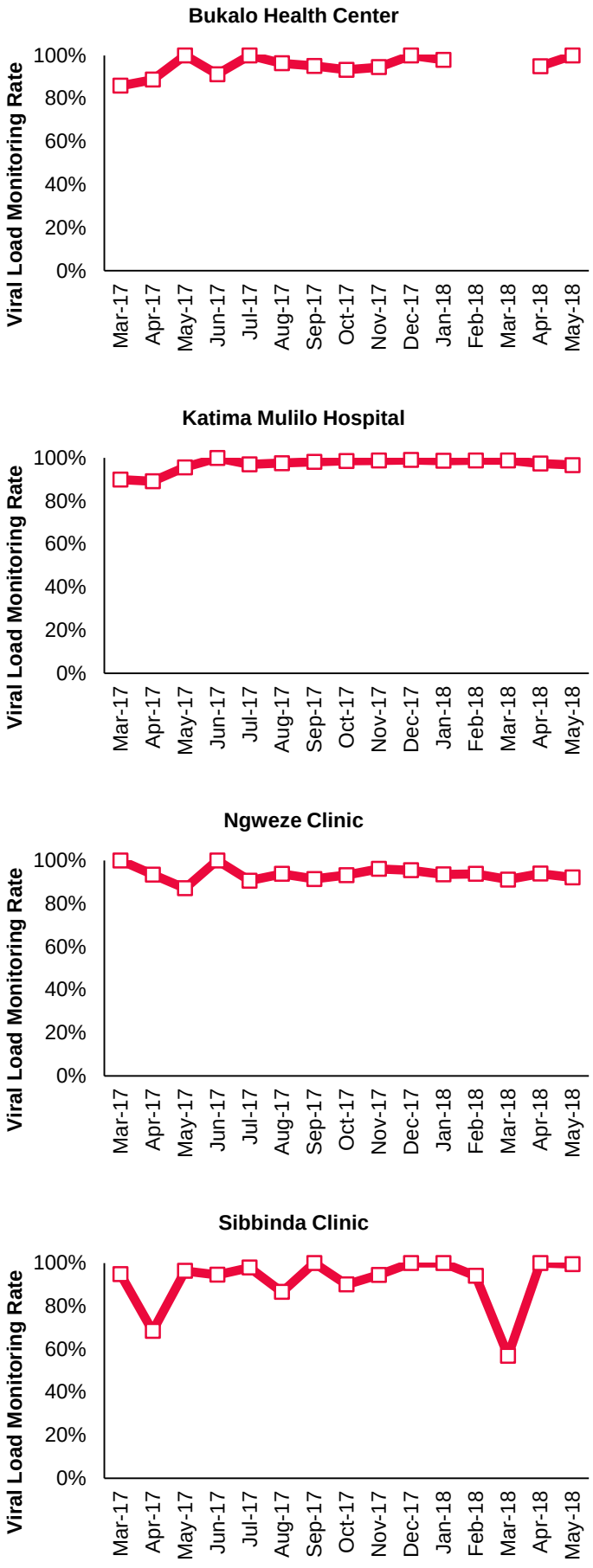
Figure 4f. Viral Load Monitoring Rate—By Site, Ohangwena Region, March 2017-May 2018 (Continued)





Viral Load Monitoring (Continued)

Figure 4g. Viral Load Monitoring Rate—By Site, Zambezi Region, March 2017-May 2018



Viral Suppression

Of 12,626 viral load test results returned to NAMPROPA sites between March 2017 and May 2017, 10,114 (80%) indicated a VL <1,000 copies/mL (**Figure 5a**). In the final quarter of NAMPROPA implementation, this figure had increased to 90%, corresponding to a 10% improvement in viral suppression rate across all participating sites. Rates of viral suppression were highly variable across regions and sites, particularly among those with high volumes of adolescent patients (**Figure 5b-g**). Rates remained high following the formal conclusion of activities in February 2018.

Figure 5a. Number of Active Patients on ART Who Received a VL Test Result and Viral Suppression Rate—NAMPROPA, March 2017-May 2018

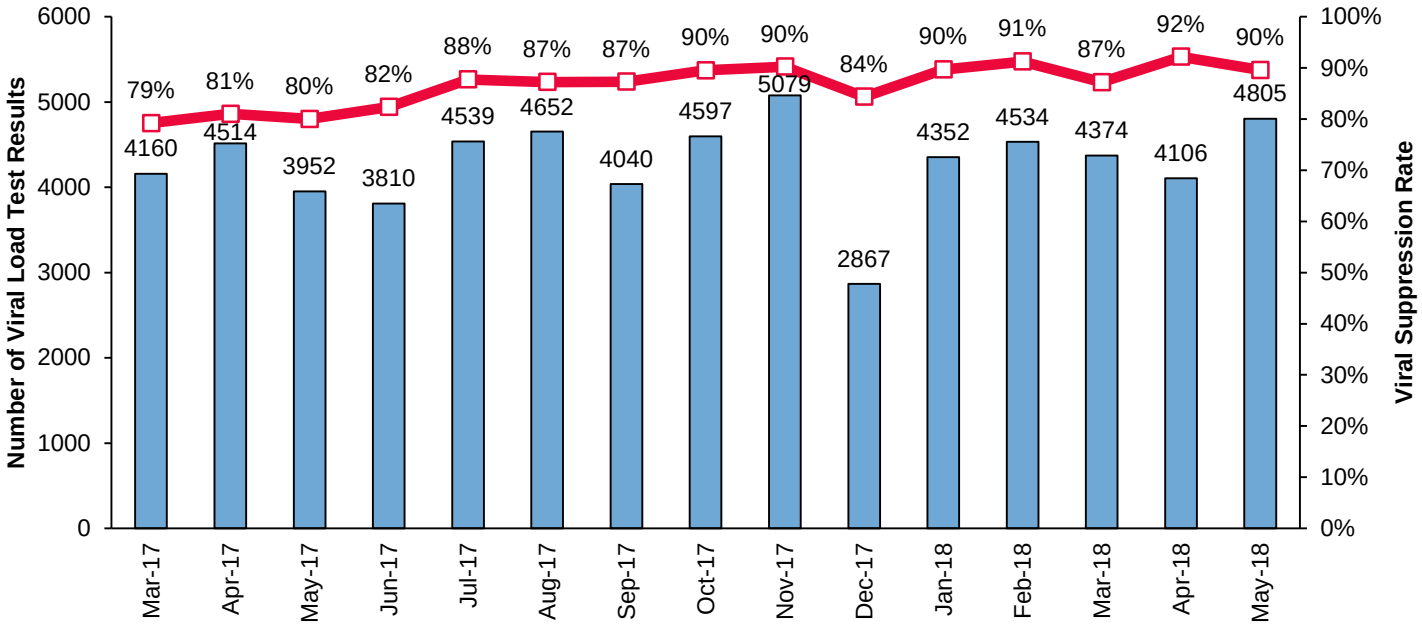
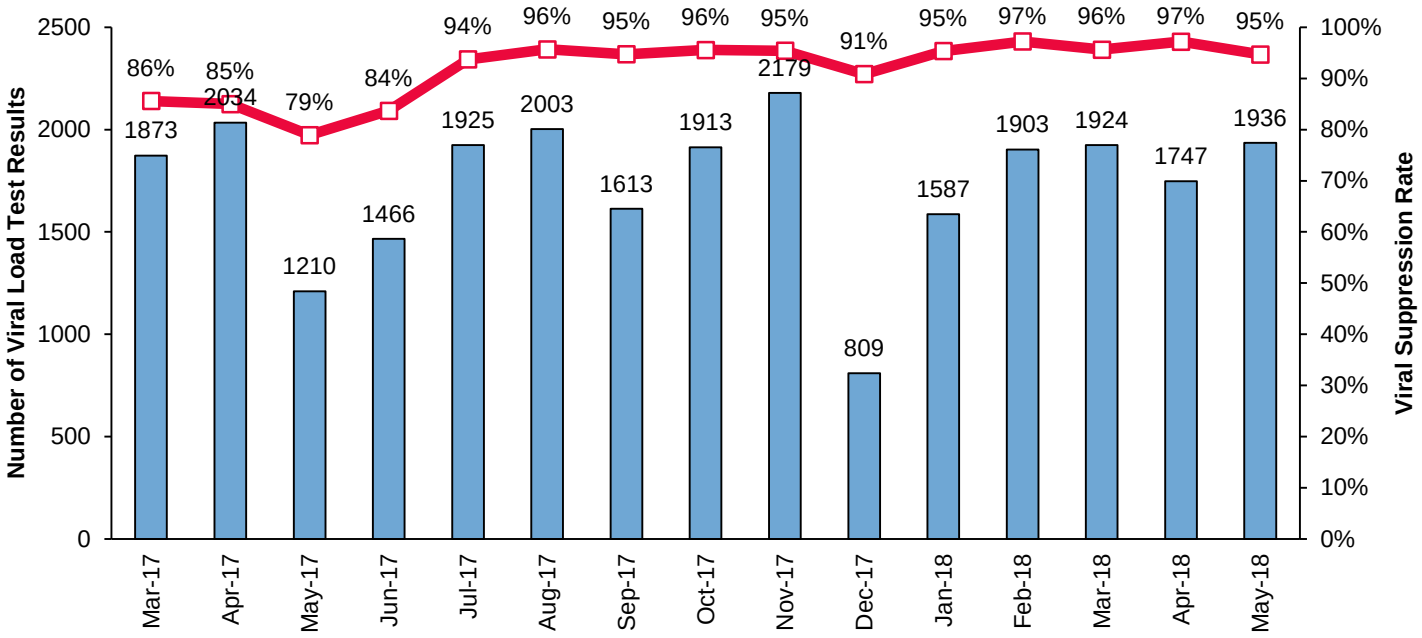


Figure 5b. Number of Active Patients on ART Who Received a VL Test Result and Viral Suppression Rate—Khomas Region, March 2017-May 2018



Viral Suppression (Continued)

Figure 5c. Number of Active Patients on ART Who Received a VL Test Result and Viral Suppression Rate—Ohangwena Region, March 2017-May 2018

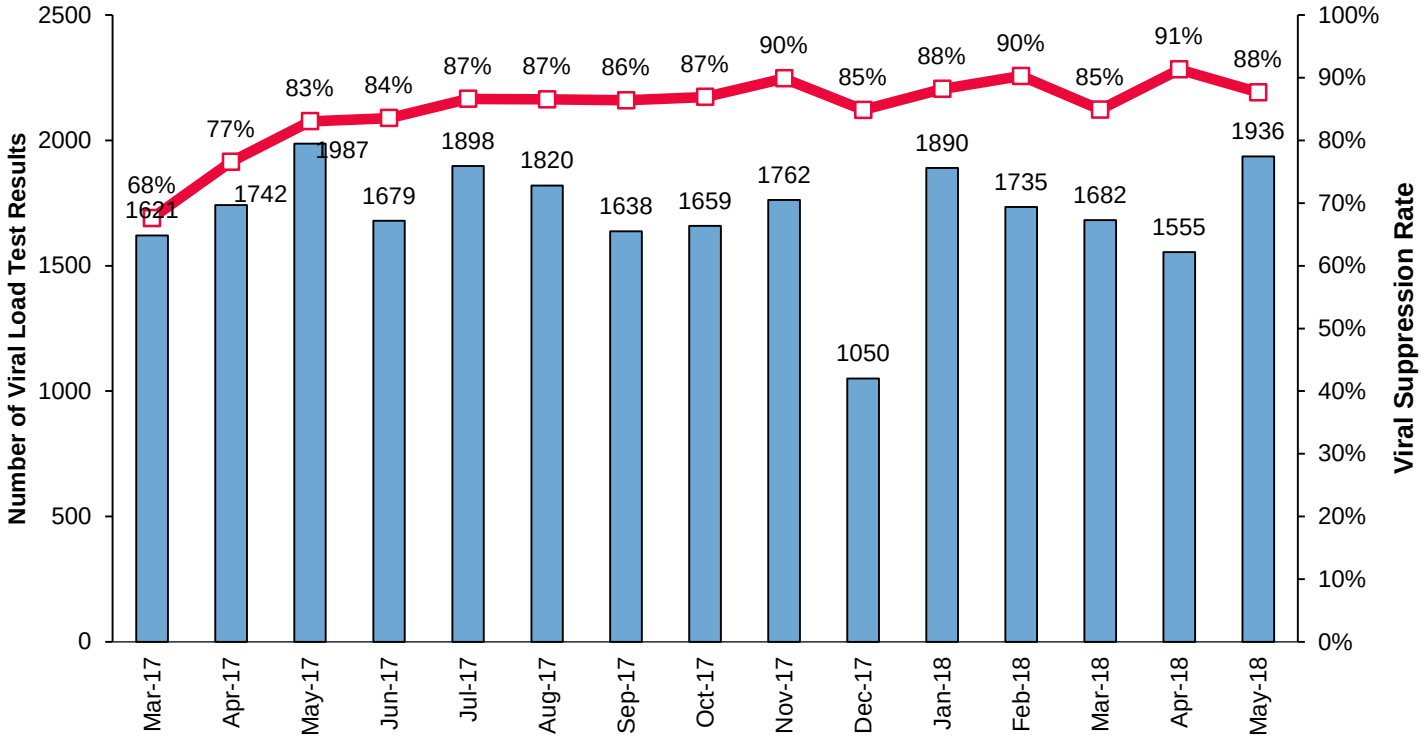
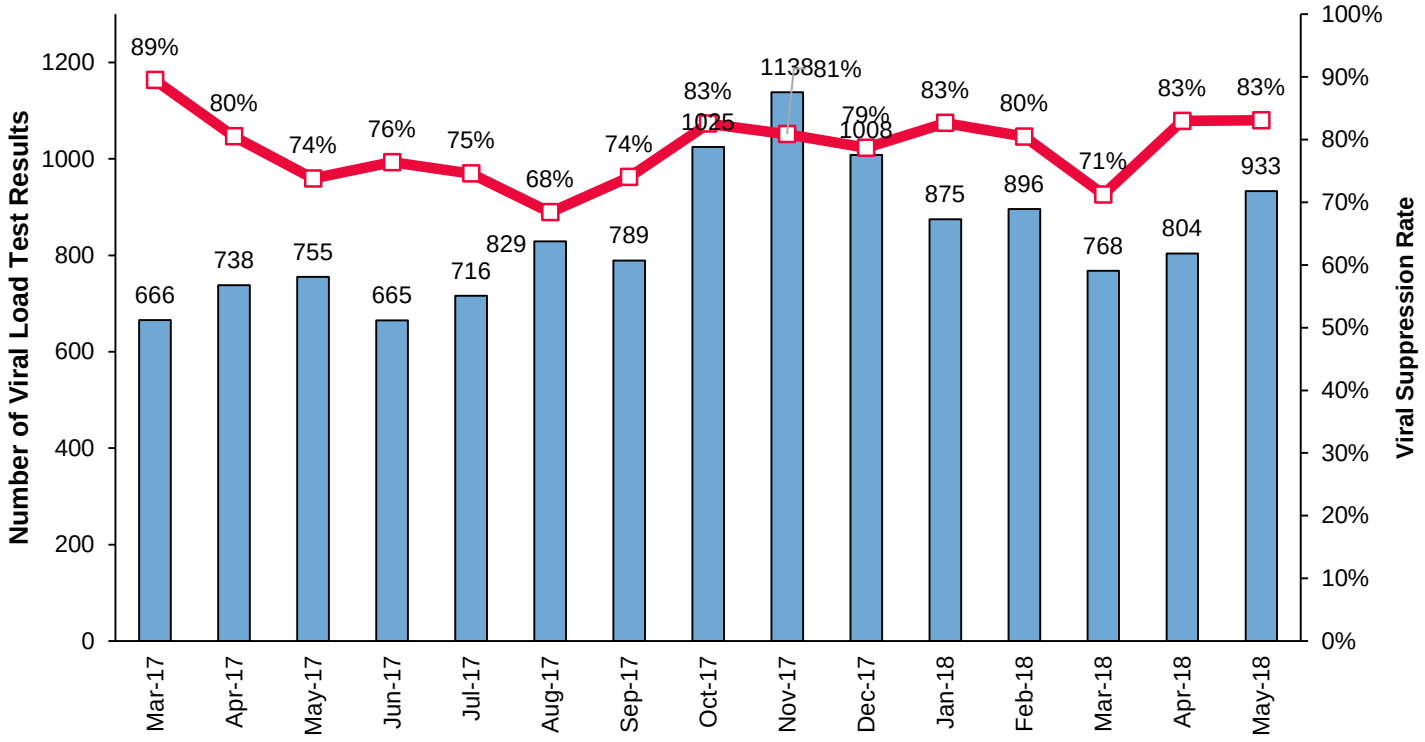
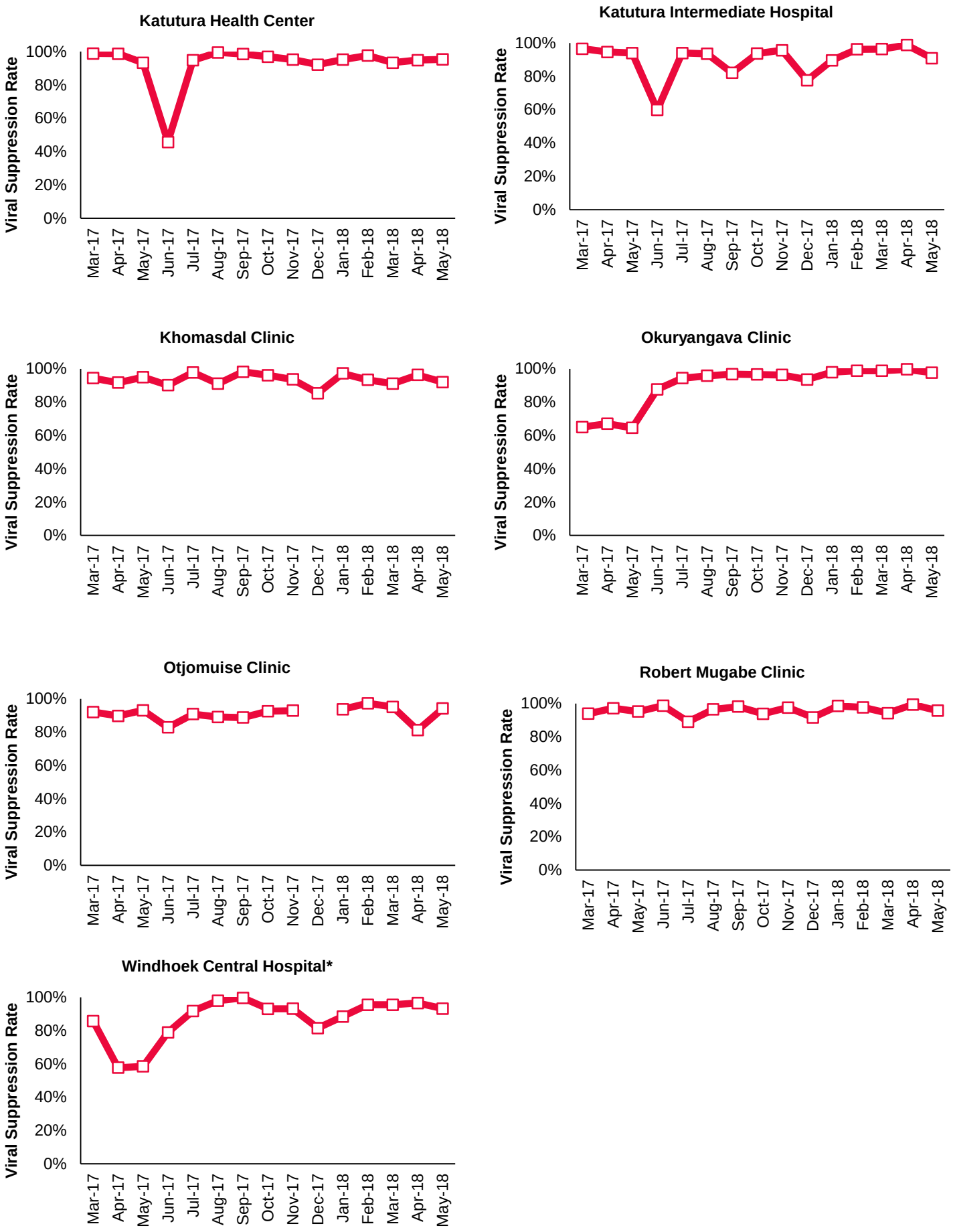


Figure 5d. Number of Active Patients on ART Who Received a VL Test Result and Viral Suppression Rate—Zambezi Region, March 2017-May 2018



Viral Suppression (Continued)

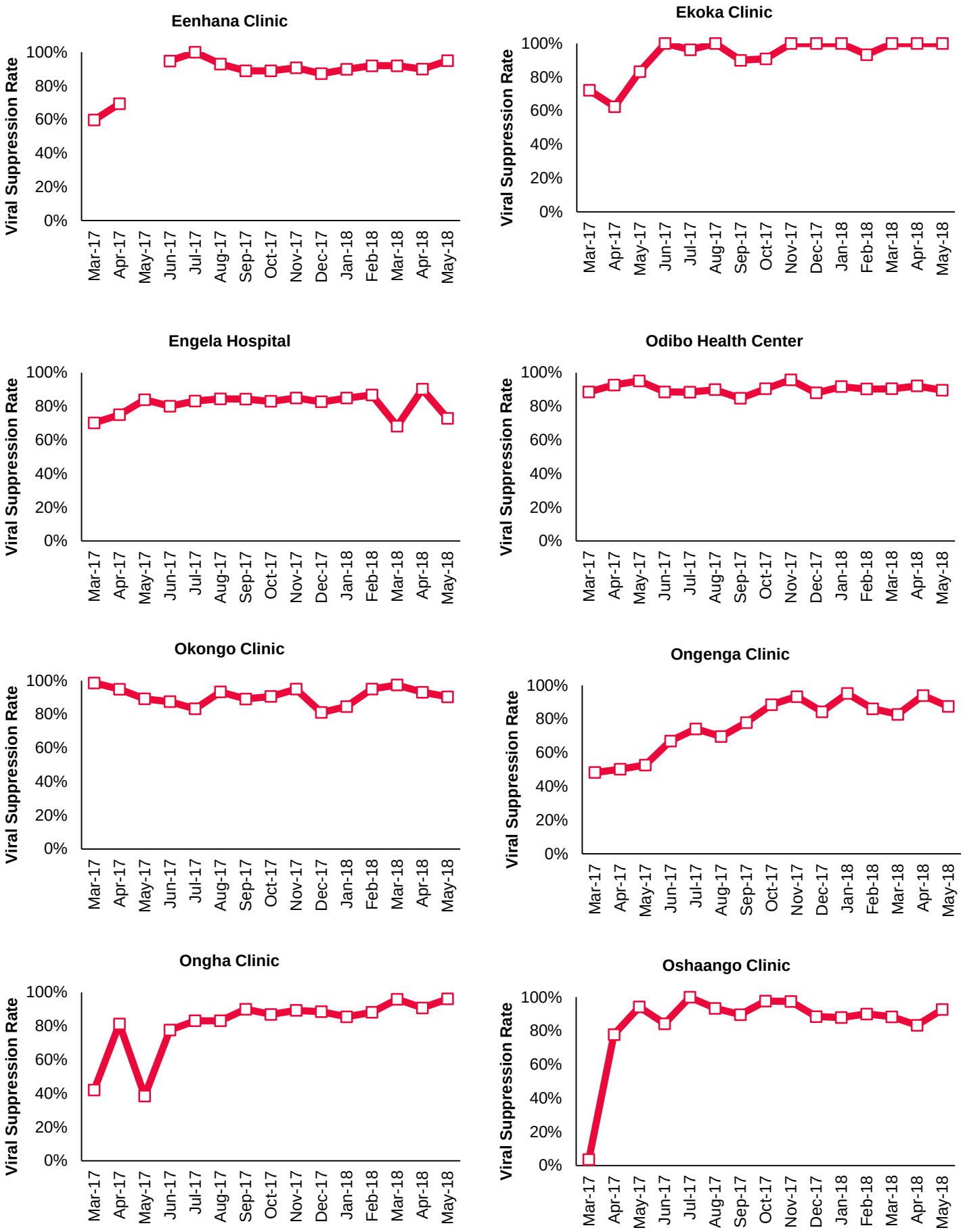
Figure 5e. Viral Suppression Rate—By Site, Khomas Region, March 2017-May 2018



*May not reflect full clinical population due to suboptimal screening rates

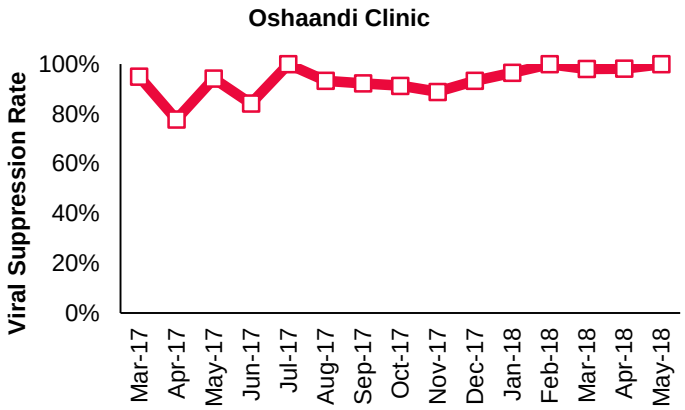
Viral Suppression (Continued)

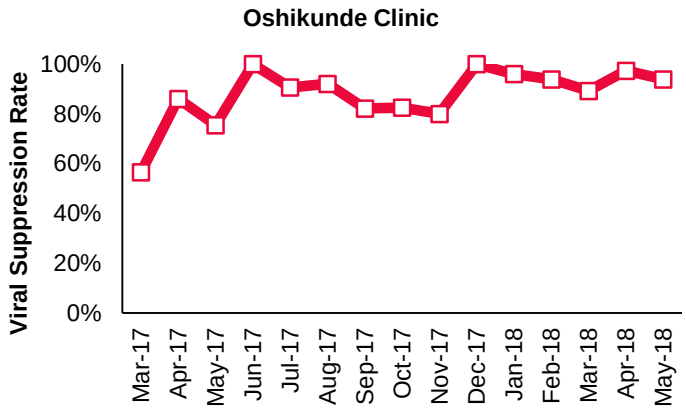
Figure 5f. Viral Suppression Rate—By Site, Ohangwena Region, March 2017-May 2018



Viral Suppression (Continued)

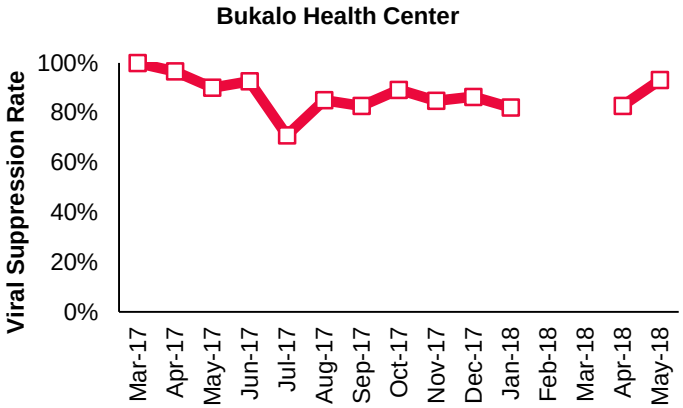
Figure 5f. Viral Suppression Rate—By Site, Ohangwena Region, March 2017-May 2018 (Continued)

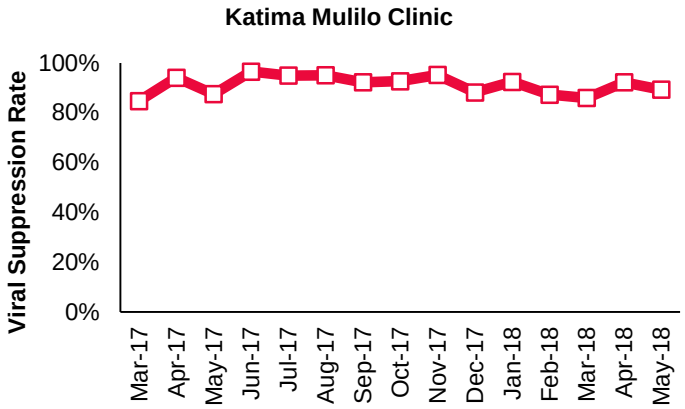


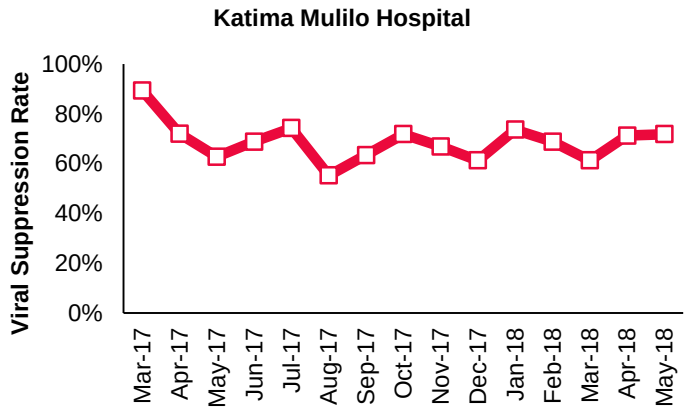


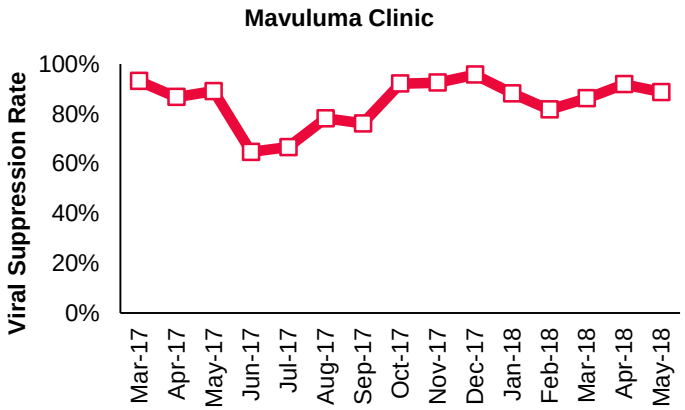
Viral Suppression (Continued)

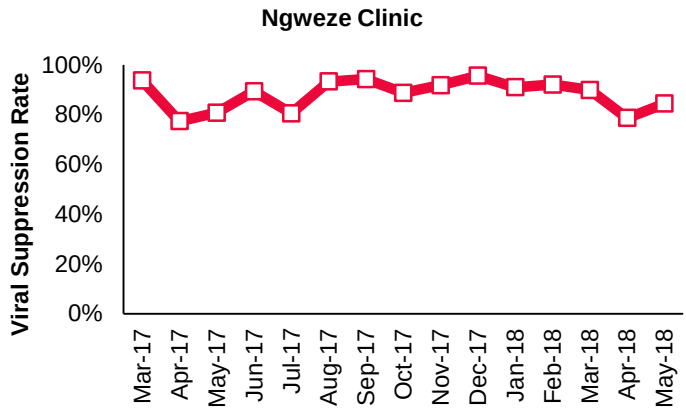
Figure 5g. Viral Suppression Rate—By Site, Zambezi Region, March 2017-May 2018

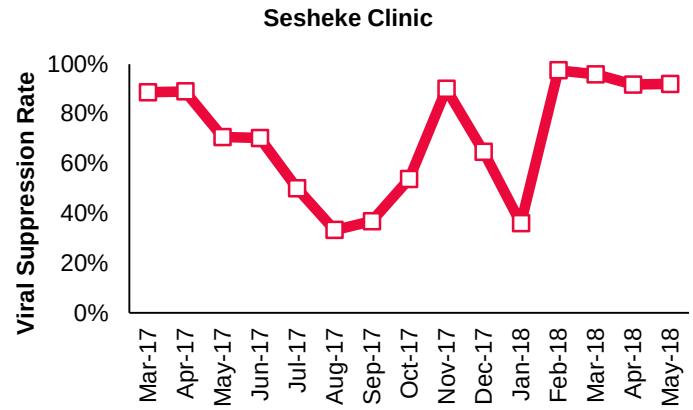


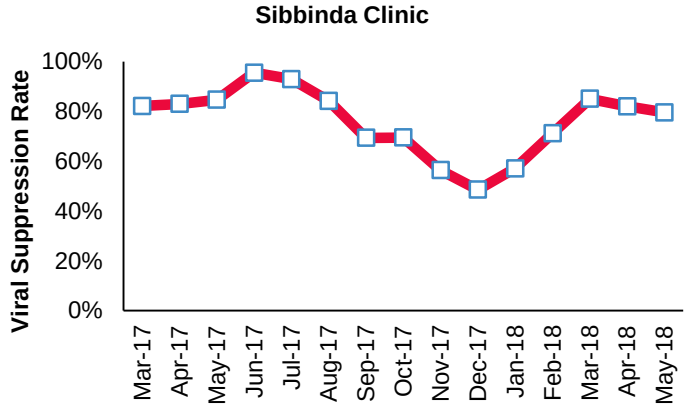












Hypertension Screening

Prior to NAMPROPA implementation in March 2017, 0% of participating sites were routinely screening and documenting rates of hypertension screening among ART patients. As a result of NAMPROPA activities commencing in March 2017, an average of 14,044 patients were screened for hypertension each month, representing a dramatic increase in coverage relative to baseline (**Figure 5a**). The performance of some sites was adversely affected by a lack of functional blood pressure monitors (**Figure 5b-g**); however, with support from HEALTHQUAL, digital blood pressure monitors were procured and distributed to sites. As noted above, baseline in February 2017 for all sites was 0% since blood pressure measurement was not performed or tracked routinely at HIV clinics.

Figure 6a. Number of Adult Patients on ART and Hypertension Screening Rate—NAMPROPA, March 2017-May 2018

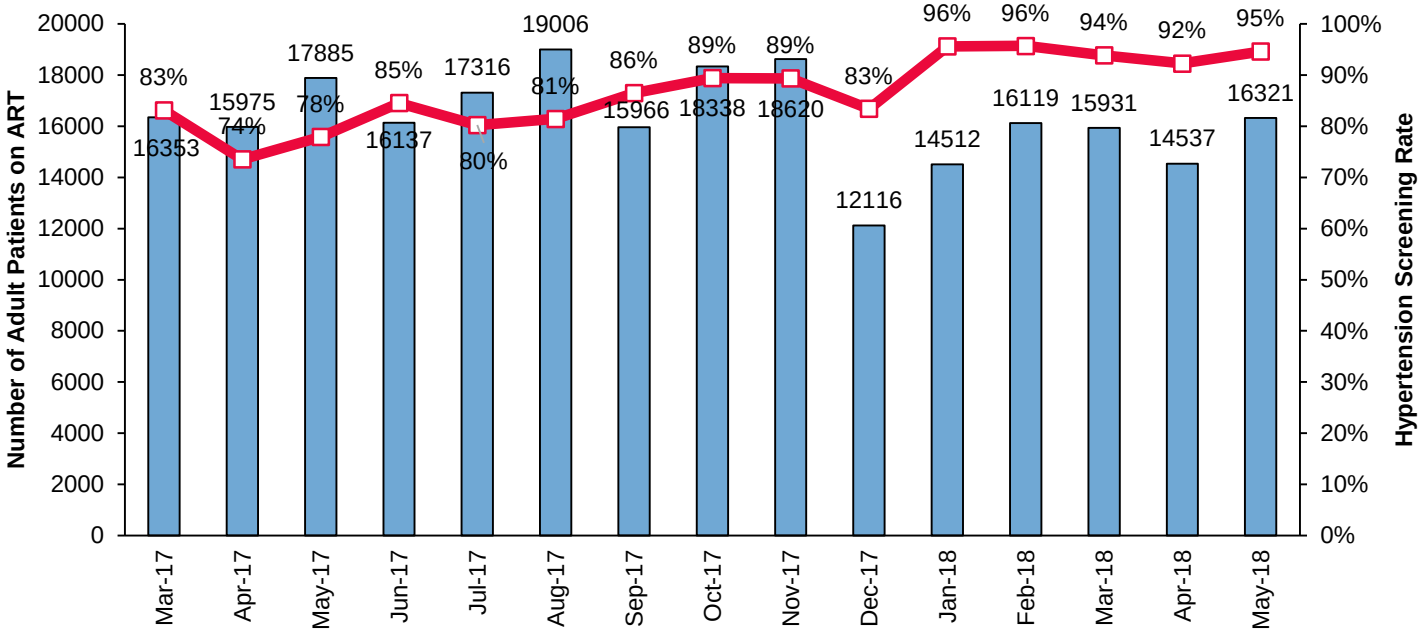
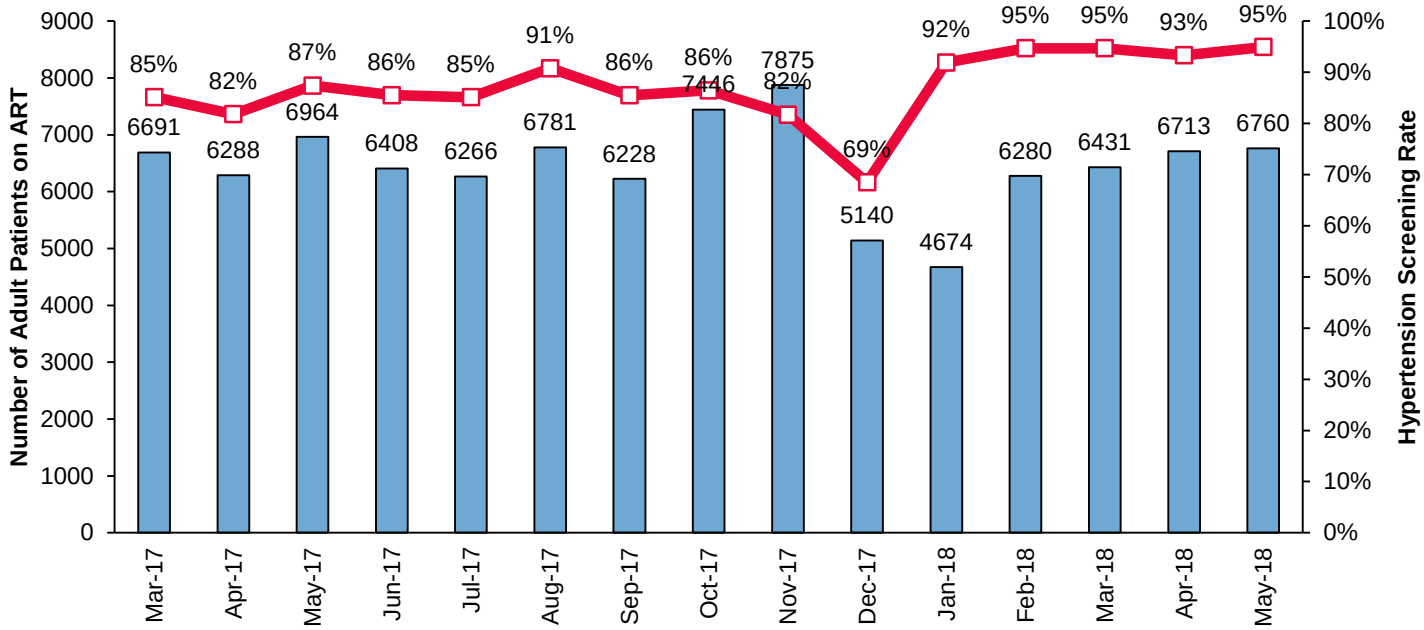


Figure 6b. Number of Adult Patients on ART and Hypertension Screening Rate—Khomas Region, March 2017-May 2018



Hypertension Screening (Continued)

Figure 6c. Number of Adult Patients on ART and Hypertension Screening Rate—Ohangwena Region, March 2017-May 2018

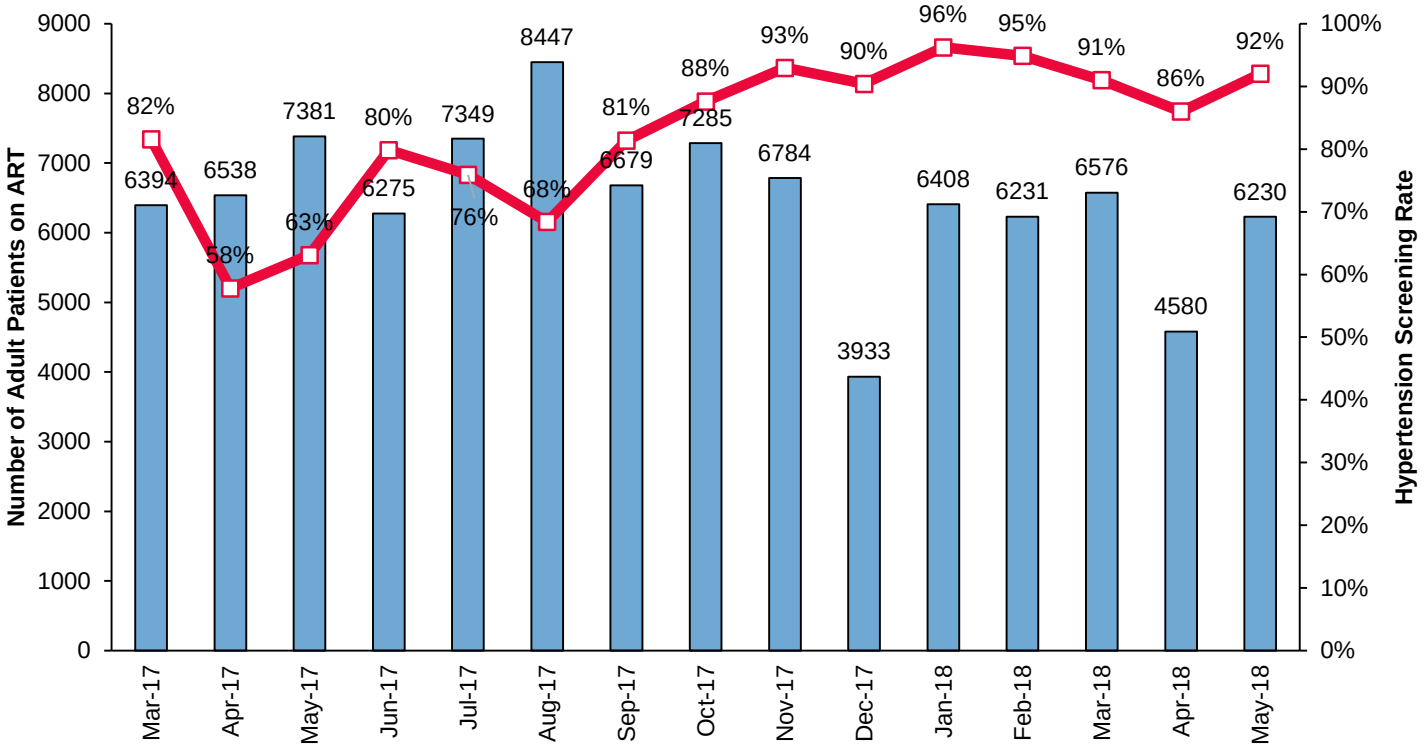
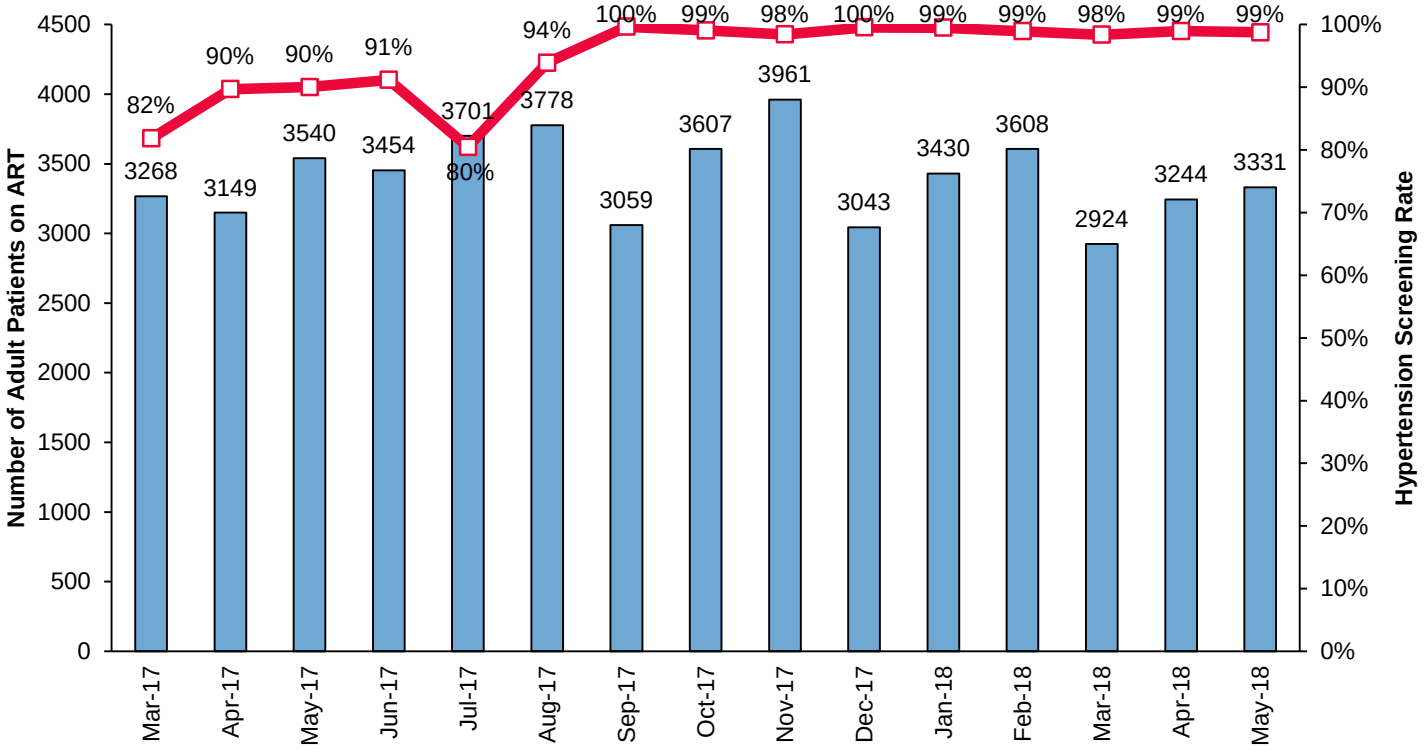
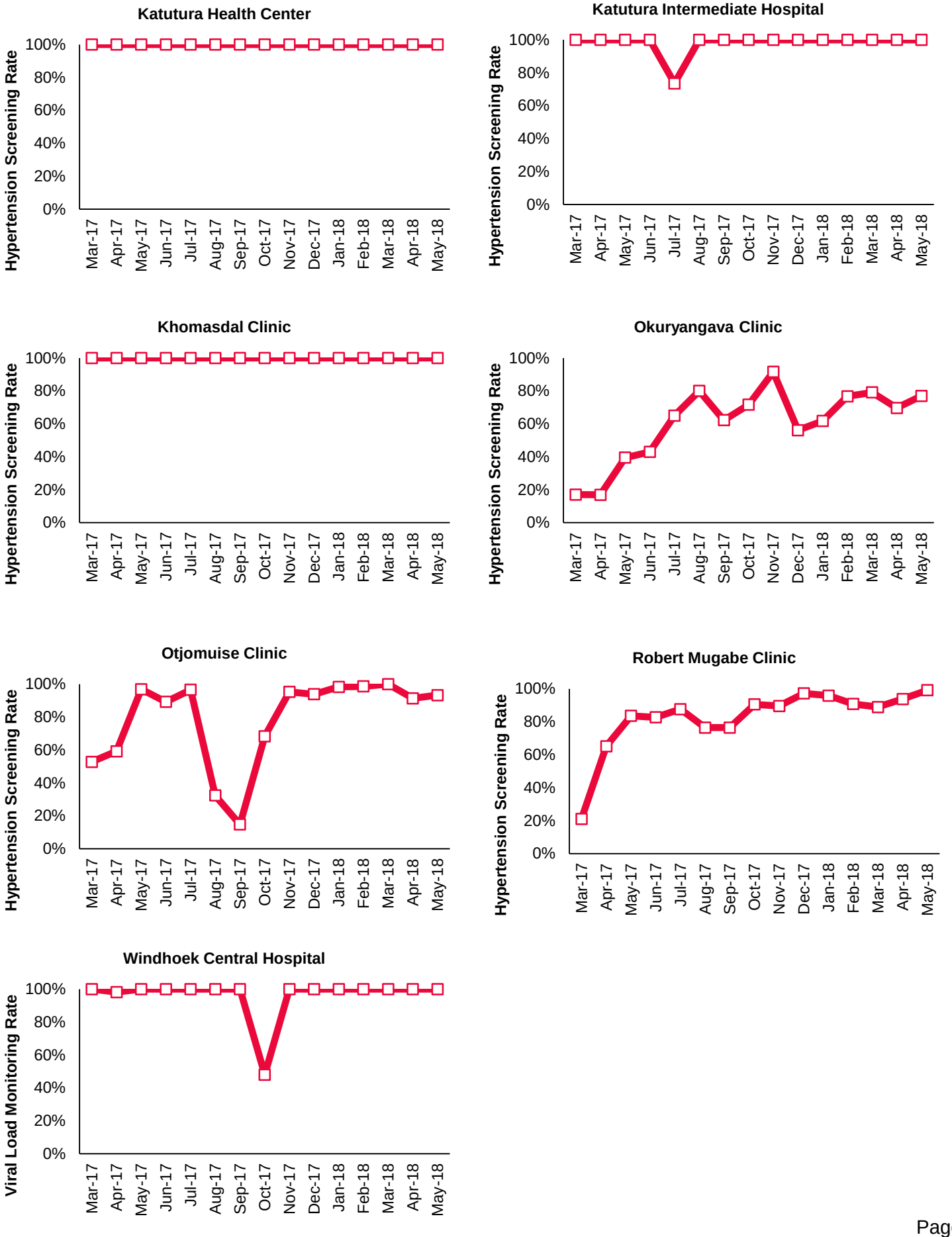


Figure 6d. Number of Adult Patients on ART and Hypertension Screening Rate—Zambezi Region, March 2017-May 2018



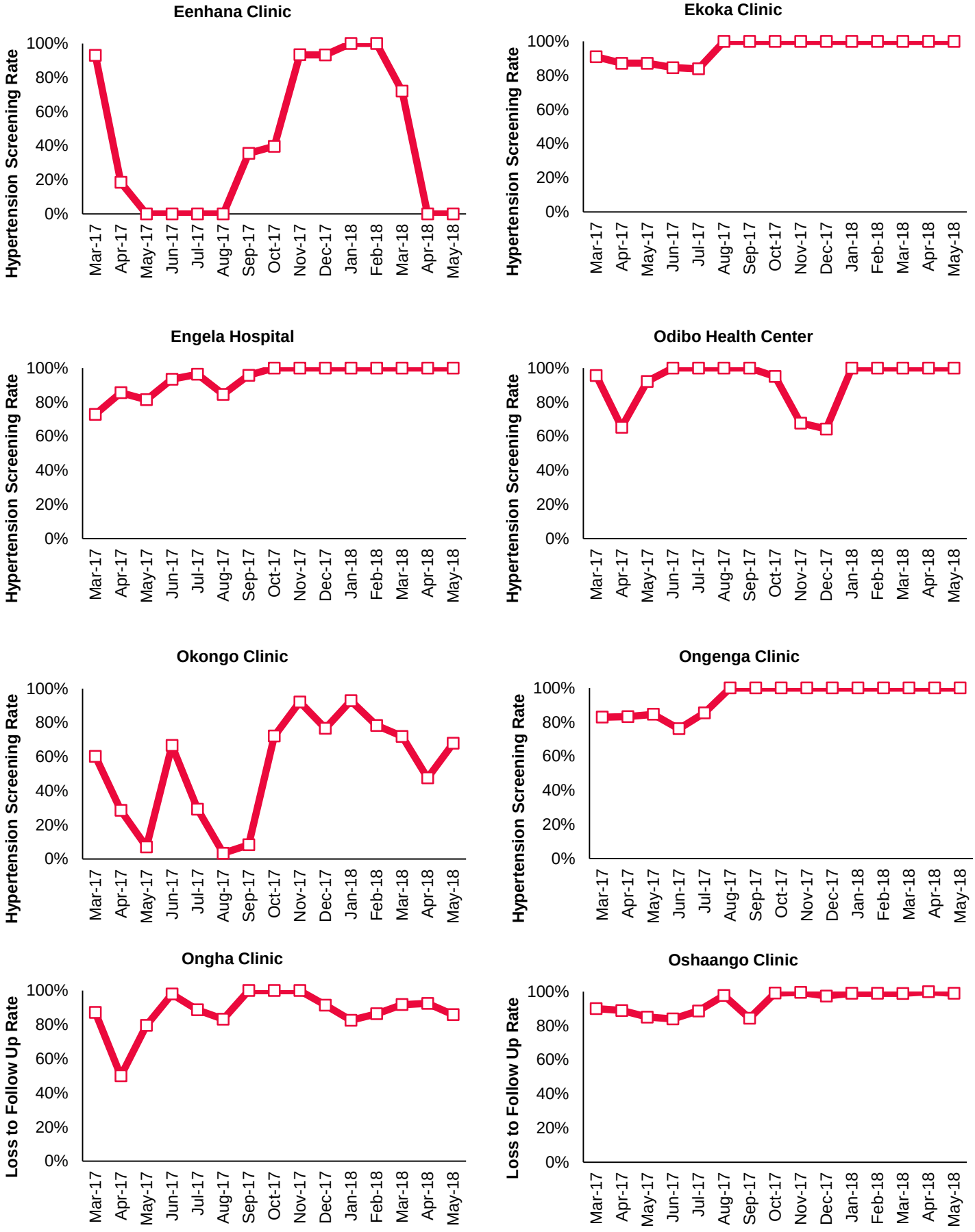
Hypertension Screening (Continued)

Figure 6e. Hypertension Screening Rate—By Site, Khomas Region, March 2017-May 2018



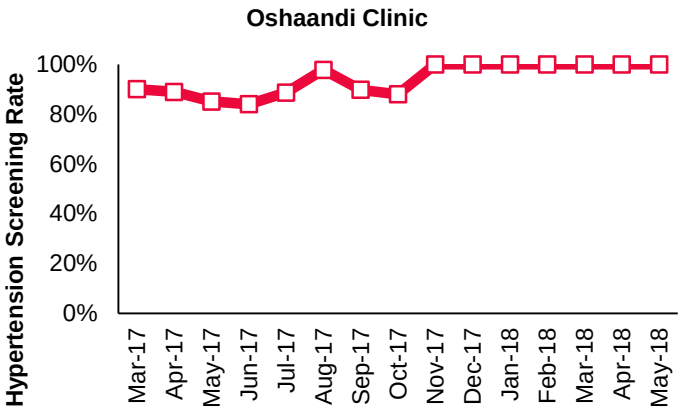
Hypertension Screening (Continued)

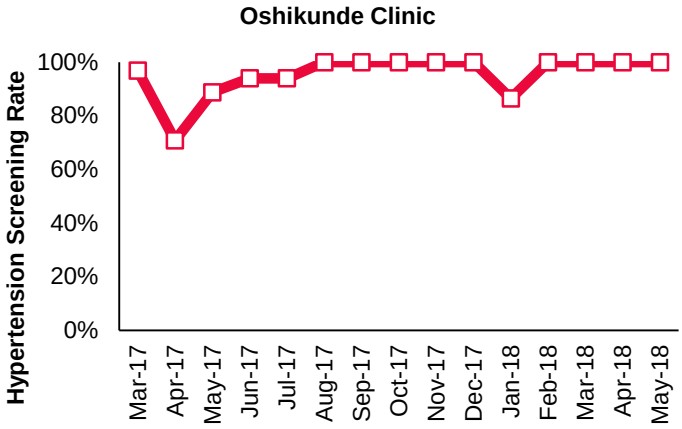
Figure 6f. Hypertension Screening Rate—By Site, Ohangwena Region, March 2017-May 2018



Hypertension Screening (Continued)

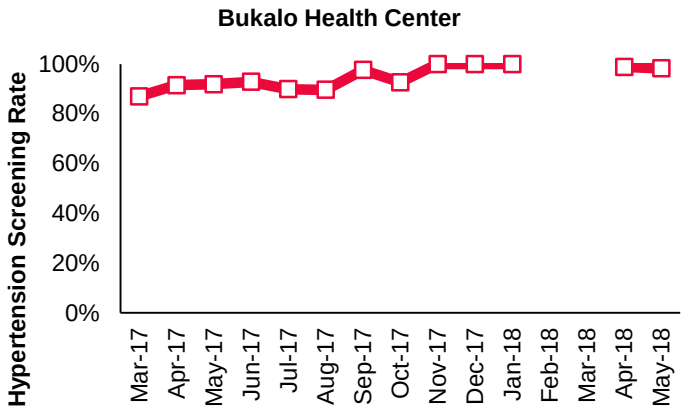
Figure 6f. Hypertension Screening Rate—By Site, Ohagnwena Region, March 2017-May 2018 (Continued)

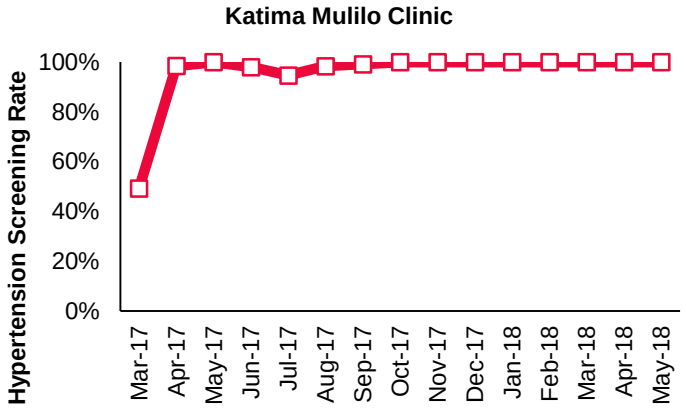


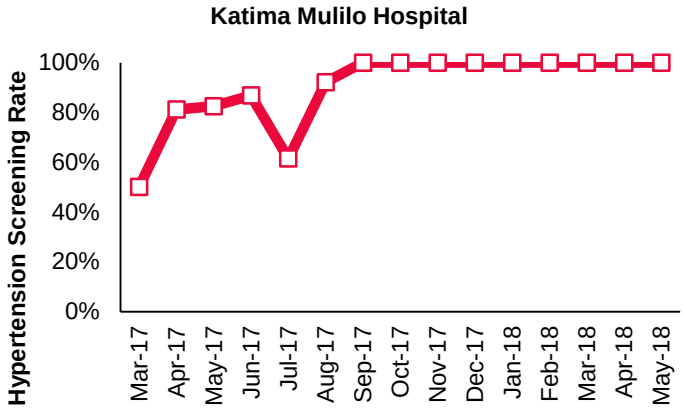


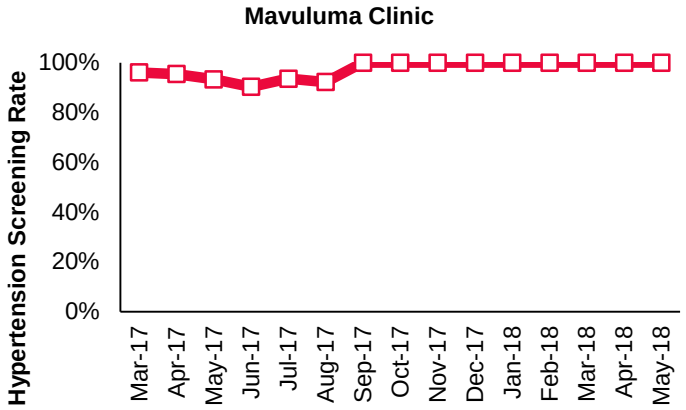
Hypertension Screening (Continued)

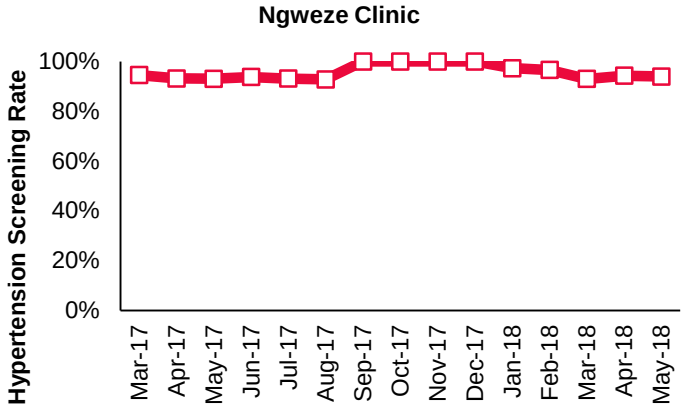
Figure 6g. Hypertension Screening Rate—By Site, Zambezi Region, March 2017-May 2018 (Continued)

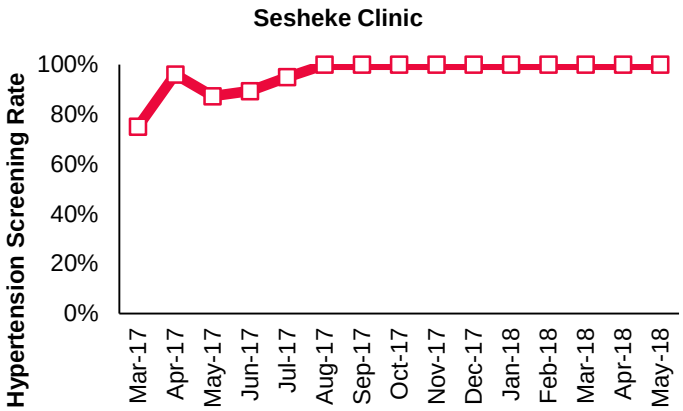


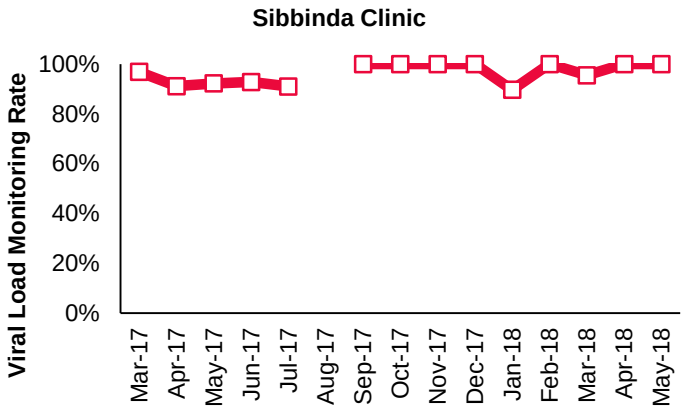












Hypertension Treatment

After the first 6 months of NAMPROPA implementation, the indicator for hypertension treatment was modified to reflect treatment rates among patients newly diagnosed with hypertension as opposed to those who were previously diagnosed and active on antihypertensive treatment. Between September 2017 and February 2018, 1,508 patients on ART were newly diagnosed with hypertension, of which 854 (57%) were successfully initiated on treatment (**Figure 7a**). Hypertension treatment performance rates were negatively impacted by a number of key system-level barriers, including stock-outs of hypertensive medications, lack of physicians to initiate treatment, and a lack of guidelines for referral of newly diagnosed patient to tertiary sites for treatment initiation.

Figure 7a. Number of Adult Patients on ART with Newly Diagnosed Hypertension and Hypertension Treatment Rate—NAMPROPA, September 2017-May 2018

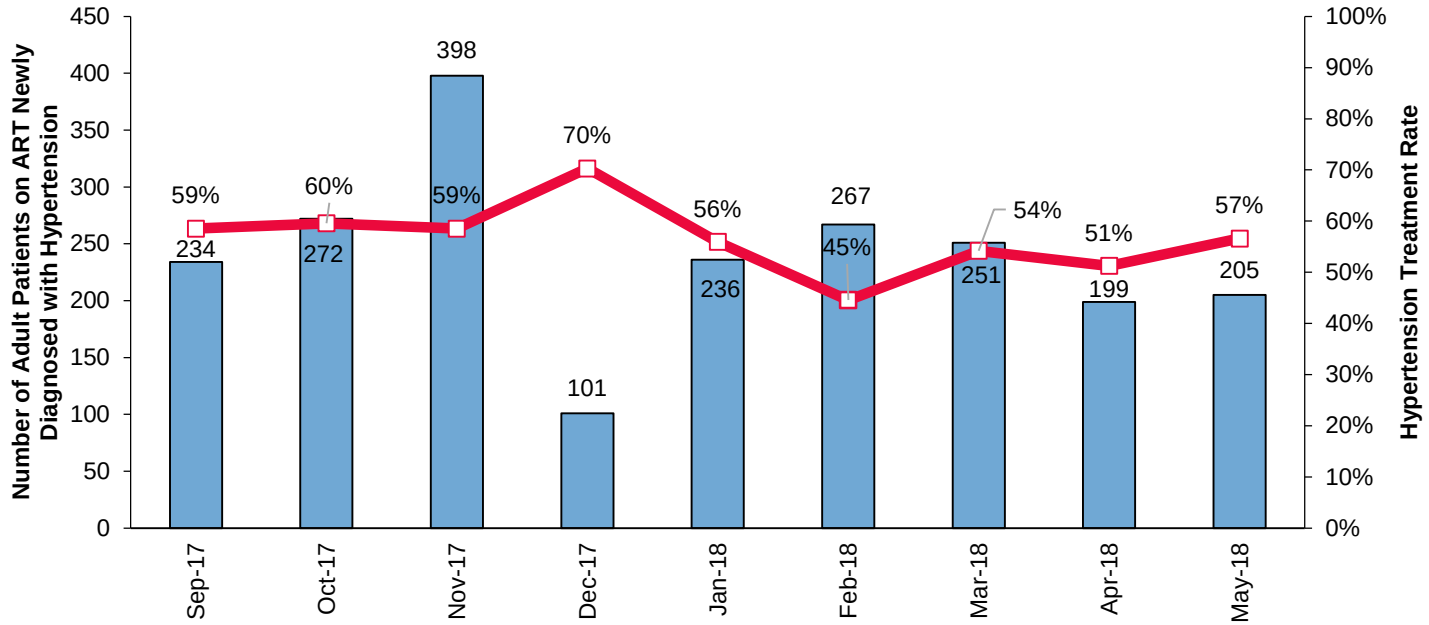
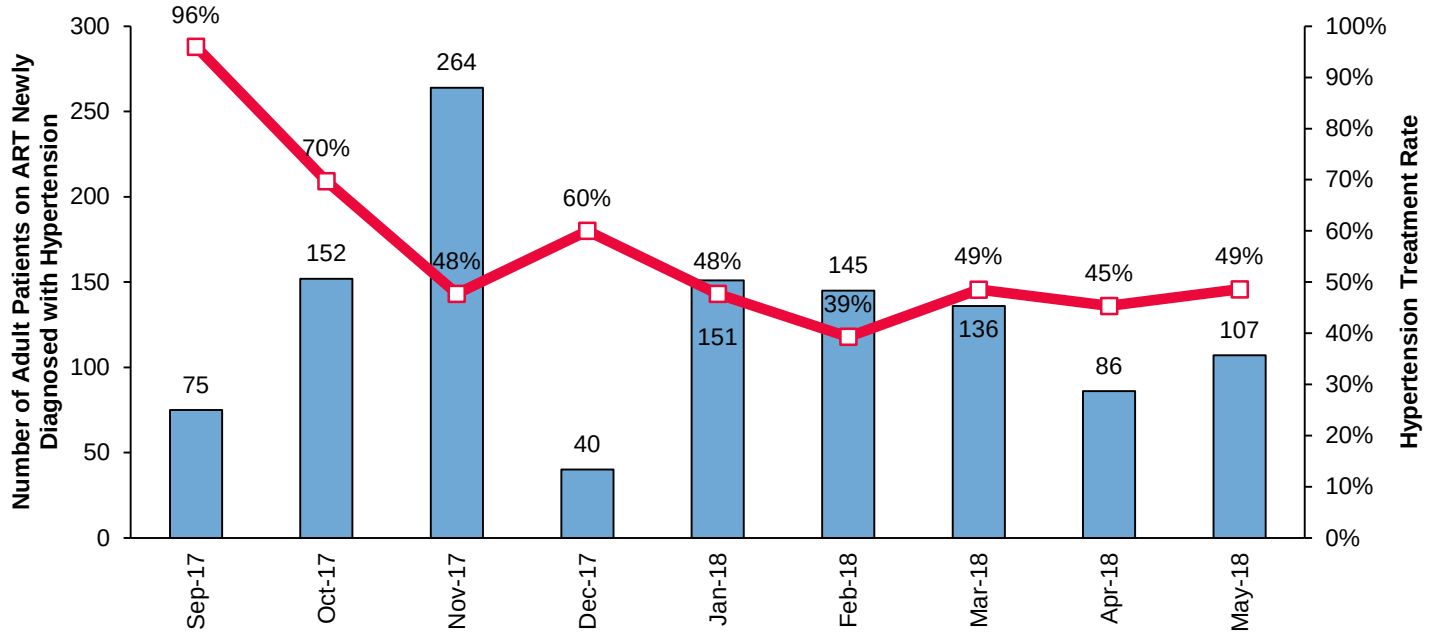


Figure 7b. Number of Adult Patients on ART with Newly Diagnosed Hypertension and Hypertension Treatment Rate—Khomas Region, September 2017-May 2018



Hypertension Treatment (Continued)

Figure 7c. Number of Adult Patients on ART with Newly Diagnosed Hypertension and Hypertension Treatment Rate—Ohangwena Region, September 2017-May 2018

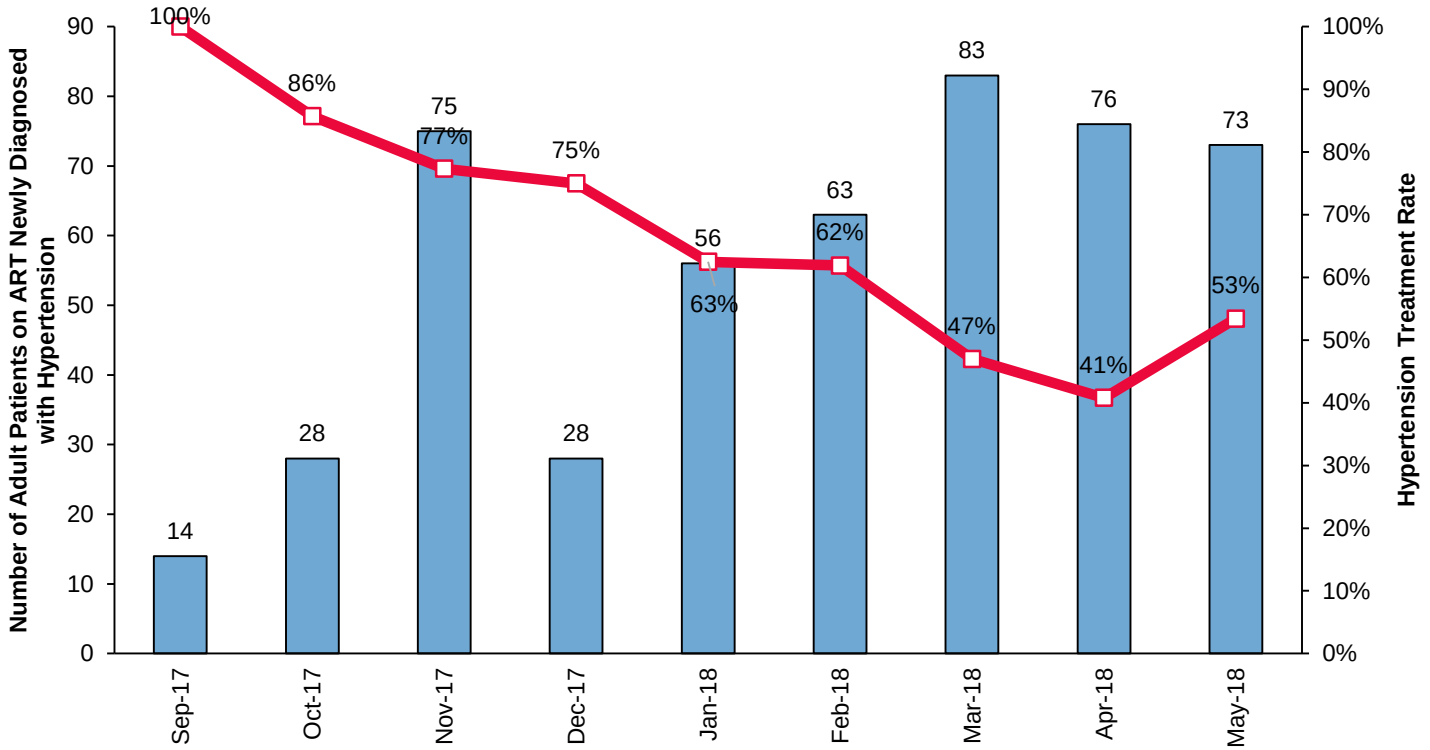
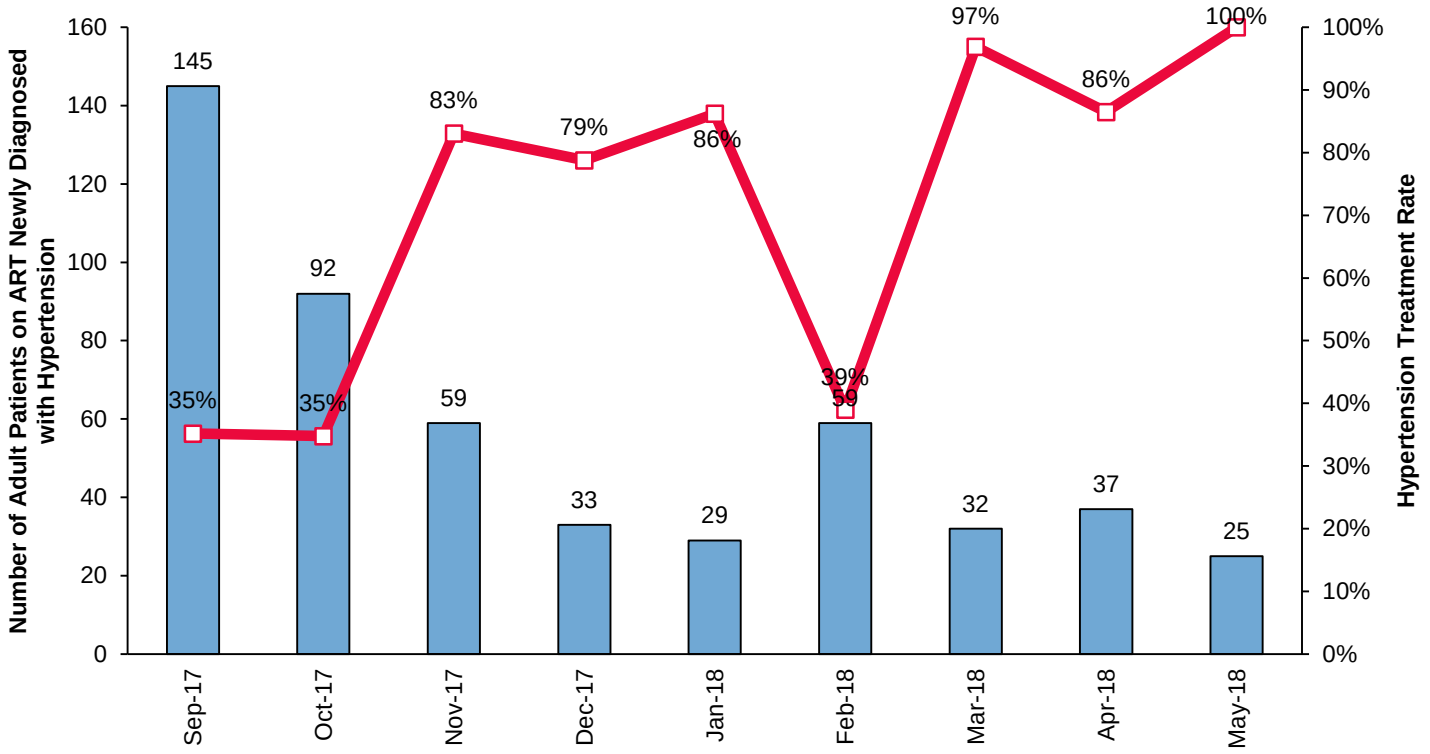


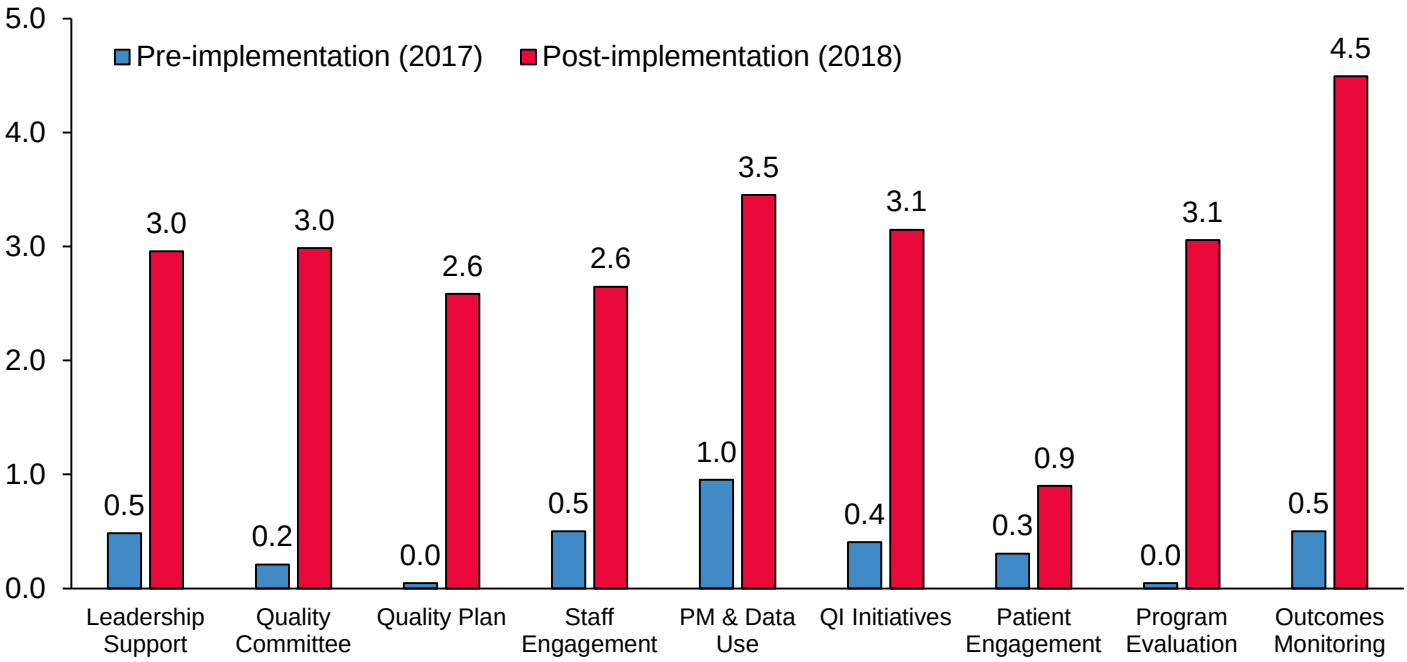
Figure 7d. Number of Adult Patients on ART with Newly Diagnosed Hypertension and Hypertension Treatment Rate—Zambezi Region, September 2017-May 2018



HIV Quality Management Capacity

Participating sites were administered pre- and post-implementation organizational assessments (OA), which are part of the MoHSS Quality Management (QM) capacity building framework. The OA is a validated tool developed by HEALTHQUAL to capture site-level HIV QM-capacity according to nine domains: leadership support, quality committee, quality plan, staff engagement, performance measurement and data use, QI initiatives, patient engagement, program evaluation, and outcomes monitoring. Each domain is scored on a scale of 0-5, with 5 indicating the existence of a "full systematic approach to quality management" and 0 Indicating "no QM structures." To assess the effect of Collaborative activities on sites' QM capacity, sites were assessed at baseline during pre-work activities in January 2017, and re-assessed during Learning Session 3 in February 2018. Improvements in average OA score were noted across all domains, with the most significant improvement seen in outcomes monitoring (**Figure 8**). Although slight improvements were seen in patient engagement, post-implementation performance remained low, underscoring a need to integrate patients more fully into sites' existing QM activities. Of note, the 24 participating sites convened a total of 204 quality management meetings during NAMPROPA implementation—a significant increase compared to baseline.

Figure 8. Average Pre- And Post-Implementation OA Scores---All Sites, by Domain



Change Package

As part of LS3, teams from participating sites presented adopted interventions ("change ideas") that were associated with improvements in indicator performance. Of 63 distinct interventions tested during NAMPROPA implementation, 38 were subsequently adopted (**Table 3**). As part of scale-up activities in CY 2018, these interventions will be further characterized and then disseminated as an evidence-based "change package."

Table 3. Adopted Interventions by Indicator

Indicator	Adopted Intervention
Loss to follow-up	1. Printing and analyzing list of LTFU before tracing 2. Telephonic tracing 3. Physical tracing of LTFU through home visits 4. Cross-checking LTFU lists with nearby facilities 5. Establish community-based ART (CBART) sites 6. Telephonic reminder of patients who missed follow-up appointments 7. Inspect health passport before ANC and escort PMTCT patients to ART clinic 8. Updating contact details for those who have changed contacts 9. Validating list of LTFU from ePMS with EDT
Viral load monitoring	1. Coordination of VL testing date with pharmacy pickup and follow-up appointments 2. Reminder put in patient health passport on when to come for VL monitoring 3. Development of VL monitoring tracking register 4. Placement of viral load monitoring reminders in patient care booklets 5. Telephonic tracing of patients who missed VL monitoring 6. 1-week supply of medication for patients eligible for VL monitoring who sent someone for medication pick-up 7. Placement of viral load monitoring register in phlebotomy room
Viral load suppression	1. Provide directly observed therapy to selected patients with high VL 2. Introduction of high VL register and close monitoring 3. Development of adherence support group TRIOs for patients with high VL 4. Intensified use of high VL tracking register 5. Perform pill counts to assess adherence 6. Involvement of treatment supporters for adolescents with high VL 7. Issuing of pill boxes to patients with high VL 8. Health education and intensive adherence counseling 9. Involvement of school matrons to monitor adherence
Hypertension screening	1. Redesigning patient flow in the clinic 2. Development of blood pressure (BP) monitoring register 3. Task shifting BP monitoring to health assistants 4. Introduction of digital BP machines 5. Recording of BP readings in health passport and patient care booklets 6. Provision of start dose in consulting room for patients with hypertension 7. Implementing BP monitoring at CBART sites 8. Queue jumping to facilitate follow-up BP screening for patients with high BP
Hypertension treatment	1. Development of registers to capture patients with high BP 2. On-site initiation of hypertension treatment when medical officers are available 3. Stocking hypertension medication at the ART clinic 4. Maintaining adequate stock of hypertension medications 5. Referral of patients with hypertension for initiation of treatment 6. Patients with elevated BP getting initial dose in consulting room

Knowledge Management

Between November 2016 and February 2018, results from NAMPROPA were presented at numerous national and international conferences and forums. Of particular note was the representation of NAMPROPA at IHI's 1st Annual Africa Forum on Quality and Safety in Healthcare, February 19-21, 2018, in Durban, South Africa, where eight NAMPROPA-related abstracts were presented (**Table 4**).

Table 4. NAMPROPA Presentations and Abstracts Shared at IHI's 1st Annual Africa Forum

Title	First Author
"Setting Up a Quality Improvement Collaborative on Retention in HIV Care Across 24 HIV Care Sites, The Namibian Experience"	Julie Neidel
"Successful Integration of Hypertension Screening and Treatment in an Adult Urban HIV Care Clinic"	Munduu Tjondu
"Improving Viral Load Suppression Among Patients on Antiretroviral Therapy (ART) at Khomasdal Health Center in Namibia"	Dr. Mireille A Mpalang Kakubu
"Improving Retention in Care Among Patients on Antiretroviral Therapy at Windhoek Central Hospital in Namibia"	Dr. Mireille A Mpalang Kakubu
"Project to Improve HIV Viral Load Monitoring and Suppression at Otjomuise Clinic in Namibia"	Ndahafa Ndeikemona
"Improving Retention in Care for Patients on Antiretroviral Therapy in A Rural HIV Clinic in Namibia"	Dr. Simbarashe Mpariwa
"Improving Viral Load Monitoring in Patients on Antiretroviral Therapy at Mavuluma Clinic in the Zambezi Region of Namibia"	Dr. Simbarashe Mpariwa
"Using a Quality Improvement Collaborative Approach to Improve Routine HIV Viral Load Monitoring at Sesheke Clinic	Dr. Simbarashe Mpariwa
"Improving Retention in Care Among Patients on Antiretroviral Therapy at Windhoek Central Hospital in Namibia"	Dr. Mireille A Mpalang Kakubu
"Overview of NAMPROPA QI Collaborative"	Dr. Apollo Basenero

Plans for Sustainability

In an effort to maintain, and further build upon, gains made through NAMPROPA, participants developed facility, district/regional, and national sustainability plans during the third learning session. These strategies are summarized in **Table 5**.

Table 5. Facility, District/Regional, National Strategies for Sustainability

Level	Strategy
Facility	• Continue to convene monthly QI meetings • Generate and analyze monthly performance reports • Visually display performance data • Meaningfully engage consumers in QI activities • Continuous QI in-service training • Continuous QI coaching activities
District/Regional	• Incorporating QI support into existing structures • Clarifying roles and responsibilities • Ensuring active involvement of district and regional management teams • Data management and reporting • Using DOH vehicles/providing refreshments to support participation in regional meetings • Tracking implementation at each site • Continuing coaching and mentoring • Supporting in-service trainings • Convening quarterly regional QI meetings.
National	• Provision of continuous technical support and data analysis

Implementation Challenges, Solutions, and Recommendations

Like many large-scale quality improvement initiatives, NAMPROPA faced a number of system-level implementation challenges which spanned three broad domains: commodities/supply chain, human resources, and data systems.

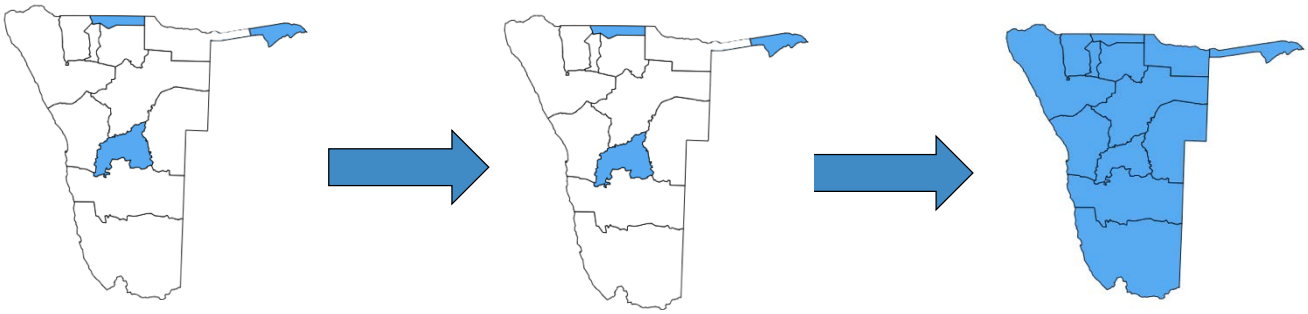
Table 6. Implementation Challenges, Solutions, and Recommendations

Domain	Challenge	Solutions/Recommendations
Commodities/Supply Chain	• Poor network coverage/ internet connectivity	• Mentors collect facility dashboards from sites who cannot submit reports via email/get monthly reports telephonically
	• Inadequate or no blood pressure monitors at launch of NAMPROPA	• 64 BP monitors were procured and distributed to all sites with funds solicited through HEALTHQUAL
	• Transport of viral load specimens from remote sites	• Dedicated days for VL specimen collection and increased pick-up days for VL samples • Improved communication whenever there is transport available to assist with sample transportation
	• Occasional stock-outs of antihypertensive medications	• Training on stock management at all levels
Human Resources	• No resident physician to initiate antihypertensive treatment on site	• Patients referred to nearest facility with resident physician/ periodic rotation of physicians to sites not covered • MoHSS to consider task-shifting of hypertension treatment initiation to registered nurses
	• Staff Turnover	• Continuous in-service training and coaching provided to new staff
Data Systems	• Poor initial documentation of change ideas at some sites	• Completed example of PDSA template shared with sites for guidance
	• Incomplete and delayed monthly facility reports	• Data tracking tool developed at the national level and feedback provided to regions accordingly
	• Sporadic documentation of facility QI meetings	• Template for capturing minutes developed and shared with sites
	• Inaccuracy of ePMS-generated performance indicators	• Paper registers developed at facility level to track indicators • Feedback provided to M & E unit
	• Initial lack of age- and sex-disaggregated data	• Excel database modified to include age and sex variables
	• Ongoing challenges tracking cross-border patients	• Excel database modified to track identified cross-border patients

Plans for Scale-Up

Beginning April 2018, MoHSS plans to scale-up NAMPROPA activities to other high-volume ART sites in two waves (**Figure 9**). In the first wave, NAMPROPA activities will be spread to 19 additional sites in the existing three regions: 4 in Khomas, 8 in Ohangwena, and 7 in Zambezi. In the second wave, activities will be introduced to an additional 29 ART sites in Namibia's remaining 11 regions.

Figure 9. Scale-Up Strategy for NAMPROPA Activities



NAMPROPA
3 Regions, 24 Facilities

Scale-Up Wave 1
3 Regions, 43 Facilities

Scale-Up Wave 2
14 Regions, 72 Facilities

Conclusion

Improving rates of loss to follow-up, viral load monitoring, and viral suppression is crucial to reducing HIV-related morbidity and mortality and achieving UNAIDS' 90-90-90 targets for Namibia. Implementation of NAMPROPA, a quality improvement collaborative, led to improvements in loss to follow-up, viral load monitoring, viral load suppression, and hypertension screening and treatment initiation across 24 sites in Khomas, Ohangwena, and Zambezi Regions.

Acknowledgements

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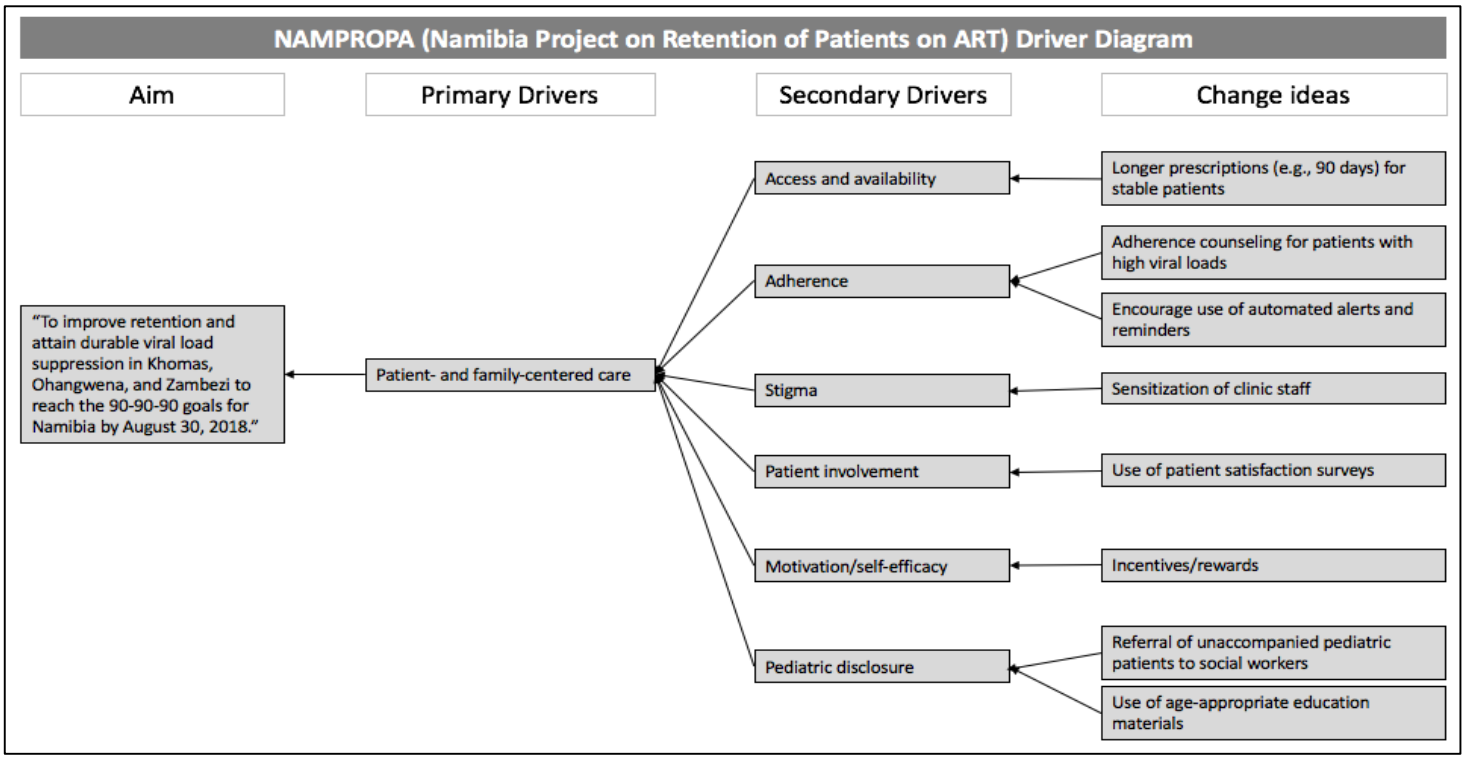
Appendix

Figure 9. NAMPROPA Driver Diagram



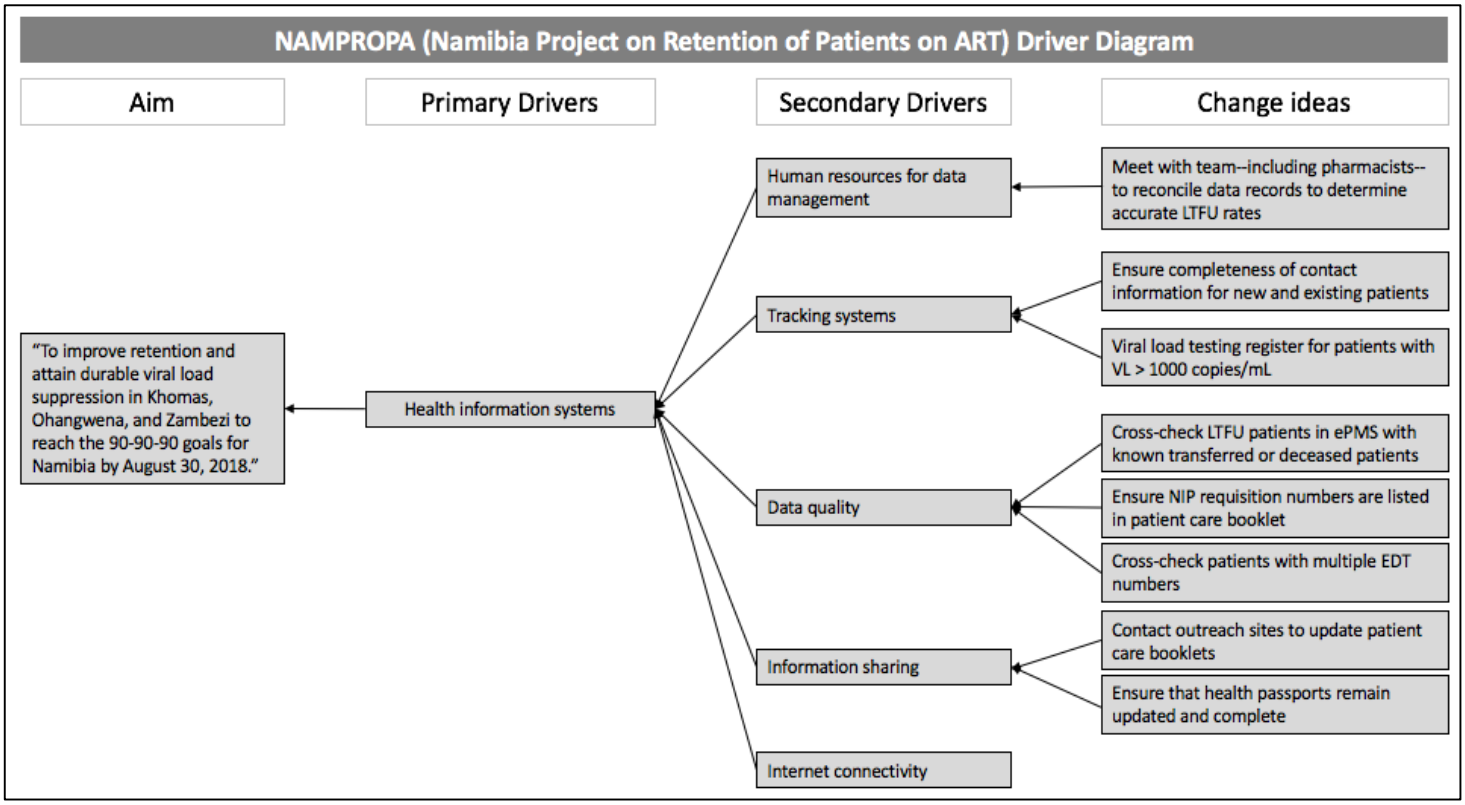
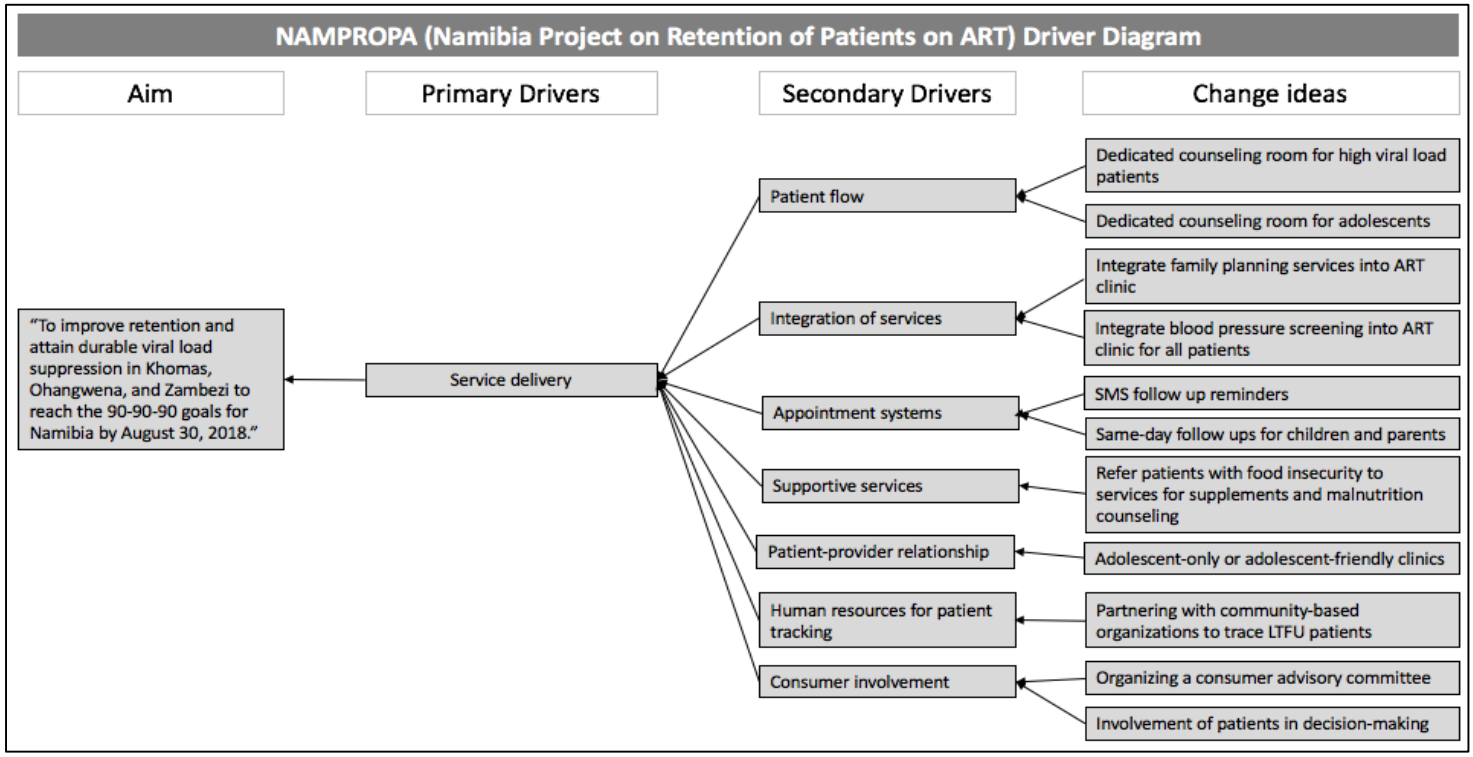


Figure 9. NAMPROPA Driver Diagram (Continued)



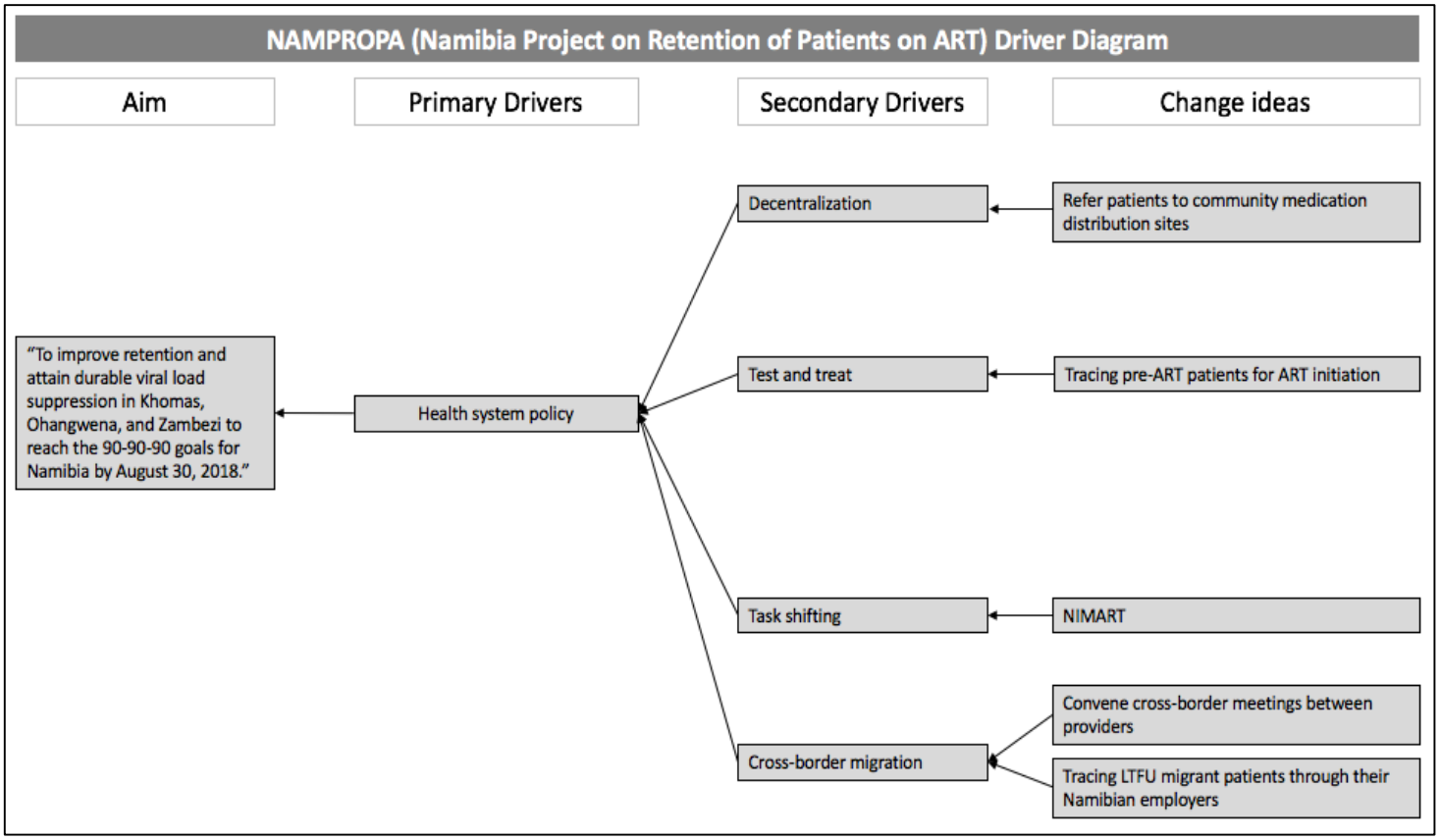


Figure 9. NAMPROPA Driver Diagram (Continued)

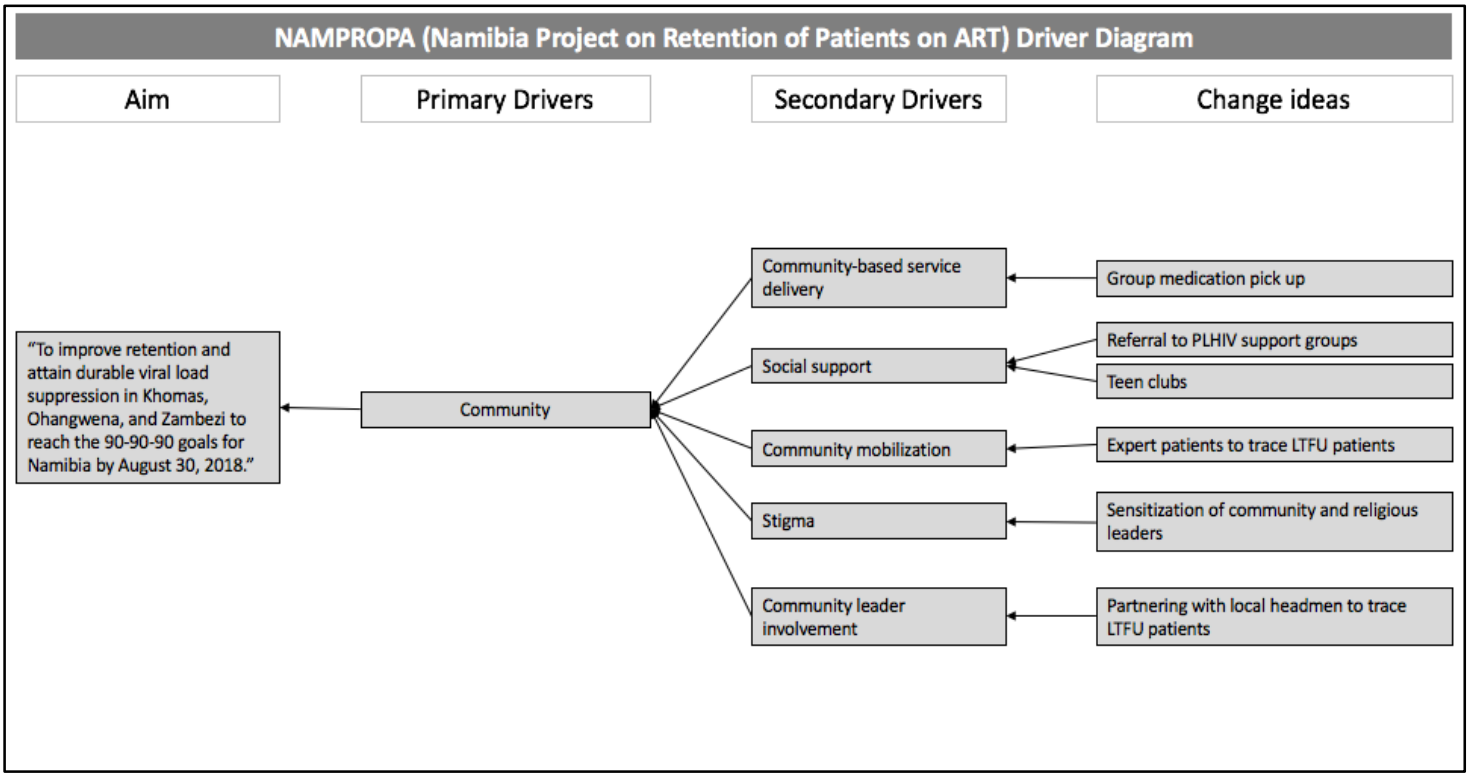
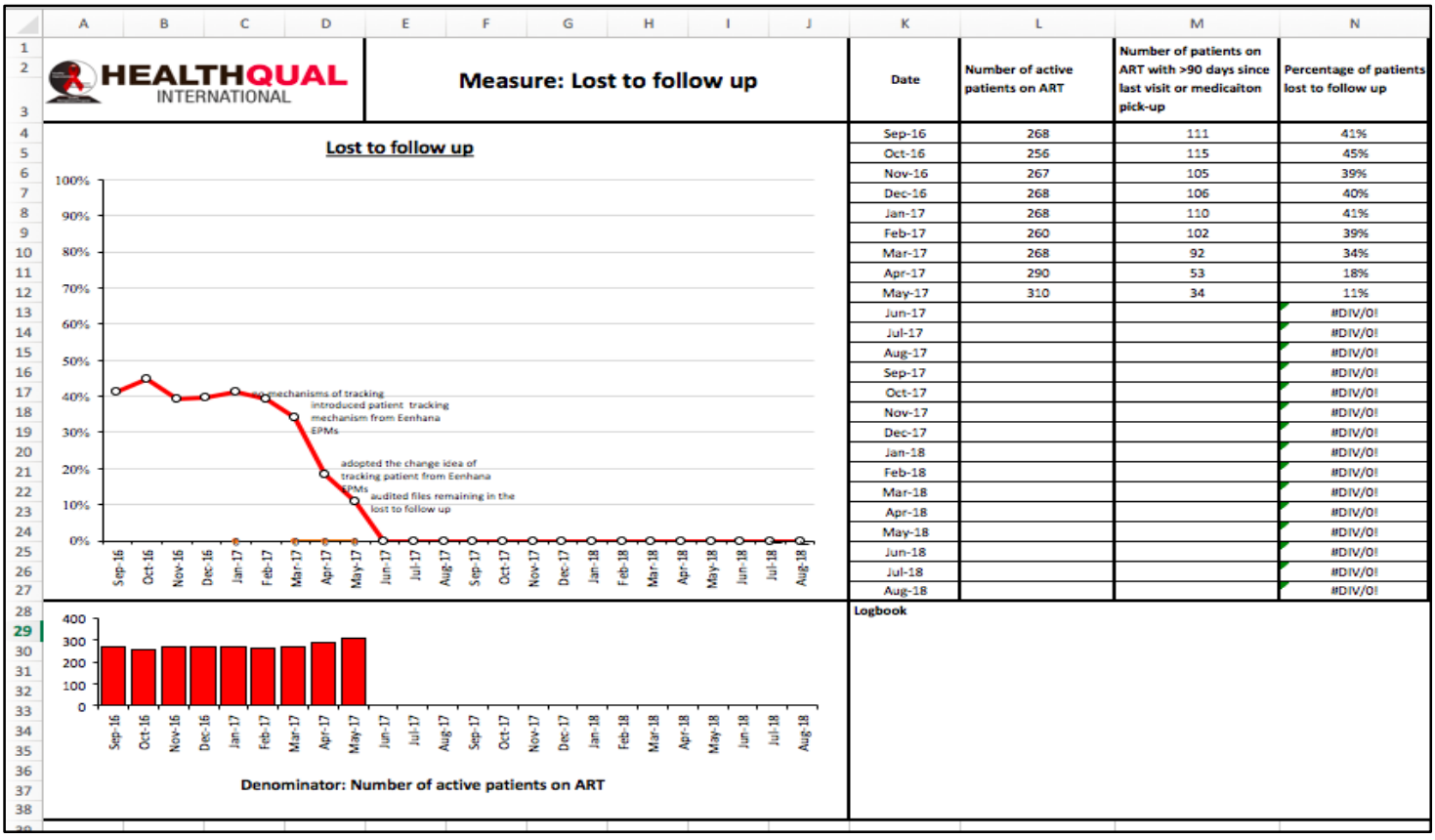


Figure 10. NAMPROPA Data Collection Tool



Date	Number of active patients on ART	Number of patients on ART with >90 days since last visit or medicaiton pick-up	Percentage of patients lost to follow up
Sep-16	268	111	41%
Oct-16	256	115	45%
Nov-16	267	105	39%
Dec-16	268	106	40%
Jan-17	268	110	41%
Feb-17	260	102	39%
Mar-17	268	92	34%
Apr-17	290	53	18%
May-17	310	34	11%
Jun-17			#DIV/0!
Jul-17			#DIV/0!
Aug-17			#DIV/0!
Sep-17			#DIV/0!
Oct-17			#DIV/0!
Nov-17			#DIV/0!
Dec-17			#DIV/0!
Jan-18			#DIV/0!
Feb-18			#DIV/0!
Mar-18			#DIV/0!
Apr-18			#DIV/0!
May-18			#DIV/0!
Jun-18			#DIV/0!
Jul-18			#DIV/0!
Aug-18			#DIV/0!