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Pharmaceutical Management information system Support supervision quarterly Feedback report, October to December 2013, Cameroon

February 2014



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SLAPS 
Systems for Improved Access
to Pharmaceuticals and Services

Pharmaceutical Management Information System: Support Supervision Report, October to December 2013, Cameroon

February 2014

Catherine Mentou Tadzong
David Mabirizi



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SIAPS 

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The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to assure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision-making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

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Systems for Improved Access to Pharmaceuticals and Services
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703.524.6575
Fax: 703.524.7898
E-mail: siaps@msh.org
Web: www.siapsprogram.org

Questions and comments may be directed to Catherine M. Tadzong. (tmentou@msh.org), Jean Dongang S. (jdongang@msh.org), Yves Kaptue T. (ykaptuetowa@msh.org), Kaze Gege Buki (gbuki@msh.org), or Aline Kane (akane@msh.org).

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ACRONYMS AND ABBREVIATIONS

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
AZT/3TC +EFV	Zidovudine/Lamivudine+ Efavirenz
AZT/3TC/NVP	Zidovudine/Lamivudine/Nevirapine
CAPR	Centre d'Approvisionnement Pharmaceutique Régional (Regional Medical Store)
CEBEC	Conférence des Eglises Evangéliques et Baptistes du Cameroun
CDC	US Centers for Disease Control and Prevention
CMES	Centre Medical des Entreprises de la Sanaga
CNLS:	Commission Nationale de Lutte Contre le SIDA (National HIV AIDS Program)
CTA	Centre de Traitement Agree (Health Facilities Treatment Center)
FCB	Foundation Chantal Biya
GTR	Groupe Technique Regional (Regional Technical Group)
HIV	human immunodeficiency virus
LMIS	Logistic Management Information System
M&E	monitoring and evaluation
MoPH	Ministry of Public Health
NACC	National AIDS Control Committee
PEPFAR	President's Emergency Plan for AIDS Relief
PMIS	Pharmaceutical Management Information System
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
TDF/3TC/EFV	tenofovir/lamivudine/efavirenz
TDF/3TC+NVP	tenofovir/lamivudine + nevirapine
TARV	Traitement Anti-Retroviral (antiretroviral treatment)
UPEC	Unité de Prise en Charge (Health Facilities Treatment Center)
USAID	US Agency for International Development

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SIAPS/Cameroon finally acknowledges the technical support provided by SIAPS Headquarters staff David Mabirizi, Principal Technical Advisor HIV and AIDS, and Gabriel Daniel, Principal Technical Advisor, through the draft and review of the report.

EXECUTIVE SUMMARY

Based on previous assessment findings and to fill the gaps, SIAPS supports improving data management of HIV and AIDS commodities in targeted ART health facilities in Cameroon by:

- Assessing storage practices and inventory management to mentor and guide system improvement
- Collecting data and information for the monitoring patients and stock
- Mentoring and building the capacity of pharmacy attendants, storekeepers, and data clerks on storage, dispensing practices, inventory management, filling in registers, and reporting HIV and AIDS data

PMIS Supportive Supervision Quarterly Update

A joint team of CNLS (central and regional levels) and SIAPS provided supportive supervision in January 2014 for 6 of 10 regions of Cameroon and 30 percent of the ART health facilities in those regions. The supportive supervision covered data from the period of October to December 2013 for an estimated 55.6 percent of the total number of patients on ARV in Cameroon. This was the second time this activity was performed in Cameroon and it provided a deeper understanding of what is happening at health facilities and provided a perspective of on the number of patients, by regimen, by region, and by product.

SIAPS has adapted the CNLS overall program supervision guide (*Guide des supervisions des acteurs de la mise en œuvre du plan stratégique nationale de lutte contre le VIH, le Sida et les IST 2011-2015*) to focus on supply chain management components. The adapted guide focuses on three levels—CNLS at regional level, Regional Medical Store level, and health facilities level. The guide provides instructions on immediate actions that can be taken to resolve on-site problems when necessary and instructions for the collection of data necessary to monitor and evaluate ongoing supply chain management interventions. Finally, this guide facilitates monitoring of actions that may be taken by heads of different structures to improve their performance; it lists the data to be shared between different levels to help manage patients and stock information at health facilities.

Thirty-four ART health facilities were targeted for this exercise. Fourteen were *Centre de Traitement Agree* (CTA), health facility treatment centers that represents the general, central and regional hospitals, Centre Hospitalier Universitaire and assimilated private hospitals. Twenty were “Unité de Prise en Charge” (UPEC—health facilities treatment center) represents the district hospitals. The list of targeted health facilities is presented in annex A. The CTA provide supervision, monitoring, quality control, and mentorship to a number of UPECs in their catchment area.

All facilities supervised were in the regions of Adamawa, Centre, East, Littoral, North-West, and South-West. SIAPS technical staff members provide technical support, conduct trainings, provide supportive supervision, and mentor targeted health facilities in these regions. Three staff members are working within their respective catchment areas. They entered indicator data into

forms loaded into their respective computers. Data is relayed to central level where it is aggregated and reported out by a senior technical advisor.

Results show a drop in the health facilities reporting on time from October 2013 to December 2013 for some regions. In Adamawa region, 100 percent of health facilities submitted their reports on time in October 2013 compared to 66.7 percent in December 2013. In Littoral region, there was a drop from 57.1 percent in October 2013 to 14.3 percent in December 2013.

In the North-West region and in two health facilities in the South-West region (Kumba District Hospital and Buea Regional Hospital), 100 percent of stock card records matched with physical inventory. Batouri District Hospital, Douala General Hospital, and Limbe Regional Hospital recorded the lowest scores of 14 percent of their records matching actual physical inventory.

ART patient distribution by region shows that the Centre Region has the highest proportion of patients on ART in Cameroon (26 percent) followed by the Littoral region (20.5 percent), the North-West (15.1 percent), and the South-West (10.5 percent).

AZT/3TC/NVP was the most used regimen in all regions between October and December 2013. The proportion of patients on this regimen is 51 percent in the Centre region and 77 percent in the Adamawa region. In December 2013, 84 percent of patients on treatment in Adamawa and 72 percent in North-West regions were on AZT/3TC/NVP. At health facilities visited within the same period, 56 percent experienced a stock-out of AZT/3TC/NVP and 40.6 percent experienced a stock-out of AZT/3TC.

During this time period, SIAPS staff—

- Provided stock cards to targeted health facilities.
- Trained storekeepers and pharmacy attendants on the use of stocks cards in a few health facilities
- Updated stock cards
- Made inventory control forms available to health facilities storekeepers and pharmacy attendants

The recommendations included—

- Providing ARV dispensing registers to health facilities and building health facilities staff capacity on using registers
- Identifying other causes of variation in the number of patients at health facilities and correcting the discrepancies
- Quarterly and annual review of patient data in terms of active versus inactive patients, new patients, and patients lost to follow-up
- Ensuring that communications are open and working between health facilities and health workers on regimen substitution in case of stock-outs and dissemination to health facilities
- Harmonizing commodities management and reporting tools and dissemination of standard tools in all health facilities
- Providing feedback to heads of all supervised health facilities

INTRODUCTION

The 2011 Demographic Health Survey revealed that the HIV and AIDS prevalence rate in Cameroon decreased from 5.1 percent in 2009¹ to 4.3 percent in 2011². The number of patients receiving ARV treatment has increased from 89,455 in December 2010 to around 126,449 in September 2013³. To increase coverage, the Government of Cameroon plans to increase the number of new patients (adults and children) starting antiretroviral therapy (ART) to 17,993 during 2014. By 2015, Cameroon wants to be treating 80 percent of people living with HIV and AIDS.

The efficient functioning of the public HIV and AIDS supply chain management system in Cameroon is critical to the success of the Ministry of Public Health (MoPH) plans for scale-up of HIV and AIDS activities. The public pharmaceutical activities in Cameroon are coordinated by and through the Central Medical Stores (CENAME), the Regional Medical Stores (CAPRs), and public health facility pharmacies. All supplies and drugs are procured and distributed through CENAME. The largest donors for the procurement of HIV and AIDS commodities in Cameroon are the Global Fund for AIDS, Tuberculosis and Malaria and the Government of Cameroon. Over the past two years, the President's Emergency Plan for AIDS Relief, the World Bank, and the French Cooperation have also been funding procurement of ARVs.

Since mid-2012, the health care system in Cameroon has been characterized by low access to HIV and AIDS commodities, primarily because of insufficient funding for procurement. Health facilities lack and inadequately transmit information on actual consumption data to the CAPRs. The lack of and inadequate transmission of the information through the CAPRs and the regional technical group to the national HIV program (CNLS) and CENAME have led CNLS to forecast needs based on distribution data rather than on the actual consumption. This has contributed to frequent stock-outs at all levels of the supply chain (central, regional, and health facilities). Currently, 159 health facilities provide ART treatment. Since 2006, the number of health facilities providing PMTCT services has also increased to 1,159 in 2012—an increase of 81.4 percent in 5 years. Nearly 50 percent of health facilities have more than 150 patients on treatment, and around 17 percent has more than 1,000 so getting the information from patients' files is tedious and leads to frequent errors.

PEPFAR has strategically set a goal of building the capacity of the national pharmaceutical and logistic system in Cameroon. At the end of 2012, the Government of Cameroon requested assistance from PEPFAR to procure ARVs through the Emergency Commodity Fund mechanism to avoid the impact of an ARV stock-out. PEPFAR procured ARVs in 2013 and rapid test kits worth \$5.8 million. Procuring ARVs is just the initial step in providing lifesaving treatment to people living with AIDS. These medicines must be distributed to the right ART sites, inventoried and stored properly, and managed through proper patient record keeping.

¹ CNLS, Profil des estimations et projections en matière de VIH et Sida au Cameroun 2009-2015, 2009

² République du Cameroun, Enquêtes Démographique et de Sante et a Indicateurs Multiples, (EDS-MICS), 2011

³ CNLS, Rapport Mensuel des activités de lutte contre le VIH/SIDA du Comité National de lutte contre le VIH/SIDA, Septembre 2013

In 2011 and 2012, SIAPS Cameroon conducted various assessments of the MoPH institutions operating in the public supply chain for pharmaceuticals and health commodities. In 2012, USAID West Africa Office provided PEPFAR funding for the SIAPS program to improve supply chain management of HIV and AIDS commodities in Cameroon. Through those assessments, SIAPS identified the primary challenges in pharmaceutical management as unclear organizational management structures and procedures, human resource bottlenecks, ineffective coordination, inadequate inventory-control management systems, and inadequate dispatch and distribution systems. In addition, data was unreliable on patients and stock at all levels which lead to a weak information system that leads to unreliable quantification and ineffective supply planning. Together, these challenges resulted in an inability of the supply chain system to accommodate the increased load anticipated from efforts to scale up and expand HIV and AIDS activities under MoPH.

SIAPS's main focus in Cameroon was to—

- Improve inventory management of HIV and AIDS commodities through implementing trainings for MoPH central and regional levels and ART health facility staff members. In 2013, SIAPS conducted a series of trainings on HIV and AIDS commodities management and reporting tools for the CNLS central and regional staff; for CENAME and CAPR warehouse staff members; and for ART pharmacy attendants, storekeepers, and data clerks. In total, 162 participants were trained.
- Working closely with the CNLS central and regional teams to establish a coordinated system for data collection, submission, collation, and analysis (at all levels) of logistics management information. SIAPS will enhance the current paper-based HIV information system to ensure availability and use of pharmaceutical management information for decision making at different levels of the Cameroonian health system and the National AIDS Control Committee (NACC).

Current Key SIAPS Interventions

Human Capacity Building Training/Staffing

SIAPS is working to develop the knowledge and skills of CNLS and MoPH key players at different levels using cascade training, mentorship, and standard operations procedures; the program also provided dispensing registers and stock cards.

PMIS and Inventory Management

SIAPS is focused on strengthening systems for data collection, submission, collation, and analysis through revising and standardizing reporting tools on patients and stock information. and using health facilities supportive supervision to solve patient and stock data discrepancies at all levels.

Storage and Handling

SIAPS is addressing storage and dispensing challenges, and making equipment available when necessary for efficient handling and storage of medicines/ARVs.

Partnership and Coordination

SIAPS is collaborating and coordinating with key PEPFAR partners and MoPH stakeholders through discussions, meetings and review of PMIS feedback report findings.

RESULTS

General Aspects of Inventory Management

Report Timeliness

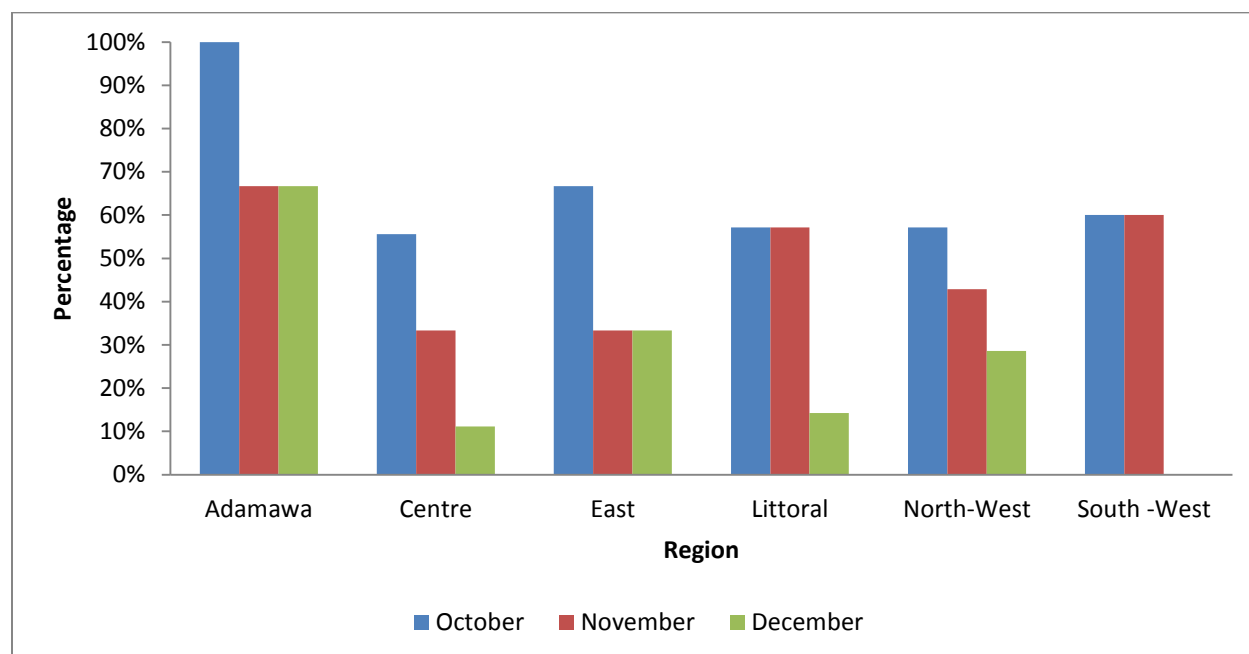


Figure 1. Logistics Management Information Systems reports submitted on time from health facilities to GTR/CNLS, October–December 2013

Figure 1 shows that from October to December 2013, the number of health facilities that submitted their report before the fifth of the following month as recommended by CNLS regional unit (GTR) decreased. The specific Logistics Management Information Systems reports are listed as followed—

1. General patient report (*Fiche mensuelle de prise en charge globale des PVVIH*)
2. Patient report by regimen (*Fiche mensuelle de prise en charge globale des PVVIH par protocole de traitement*)
3. Stock report (*Fiche de suivi de stock et de consommation*).

In the Adamawa region, all (100 percent) health facilities submitted their report on time in October as compared to 66.7 percent in December 2013. In the Centre region, the number of facilities that submitted on time fell from 55.6 percent in October 2013 to 11.1 percent in December 2013. In the Littoral region, there was a drop from 57.1 percent to 14.3 percent from October to December 2013.

In the South-West, none of the health facilities visited filed its report on time in December 2013. The regional coordinator of CNLS in South-West left last September 2013 and data clerks have not received their salaries for quite few months. The data clerk at the Regional Hospital Limbe is has been frequently absent from work so the report was written by a nurse. At Mutengene Baptist hospital, the data clerk comes only at the end of the month to compile the reports.

The data clerk at Laquintinie Douala hospital is facing enormous difficulties in accessing the patient and stock registers in other areas such as the registration office, blood transfusion services, and laboratories to compile the monthly reports.

Report Completeness

Completeness in this section refers to the number of reports sent compare to the total number of expected reports on a monthly basis.

Only 20 (62.5 percent) of the 32 health facilities visited submitted all expected reports. Incomplete and inaccurate reports significantly affect the amount and quality of data used for quantification and supply planning.

Figure 2 shows all health facilities targeted in the regions of Adamawa, North-West, and East submitted all expected reports to GTR/CNLS at the end of each month. In the Littoral region, only one hospital, CEBEC (Conference des Eglises Evangéliques et Baptistes du Cameroun) Bonaberi submitted all seven expected reports at the end of the month. Most reports that health facilities failed to submit are the stock report and the patient report by age and sex, the key reports for the accurate quantification of ARVs.

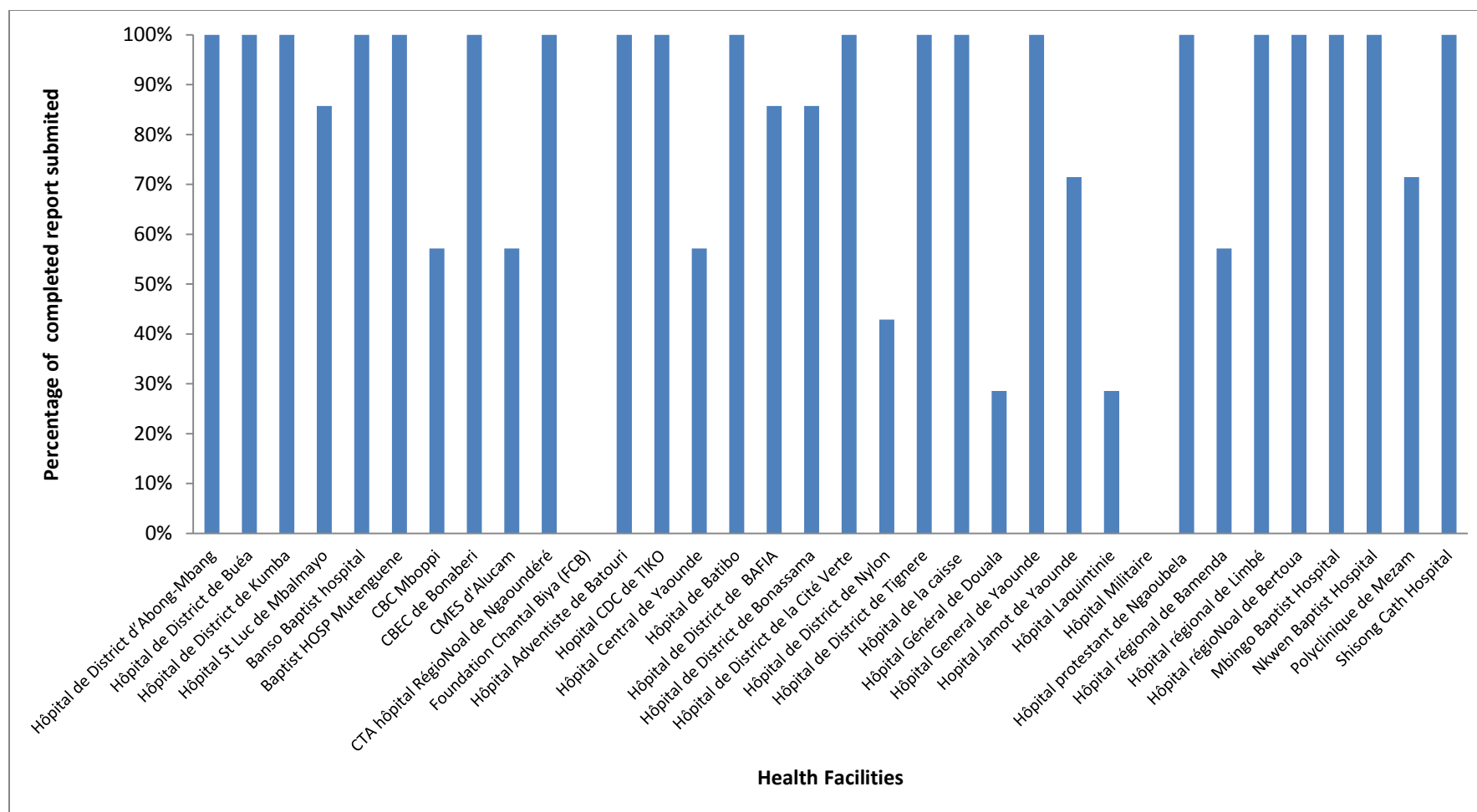


Figure 2. Completeness of health facility reports

Medicines Storage

The pharmacy storage areas for all facilities were assessed for the following practices—

- Appropriate arrangement of pharmaceuticals (medicines on pallets, medicines on shelves etc.)
- Ventilation, sunlight, temperature monitoring practices
- Existence of stock card and stock card update for each product

The chart below shows the percentage of health facilities with medicine on pallets, on shelves and that are using Traitment Anti Retro-Viral (TARV) registers.

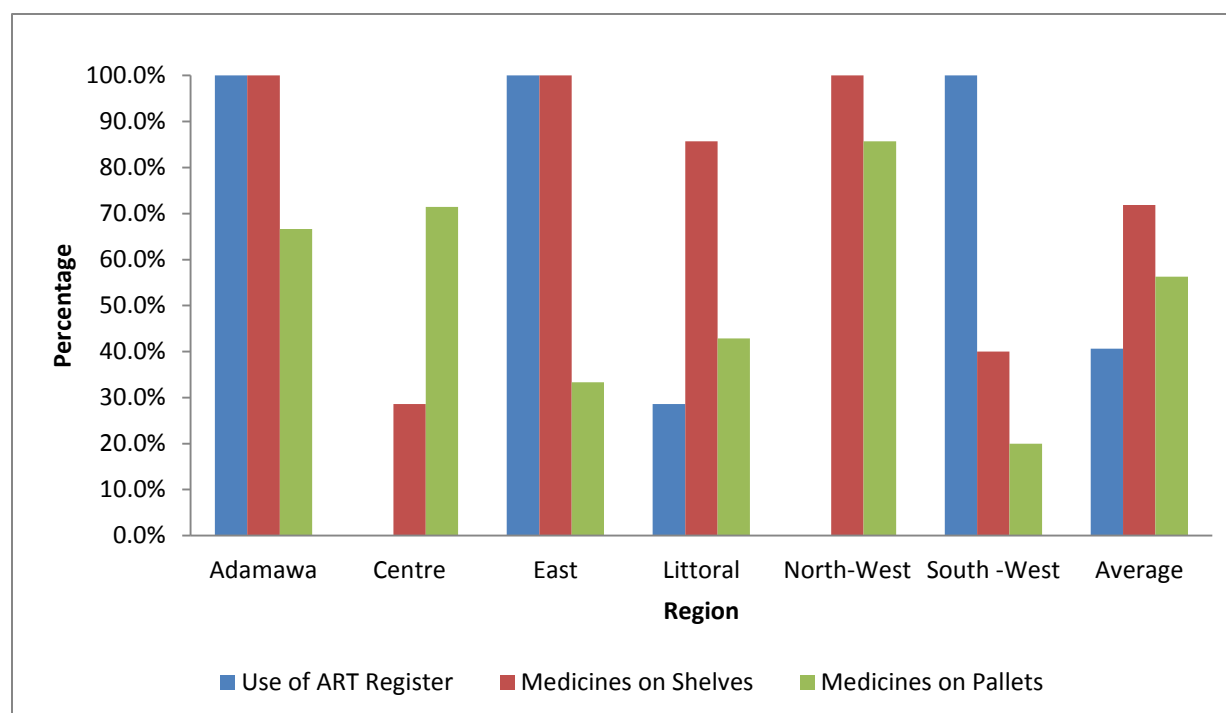


Figure 3. Percentage of health facilities with medicine on pallets, on shelves, and using TARV registers (N = 32)

All health facilities visited in Adamawa, East, and South-West regions had the TARV registers available. In Littoral region, only 2 health facilities (Cameroon Baptist Convention (CBC) Mboppi and Bonassama hospitals) were using the registers, and other health facilities in Littoral, Centre, and North-West regions did not have registers and they were using other alternative books making data compilation of daily patient attendance at the clinics not standardised and incomplete.

Medicines were on shelves in 100 percent of health facilities visited in Adamawa, East, and North-West regions. In the six regions visited, an average of 40.6 percent of health facilities were using TARV registers, 71.9 percent had their medicines on shelves, and 56.3 percent of health facilities had medicines on pallets.

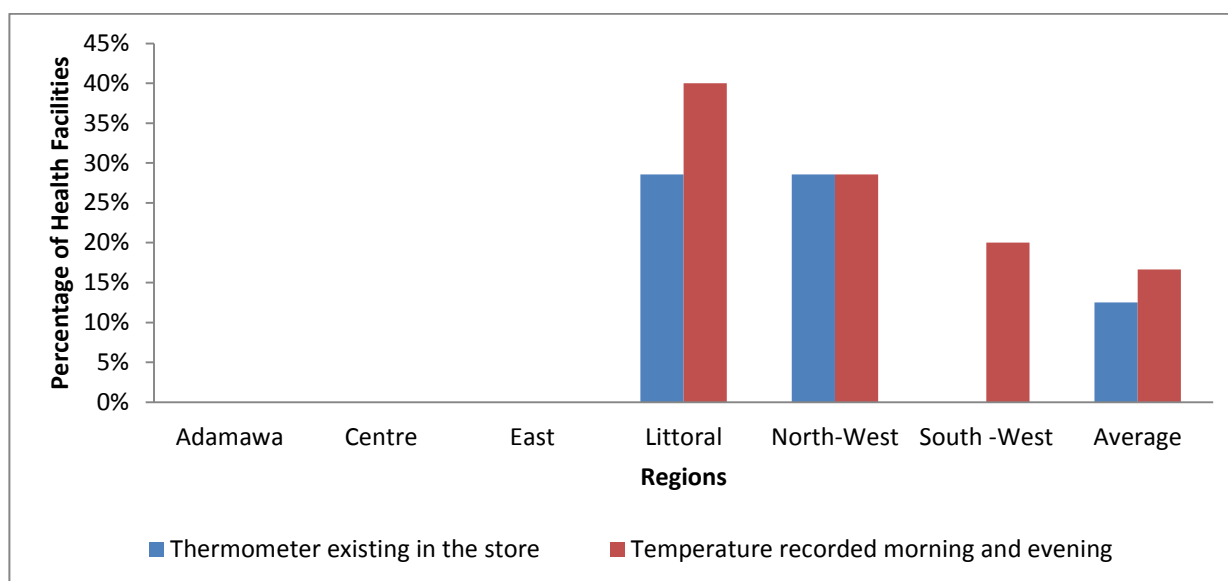


Figure 4. Percentage of health facilities monitoring temperature condition, October–December 2013

Figure 4 shows that, on average, 13 percent of all the visited health facilities have a wall thermometer and that only 17 percent of this group properly record temperatures twice a day.

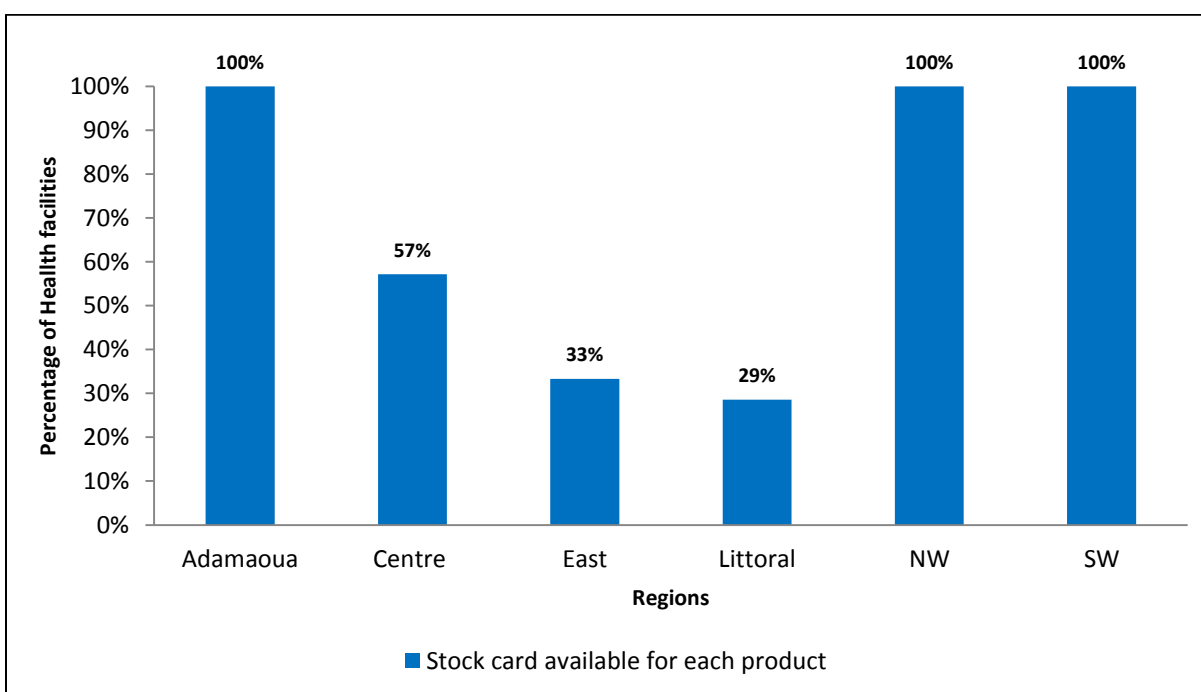


Figure 5. Percentage of health facilities with stock card available for each product at the pharmacy

Stock cards were available in 100 percent of health facilities visited in Adamawa, North-West and South-West regions. Of the health facilities visited respectively in the Centre, the East, and the Littoral, 57 percent, 33 percent, and 29 percent had stock cards available for each product. Health facilities where stock cards were not available for each product are District Hospital of Bafia, Regional Hospital Bertoua, District Hospital Batouri, Laquintinie Hospital Douala, General Hospital Douala, and General Hospital Yaoundé. In these hospitals, stock cards were in use for some but not all products. However, no stock cards were available at CMES (Centre Medical des Entreprises de la Sanaga) Alucam, Jamot Hospital of Yaoundé, Central Hospital of Yaoundé, CEBEC Bonaberi, and Nylon Hospital of Douala.

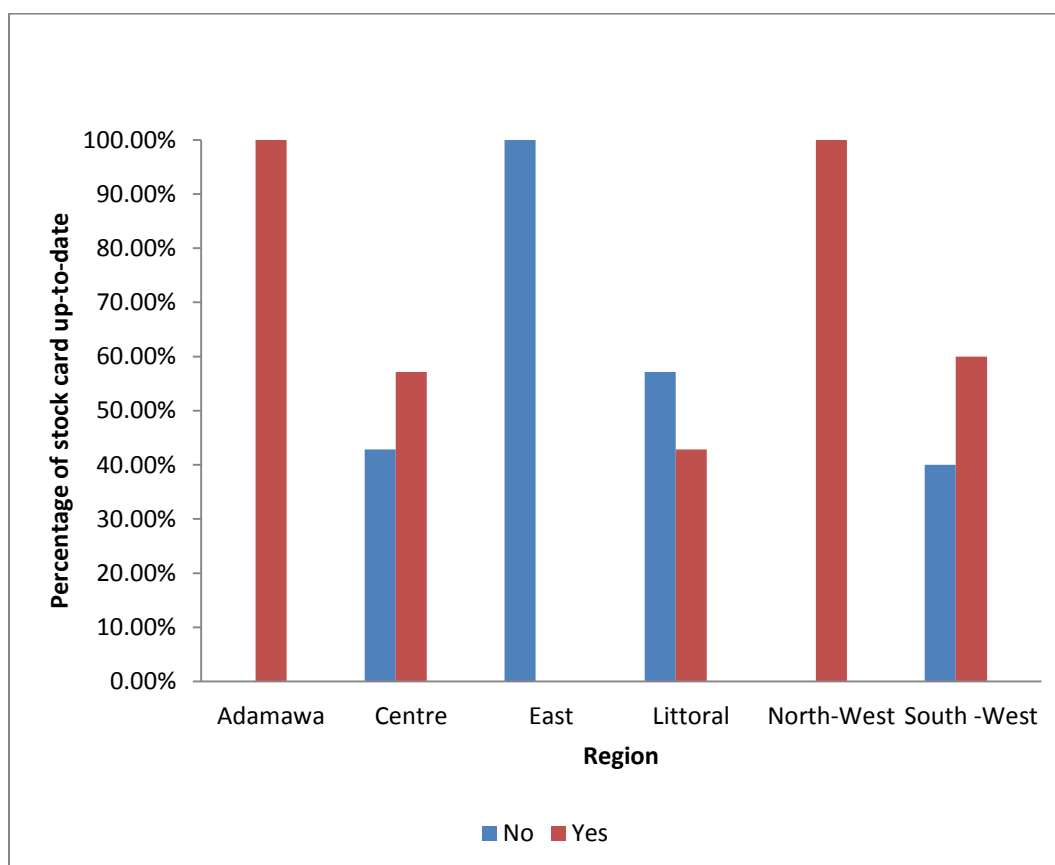


Figure 6. Percentage of health facilities with up-to-date stock cards

Stock cards were not up-to-date in 42.9 percent, 57 percent, and 40 percent of health facilities respectively in the Centre, Littoral, and South-West regions. The health facilities concerned are Mutengene Baptist Hospital, Cameroon Development Corporation Tiko, Batouri District Hospital, Regional Hospital Bertoua, Douala General Hospital, Laquintinie Hospital Douala, Limbe Regional Hospital, Hospital General de Yaoundé, Hospital de District d'Abong-Mbang, and Hospital de District de la Cite Verte.

To evaluate the correlation between the theoretical stock (records) and physical inventory (physical count), seven products were selected in the warehouse and at the point of dispensing. The values obtained were compared to those recorded on the stock cards. For each product that the theoretical stock matches with the physical count, the health facility scored 1(one); and zero when they are not matching. The total score was calculated in percentage. Figure 7 shows the scores obtained for each health facilities.

In Figure 7, Foundation Chantal Biya Hospital (FCB) and Military Hospital were not visited because the pharmacy attendants were not available at the time of the visit. Batouri district hospital, Douala General hospital and Limbe regional hospital recorded only 14 percent of their stock records matched with physical counts—the lowest scores. However, 100 percent of all health facilities visited in the North-West and two health facilities visited in the South-West (Kumba district hospital and Buea regional hospital) had physical stock that matched their record stock.

Stock cards were not up-to-date at Mutengene Baptist Hospital, Tiko Cameroon Development Corporation hospital, Batouri District hospital, Bertoua regional hospital, Douala General hospital, Laquintinie regional hospital, and Limbe Regional Hospital. At Tignere district hospital, stock cards are used in place of dispensing registers. At Nylon district hospital, ARVs are stored in the office of the Coordinator of the Treatment Center and no tools exist to monitor management. In Douala General Hospital, a stock of ARVs opportunistic infections (OIs) products that expired since 2006 were still on the shelves.

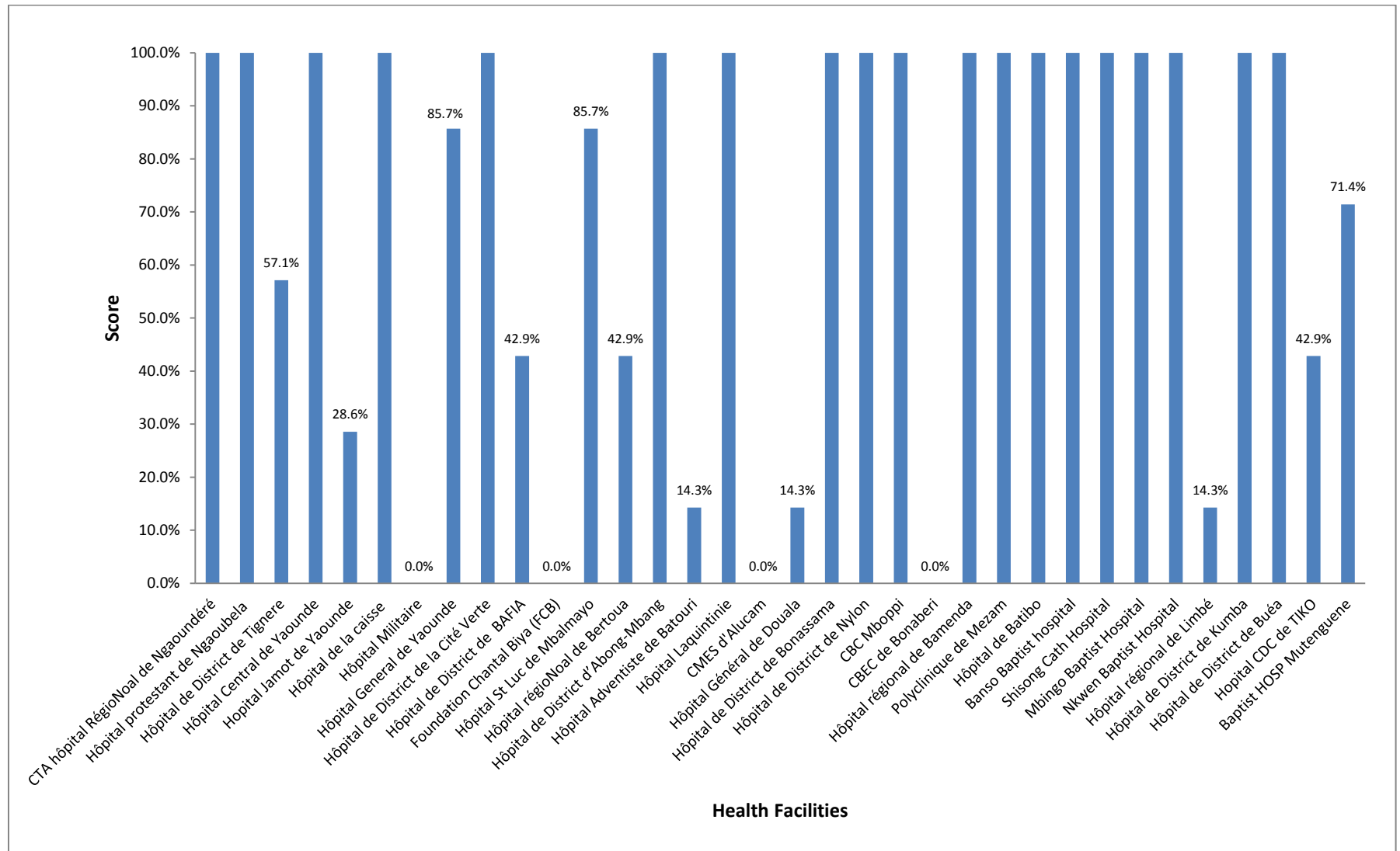


Figure 7. Inventory variation between recorded and physical stock in 32 health facilities, October–December 2013

ARV Consumption

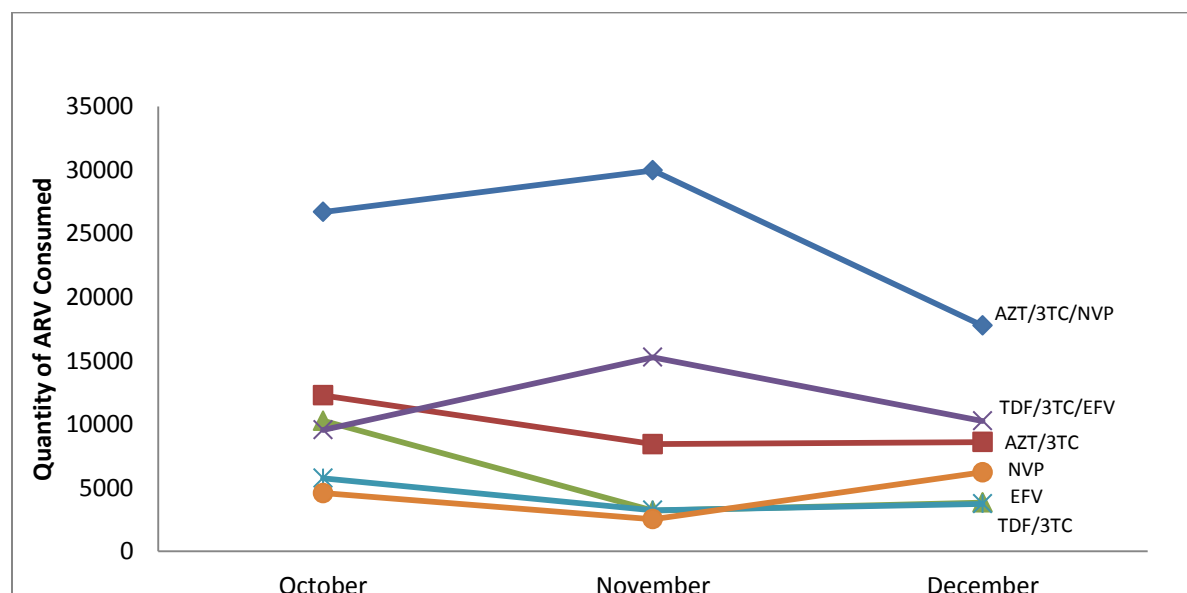


Figure 8. Consumption trend for six first-line ARVs, October–December 2013

Figure 8 reflects a fluctuation in the consumption of first-line ARVs from October to December 2013. Annex B shows the trends of consumption for first-line ARVs per region. It was difficult to define an Average Monthly Consumption level. To determine accurate AMC, it will require more months of monitoring and uninterrupted supply of ARVs. ARV first-line stock on hand at the day of the visit is presented for each of the 6 regions in annex C.

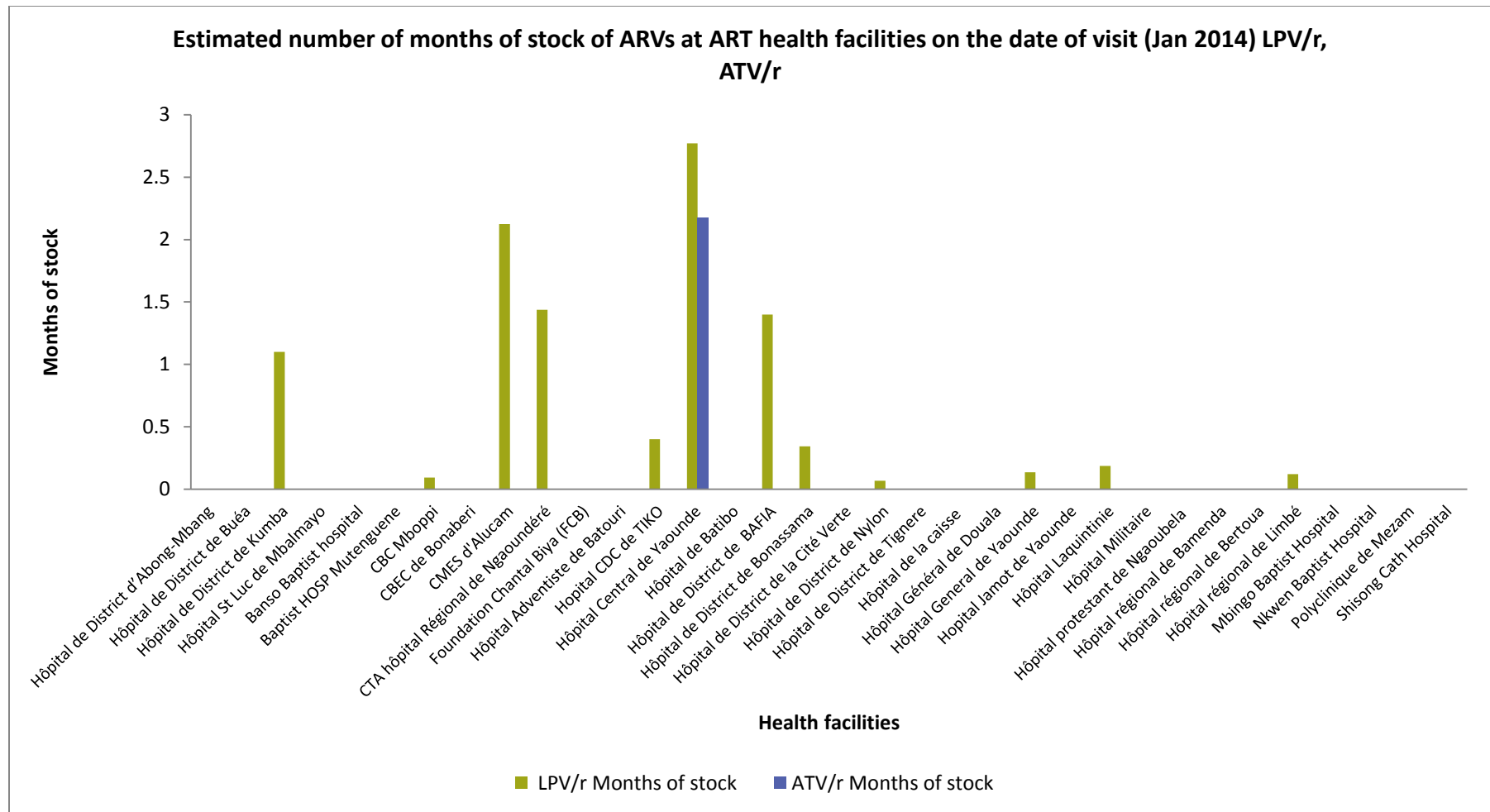
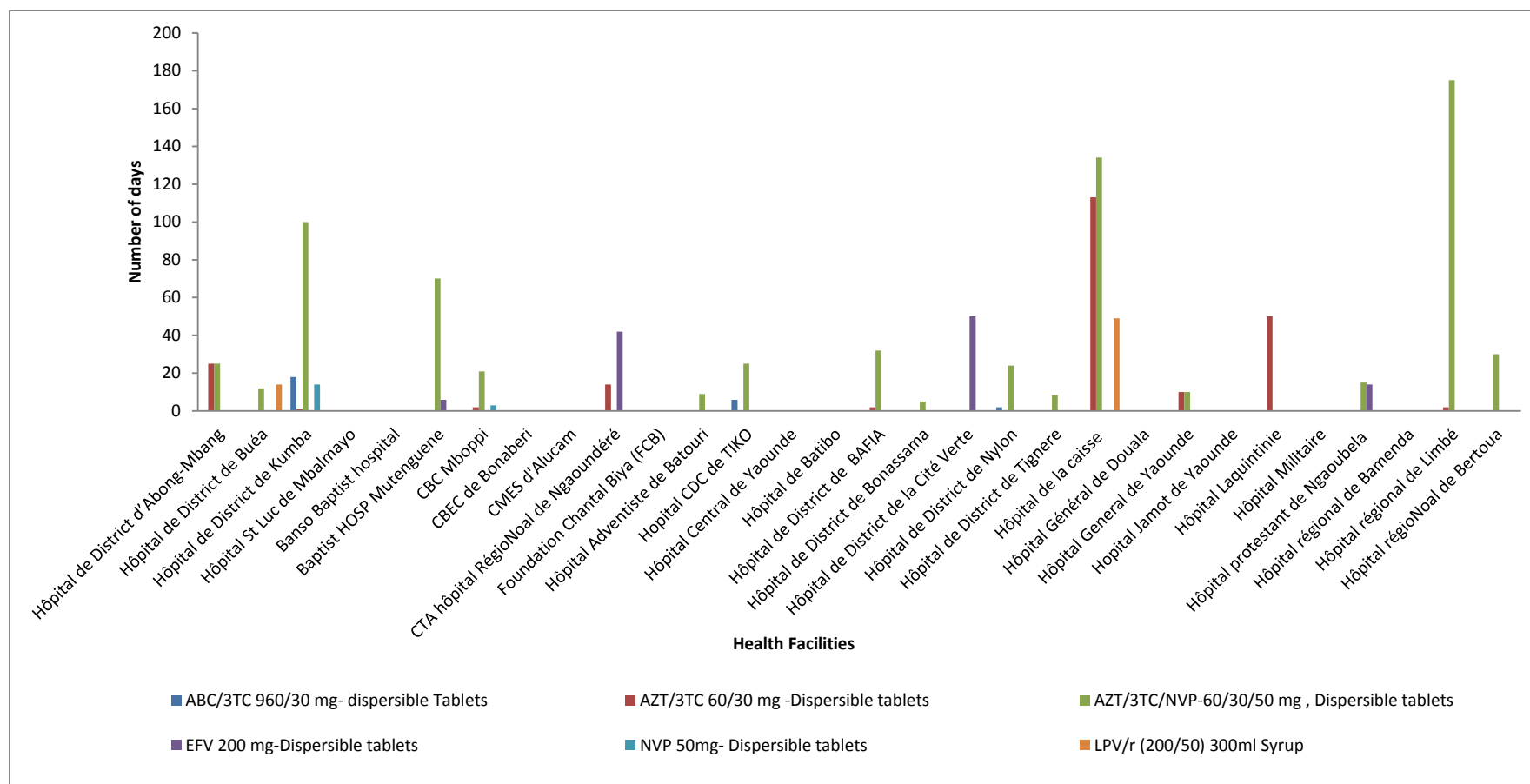


Figure 9. Estimated days of stock of LPV/r 200/50 mg and ATV/r 300/100 mg, January 2014

More than two months of stock of LPV/r were available at Yaoundé Central hospital and CEMES Alucam hospital. One month of stock of LPV/r was available at Bafia district hospital, Ngaoundere regional hospital, and Kumba district hospital. Other health facilities had less than half a month of stock.



**Figure 10. Estimated number of months of stock of pediatric ARVs at ART health facilities on the date of visit (Jan 2014)
LPV/r, ATV/r**

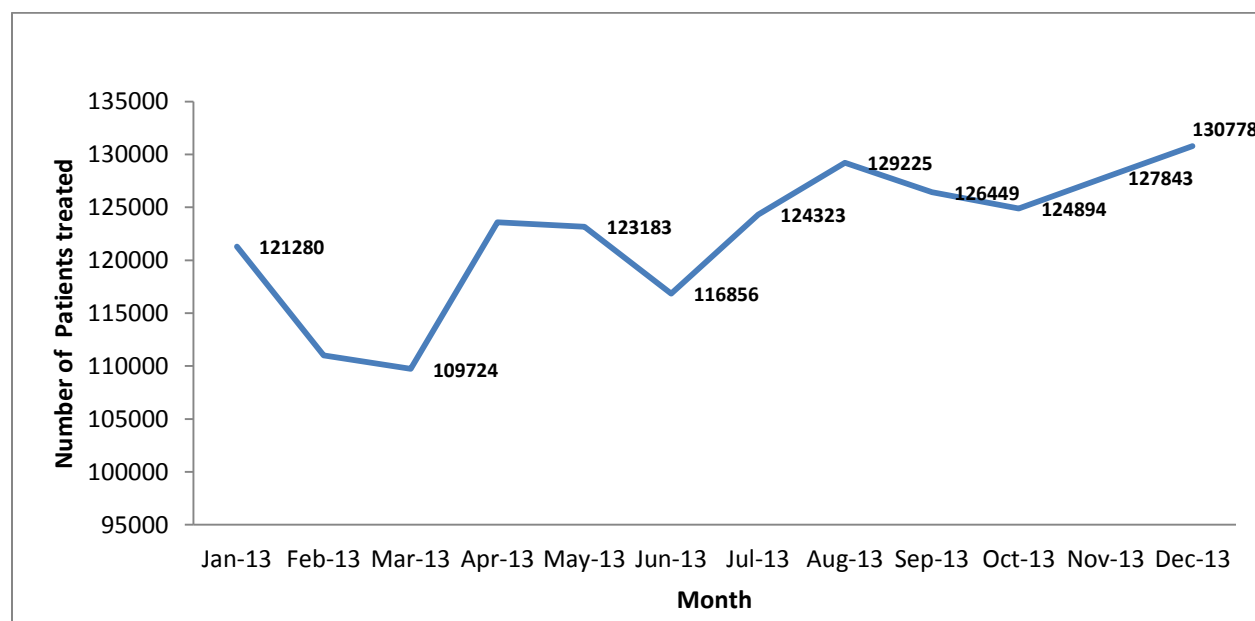
AZT/3TC/NVP 60/30/50 mg were the most available pediatric ARVs in the majority of the health facilities visited. Less than 10 days' supply, however, was available at Buea annex regional hospital, Adventist Hospital of Batouri, District hospital Bonassama, and General hospital Yaoundé.

Patient Information

Table 1. Patient Distribution by Region in December 2013

Region	Patients on treatment, N	Patients, %
Adamawa	3,799	2.9
Center	33,999	26.0
East	5,269	4.0
Far North	6,060	4.6
Littoral	26,848	20.5
North	5,013	3.8
North-West	19,713	15.1
West	12,015	9.2
South	4,355	3.3
South-West	13,707	10.5
Total	130,778	100.0

The distribution of patient on treatment by region shows that the Centre Region has the highest number of patients on treatment, 33,999 (26 percent), followed by Littoral 20.5 percent, North-West 15.1 percent, and South-West 10.5 percent.



Source: National AIDS Control Committee monthly reports from the CTG January 2014

Figure 11. The trend of patients accessing treatment in Cameroon in 2013

The graph above shows that the number of patients on treatment in Cameroon fluctuated significantly from January to December 2013. During the months of February, March, and June 2013, the country recorded the lowest number of patients who have received treatment. These months correspond to periods of ARV stocks-out in the country.

Figure 12 shows the trend of the number of ART patients that accessed treatment by region from January to December 2013.

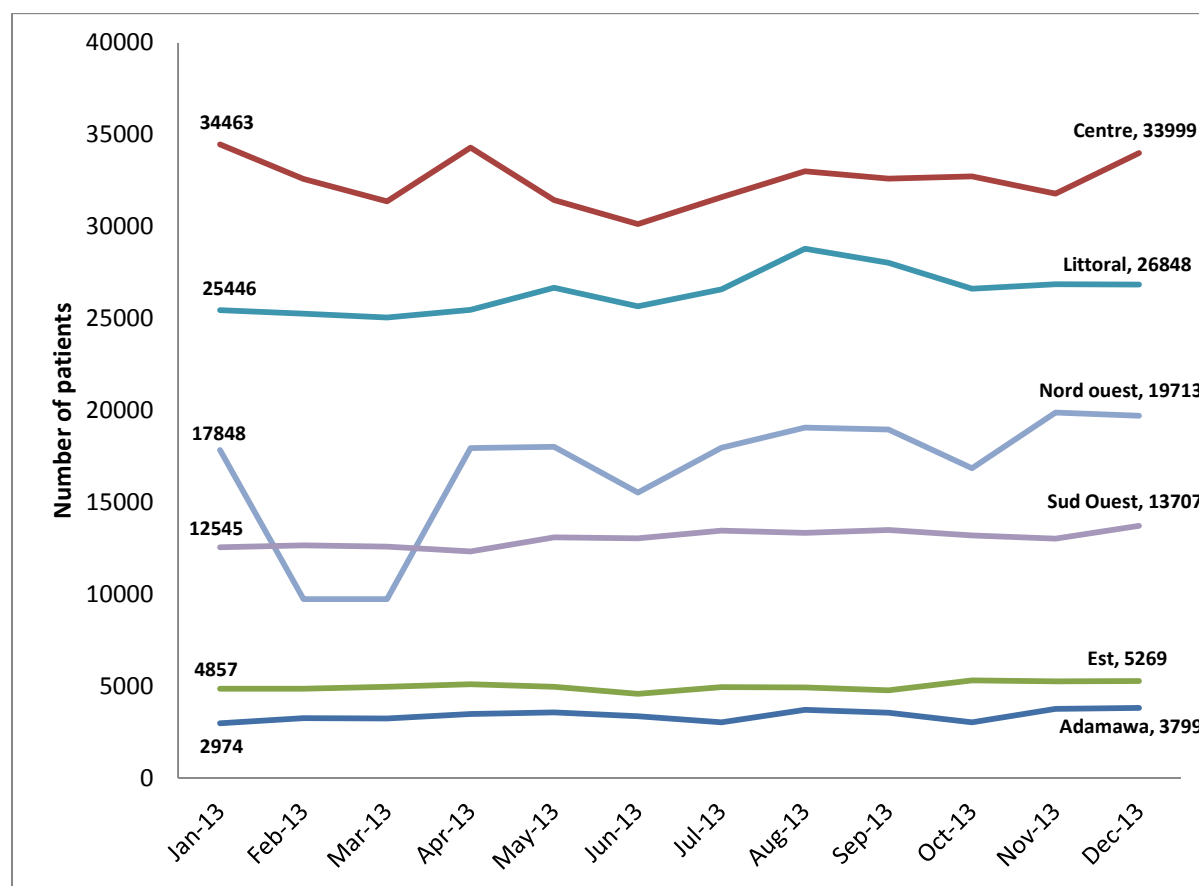


Figure 12. ART patient trends by region, January–December 2013

Like figure 11, figure 12 shows that the number of patients fluctuated in all regions throughout 2013, with the North West region showing more fluctuations than the others regions. The impact of ARV stock-outs in Cameroon in 2013 was more noticeable in the region of North-West unlike the Western Region where the number of patients under treatment has risen gradually from January to December 2013. The number of patients on treatment increased from January to December 2013 in South-West (from 12,545 to 13,707), North-West (from 17,848 to 1,713), Littoral (from 25,446 to 26,848), East (from 2485 to 5269), and Adamawa (from 2,974 to 3,799). However, the number of ART patients in the Centre Region reduced from 34,463 in January 2013 to 33,999 in December 2013.

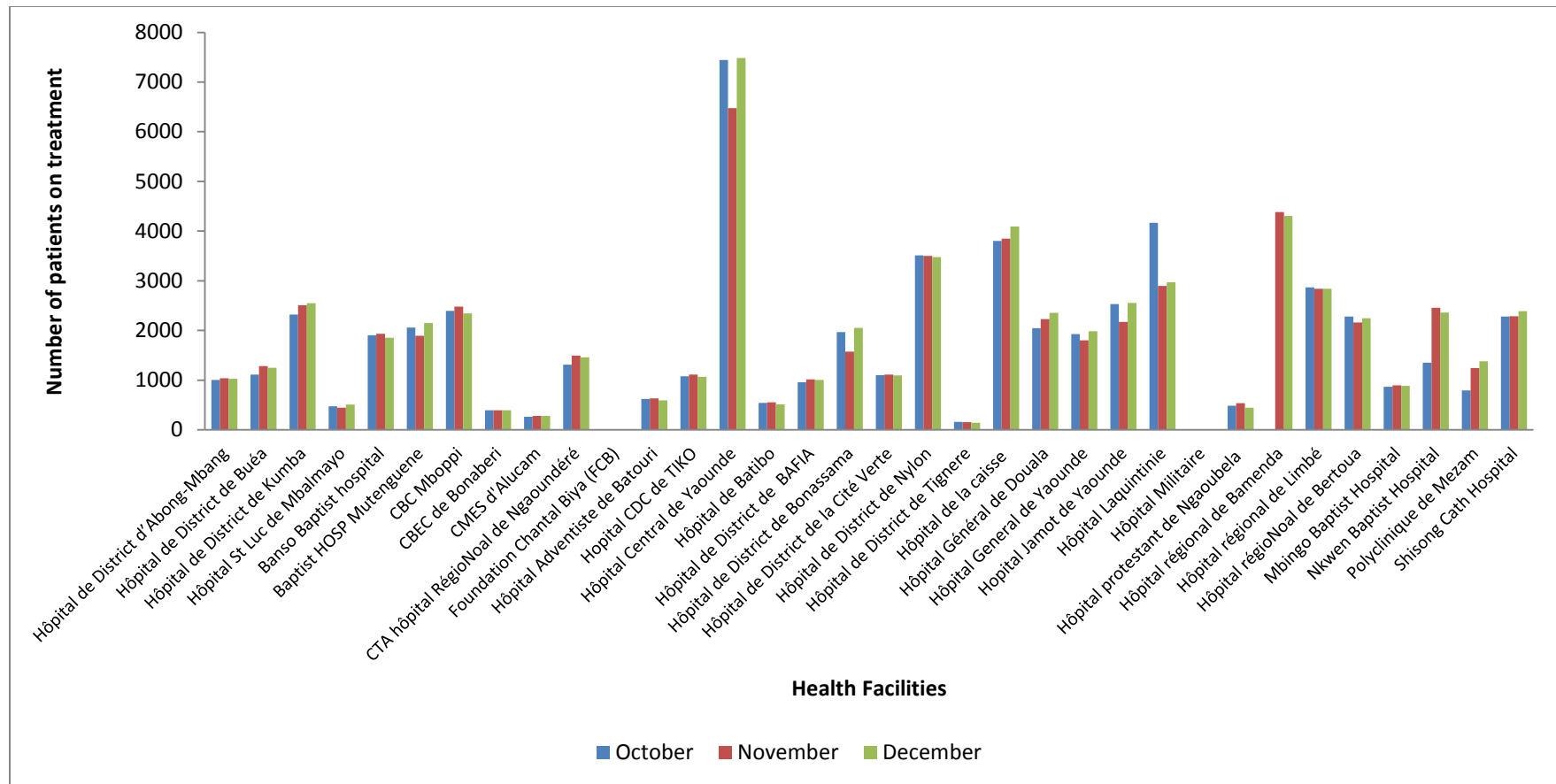


Figure 13. Trend of the number of patients in SIAPS-supported health facilities in Cameroon, October-December 2013

As shown in figure 13 for the October–December 2013 period, five hospitals (Yaoundé Central Hospital, the Laquintinie hospital Douala, Yaoundé Jamot Hospital, Baptist Hospital of Mutengene, and Regional Hospital Bertoua) show fluctuations in the number of patients treated. This calls for finding the cause for such fluctuations so that corrective measures can be taken.

Note that the Chantal Biya Hospital and Military Hospital were not visited. The pharmacy attendant and the data clerk were absent. Added to that, the treatment center of the Military hospital was being relocated.

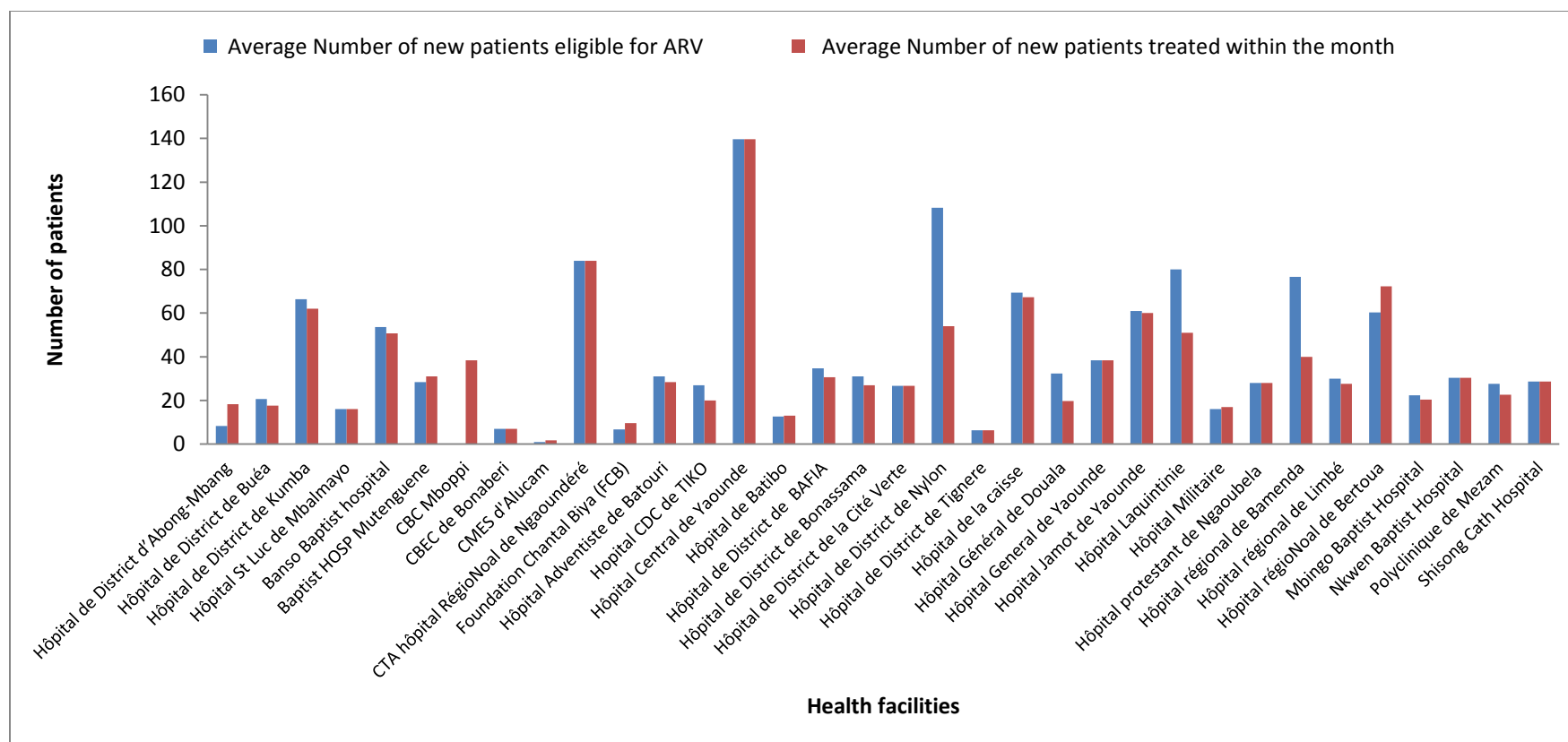


Figure 14. Average number of patients eligible to receive ART and the average number of patient treated

Figure 14 shows that all the patients eligible from October to December 2013 in 12 (38 percent) of the 32 health facilities visited were treated. In the remaining 20 facilities (62 percent), at least 52 percent of patients eligible to receive ART were treated.

Number of patients on ARV who did not come for treatment in the month from October to December 2013

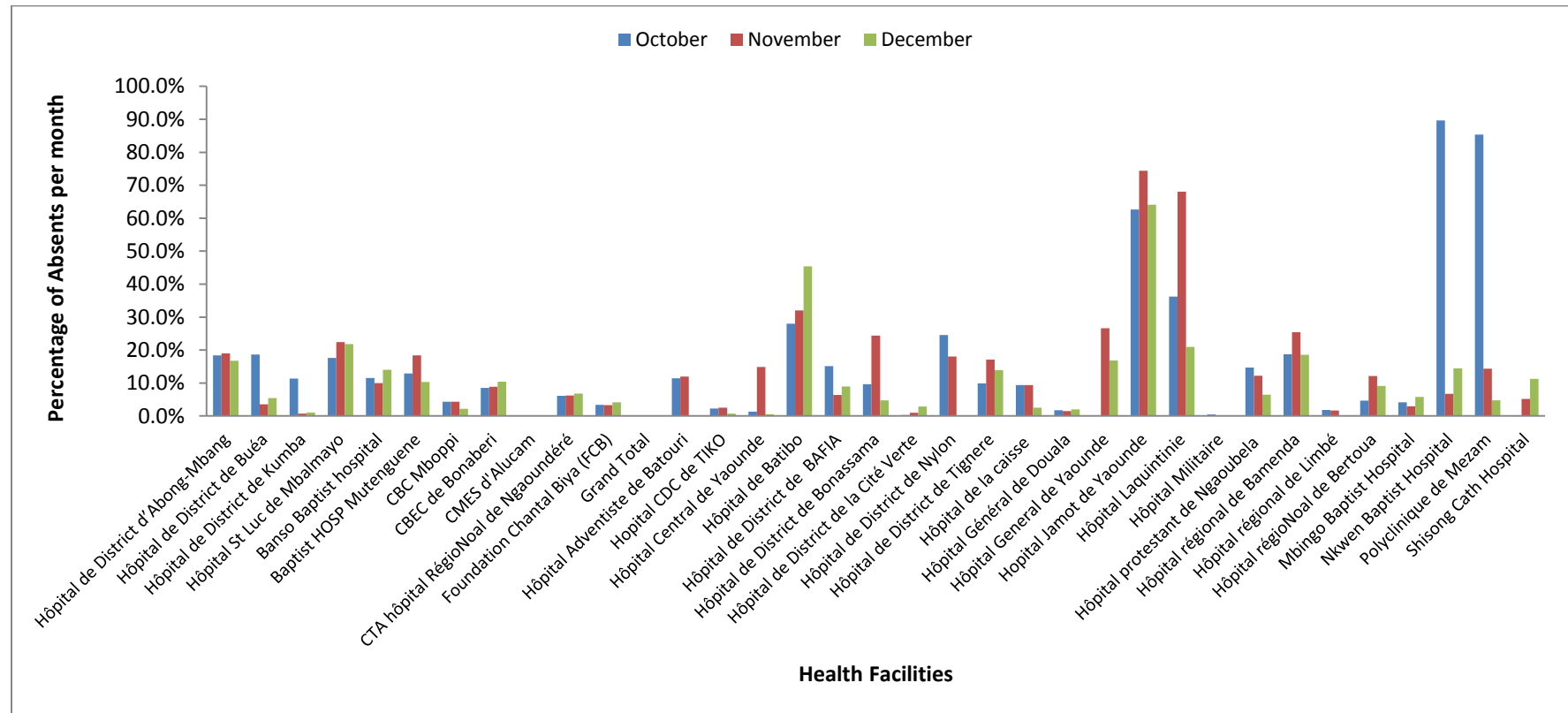


Figure 15. Number of absent patients recorded from October to December 2013

Figure 15 shows that Nkwen Baptist Hospital (89.7 percent), Polyclinic Mezam (85.4 percent), and Jamot Yaounde Hospital (63 percent) had registered patients who did not come for treatment. In November, the percentage of patients who did not come for treatment were 74 percent at Jamot Yaounde Hospital and 68 percent at Laquintinie Hospital Douala. With the exception of District Hospital Batibo that recorded 45 percent absenteeism in December 2013, all others health facilities had less than 30 percent of absent registered patients from October to December 2013.

Treatment Regimens Analysis

Centre Region

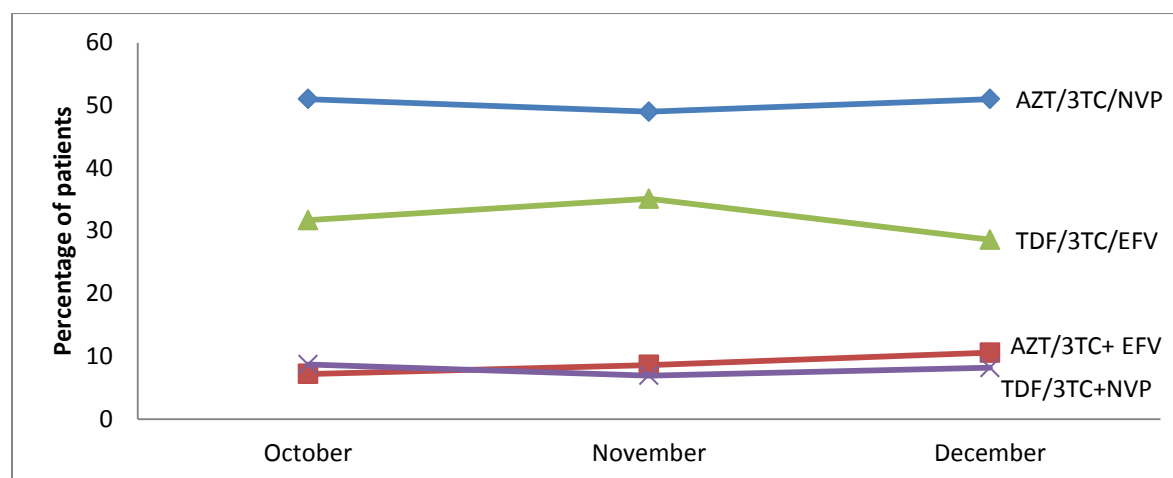


Figure 16. Trend of the percentage of patients on adult first-line regimens in the Center region October-December 2013

Figure 16 shows that the percentage of patient on AZT/3TC/NVP in the Center region barely changed with a 2 percent drop in November. On the other hand, the percentage of patients on TDF/3TC/EFV rose from 31.7 percent to 35.1 percent and then dropped to 28.6 percent from October to December. The percentage of patients on AZT/3TC+EFV went from 7.2 percent in October to 8.6 percent in November, and 10.6 percent in December 2013. Meanwhile, the percentage of patients on TDF/3TC+NVP decreased from 8.7 percent to 6.9 percent and rose again to 8.2 percent from October to December 2013. See annex c for table showing the trend of the percentage of patient on the main four-first line regimens per health facility.

Littoral Region

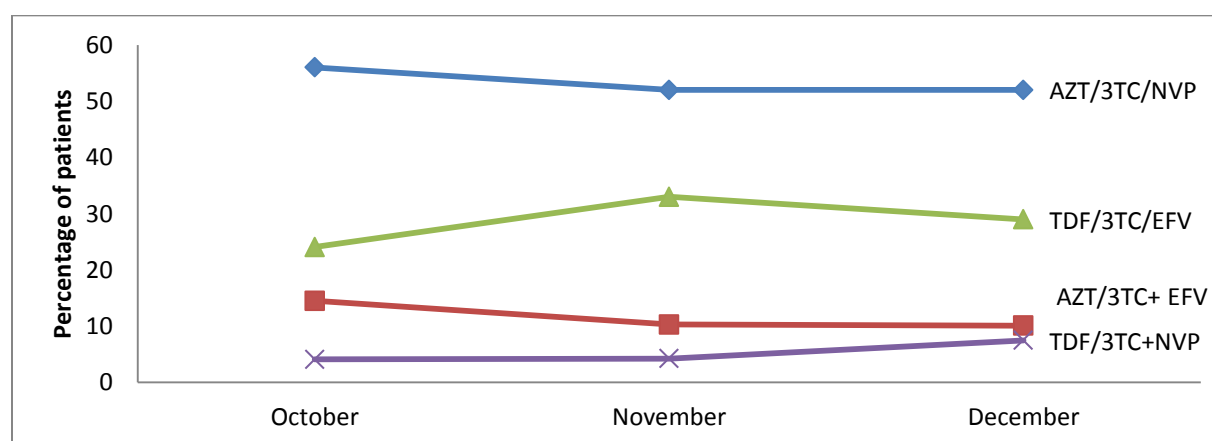


Figure 17. Trend of the percentage of patients on first-line regimen, October–December 2013

From figure 17, the percentage of patients on AZT/3TC/NVP in the Littoral region decreased from 56 percent in October to 52 percent in November and December 2013. On the other hand, the percentage of patients on TDF/3TC/EFV rose from 24 percent in October to 33 percent in November but then dropped to 29 percent in December. The percentage of patients on AZT/3TC+EFV evolved from 14.5 percent to 10.3 and to 10.1 from October to December 2013 meanwhile, the percentage of patients on TDF/3TC+NVP evolved from 4.1 percent to 4.3 percent and to 7.5 percent from October to December 2013.

Adamawa Region

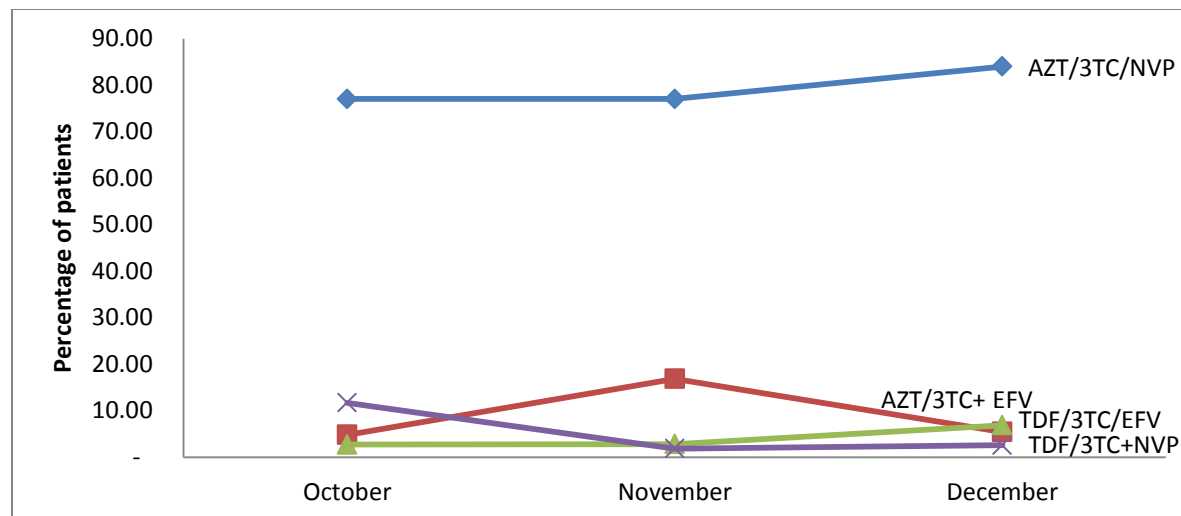


Figure 18. Trend of percentage of patients on adult first-line regimens in Adamawa, October-December 2013

Figure 18 shows that in Adamawa region, the percentage of patient on AZT/3TC/NVP was stable at 77 percent in October and November, and then rose to 84 percent in December 2013. On the other hand, the percentage of patients on TDF/3TC/EFV evolved from 2.7 percent to 2.8 percent and to 6.9 percent from October to December. The percentage of patients on AZT/3TC+EFV increased from 4.8 percent to 16.8 and then dropped to 5.6 percent from October to December 2013. The percentage of patients on TDF/3TC+NVP dropped from 11.7 percent to 1.8 percent from October to November and then rose slightly to 2.6 percent in December 2013.

East Region

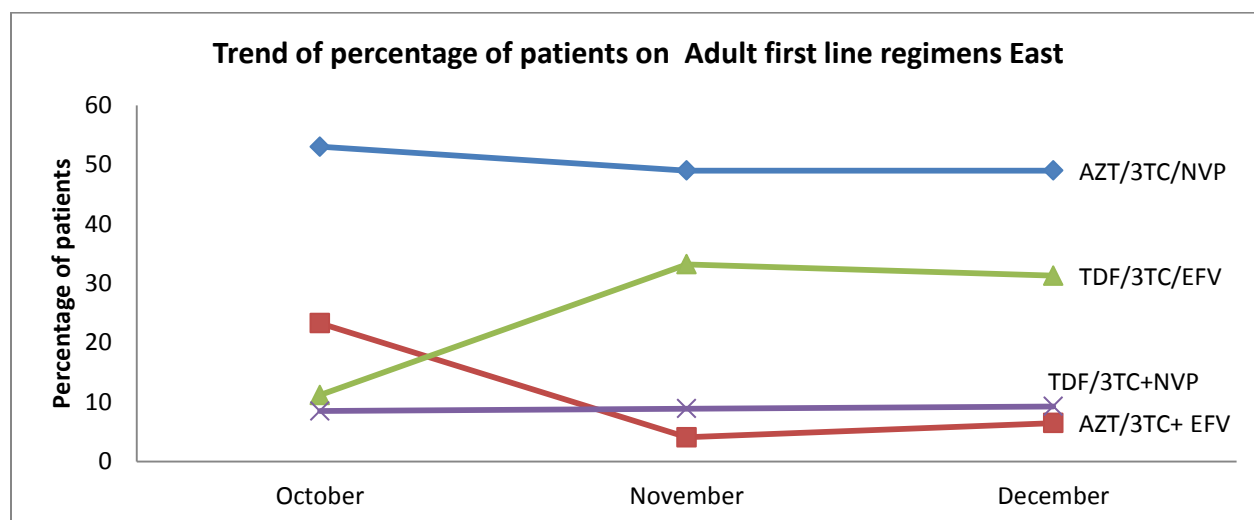


Figure 19. Trend of the percentage of patients on adult first-line regimens in East Region, October-December 2013

This figure shows that the percentage of patients on AZT/3TC/NVP dropped from 53 percent to 49 percent from October to December 2013. The percentage of patients on TDF/3TC/EFV rose from 11.1 percent to 33.2 percent in November but dropped to 31.3 percent from October to December. The percentage of patients on AZT/3TC+EFV decreased from 23.3 percent to 4.1 and then increased to 6.5 percent from October to December 2013 meanwhile, the percentage of patients on TDF/3TC+NVP moved from 8.5 percent to 8.9 percent and to 9.3 percent from October to December 2013,

North-West Region

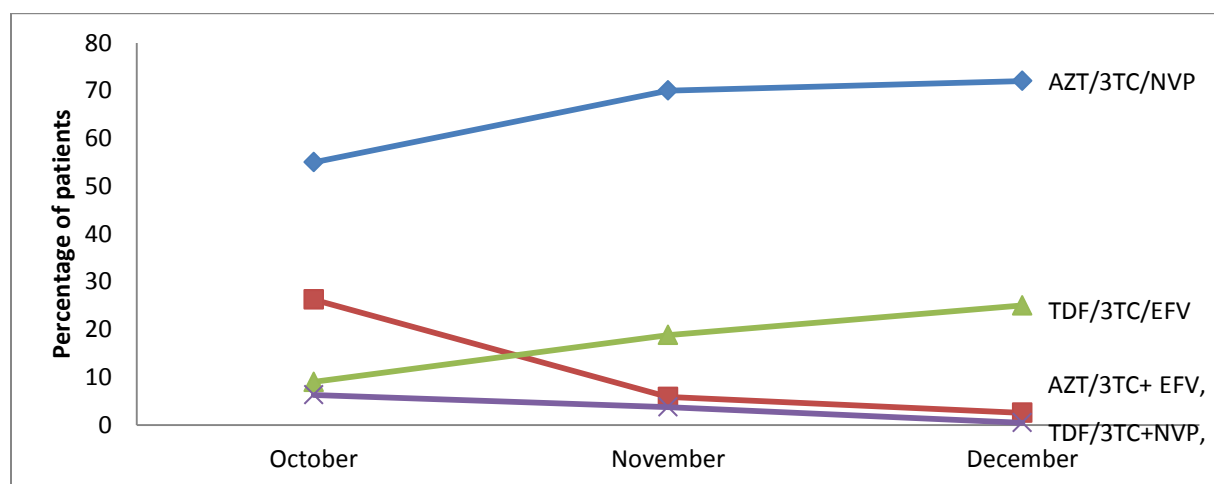


Figure 20. Trend of the percentage of patients on adult first-line regimens in North-West Region, October-December 2013

Figure 20 shows that the percentage of patient on AZT/3TC/NVP increased from 55 percent to 70 percent and to 72 percent from October to December 2013.

The percentage of patients on TDF/3TC/EFV rose from 9 percent to 18.8 percent and to 25 percent from October to December. In comparison, the percentage of patients on AZT/3TC+EFV dropped from 26.3 percent to 5.8 and to 2.5 percent from October to December 2013. The percentage of patients on TDF/3TC+NVP dropped from 6.3 percent to 3.8 percent and to 0.5 percent from October to December 2013.

South-West Region

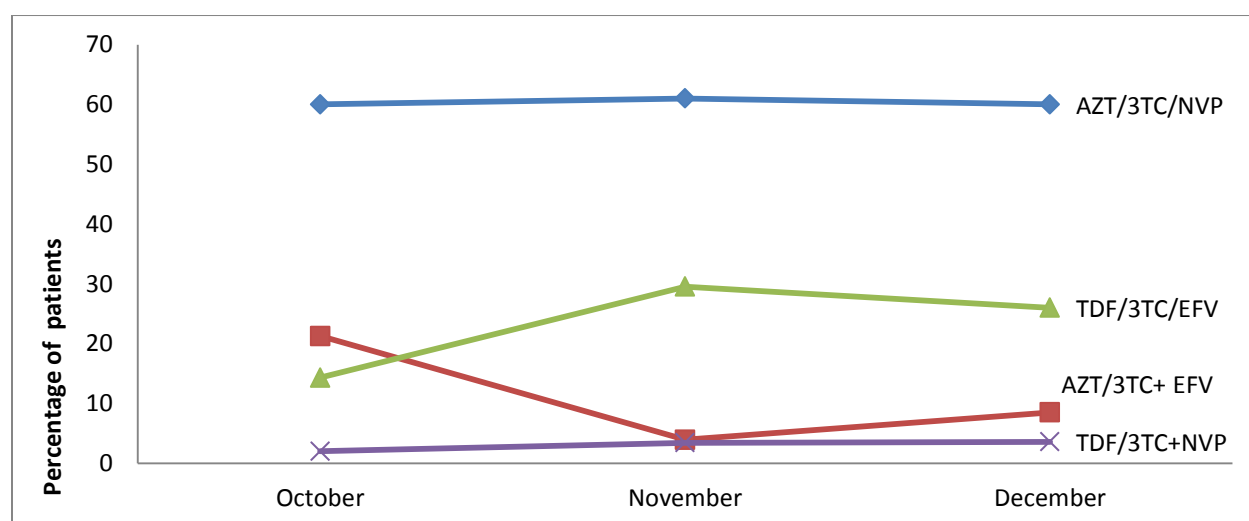


Figure 21. Trend of the percentage of patients on adult first line regimens in South-West Region, October-December 2013

Figure 21 shows that the percentage of patient on AZT/3TC/NVP in the SW region was stable at 60 percent from October to December 2013. On the other hand, the percentage of patients on TDF/3TC/EFV fluctuated between 14.3 percent, 29.5 percent and 26 percent from October to December. The percentage of patients on AZT/3TC+EFV also fluctuated between 21.3 percent, 3.9 percent and 8.5 from October to December 2013. During the same period, the percentage of patients on TDF/3TC+NVP moved from 2 percent to 3.4 percent and to 3.6 percent.

A directive issued to all health facilities by the central level stipulates that new patients eligible to ART should be initiated on TDF/3TC/EFV rather than AZT/3TC/NVP. The distribution hypothesis adopted at the central level for managing first-line patients is showed in table 2. This normally means that the percentage of TDF/3TC/EFV consumption should increase progressively over the time with a concomitant decrease in use of AZT/3TC/NVP.

However, this trend that was stipulated by the central level in TDF/3TC/EFV is observed only in the North-West region. High consumption of AZT/3TC/NVP may be the results of non-compliance of prescribers to the above mentioned directives. These practices contribute to stock-outs on certain products.

Table 2. Percentage of Adult Patients on First-Line ARVs

Regimens	Percentage, %
AZT+3TC+NVP	39
AZT+3TC+EFV	11
TDF+3TC+NVP	17
TDF+3TC+EFV	33
Percentage of adult patients on first line	96.5

Contributing factors of stock-outs and changing regimens may explain the trend observed in the six figures above. This is indicative of the need for reliable data and evidence-based quantification.

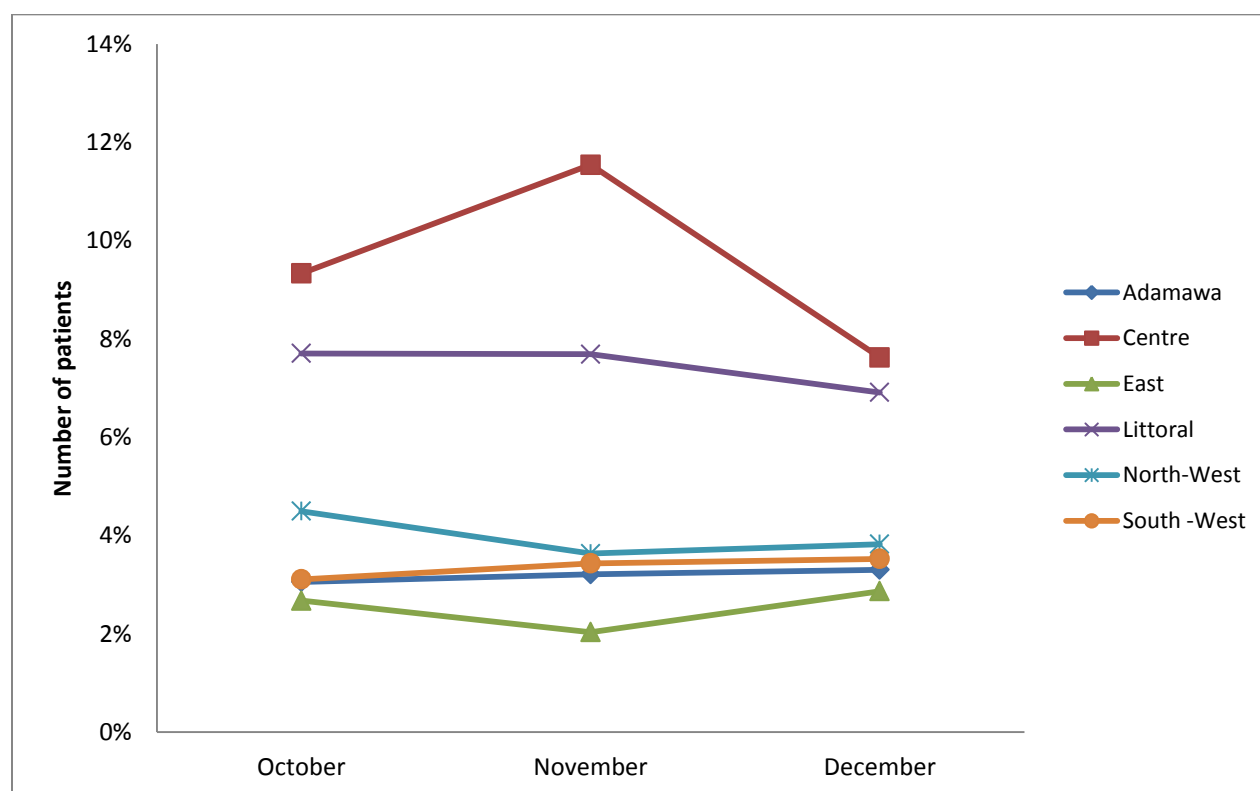


Figure 22. Trend of the number of patient on second line per region, October-December 2013

The percentage of patients on second line increase from October (9 percent) to November (12 percent) and dropped to 8 percent in December 2013 in the Center region. In the Littoral it remains stables from October to December (8 percent) and dropped to 7 percent in December 2013. It was stable in the North-West (4 percent) and in Adamawa (3 percent) regions.

SIAPS Actions during this Supervision

- Health facilities that were not using stock cards were provided with them along with practical training sessions on how to fill correctly fill them in; 5,217 stock cards were distributed.
- Health facilities began using stocks cards and updated them for each product where needed
- Inventory registers were provided to clerks and storekeepers who were also given practice sessions on how to handle registers—this was a mentorship effort.
- Treatment center coordinators and heads of facilities received feedback and recommendations for improving storage of HIV commodities.
- The team helped the pharmacy attendants count and pull expired products off the shelves.
- It was strongly recommended that Laquintinie Hospital Douala provide data reporting staff better access to information so the staff can produce better monthly reports and avoid data information gaps.
- Pre-ARV registers and ART registers were distributed to health facilities
- Advocacy accomplished at the regional level and SIAPS recommended the Permanent Secretary of National AIDS Control Committee (NACC) pay the arrears (salaries) of data reporting clerks in the South-West region
- Feedback and recommendations on how improve inventory management were provided to the treatment center coordinators and directors.

RECOMMENDATIONS

- This exercise provided a deeper understanding of what is happening at health facilities and provided a perspective on the number of patients by regimen, by region, and by product. Supportive supervision should be strengthened to improve data management at health facilities. Regular supportive supervision will improve data management at health facilities and build the capacity of regional staff to provide ongoing support and guidance to their colleagues in the health facilities. On a monthly basis, the supportive supervision team will monitor stock availability and number of patients on ARVs for targeted health facilities.
- SIAPS should support NACC to provide dispensing registers in all targeted health facilities and educate the staff on how to properly enter routine data in the registers.
- NACC to confirm that the number of patients in Shisong Catholic Hospital has actually increased by more than 200 percent. NACC/SIAPS should identify any other causes of variation in the number of patients at health facilities and correct the differences in the number of patients on ART. NACC should conduct regular reviews of patient data on a quarterly and annual basis. Patient numbers should be reviewed in terms of new patients, active patients, and lost-to-follow up. NACC should re-emphasize the need to disseminate all recommended reporting forms and ensure that all health facilities complete and submit all recommended reports on time.
- NACC should provide a guideline for regimens substitution in case of stock-outs and disseminate it to health facilities.
- NACC, with support from SIAPS, should provide feedback to heads of the Laquintinie Hospital Douala supervised facilities concerning performance and quality improvement. Health facility staff should allow data clerks better access hospital laboratory and treatment registers so that he/she can compile the monthly report as required. It is recommended that the M&E/RTG of the Littoral region actively assist the data reporting clerk of Laquintinie hospital and General Hospital to draft reports.
- There are significant fluctuations in the number of patients on regimens because patients are treated with the first-line regimen that is available at the time of their visit in the hospital and not necessarily the one originally prescribed for them. What is happening is that a specific donor ships in TDF-based regimens (as an example) to the country and this first line regimen will be available in the facilities for a specific period. Because AZT-based regimens are not in stock and must come from another mechanism or donor, all patients on AZT-based regimes are transferred to TDF-based regimes. In the course of waiting for AZT-based regimes, TDF-based regimens run out and AZT-based regimens arrive so all patients are transferred to AZT-based regimens. This makes it difficult to determine actual numbers of patients by regimen and it will require selecting the best first-line regimens and ensuring that donors provide a TDF and AZT based regimens at the same time. There is a need to coordinate procurement and supply planning of ARVs.

- During the feedback to CNLS meeting with the Permanent Secretary NACC)–Dr. Jean Bosco Elat, the ARV stock outs are chronic in Cameroon. He discussed the matter of ARV stock-outs as urgent and said that, “I am spending 80 percent of my time discussing and thinking about ARV stock-outs. I don’t even have time to think and plan for interventions on other aspects of the HIV program.”

SIAPS’s mandate includes strengthening the logistics management system for ARVs, coordination and enhancing the capacity of information systems in the delivery of ART in Cameroon. For Cameroon to achieve the goals of “An AIDS free generation, A Promise Renewed, and the Millennium Development Goals, the National AIDS Control Program will require ongoing technical assistance to strengthen information systems and enhanced coordination in the procurement of ARVs.

FOLLOW-UP ACTIONS NEEDED

The following actions are recommended to meet Cameroon's ARV program needs.

Table 3. Follow-up Recommendations

Action	Person (s) Responsible	Estimated Completion Date	Location of Work
Compilation of the formative supportive supervision report —Technical report	David Mabrizi, Catherine Tadzong	March 15	Yaoundé/ Arlington, VA
Follow-up of approval to start the piloting of electronic tools in the Central Region	David Mabrizi, Catherine Tadzong	March 15	Yaoundé
Review of supportive supervision data collection tools	David Mabrizi, Catherine Tadzong	March 30	Arlington, VA
Follow-up activities to implement the regular supportive supervision and disseminate findings in forums at national and regional levels	David Mabrizi, Catherine Tadzong	Continue through December 2014	Yaoundé and Arlington, VA

ANNEXES

Annex A. Health Facilities Supervised in January and February 2014

Region	Name of the structure	Dates of the supervision	Supervisors
Centre	GTR Centre	16 /12/2012	Catherine Tadzong Jean Dongang, Yves Kaptue
	Hôpital Central de Yaoundé	16/12/2013	Catherine Tadzong Jean Dongang, Yves Kaptue, Anoubissi Jean de Dieu
		17/12/2013	Catherine Tadzong Yves Kaptue
	Hôpital de la Caisse	17/12 /2013	Anoubissi Jean de Dieu, Jean Dongang
		18/12/2013	Yves Kaptue, Jean Dongang
	Hôpital Général Yaoundé	18/12/2013	Catherine Tadzong, Anoubissi Jean de Dieu
		19/12/2013	Catherine Tadzong
	Hôpital Militaire		Jean Dongang
			Jean Dongang
	CAPR	23/12/2013	Catherine Tadzong Jean Dongang, Yves Kaptue, Anoubissi Jean de Dieu
	Hôpital de District de la Cité Verte	6/1/2014	Jean Dongang, Anoubissi Jean de Dieu
	Hopital Jamot de Yaounde	6/1/2014	Catherine Tadzong, Anoubissi Jean de Dieu
	Hopital Militaire de Yaounde	8/1/2014	Catherine Tadzong, Jean Dongang
	Hôpital St Luc de Mbalmayo	7/1/2014	Yves Kaptue,
	Hôpital de District de BAFIA	7/1/2014	Catherine Tadzong
11		5	
Littoral	GTR Littoral	13/1/2014	Catherine Tadzong, Yves Kaptue
	CAPR Littoral	13/1/2014	Catherine Tadzong, Yves Kaptue, MinkemDefo B. Dupont
	Hôpital Laquintinie	14 -15 /1/2014	Catherine Tadzong Yves Kaptue, MinkemDefo B. Dupont
	CMES d'Alucam	16/1/2014	Catherine Tadzong
	Hôpital de District de Nylon	16/1/2014	Yves Kaptue
	CBC Mboppi	17/1/2014	Yves Kaptue

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	Hôpital Général de Douala	17/1/2014	Catherine Tadzong, MinkemDefo B. Dupont
	Hôpital de District de Bonassama	20/1/2014	Yves Kaptue
	Hôpital CEBEC Bonabéri	20/1/2014	Catherine Tadzong, MinkemDefo B. Dupont
	9	13-20/1/2014	4
South-West	GTR Sud-Ouest	21/01/2014	Catherine Tadzong, Yves Kaptue
	CAPR Sud-Ouest	22/01/2014	Yves Kaptue
	Hôpital Régional de Limbé	22/1/2014	Catherine Tadzong, Nankia Djoumetio Sandrine, Salmon Amadou
	Hôpital de District de Kumba	23/1/2014	Yves Kaptue, Salmon Amadou
	Baptist Hospital Muntengene	23/1/2014	Catherine Tadzong, Nankia Djoumetio Sandrine
	Hôpital de District de Buéa	24/1/2014	Yves Kaptue, Salmon Amadou
	Hôpital CDC de TIKO	24/1/2014	Catherine Tadzong, Salmon Amadou, Nankia Djoumetio Sandrine
	7	21-25/1/2014	4
East	GTR Est	13/1/2014	Jean Dongang
	CAPR Est	13/1/2014	Jean Dongang, Tchatchoua Gilbert, Tsimi Ewodo
	Hôpital régional de Bertoua	14/1/2014	Jean Dongang, Tchatchoua Gilbert
	Hôpital de District d'Abong-Mbang	15/1/2014	Jean Dongang, Tsimi Ewodo
	Hôpital de district de Batouri	16-17/1/2014	Jean Dongang, Dr. Tchatchoua Gilbert, Tsimi Ewodo
	5	13-17/1/2014	3
Adamawa	GTR Adamaoua	20/1/2014	Jean Dongang
	CAPR Adamaoua	20/1/2014	Jean Dongang, Dr. Anana Ewane, Dongmo Gustave
	Hôpital Régional de Ngaoundéré	21/1/2014	Jean Dongang, Dr. Anana Ewane
	Hôpital protestant de Ngaoubela	22-/1/2014	Jean Dongang, Dongmo Gustave
	Hôpital de District de Tignere	23-24/1/2014	Jean Dongang, Dr. Anana Ewane, Dongmo Gustave
	5	20-24/1/2013	3
North-West	GTR	27/1/2014	Jean Dongang, Yves Kaptue
	CAPR	28/1/2014	Yves Kaptue
	Banso Baptist Hospital	30/1/2014	Yves Kaptue, Dr. Arrey Charles

Follow-up Actions Needed

	Hôpital de Batibo	30/1/2014	Jean Dongang Essomba Nkoulou,
	Hôpital régional de Bamenda	28 /1/2013	Yves Kaptue, Dr. Arrey Charles
	Mbingo Baptist Hospital	29/1/2014	Jean Dongang, Essomba Nkoulou
	Nkwen Baptist Hospital	31/1/2014	Yves Kaptue, Essomba Nkoulou
	Polyclinique de Mezam	29/2/2014	Jean Dongang, Dr. Arrey Charles
	Shisong Catholic Hospital	31/1/2014	Jean Dongang, Essomba Nkoulou
	9	28/1-4/2/2014	4
TOTAL	34 FOSA	16/12/2013-4/2/2014	3 MSH, 2 GTR/CNLS

Annex B. Trend of the consumption of ARV per region (Oct-Dec 2013)

Regions	AZT/3TC/NVP (300/150/200 mg)			AZT/3TC (300/150 mg) CP B/60			EFV 600 mg			TDF/3TC/EFV (300/300/600 mg)			TDF/3TC (300/300 mg)			NVP (200 mg)		
	Oct	Nov	Dec	Oct	Nov	Dec	Oct	Nov	Dec	Oct	Nov	Dec	Oct	Nov	Dec	Oct	Nov	Dec
Adamawa	1578	1804	1160	841	463	392	242	570	140	249	116	227	701	252	258	391	98	208
Centre	8218	8526	1871	1520	5152	1336	2440	1202	726	4532	5482	1524	2594	1162	375	658	598	856
East	1989	1928	1712	1126	49	103	489	224	320	349	1216	1058	364	249	319	597	74	319
Littoral	6132	5858	5866	2270	768	1401	3053	676	992	2867	3418	3774	1684	334	845	850	291	719
North-West	5697	8372	4794	4476.5	266.5	3744	2816	184	1067	491	3200	2443	353	455	1329	1502	207	2497
South-West	3086	3480	2361	2038	1733	1616	1233	342	591	1061	1839	1232	53	781	611	580	1259	1627
Total	26700	29968	17764	12272	8432	8592	10273	3198	3836	9549	15271	10258	5749	3233	3737	4578	2527	6226

Annex C. Quantity of ARV available at the day of the visit

Regions	AZT/3TC/NVP (300/150/200 mg)	AZT/3TC (300/150 mg) CP B/60	EFV 600 mg	TDF/3TC/EFV (300/300/600 mg)	TDF/3TC (300/300 mg)	NVP (200 mg)
Adamawa	265	38.5	849	112	89	109
Centre	5876	5148	3052	8609	5084	9103
East	1622	137	119	729	271	932
Littoral	1577	2594	1310	773	1254	5902
North-West	49	159	5396	3872	2362	5260
South-West	0	11	561	3070	773	728
Total	9389	8088	11287	17165	9833	22034

Annex D. report on the distribution of Stock Card, Reception PV, Stock out file and inventory during Quarter 1 support supervision

Region	Name of the Health Facility	HF Type	Number of stock Card received	Number of reception PV	Number of stock out file received	Number of inventory file received
Adamawa	Hôpital Régional de Ngaoundéré	CTA	100	10	10	10
	Hôpital protestant de Ngaoubela	UPEC	100	10	10	10
	Hôpital de District de Tignere	UPEC	100	10	10	10
	CAPR AD		100	10	0	10
	Total	4	400	40	30	40
Centre	Hôpital Central de Yaoundé	CTA	200	10	10	10
	Hopital Jamot de Yaounde	CTA	500	10	10	10
	Hôpital de la caisse	CTA	100	10	10	10
	Hôpital Général Yaoundé	CTA	100	10	10	10
	Hôpital de District de la Cité Verte	UPEC	200	10	10	10
	Hôpital de District de BAFIA	UPEC	0	10	10	10
	Fondation Chantal biya	CTA	100	10	10	10
	Hôpital St Luc de Mbalmayo	UPEC	100	10	10	10
	CAPR Centre		100	10	10	10
	Total	10	1400	90	90	90
East	Hôpital régional de Bertoua	CTA	110	10	10	10
	Hôpital de District d'Abong-Mbang	UPEC	110	10	10	10
	Hôpital Adventiste de Batouri	UPEC	100	10	10	10
	CAPR EST		100	10	10	10
	Total	4	420	40	40	40

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Littoral	Hôpital Laquintinie	CTA	200	0	20	0
	Hôpital de District de Nylon	UPEC	200	0	0	0
	CBC Mboppi	UPEC	0	0	0	0
	Hôpital Général de Douala	CTA	200	0	10	0
	Hôpital de District de Bonassama	UPEC	200	0	0	0
	Hôpital CEBEC Bonabéri	UPEC	200	0	0	0
	CMES d'Alucam	CTA	200	0	10	0
	CAPR Littoral		0	0	0	0
	Total	8	1200	0	40	0
North - West	Banso Baptist hospital	UPEC	0	10	10	10
	Hôpital de Batibo	UPEC	100	10	10	10
	Hôpital régional de Bamenda	CTA	100	10	10	10
	Mbingo Baptist Hospital	UPEC	0	10	10	10
	Nkwen Baptist Hospital	UPEC	200	10	10	10
	Polyclinique de Mezam	CTA	100	10	10	10
	Shisong Catholic Hospital	UPEC	100	10	10	10
	CAPR Nord-Ouest		0	10	10	10
	Total	8	600	80	80	80
South - West	Hôpital régional de Limbé	CTA	0	10	10	10
	Hôpital de District de Kumba	UPEC	200	0	0	0
	Baptist HOSPital Muntengene	UPEC	0	0	15	0
	Hôpital de District de Buéa	UPEC	297	0	0	0
	Hopital CDC de TIKO	UPEC	700	10	10	10
	CAPR Sud-Ouest		0	0	0	0
	Total	6	1197	20	35	20
TOTAL		40	5217	270	315	270

Annex E. Number of Active Patients Receiving ART from January to December 2013 in Cameroon

Name of the Health Facility	Type of HF	Jan20 13	Feb20 13	Mar 2013	Apr 2013	May 13	June 2013	July 2013	Aug 2013	Sep 2013	Oct 2013	Nov 2013	Dec 2013
CTA hôpital Régional de Ngaoundéré	CTA	1,310	1,226	1,254	1,418	1,448	1,414	1,310	1,434	1,411	1,310	1,494	1,513
Hôpital de District de Banyo	UPEC	263	270	261	296	306	255	263	271	232	263	283	277
Hôpital Luthérien de Ngaoundéré	UPEC	572	730	775	854	850	898	564	957	949	564	1,050	1,088
Hôpital protestant de Ngaoubela	UPEC	382	537	478	375	388	284	382	447	401	382	539	448
Hôpital de District de Meiganga	UPEC	280	298	268	321	358	300	327	327	327	327	148	279
Hôpital de District de Tignere	UPEC	121	136	140	149	148	147	121	165	154	121	152	144
CMS Université de Ngaoundéré	UPEC	11	14	14	15	15	11	10	24	28	10	28	31
Hôpital de District de Bankim	UPEC	35	45	47	54	54	54	41	72	50	41	56	19
Total Adamawa		2,974	3,256	3,237	3,482	3,567	3,363	3,018	3,697	3,552	3,018	3,750	3,799
Hôpital central de Yaoundé	CTA	7,427	6,634	6,228	7,016	5,959	5,873	6,281	7266	7,435	7,442	6,478	7,482
Hôpital de la caisse	CTA	4,223	3,896	3,896	4,001	4,001	4,027	4,068	4191	4,191	3,805	3,848	4,092
Hôpital Jamot	CTA	2,272	2,218	2,144	2,243	2,243	2,005	1,940	2163	2,281	2,532	2,172	2,557
Hôpital général Ydé	CTA	2,086	1,738	1,877	2,010	1,632	1,844	2,014	2042	1,966	1,927	1,803	1,987
Hôpital gynéco-obstétrique et pédiatrique de Ngousso	CTA	1,088	1,107	1,107	1,139	1,114	1,133	1,161	1178	1,178	1,196	1,196	1,196
Centre Hospitalier Universitaire de Yaoundé	CTA	3,010	2,655	1,800	2,700	2,550	2,267	2,519	2685	2,013	2,030	2,076	2,040
Hôpital militaire	CTA	2,739	2,825	2,848	2,867	2,223	1,511	1,661	1574	1,543	1,735	1,735	1,735
Fondation Chantal Biya (FCB)	CTA	965	868	859	875	888	911	911	931	934	936	936	936

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Infirmierie du Palais	CTAFF	17	17	18	18	18	18	18	18	18	18	21	21
Clinique Bastos	UPEC	184	187	190	193	196	202	203	205	211	213	214	214
CASS Nkolndongo	UPEC	437	443	440	452	454	461	466	453	454	467	470	479
Hôpital de Djoungolo	UPEC	635	635	635	705	705	705	718	719	724	725	727	727
Hôpital d'Obala	UPEC	700	710	735	736	736	771	778	785	785	785	785	785
Hôpital de MFOU	UPEC	543	487	384	504	488	498	579	481	475	521	584	593
Upec SA'A	UPEC	247	238	208	253	243	241	254	295	289	313	310	310
Hôpital de District de Mbalmayo	UPEC	675	350	350	618	618	533	546	578	546	378	542	561
Upec Ngog Mapubi	UPEC	40	44	41	38	45	36	51	49	47	53	51	51
Hôpital de District d' ESEKA	UPEC	140	109	105	132	154	109	117	129	144	151	144	144
Hôpital BAFIA	UPEC	797	940	870	1,015	964	1,019	1,012	1061	1,045	960	1,014	1,007
Hôpital de District de MONATELE	UPEC	142	153	154	187	199	204	201	176	177	153	153	153
Upec NDIKINIMEKI	UPEC	110	115	137	181	110	159	159	169	121	207	198	231
Hôpital AYOS	UPEC	266	239	234	254	223	189	213	207	169	169	305	303
Hôpital de District NANGA EBOKO	UPEC	287	279	279	279	245	190	203	298	360	332	230	241
Hôpital de District de la Cité Verte	UPEC	1,685	1,657	1,595	1,594	1,115	1,251	1,127	1069	1,061	1,103	1,113	1,098
Hôpital de District Biyemassi	UPEC	767	610	740	786	795	715	831	737	775	845	845	1,098
Hôpital de District d'EBEBDA	UPEC	70	58	54	64	70	72	78	74	74	75	75	80
Hôpital de District AKONOLINGA	UPEC	370	385	333	315	326	330	323	340	372	322	322	319
Hôpital de la Police de Yaoundé	UPEC	226	236	247	252	248	252	262	264	272	275	275	275
Infirmierie Prison Centrale de Yaoundé	UPEC	286	307	316	325	326	361	374	376	350	397	397	381
Upec Centre Catholique BIKOP	UPEC	328	294	273	330	332	349	352	339	339	347	357	344

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Hôpital de District de NGOUMOU	UPEC	64	67	62	67	74	72	67	67	81	81	86	77
UPEC Hôpital Ad Lucem d'Efok	UPEC	37	59	60	50	54	54	57	48	54	57	49	64
Hôpital St Luc de Mbalmayo	UPEC	448	462	470	486	477	372	423	414	414	476	446	522
UPEC Centre Hospitalier Dominicain Saint Martin De Pores de Yaoundé	UPEC	576	608	608	661	646	657	658	653	717	699	734	762
UPEC HD Efoulan	UPEC	456	487	422	422	479	299	431	493	493	503	599	576
UPEC Centre Médico Social de Mbandjock	UPEC	101	70	107	97	88	42	101	101	96	103	109	108
UPEC HD Elig Mfomo	UPEC												
UPEC CMA de Makak	UPEC												
UPEC HD Soa	UPEC							11	14	20	25	23	28
Infirmierie de la Gendarmerie Nationale	UPEC												
ntui		19	25	24	29	30	23	36	36	39	45	39	49
anrs			376	515	400	379	386	392	337	337	337	337	373
Total Centre		34,463	32,588	31,365	34,294	31,447	30,141	31,596	33,015	32,600	32,738	31,798	33,999
Hôpital régional de Bertoua	CTA	2,380	2,259	2,337	2,436	2,310	2,034	2,311	2030	1,833	2,280	2,164	2,312
Hôpital de District d'Abong-Mbang	UPEC	788	893	918	918	844	720	898	972	962	1,002	1,002	1,036
Hôpital Luthérien de Garoua-Boulai	UPEC	626	629	635	635	627	642	674	698	726	754	789	820
Hôpital Adventiste de Batouri	UPEC	562	517	525	562	568	557	530	603	574	623	634	592

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Hôpital Catholique de Salapoumé	UPEC		16	13	13	32	32	31	54	50	50	66	66
Hôpital de District de Belabo	UPEC	250	256	271	279	277	285	191	264	275	275	278	280
Hôpital de District de Messamena	UPEC	87	90	92	90	92	94	90	89	81	71	70	77
Hôpital de District de Moloundou	UPEC	10	12	12	12	15	16	16	22	23	18	17	17
Hôpital de District Yokadouma	UPEC	154	181	154	154	164	146	141	141	176	181	181	9
UPEC Mbang (SFID)						31	43	52	52	62	59	54	60
Total East		4,857	4,853	4,957	5,099	4,960	4,569	4,934	4,925	4,762	5,313	5,255	5,269
Hôpital de BOGO	UPEC	62	68	58	63	76	67	80	81	100	75	77	81
Hôpital de District de Kaélé	UPEC	311	317	323	330	332	338	346	351	304	360	370	375
Hôpital de District de Kolofata	UPEC	306	264	300	305	305	305	388	326	844	379	404	440
Hôpital de District de Kousséri	UPEC	328	248	248	262	299	146	391	285	57	323	328	376
Hôpital Protestant de MADA	UPEC	361	361	185	215	246	178	163	150	150	139	139	160
UPEC DE MESKINE		27	27	24	30	30	33	39	45	42	42	60	62
Hôpital régional de Maroua	CTA	1,626	1,147	1,147	1,342	1,342	811	1,618	1280	565	1,544	1,557	1,501
Hôpital de District de Mokolo	UPEC	363	335	335	418	447	447	460	465	493	475	485	492
CTAf DE PETTE	CTA	852	859	856	875	875	582	904	898	100	908	920	931
Hôpital Catholique de Tokombéré	UPEC	357	400	309	414	411	389	428	433	304	345	392	437
Hôpital de District de Yagoua	UPEC	783	814	735	776	799	805	831	851	844	599	915	973
UPEC de Zidim	UPEC	182	190	197	195	203	209	213	215	218	225	227	232
Total Far-North	Extrême nord	4,163	3,745	3,579	5,225	5,365	4,310	5,861	5,380	4,021	5,414	5,874	6,060
Hôpital Laquintinie	CTA	4,021	4,021	3,982	3,982	3,982	3,982	3,435	5,044	5,044	4,170	4,170	2,972

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CMES d'Alucam	CTA	263	272	281	264	264	286	262	301	301	263	278	278
Hôpital Général de Douala	CTA	2,289	2,289	1,726	1,755	2,193	1,935	2,226	2,244	2,061	2,047	2,047	2,357
Polyclinique Bonanjo	UPEC	224	233	249	254	254	232	257	253	258	260	260	258
Hôpital EPC de Sakbayémé	UPEC	44	46	43	41	45	46	51	49	48	51	47	48
Hôpital St Jean Malte de Njombé	CTAFF	888	847	919	922	949	892	964	972	996	985	924	1,030
Hôpital de District de Bonassama	UPEC	1,929	1,830	1,862	1,835	2,002	1,805	2,013	2,011	1,933	1,955	1,955	2,053
Hôpital de District de Nylon	UPEC	3,178	3,178	3,320	3,320	3,320	3,416	3,499	3,739	3,497	3,512	3,499	3,480
Hôpital Militaire de Douala	UPEC	336	312	242	308	460	353	424	479	408	320	320	337
Hôpital régional de Nkongsamba	UPEC	1,187	1,077	1,066	1,169	1,200	844	1,172	1,160	1,128	819	1,036	1,194
CMA SOBOUM	UPEC	934	940	961	962	973	979	978	990	991	1,019	1,020	1,044
Hôpital de district de Deido	UPEC	954	1,060	1,119	1,175	1,234	1,330	1,311	1,317	1,298	1,351	1,351	1,414
Hôpital catholique de Pouma	UPEC	188	188	188	230	230	242	232	231	231	263	257	223
Hôpital de district de New Bell	UPEC	1,250	1,223	1,224	1,206	1,217	1,228	1,289	1,285	1,310	1,291	1,291	1,343
CBC Mboppi	UPEC	2,172	2,156	2,408	2,377	2,375	2,344	2,458	2,517	2,487	2,482	2,485	2,454
Centre Médical des Roseaux	UPEC	1,040	980	1,015	1,014	1,038	1,025	1,055	1,048	1,050	1,050	1,050	1,036
Ad Lucem Bonamoussadi	UPEC	139	128	131	131	151	142	139	164	147	123	154	149
Hôpital de District de Yabassi	UPEC	29	29	30	30	33	35	35	35	38	35	35	35
Hôpital de District d'Edéa	UPEC	560	544	498	572	596	588	625	606	606	603	603	620
Hôpital Saint Albert Legrand	UPEC	1,723	1,773	1,793	1,812	1,872	1,869	1,900	1,939	1,939	2,005	2,053	2,078

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Hôpital de District De la Cité des Palmiers	UPEC	569	539	424	550	534	530	513	568	456	251	251	608
CMA Congo II	UPEC	707	735	685	646	816	651	803	900	831	832	844	844
Hôpital CEBEC Bonabéri	UPEC	385	420	427	428	428	396	388	402	402	397	395	395
Prison centrale de Douala	UPEC	237	238	237	231	228	245	243	238	256	234	234	229
Ad Lucem Bali	UPEC	68	78	92	95	93	82	100	105	108	100	100	133
HD DE LOGBABA		132	119	133	161	191	187	212	197	197	195	195	236
Total Littoral		25,446	25,255	25,055	25,470	26,678	25,664	26,584	28,794	28,021	26,613	26,854	26,848
Hôpital régional de Garoua	CTA	2,022	2,010	2,131	2,169	2,175	2,124	2,397	2185	2,122	2,294	2,256	2,520
Hôpital de District de Guider	UPEC	676	645	899	849	859	885	916	943	921	910	938	892
Hôpital de District de Touboro	UPEC	191	192	136	170	198	175	186	147	71	172	183	178
Hôpital de District de Lagdo	UPEC	406	407	400	355	377	365	411	408	404	426	410	439
Hôpital Militaire de Garoua	UPEC	72	80	87	91	97	103	116	127	132	139	140	149
Centre Medical de la SN	UPEC	414	429	420	280	392	390	395	400	300	280	335	388
Hôpital de Tchollire	UPEC	216	221	193	207	223	223	213	227	191	232	188	220
UPEC POLI	UPEC	94	88	72	77	77	90	90	70	65	85	84	77
UPEC de Figuil	UPEC	129	133	136	142	136	132	145	141	133	150	152	150
Total Nord		4,220	4,205	4,474	4,340	4,534	4,487	4,869	4,648	4,339	4,688	4,686	5,013
Hôpital régional de Bamenda	CTA	5,282	1,333	3,233	5,282	5,282	5,282	4,488	4,488	4,488	4,488	4,383	4,383
Polyclinique de Mezam	CTA	1,300	176	873	1,300	1,323	657	1,281	1306	1,214	794	1,246	1,378
Hôpital de Batibo	UPEC	450	354	336	450	558	459	546	496	442	540	556	513
Hôpital de Njinikom	UPEC	772	804	646	772	811	687	753	821	826	820	819	841
Hôpital de Wum	UPEC	506	219	219	506	443	265	409	521	521	521	529	627

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Banso Baptist hospital	UPEC	2,003	925	545	2,003	1,311	1,631	1,771	1669	1,763	1,902	1,932	1,852
Shisong Cath Hospital	UPEC	641	775	516	641	1,085	1,085	2,180	2231	2,242	2,283	2,327	2,327
Mbingo Baptist Hospital	UPEC	825	844	787	825	825	830	860	852	852	852	852	885
Hôpital de Nkambe	UPEC	711	138	500	711	876	333	855	951	978	392	983	939
Hôpital de Bafut	UPEC	341	468	283	341	407	439	449	254	424	105	444	236
Hôpital de Ndop	UPEC	1,603	1,603		1,644	1,438	946	919	1499	1,188	1,093	1,605	1,590
Nkwen Baptist Hospital	UPEC	2,478	1,158	1,202	2,478	2,406	1,321	1,872	2316	2,303	1,353	2,456	2,358
Hôpital de Bali	UPEC	382	357	361	382	377	365	378	366	342	316	310	305
Hôpital St. Joseph Widikum	UPEC	117	114	119	117	125	125	142	147	155	161	166	167
Hôpital Mbengwi	UPEC	199	200	203	199	217	218	224	221	224	219	219	251
Hôpital Acha-Tugi	UPEC	133	112	108	133	124	124	122	125	125	125	125	125
FUNDONG		105	141	109	105	177	170	181	219	222	186	232	242
NDU DISTRICT HOSPITAL				53	53	227	581	528	573	654	694	694	694
Total North-West		17,848	9,721	9,721	17,942	18,012	15,518	17,958	19,055	18,963	16,844	19,878	19,713
Hôpital régional de Bafoussam	CTA	3,671	3,576	3,628	3,769	3,884	3,967	4,078	4153	4,170	4,240	3,674	3,801
UPEC de Foumban	UPEC	1,523	1,495	1,499	1,539	1,525	1,539	1,596	1627	1,660	1,694	1,692	1,726
Hôpital de District de MBOUDA	UPEC	976	973	966	991	1,015	1,016	1,024	1041	1,049	1,081	1,087	1,107
Hôpital de District de Foubot	UPEC	914	938	945	955	938	1,017	964	952	982	1,010	1,023	983
Hôpital St Vincent Dschang	UPEC	845	853	868	883	887	902	908	930	938	956	970	985
UPEC H Ad Lucem Bafang		833	847	843	847	871	871	874	883	881	929	943	952
Hôpital de District de Dschang	UPEC	747	696	730	756	766	744	782	779	785	770	803	813

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Hôpital de la Police de Bafoussam	UPEC	415	425	431	431	438	441	443	445	448	458	458	458
UPEC de Bangoua	UPEC	363	367	358	374	383	383	380	380	378	389	387	391
Upec de Banganté	UPEC	335	346	362	371	331	343	334	319	304	306	306	304
Hôpital Ad Lucem Mbouda	UPEC	218	212	207	199	211	189	197	196	177	185	180	181
Hôpital de District de Malentouen	UPEC	155	167	176	176	203	204	252	260	261	258	270	272
Université Dschang	UPEC	26	25	26	30	28	29	27	28	27	30	30	33
Hôpital de District de Bandjoun	UPEC										9	9	9
Total West		11,021	10,920	11,039	11,321	11,480	11,645	11,859	11,993	12,060	12,315	11,832	12,015
Hôpital régional d' Ebolowa	CTA	1,024	1,098	975	1,193	1,128	1,122	1,394	1,505	1,555	1,661	1,738	1,428
Hôpital de District d'Ambam	UPEC	621	639	660	691	691	626	419	528	708	728	728	322
Hôpital de District de Sangmelima	UPEC	832	836	838	853	853	860	862	859	871	880	864	846
Hôpital de District de Kribi	UPEC	495	438	438	556	556	645	663	684	692	700	730	730
Hôpital de District de Zoétélé	UPEC	240	234	246	249	249	250	251	250	245	251	245	498
Hôpital de District de Djoum	UPEC	110	110	118	118	118	118	87	109	109	109	109	109
Hôpital de District de Meyomessala	UPEC	91	97	95	97	122	130	134	97	98	88	105	100
Hôpital de Niété	CTA	150	162	164	152	145	178	170	158	146	153	159	86
Hôpital de District de Lolodorf	UPEC	73	73	72	72	72	70	75	74	64	64	80	82
FCB Meyomessala	UPEC	57	61	62	62	64	70	75	70	81	84	84	85
UPEC Bengbis	UPEC	50	50	47	51	52	54	54	58	65	36	61	69
Total South		3,743	3,798	3,715	4,094	4,050	4,123	4,184	4,392	4,634	4,754	4,903	4,355
Hôpital régional de Limbé	CTA	3,104	3,061	2,910	2,687	2,988	2,937	2,942	2,908	2,976	2,866	2,839	2,839

Follow-up Actions Needed

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Hôpital de District de Kumba	UPEC	2,375	2,461	2,447	2,371	2,418	2,360	2,412	2449	2,440	2,320	2,320	2,546
Hôpital de District de Mamfé	UPEC	941	944	982	1,011	1,037	1,049	1,075	1,058	1,075	1,075	1,075	1,113
Hôpital de District d'Ekondo-Titi	UPEC	385	346	358	389	392	387	387	371	371	371	388	433
Regional Hospital Annex Buea		1,198	1,164	1,153	1,093	1,265	1,277	1,270	1284	1,259	1,111	1,111	1,250
Hopital CDC de TIKO	CTA	915	956	1,058	978	978	1,071	1,116	1090	1,026	1,110	1,110	1,069
Mary of Health Africa Hospital Fontem	UPEC	294	291	312	303	298	303	300	303	303	303	303	303
Hôpital PCC de Mayemen	UPEC	287	289	263	294	286	293	277	290	275	289	262	271
Université de Buea	UPEC												
Baptist HOSP Muntengene	UPEC	1,670	1,781	1,789	1,774	1,885	1,943	2,025	2014	2,130	2,059	1,895	2,148
District Hospital bangem		54	54	60	72	67	75	80	79	80	89	89	89
District Hospital Tombel	UPEC	235	242	249	262	271	273	281	284	294	299	306	312
Presbyterian Medical Centre Nyassosso	UPEC	50	51	53	55	71	71	76	79	80	79	80	85
PHC KUMBA	UPEC	695	698	586	664	715	569	775	671	719	719	719	749
Apostolic Hosp Banga	UPEC	37	38	39	48	55	55	66	61	68	69	80	70
District Hosp Muyuka	UPEC	305	285	323	325	364	373	378	385	401	438	436	430
Total South-West		12545	12661	12582	12,326	13,090	13,036	13,460	13,326	13,497	13,197	13,013	13,707
TOTAL		121,280	111,002	111,002	123,593	123,183	116,856	124,323	129,225	126,449	124,894	127,843	130,778