

STOCK STATUS ASSESSMENT OF HEALTH COMMODITIES USED IN THE MANAGEMENT OF HIV/AIDS AND TUBERCULOSIS IN KANO STATE, NIGERIA

Gulma K A¹, Abubakar M², Mohammed B L³, Musa B⁴, Nata'ala S⁵, Yusuf M I⁶, Jibril N⁷, Abdullahi S A⁸, Hashim M S⁹

1. C/o Director of Pharmaceutical Services, Ministry of Health, Sokoto State, Nigeria.
2. Supply Chain Management System, Gwandal Center, Wuse II, Abuja, Nigeria
3. Kano State Tuberculosis and Leprosy Control Programme, C/o Ministry of Health Kano State, Nigeria
4. Kano State Malaria Eradication Programme, C/o Ministry of Health Kano State, Nigeria.
5. Kano State Reproductive Health Department, C/o Ministry of Health Kano State, Nigeria.
6. Pharmacy Department, Infectious Diseases Hospital, Kano State, Nigeria.
7. Pharmaceutical Services Department, Ministry of Health, Kano State, Nigeria.
8. Department of Medical Laboratory Science, Nuhu Bamalli Maternity Hospital, Kano State, Nigeria.
9. Kano State Agency for the Control of AIDS, Kano State, Nigeria.

Received on: 23.03.2015

Revised: 15.06.2015

Accepted: 17.06.2015

ABSTRACT

Purpose – The objective of this research is to assess stock of health commodities used in the management of HIV/AIDS and tuberculosis in Kano State, Nigeria. This assessment will reveal the sum of stock levels available at the state warehouse and health facilities, then determining for how long they can last.

Approach – Data from Logistics Management Information System (LMIS) tools for the last quarter of year 2014 were obtained and information on 'stock on hand' and 'average monthly consumption' were extracted for analysis. Computer applications- MS Word and MS Excel were used generate charts depicting month of stock that are used to explain the results. **Findings** – Prior to the conduct of Quarterly Stock Status Report (QSSR), the best conclusion everyone could make is either a health facility is overstocked or is out of stock. But QSSR brings a clear state-wide picture of the status of all facilities put together which forms the comprehensive outlook of the entire state. **Research limitations** –The limitation of this research is availability of LMIS data on consumption and stock on hand of other health commodities similar to manner HIV/AIDS and Tuberculosis are recorded regularly. **Practical implications** - If appropriate action is taken based on the results obtained, there will be leverage of health commodities across the entire length and breadth of the state. **Originality** –The research is the first of its kind in Kano and is important not only in assessment of stock status and importance of actions taken from the result thereof but is also very significant in forecasting and quantification of health commodities.

Key words: *Stock Status; HIV/AIDS; Tuberculosis; Month of Stock and Stock on Hand*

INTRODUCTION

Public health challenges and population dynamics in developing nations, especially sub-Saharan Africa is directly proportional. Kano being the most populous state in Nigeria is faced with health risk exposure and manifestations, especially in the tropically congested metropolitan settings with poor hygiene in both the urban and rural settings. Sequel to the bedeviling emerging diseases, many organizations mostly Non-Governmental Organizations (NGOs) have come to support the state. As such, many vertical programs that support the state government on health programs exist that need constant stock status-based assessment.

Institutionalization of periodic commodities stock status assessment is coming at a no better time than now, when State Ministry of Health (SMoH) is afoot with the issue of harmonizing logistics of all vertical programs in the state. This concept of harmonization will only come

to being if complete qualitative data of health commodities are collected, processed and summarized to feed the logistics elements of quantification and procurement with evidence-based figures¹.

In its effort to assure public health commodity security, Kano State Government had since established a Procurement & Supply Management Technical Working Group (PSMTWG) with its affiliate Logistics Management Coordination Unit (LMCU). The LMCU is tasked with a core mandate for ensuring amongst others, qualitative data generation for health commodities with a view to ensure availability of basic logistics information². This information would be used by all stakeholders in commodity management as a guide to enable well informed decision in commodity inventory controls, quantification and procurement that will guarantee commodity security. This will ensure availability of commodities to all who will need them and

*Correspondence : email : pharmgulma@gmail.com; Tel: +2348039728505

ultimately to avoid wastages and minimize expiries. The LMCU is also required to monitor and track all procurement and shipment managed directly by the state. This will ensure a holistic overview of all commodities status involved in procurement and supply chain of the state. This approach will appropriately define the profile of performance while highlighting areas that requires for improvement.

The integration of State Ministry of Health (SMoH) and Implementing Partners (IP) personnel in this exercise has successfully instilled confidence and competence to residential staff to undertake satisfactorily and periodically, subsequent similar assignments with minimal or no external inputs.

This is the first edition of Kano State Quarterly Stock Status Report, with a period under review from October-December 2014. Also, the vertical programs captured in this report are HIV/AIDS and tuberculosis commodities. Subsequent reports will cover broader scope of programs and to be undertaken on a quarterly basis.

Kano State Government with the conviction of other stakeholders is hoping to emerge a reference point in supply chain as it achieved in the case of Drug Revolving Fund (DRF) in the country.

METHODOLOGY HIV/AIDS

This report was prepared using the Logistics Management Information System (LMIS) data on commodity utilization, Stock on Hand (SoH) and Antiretroviral (ARV) regimens that were obtained from the following sources³⁻⁶: facility-level ARV and Opportunistic Infections (OIs) drugs, Combined Report, Requisition, Issue and Receipt Forms (CRRIRFs) from three hundred and twenty eight (328) health facilities showing their consumption data for November – December 2014 review period and stock on hand at the end of December 2014.

Facility-level Patient Per Regimen (PPR) reports from 312 health facilities showing clients regimen spread for November – December 2014 review period.

Facility-level HIV Rapid Test Kits (RTKs) CRRIRFs from 321 health facilities showing their consumption data for November – December, 2014 review period and stock on hand at the end of December 2014.

Facility-level CD4 analysis reagents CRRIRFs from 3 health facilities showing their consumption for November – December 2014 review period and stock on hand at the end of December 2014.

The data from these sources were collected and aggregated. All analyses were made based on LMIS reports made available to LMCU as at 23rd February, 2015.

RESULTS

Table 1: HIV/AIDS Reporting Rate by Funding Stream

KANO LMIS REPORTS	EXPECTED			REPORTED			REPORTING RATE		
	GLOBAL FUND	PEPFAR	TOTAL	GLOBAL FUND	PEPFAR	TOTAL	GLOBAL FUND	PEPFAR	TOTAL
ARVs	57	348	405	23	305	328	40%	88%	81%
PPR	57	348	405	21	291	312	37%	84%	77%
RTKs	57	348	405	27	294	321	47%	84%	79%
CD4 Reagents	5	13	18	2	1	3	40%	8%	17%

Table 2: HIV/AIDS Reporting Rate by Type of service

KANO LMIS REPORTS	EXPECTED			REPORTED			REPORTING RATE		
	ART	PMTCT	TOTAL	ART	PMTCT	TOTAL	ART	PMTCT	TOTAL
ARVs	47	358	405	30	298	328	64%	83%	81%
PPR	47	358	405	20	292	312	43%	82%	77%
RTKs	47	358	405	24	297	321	51%	83%	79%
CD4 Reagents	18	-	18	3	-	3	17%	-	17%

The interpretation of the Table 1 and Table 2 above is hinged upon the following consideration and should guide the discussions and issues therein. All the 405 health facilities providing HIV/AIDS services in Kano are expected to submit at least three LMIS reports (ARVs CRRIRFs, RTKs CRRIRFs and PPR) and a maximum of four from health facilities providing CD4 analysis services. However, only 41 health facilities submitted atleast one LMIS reports leaving a shortfall of 4 facilities that did not submit any LMIS report on HIV/AIDS services provided during the November-December 2014 review period.

The Tables 1 and 2 above reveal reporting rates of 81% for ARVs, 77% for PPR, 79% for RTKs and 17% for CD4 reagents reports⁶.

The reviewed CRRIRF for ARVs revealed faults with quality of data ranging from wrong reporting units to incomplete data capturing of the essential report elements such as dispensed data, SoH, quantity to order, etc.

It is expected that reporting rates for ARVs and PPR are supposed to be equal. However, the reporting rate table revealed gap of 4% (16) between ARV and PPR reports submitted with ARVs CRRIRFs being higher than the PPR reporting rate. This means that of the 328 health facilities that submitted ARVs CRRIRF, 6 of these facilities did not submit PPR reports in this reporting period.

It was also observed that the quality of the PPR reports submitted have data quality issues which can be from poor update of facility patients register, different interpretation of the reported elements and wrong entries. The faults identified with quality of data included reporting of the ARVs regimen that have been phased out by the Government of Nigeria (GoN) and ARVs commodities consumption not in tandem with patient numbers reported.

All the 405 health facilities are expected to submit RTKs reports, however, 71 health facilities did not submit CRRIRF for RTKs. The tables also revealed a reporting rate gap of 2% (representing 8 reports not received) between RTKs and ARVs CRRIRFs submitted with RKs CRRIRFs being proportionately lower than the ARVs CRRIRFs. This also showed that 8 health facilities from the larger pool that submitted ARVs or PPR reports

failed to submit their RTKs reports. It was also observed especially from some PMTCT sites that still report RTKs in packs rather than the recommended reporting unit in tests, apart from this challenge no other data quality issue was observed. But a major concern is that some PMTCT sites have very low consumption of RTKs and yet others have 'zero' dispense data for RTKs.

Reporting rate for CD4 Reagents is unusually low.

Generally, only 1% of these reports were submitted via email directly from health facilities, 84% were submitted by Local Government Area (LGA) Monitoring and Evaluation (M&E) system and 15% were submitted by IPs. In addition, only 45% of these reports were received from 1st – 7th of the reporting month, 46% were received from 8th – 15th of the reporting month and 9% were received after 15th of the reporting month⁷.

Tuberculosis

This report was prepared using the data from LMIS on commodity utilization and Stock on Hand (SoH) information. These were obtained from 250 health facilities that submitted October-December 2014 TB commodities quarterly LMIS reports in January 2015 out of the expected 299.

The TB commodities data from these health facilities were collected, reviewed and aggregated. All analyses made were based on LMIS reports made available to LMCU as at 23rd February, 2015.

Table 3: TB Quarterly LMIS Reporting Rate

October – December 2014 TB Quarterly LMIS reporting rate			
Kano STBLCP	Expected	Reported	Rep Rate
TB Commodities	299	250	84%

It is important to note the following while interpreting Table 3 above.

All the 299 health facilities providing TB services are expected to submit quarterly LMIS report. 250 health facilities representing 84% submitted their LMIS reports for the quarter under review. The remaining 44 of these facilities did not submit any report. The Joint Health Sector Union (JOHESU) industrial strike affected the preparation and transmission of the LMIS reports and is partly responsible for deficit in reporting rate recorded.

The quarterly LMIS reports of TB commodities reviewed are of good and acceptable quality with minimal errors. However the review revealed the following issues with inventory management:

- 59 health facilities reported stock out of Adult CAT I commodities.
- 22 health facilities were at emergency point of SoH of Adult CAT I commodities.
- 25 health had Adult CAT I SoH below the minimum stock level.
- 14 health facilities had Adult CAT I commodities SoH above the maximum stock level.
- 38 health facilities reported stock out of Adult CAT II commodities.
- 2 health facilities were below the minimum stock level of Adult CAT II commodities.

- 8 health facilities had Adult CAT II commodities above the maximum stock level.

These stock imbalances are a reflection of poor inventory or commodities management practices.

DISCUSSIONS

HIV/AIDS Commodities

HIV/AIDS commodities stock status charts provide details of the state stock levels for various ARV drugs, Co-trimoxazole, HIV rapid test kits and CD4 analysis reagents. These commodities stock positions are discussed in further details under the following groupings:

- Adult first line antiretroviral drugs
- Pediatric first line antiretroviral drugs
- Adult and pediatric second line antiretroviral drugs
- Co-trimoxazole
- HIV rapid test kits
- CD4 analysis reagents

It should be noted that the established minimum and maximum stock levels for HIV/AIDS commodities in the state are 2 and 4 months respectively⁷.

Adult First Line Antiretroviral Drugs

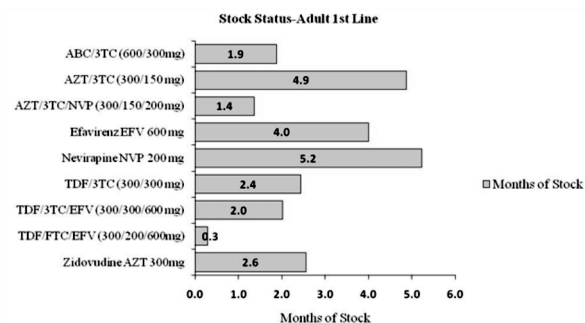


Fig. 1: Adult First Line Antiretroviral Drugs Month of Stock (MoS)

The illustrations in Figure 1 will be used to explain the different months of stock it contains in the paragraphs below.

ABC/3TC (600/300mg) has MoS of 1.9. Though below minimum stock level, this commodity is managed by two health facilities- Aminu Kano Teaching Hospital and Ahmadiyya Muslim Hospital. The two facilities have seemingly experienced upsurge in consumption which had created a potential for stock out. These facilities will be closely monitored to ensure they do not stock out.

The MoS presented by **AZT/3TC (300/150mg)** of 4.9 is above the maximum stock level designed to be stocked. The possible reason is the reduction in the use of this combination with EFV 600mg as a result of ongoing ARV regimen streamlining. However, with expected switch of patients from first line to second line ARVs, the consumption of AZT/3TC (300/150mg) is expected to normalize as subsequent report with the anticipated uptake of the commodity. By this, even though the MoS is above 4 months of the maximum limit, there is no associated risk of expiry.

The MoS of **AZT/3TC/NVP (300/150/200 mg)** is 1.4. This is below the acceptable minimum level expected at facility level. This MoS is alarming with potential for stock out. The commodity resupply to the facilities was fully refilled for this review period. Possible explanation for this situation is poor adherence to ARV dispensing protocols. It is evidently clear that the facilities dispensed beyond two months nationally approved refill order per patient. This could be traced to Christmas/New Year and the year 2015 Nigeria's General

Political election's phobia migration. That scenario was what possibly compelled the pharmacists to dispense more than two months.

EFV 600mg has MoS of 4.0. This figure is exactly at the maximum. This commodity is used in combination with ABC/3TC 600/300mg and in rare cases with AZT/3TC 300/150mg for PMTCT services. The EFV 600mg domiciled in these facilities without being mopped up with TDF/3TC 300/300mg will eventually contribute to the pool of expiries.

The MoS of **NVP 200mg** is 5.2. This means that the MoS of stock of NVP 200mg in the state is 1.2 months in excess of the maximum stock level. This category of drugs used in adult first line ART for initiation of new patients on AZT/3TC/NVP 300/150/200mg ARV Regimen. The increased SoH available at facility level is clearly due to implementation of regimen streamlining policy where its used in combination with TDF/3TC 300/300mg and TDF/FTC 300/300mg for TDF/3TC/NVP 300/300/200mg and TDF/FTC/NVP 300/300/200mg has been phased out. This drug can also be used in combination with AZT/3TC 300/150mg which has a MoS of 4.9. The latter combination is meant to mop up the NVP 200mg at the health facilities. There should be active monitoring to prevent stock out of AZT/3TC 300/150mg which is reserved for use in combination with second line ARVs.

TDF/3TC (300/300 mg) currently presents MoS of 2.4. This is within the window of inventory level required in the country. However it is preferred that the MoS of this is higher than this which should be considered in the compelling need to mop up the Efavirenz 600mg in some facilities other than AKTH Kano and Ahmadiyya.

TDF/FTC/EFV (300/200/600mg) is represented by a month of stock of 0.3. This is far below the minimum stock level of the inventory control system operational in Nigeria. However, the MoS of this product ideally should have been zero (0) because this regimen has been phased out and is no longer in the commodity pipeline of HIV/AIDS in Nigeria. The reason why some quantities are still found is due to the donation of this regimen received by Sokoto State Government of Nigeria where the Phase 4 Axial warehouse is located. The drug was eventually distributed to all states in the Phase to avoid it becoming expired at the warehouse.

TDF/3TC/EFV (300/300/600 mg) has MoS of 2.0 which is at the exact minimum stock level. This stock level seems okay but worrisome, this is because of the regimen streamlining policy implementation which has shifted the bulk of 1st time clients for both ART and

PMTCT services for adults on this commodity. This regimen shift is expected to increase steady uptake and consumption of TDF/3TC/EFV (300/300/600mg) with a potential to tilt the borderline MoS towards emergency.

AZT 300mg MoS is 2.6. The only facilities that appear to pull the bulk of SoH of this drug are Aminu Kano Teaching Hospital and Al-Noury Specialist Hospital.

Recommendations

- The use of AZT/3TC 300/150mg and NVP 200mg should be encouraged by LMCU to curtail the excess SoH level of facilities. In addition this will buttress the lower MoS (1.4) of AZT/3TC/NVP 300/150/200mg which happens to be a key tracer commodity.
- More of TDF/3TC 300/300mg should be distributed to mop up EFV 600mg which appears to have a MoS of 4.0 and is not supported by regimen streamlining.
- LMCU should look into causes of the somewhat low MoS (2.0) of TDF/3TC/EFV 300/300/600mg because it is a key tracer commodity and front liner in regimen streamlining.

Pediatric First Line Antiretroviral Drugs

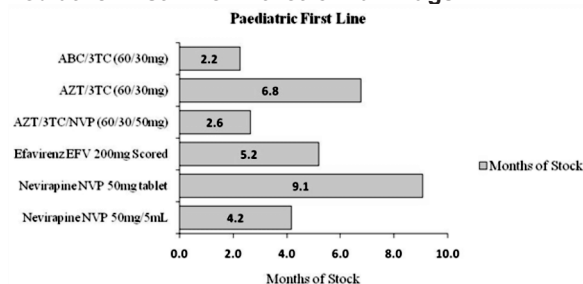


Fig. 2: Pediatric First Line Antiretroviral Drugs Months of Stock

Figure 2 above will be used to explain the number of commodities it represents in the paragraphs below.

- a. **ABC/3TC (60/30mg)** has MoS of 2.2 which is within the inventory level. It is important to note few facilities are currently using this commodity.
- b. **AZT/3TC (60/30mg)** with MoS of 6.8 is by far more than the facilities should possess as SoH. However, previous shortage in the supply of AZT/3TC/NVP (60/30/50mg) fixed dose combination informed the supplies of AZT/3TC (60/30mg) and EFV 200mg scored to bridge this gap. The current high MoS reported for AZT/3TC (60/30mg) can be attributed to availability of AZT/3TC/NVP (60/30/50mg). It could therefore be inferred that dispensers have preference for the fixed dose AZT/3TC/NVP (60/30/50mg) instead of the AZT/3TC (60/30mg) and EFV 200mg combination.
- c. **AZT/3TC/NVP (60/30/50mg)** is also a tracer commodity. The MoS of 2.6 is within the normal range.

- d. **EFV 200mg Scored** presents MoS of 5.2. This could be an indication that more patients are placed on AZT/3TC/NVP (60/30/50mg) than are placed on a combination of this drug and AZT/3TC 60/30mg which though is supported by regimen streamlining. This explains why the two commodities (EFV 200mg and AZT/3TC 60/30mg) have high MoS of 5.2 and 6.8 respectively.
- e. **NVP 50mg Tablet** presented an alarmingly high MoS of 9.1 with an excess of over 5 months of stock domiciliary in the facilities. The explanation for this huge stock imbalance could be traced to shortfall of Nevirapine syrup for PMTCT services and the compelling need at the time to bridge the gap. It is now evidently clear that NVP 50mg tablet pushed into the system as a substitute for Nevirapine syrup was not used or clinicians were not adequately sensitized to ensure its use. This commodity is in the danger list of potential expiry and concerted effort must be made by all to ensure that they are urgently used up more so, when the shelf-life is less than 6 months.
- f. **NVP 50mg/5ml** has MoS of 4.2. This though is slightly above the maximum inventory level, it is important to note that there is enough of this drug at facility level to cater for the needs of clients.

Recommendations

- All health facilities with high stock of NVP 50mg tablets would be tracked by SCMS and State Logistics Management Coordinating Unit (SLMCU). Supporting IPs will be informed to direct all clinicians to prescribe and pharmacist unit will be mandated to dispense the equivalent dose to adults to ensure this commodity does not expire in the health facilities. SCMS and LMCU will also be vigilant of aftermath of implementation of this directive. This is to actively track CRRIRF reports of these facilities to ensure false order trigger by these measures is refilled with appropriate commodities in lieu of what it was used for.
- There should be advocacy to facilities to use up EFV 200mg and AZT/3TC 60/30mg that have high MoS of 5.2 and 6.8 respectively. This is to avoid expiry and more so that it is part of streamlined regimen.

Adult and Pediatrics Second line Antiretroviral Drugs

Figure 3 shows the stock status of Second Line Adult and Pediatric ARVs in the State. This is presented as follows:

ATV/r 300/100mg is a key adult second line drug. However, the MoS is 'very' low (0.1). The drug though has been in short supply and circulation in the country. The stock level is very alarming and facilities regularly request for this commodity. But due to its shortage in the pipeline, the MoS has to be undoubtedly low.

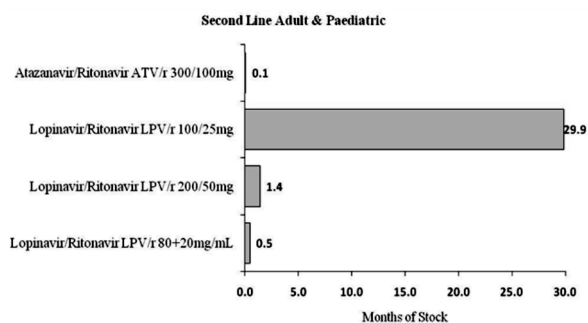


Fig. 3: Second Line Adult and Pediatric Antiretroviral Months of Months

LPV/r 100/25mg presented an unusually high MoS of 29.9. This is alarming and only one facility might have contributed to it, Hasiya Bayero Pediatric Hospital. There is SoH of 188 with no consumption at this facility. The reason is none other than the industrial strike action embarked by Joint Health Sector Union (JOHESU). Therefore the commodity was not dispensed to any patient throughout the period.

LPV/r 200/50mg as an adult second line drug is less requested by health facilities as most clients on second line are on ATV/r 300/100mg. Nonetheless, the MoS presented by this as 1.4 is below the minimum inventory that is supposed to be found at health facilities.

LPV/r 80+20mg/ml presented a MoS of 0.5. This is by far less than the minimum level even though less patients are on this regimen.

Recommendations

- The SLMCU should follow up the health facilities identified on all these commodities and probe into reasons why facilities are getting to stock out on these commodities and perhaps not requesting for them from the Axial warehouse.
- SLMCU should keep track of Hasiya Bayero Pediatric Hospital usage of LPV/r 100/25mg to ensure its utilization once the industrial action is called off. SLMCU should redistribute it after one cycle if consumption does peak to such a level that will normalize the min-max inventory level for this commodity⁸.

Co-trimoxazole

Figure 4 shows the stock status of Co-trimoxazole tablets of various strengths in the State.

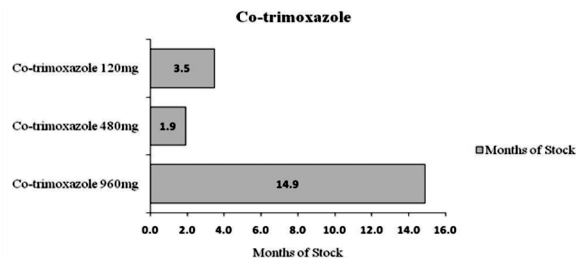


Fig. 4: Months of Stock for Co-trimoxazole

Co-trimoxazole 120mg is a pediatric formulation and its MoS (3.5) is within the inventory level.

The MoS of 1.9 for **Co-trimoxazole 480mg** is very close to minimum level. Its use was dictated by its availability at the warehouse more than its 960mg counterpart.

Co-trimoxazole 960mg has a very high MoS of 14.9. This may be due to the fact that until January, 2015 last mile distribution, most resupplies of this drug were achieved by allocating double quantity of its 480mg counterpart. There was also the JOHESU strike which might have led to its accumulation at facility level.

Recommendations

- SCMS and SLMCU should pay closer attention to utilization of Co-trimoxazole 960mg with a view to track health facilities that have excess stock and ensure that they are used up or redistributed to other health facilities which will utilize them and bring the MoS within the acceptable inventory level window operational in Nigeria.

HIV Rapid Test Kits

Figure 5 below shows the stock status of HIV Rapid Test Kits in the State.

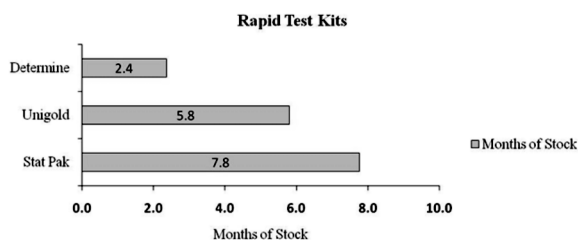


Fig. 5: HIV Rapid Test Kits Months of Stock

Determine test kit is the only commodity that is within the inventory level. It is by far the most requested and most utilized by facilities across Kano State.

Unigold as a test kit used for confirmation and has MoS of 5.8 which is above the maximum inventory level that should be stocked at facility level. The high MoS observed is due to wide distribution of this test kit across health facilities that probably have low incidences of clients testing positive to Determine test kit, this contributed to its low usage.

The highest MoS observed in RTKs is with **Stat Pak** for having stock level that could last for 7.8 months. This could be derived from decrease in its use due to concordance between outcomes of Determine and Unigold tests⁹. Moreover, the industrial action by JOHESU had an effect on the utilization of this commodity during this quarter.

Recommendations

- The SLMCU should track health facilities with high stock level of this commodity and ensure immediate use or redistribution to eschew expiry.

CD4 Analysis Reagents

In Figure 6 below, out of the four commodities represented, none is within the inventory level of the 4 months maximum and 2 months minimum levels operated at facility level. BD FACS Clean Solution is approaching an emergency order point as evidenced by the MoS of 0.9.

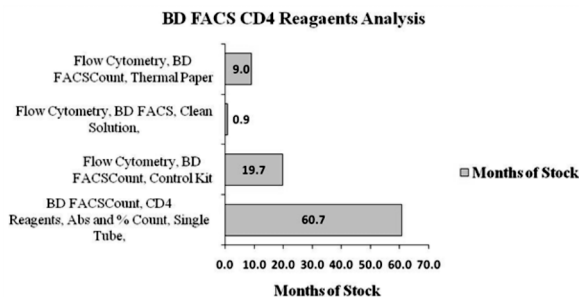


Fig. 6: CD4 Reagents Analysis Months of Stock

All the other complimentary commodities use with CD4 Analysis reagent reported for this period revealed that there is excess stock at facility level which is too large to be accommodated under normal circumstances. The MoS below is the most bizarre of all commodities seen in this exercise. This is due to poor reporting rate recorded for CD4 Analysis reagent and therefore this observation is probably not a better picture or true representation of CD4 MoS status for the state. This is a call to take a critical look at the inventory management practices of pool health facilities that reported. It is expected that a clearer and more representative MoS status for the state will be seen when other facilities submit their LMIS reports in the next edition of this report. The expected output will reinforce the basis of more analytical investigation about the activities at facility level that led to this cumbersome overstocking.

Recommendations

- It is highly recommended that the SLMCU, SCMS and IPs should fix eyes on the collection of CRRIRF for CD4 Reagents in the next reporting cycle (January-February 2015). This is to improve the reporting rate and to give a more holistic picture of the MoS. The high or low stock level being presented could be reports collected from either high or low consuming sites as the case may be.

Tuberculosis

Tuberculosis and Leprosy Control Programme (TBLCP) commodities stock status charts provide details of the state stock levels for various anti-TB drugs; CAT I, CAT II, and pediatric anti-TB drugs. The stock position of these commodities are discussed in further details.

The discussions and interpretations on TB commodities management and stock assessment should be guided within the context of the following:

- A **KIT** is a patient pre-packed TB commodities that will last entire course of treatment for TB case irrespective of treatment category.

- **CAT I** (2RHZE+4RH) contains a two months course fixed dose combination of Rifampicin, Isoniazid, Pyrazinamide and Ethambutol and four months fixed dose combination of Rifampicin and Isoniazid.
- **CAT II** (3RHZE & 2Streptomycin + 4RHE) contains three months course fixed dose combination of Rifampicin, Isoniazid, Pyrazinamide and Ethambutol, two months course of streptomycin and four months course fixed dose combination of Rifampicin, Isoniazid and Ethambutol.

Pediatric TB drugs:

- **QUANTITY CONSUMED** makes better sense when it is linked to what it is used for i.e. the number of patients.
- If all patients were to belong to the average **weight band**, every 10 of those patients would require 10 patient kits (1 to 1). But due to weight variations in reality, it is assumed that every 10 patients will require 9 to 11 patient kits.
- Therefore, any **10-patients index figure** that falls outside this range is flagged by **PICK'N' PACK** as a probable issue to be investigated.
- The **10-PATIENT INDEX** is calculated as **NUMBER OF KITS USED** multiplied by 10 and divided by the number of new cases registered within same period.

It should be noted that the established minimum and maximum stock levels for TB commodities in the state are 3 and 6 months respectively and Emergency Order Point of 1 month stock.

Figure 7 below shows the stock status of TB commodities in the state.

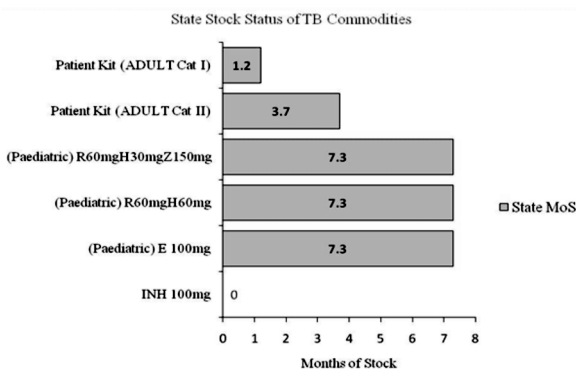


Fig. 7: TB Commodities Months of Stock

Adult CAT I

Adult CAT I has MoS of 1.2, the state stock level information for this commodity is below the minimum inventory level and is approaching emergency order point (EOP) which is set at one month.

Adult CAT II

Adult CAT II has MoS of 3.7, the state stock level information for this commodity is within the min-max inventory level and therefore adequate based on current consumption. Even though the overall stock level

suggest sufficiency in stock level for the state, 38 health facilities have reported stock out. This means that Adult CAT II commodities are hauled up at the state store rather than the health facilities that require them for use.

It is worthy to note that CAT II is being considered for phaseout with attendant implication of potential expiry for Streptomycin and RHE components commodities in the Adult CAT II kit.

Pediatric TB Commodities

The **Pediatric TB** commodities which are dispensed in combinations that mirror Adult CAT I are complete and balanced in unison, however, these pediatric TB commodities have MoS of 7.3 and this is above the maximum stock level by 1.3 months. The attendant implication of this situation is associated expiry.

Recommendations

- The Kano State Tuberculosis and Leprosy Control Programme has to be advised on analyzing the cause of their stock imbalances and measures necessary to remain within the inventory level (6 months max and 3 months min). This will prevent overstocking and stock out because as some commodities are obviously over-stocked while others signal danger of stock out.
- Inventory management practices have to be instituted to provide for constant assessment to avoid imbalances¹⁰. This is because as observed, only one of the commodities falls within the inventory level, another one is stocked out, one other is understocked and others are in excess.

Programmatic Update

This section provides insight as well as updates on programmatic issues and decisions with impact that affects commodities availability in the state. These updates are provided and discussed for each different program area.

HIV/AIDS

The implementation of ARV regimen streamlining initiative for the national HIV/AIDS program commenced in January 2015 with the signing off of the memo by the National HIV/AIDS Coordinator and disseminated by National AIDS and STIs Control Programme (NASCP)¹¹. Regimen streamlining of ARV commodities which is being implemented for about a year has its attendant consequences and impact on commodities resupply and availability at the health facilities. It has therefore, become pertinent to track the level adherence of the facilities to the provisions of this streamlining guide and to also ensure mop up and usage of commodities affected by this program guide.

As at the end of quarter four: October – December 2014, all health facilities providing Prevention of Mother to Child Transmission (PMTCT) services in the state ought to have switched completely to the use of TDF/3TC/EFV 300/300/600mg being a fixed dose combination for maternal prophylaxis in line with the regimen. However, nine health facilities providing PMTCT services still have other commodities in their custody other than what is

approved in PMTCT sites.

It is worth to note that all the health facilities providing comprehensive HIV/AIDS services in the state had commenced implementation of regimen streamlining. 20 health facilities of the 35 comprehensive HIV/AIDS sites that submitted Patients per Regimen (PPR) reports are fully compliant while 7 of these facilities have reported ARV regimen that are not in the approved streamlined guideline.

Recommendations

- The SLMCU is the focal department that has make close look of the HIV/AIDS commodities in Kano State. While SCMS will continue to render committed technical assistance to the SLMCU, the SLMCU has to show improved commitment and general oversight of HIV/AIDS logistics.
- SCMS should also look towards creating more state engagement activities that will give more opportunities for contact times with government personnel. There are a number of on-the-job training that SLMCU members will also require that is best delivered in relaxed sessions than lumped under report collection or other activities.
- All government or donor-funded organizations going on Monitoring and Supportive Visits in Kano State should be provided with this report so that it gives them light on the stock status. This will fine tune the approaches needed to give support to facility staff while uncovering heaps of commodities not likely to be used up or stock out-prone facilities that would require resuscitation before regular supplies arrive.
- While this report provides a picture of stock status, it should be borne in mind that the situation must actually vary because the reporting period under reviewed was marred by industrial action of the Joint Health Sector Union (JOHESU) industrial action. The ideal reporting rate from Kano is obviously lower than should have been obtained if such industrial action did not ensue.
- The reporting rate of HIV/AIDS commodities should be aimed at least 90% for the confidence interval of stock status to be of indisputable accuracy.

Tuberculosis

The Kano State TBLCPC has a new program manager who is yet to be on speed with respect to supply chain related challenges and management.

The program is about to undergo major policy shift in TB treatment with removal of CAT II TB commodities from treatment regimen. This streamlining will affect the use of Streptomycin and RHE use and a potential risk of expiry of these commodities if the transition is not well managed.

Recommendations

- Though the TB programme is just on board in this exercise and the State Coordinator is new to the

position and programme, the SLMCU in collaboration with SCMS should keep contact and bring up to par the management of TB commodities. This could be done by sharing information on logistics management practices at the warehouse and SDPs.

- The SLMCU should go beyond HIV/AIDS activities and indulge in other health commodities logistics, by this approach the Procurement and Supply Management Technical Working Group (PSM TWG) will have a broader view and grasp of situations in Kano constituency.

CONCLUSION HIV/AIDS

Prior to the conduct of Quarterly Stock Status Report (QSSR), the best conclusion everyone could make is either a health facility is overstocked or it is out of stock. But the methodology of QSSR has brought a clear state-wide picture of the status of all facilities put together which forms the comprehensive outlook of the entire state. Even though the JOHESU industrial strike action had a severe negative impact on LMIS reports collection. 81%, 79% and 17% of ARV, RTK and CD4 CRRIRFs were collected during the November-December 2014 reporting cycle. The results revealed that for adult first line drugs, only EFV 600mg, TDF/3TC 300/300mg, TDF/3TC/EFV 300/300/600mg fall within the appropriate inventory level between 2–4 months of stock. Whereas, for pediatric first line ABC/3TC 60/30mg and AZT/3TC/NVP 60/30/50mg is in the acceptable range of stock status. For both adult and pediatric first and second line regimens, no commodity is within the set facility-based inventory level.

As for Co-trimoxazole, the only acceptable stock on hand is that for Co-trimoxazole 120mg. The 480mg counterpart is understock while the 960mg formulation is excessively piled up at the health facilities. Test kits have not shown a dissimilar trend from the above. In this category, only Determine test kit has acceptable stock status at facility level. Both Unigold and Stat Pak have excessive stock on hand across all facilities. Though there is very poor reporting rate for CD4 CRRIRFs, the finding from this report revealed that none of the commodities are in the range of acceptable limit of stock on hand at the health facilities.

While the status of some commodities is good, others are excessively available up to 53 health facilities (sum of GF & PEPFAR) were stocked out of tracer commodities which represents 13.1% of tracer commodities. 14 PMTCT facilities reported non-streamlined commodities. The source of these commodities could be traced to inter-facility transfers owing to the fact that SCMS does not issue these commodities to PMTCT sites. 15 health facilities reported commodities that have been phased out. This has been verified to be expired stock which was erroneously captured in the CRRIRF.

Tuberculosis

The reporting rate for the last quarter of 2014 for TB commodities is quite encouraging (84%). It is however alarming that for the range of commodities used in TB continuum of care, only Adult CAT II is within the inventory level of 3 months minimum and 6 months maximum. There was a stock out of INH 100mg and gross under stock of Adult CAT I. All other commodities coincidentally have MoS of 7.3 which is above the maximum stock expected to be found at facility level.

It was observed that 59 facilities were stocked out of CAT I in the last quarter of 2014, 22 facilities reached the emergency order point, 25 were below the minimum stock level, and 14 are overstocked. On the other hand, 38 health facilities were stocked out of CAT II anti-TB drugs, 2 facilities were below minimum and 8 were overstocked.

ACKNOWLEDGEMENTS

On behalf of the Kano State Procurement and Supply Management Technical Working Group (PSM TWG), the State Logistics Management Coordination Unit (SLMCU) wishes to acknowledge the contributions and efforts of Supply Chain Management System (SCMS), Federal Ministry of Health, the National Agency for the Control of AIDS (NACA), the United States Agency for International Development (USAID), Global Fund To Fight AIDS, Tuberculosis and Malaria (GFATM) in supporting the unit to produce the first edition of Kano State Quarterly Stock Status Report.

We also wish to appreciate the efforts, support and contributions of Kano State Ministry of Health, Kano State Hospitals Management Board, Kano State Agency for the Control of AIDS (KSACA), health facilities, Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS), Association for Reproductive and Family Health (ARFH), Institute of Human Virology, Nigeria (IHVN), Friends for Global Health Initiative in Nigeria (FGHiN), State Tuberculosis and Leprosy Control Programme (STBLCP), and State Malaria Elimination Programme (SMEP) that provided the data used in preparing this report.

Finally, we remain thankful to SCMS, Phase 4 Unification Region and the Central Unification Unit of SCMS for the technical assistance provided towards the preparation of this report.

REFERENCES

1. USAID | DELIVER PROJECT, Task Order 1. 2008. *Building Blocks for Logistics System Design for HIV Tests and ARV Drugs: Inventory Control Systems, Logistics Management Information Systems, and Storage and Distribution*. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 1.

2. USAID | DELIVER PROJECT, Task Order 1. 2010. *Logistics Management Units: What, Why, and How of the Central Coordination of Supply Chain Management*. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 1.
3. Urama B. et al (2014). *Abia State Stock Status Report for HIV/AIDS, Malaria, Family Planning, Tuberculosis/Leprosy and Nutrition Commodities*. Umuahia: Ministry of Health.
4. Iwheye-Adie B. et al (2014). *Stock Status for Malaria, Family Planning and HIV/AIDS Commodities*. Calabar: Ministry of Health.
5. Agusiobo A. et al (2014). *Akwa Ibom State Stock Status Report for HIV/AIDS and Malaria Commodities: September, 2014*. Uyo: Ministry of Health.
6. Elebe D. et al (2014). *Bayelsa State Quarterly Stock Status Report for HIV/AIDS and Malaria Commodities: October, 2014*. Yenagoa: Ministry of Health.
7. Joseph Y. B. and Gulma K. A (2015). *HIV/AIDS LMIS Review Meeting with Local Government Officers in Kano State for November-December, 2014 Reporting Cycle*. Kano State, Nigeria.
8. Federal Ministry of Health, (2011). *Standard Operating Procedures Manual for the Management of HIV/AIDS Commodities (Antiretroviral drugs, OI drugs, Laboratory reagents and supplies)*. Abuja, Nigeria.
9. Federal Ministry of Health, (2012). *Report of the Field (Phase II) Evaluation of HIV Rapid Test Kits and Formulation of National HIV Testing Algorithm*. Abuja, Nigeria.
10. USAID/DELIVER PROJECT, Task Order 1 (2011). *The Logistics Handbook: A practical guide for the supply chain management of health commodities*. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 1.
11. Federal Ministry of Health, (2014). *Streamlined Regimen for ART and PMTCT*. Abuja, Nigeria.