



# FY2016-17 NATIONAL QUANTIFICATION REPORT FOR PUBLIC HEALTH FACILITIES IN UGANDA

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#### **FOREWARD**

The FY 2016-2017 procurement planning and EM kit revision report has been prepared to support the implementation of the National Pharmaceutical Sector Strategic Plan III 2015- 2020. Specifically, the report addresses the policy objective under health commodity and supply chain to ensure that all medicines selected for use in the public health system are relevant to the priority needs of the population in line with the concept of essential medicines. In addition, the report addresses the objective to establish and maintain reliable systems for regular and accurate quantification of medicines needs at all levels of the health system.

The report was developed by National Medical Stores in consultation with key partners including Clinton Health Access Initiative and the Uganda Health Supply Chain Project under the leadership of the Ministry of Health Pharmacy Division.

The report presents the methodology of the annual national quantification process for all public health facilities in the country for the 2016-2017 financial year, key outputs and budgetary implications of the current financial allocations. The report also describes recommendations for optimising the annual quantification process and improving the availability of priority medicines.

I appeal for additional investment in the medicines budget and increased technical support at both the national and subnational level to ensure essential medicines and health supplies required by the people of Uganda are available and accessible to the population.

Morries Seru

Acting Assistant Commissioner Pharmacy

Ministry of Health

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#### LIST OF ABBREVIATIONS

CCRs Customer Care Representatives
CHAI Clinton Health Access Initiative
CMP Commodity Management Platform
DHIS2 District Health Information System

DHO District Health Officer
DHT District Health Team
EM Essential Medicines

EMHS Essential Medicines and Health Supplies

EMHLS Essential Medicines Health and Laboratory Supplies EMHSLU Essential Medicines and Health Supplies List of Uganda

First Line Drugs FLD Financial Year FY Global Fund GF GH General Hospital Government of Uganda GoU Health Centre II **HCII** Health Centre III **HCIII HCIV** Health Centre IV HFs Health Facilities

HPV Human Papilloma Vaccine
IPD In-Patient Department
LMD Last Mile Delivery
LoC Level of Care

LPG Liquid Petroleum Gas MoH Ministry of Health

mRDTs Malaria Rapid Diagnostic Test Kits

NDA National Drug Authority
NMS National Medical Stores
NRH National Referral Hospitals
NRI National Referral Institutes
OPD Out Patient Department
PFP Private For Profit
PNFP Private Not For Profit

PCV Pneumococcal Conjugate vaccine

QPPU Quantification Procurement Planning Unit

RH Reproductive Health
RRH Regional Referral Hospital
SLD Second Line Drugs

SPARS Supervision Performance Assessment Recognition Strategy

TT Tetanus

UCG Uganda Clinical Guidelines

UGX Uganda Shillings XV Extra Vital

#### **EXECUTIVE SUMMARY**

The NMS Act Cap 207 states that the corporation shall advise the Ministry of Health, Ministry of Finance, Planning and Economic Development, Ministry of Local Government and National Drug Authority on essential issues relating to the state of the Corporation and its future development as well as to related matters including the estimation of drug needs, distribution and use of medicines in the public health service.

In this capacity, NMS together with MoH and all Government HF's in the country conduct annual procurement planning exercise for Essential Medicines and Health Supplies for all levels of care (HC2s, HC3s, HC4s, GHs, RRHs, NRIs and NRHs) prior to the beginning of the next Financial Year (FY).

This report therefore, provides a summary of the EM kit and procurement planning processes for the 2016-2017 FY and is divided into two main sections. In the first section (current situation), a description of strategies adopted by NMS to address challenges with the quantification exercise is provided. The second section, provides the gap analysis of the actual versus current demand on credit line commodities as well as an analysis on the commodities in the central pool (non-credit line commodities).

The overall objective of this report is to document lessons learnt and advise the government of Uganda on the actual drug needs in the public health sector as per the NMS mandate.

#### The report highlights the following recommendations;

- The government of Uganda should increase financial commitment for EMHLS as the current commitment stands at 23% which poses a significant risk to the patient population
- Government should prioritize increased financial commitment for Laboratory items, ACTs, Artesunate injection, mRDTs, RH, and ARVs. Nearly 50% of the annual forecast of these commodities is funded by partners.
- The overall value of unfunded demand for credit line essential medicines was estimated at 52%. The government needs to increase the allocations of HC2 by 40%, HC3 by 34%, HCIV by 42%, GH by 31%, RRH by 45%, UCI by 47%, UHI by 42%, UBTS by 63%, Mulago NRH by 35% and Butabika NRH by 27% to fully meet the needs of the public health system at these levels
- MoH should increase capacity building on irrational drug use during quantification processes and prescription within health facilities

#### DISCLAIMER:

All reasonable efforts have been taken to ensure the accuracy of the information presented in this document. The document does not however constitute an endorsement or warranty of the accuracy of forecast figures obtained from different sources as these are indicative forecast figures reflecting the actual and desired health facility and national demand within the public sector supply chain.

# 1.0. Background

The Ministry of Health and National Medical Stores conduct the Essential Medicines Kit revision and Procurement planning processes for lower level facilities (HC2 and HC3) and higher levels (HCIVs and hospitals, GHs, RRHs, NRIs and NRHs) respectively annually in line with the NMS Act Cap 207.

However, over the past financial years, anecdotal reports of the EM kit revision and procurement planning processes have shown; a) differences in commodity consumption amongst facilities at the same level of care; (b) Lack of up to date stock data during meetings and therefore, skewed estimates of demand of products; and (c) Budget inadequacies resulting in under-quantification. These limitations made the quantification process a less effective one to predict actual demand of essential medicines for the country.

# 2.0. Annual Planning Process (Current Situation)

Based on the aforementioned challenges and additional stakeholder consultations, NMS applied a data driven approach to roll out the 2016-2017 EM kit revision process in line with the Pharmaceutical Sector Strategic Plan. DHIS2 OPD and IPD attendance data was used to predict morbidity trends for priority medicines, which would be used to plan kit quantities. With support from Clinton Health Access initiative, a quantification model was developed and integrated within the existing EM kit planning template.

The procurement planning process for higher level HFs (HC4s, GHs, RRHs, NRIs and NRHs) utilized an NMS in-house system, the Commodity Management Platform (CMP)<sup>1</sup> to guide HF's on budget utilization. This platform provided benchmark levels against which budget adherence could be measured. This was essential to ensure higher level procurement plans were not exceeding the allocated budgets. Planning for financial year 2016/2017 commenced in January 2016, and was concluded in March 2016.

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<sup>&</sup>lt;sup>1</sup> A system co-developed with Clinton Health Access Initiative

#### 2.1. Available budget for the 2016-2017 procurement planning process

Table 1: The table below provides the HF budgetary allocation for the 2016-2017FY.

Level of care <sup>2</sup>	Number as at 01-Jul-2016	Total budget allocation FY2016/17 (UGX)
HC2	1,757	11,163,237,000
HC3	955	18,360,000,000
HC4	180	7,992,000,000
GH	47	14,456,000,000
RRH	15	13,024,000,000
UCI	1	6,999,999,000
UHI	1	1,181,400,000
UBTS	1	7,888,909,000
Mulago NRH	1	11,366,157,000
Butabika NRH	1	999,443,000

#### 2.2. Methodology of the procurement planning process

The overall process was conducted in two phases namely:

#### a) Planning and preparation

- Preparation of the procurement planning templates: NMS prepared templates for HCIVs, GHs, RRHs, NRH, and NRI ensured all Essential Medicines and health supplies were aligned with the Uganda Clinical Guidelines and Essential Medicines and Health Supplies list of Uganda (2012).
- ii. <u>Classification of Items on the Planning templates:</u> A select group of items specifically among higher level facilities, were assigned an additional category called Extra Vital (XV) to emphasize prioritisation of these commodities during planning
- iii. Review of previous procurement plans and EM kit reports: One of the key recommendations from the earlier kit process reports was utilisation of facility morbidity data to inform decision making and bridge the gap between demand and supply for key products.
- iv. <u>Review of HMIS and Stock Data:</u> Review of caseload and consumption data from various source documents and files including; DHIS2, NMS Customer Care Representative Database, MOH stock status reports, MOH SPARS reports and NMS Issues Data.
- v. <u>Process Harmonization with Stakeholders: MOH Pharmacy Division, District Health Officials were consulted to agree on a data driven approach. This engagement resulted in the Ministry of Health letter to District Health Officials endorsing data utilization of the process (See Annex B)</u>
- vi. <u>Updating Treatment Algorithms:</u> EM Kit Lists and procurement order plans were updated to reflect new treatments including Amoxicillin 250mg DT, *(See Annex C)*. An information pack consisting

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<sup>&</sup>lt;sup>2</sup> NRH & NRI have different planning arrangements

of a summary of key MOH Policy documents was developed for Health Facility Staff to improve adherence to national treatment guidelines (See Annex D and E).

- vii. <u>Utilisation of Morbidity Data to develop proposed "Minimum Recommended Quantities</u>3": Facility caseload data was used to "propose" kit quantities for 23 VITAL medicines based off the Uganda Clinical Guidelines (UCG) and Essential Medicines and Health Supplies List of Uganda (EMHSLU). During this quantification, a number of assumptions were applied that were cross-checked with the Ministry.
- viii. <u>Training of NMS Customer Care Representatives:</u> NMS Customer Care Representatives received refresher training on the new components of the procurement plan and EM kit template during a half-day workshop at NMS.

#### b) Implementation

Through the 9 NMS regional offices, the planning processes were conducted in 112 districts across the country with atleast two days spent in each district. The implementation team consisted of the NMS Customer Care Representatives (regional sales officers), health facility in-charges and the DHO who chaired the districts meetings.

Clinton Health Access Initiative provided technical assistance to the Ministry of Health Pharmacy division and National Medical Stores in the development of a quantification model of essential medicines based on caseload as per DHIS2 and supported the coordination and dissemination of information among stakeholders

During procurement planning sessions among higher level facilities, each the NMS regional team would have separate meetings at each HCIV or GHs with key staff. Facilities were provided retrospective budget utilisation analyses to guide budgeting

The District and facility meetings were conducted as below:

- i. <u>Introductory meeting with the DHO and Heads of facility:</u> Each district kit revision and procurement planning process began with an introductory meeting with the DHO who provided an overview of the MOH policies, modifications to the kit and any other updates related to procurement plans.
- ii. Overview of Quantification Templates: The CCR then went through the Kit or procurement template with each health facility representative having a copy and a decision was made to either, increase, decrease or maintain the quantities against each commodity. The CCR encouraged In-charges to consider recommendations built within the template based on caseload data estimations. In-charges

<sup>&</sup>lt;sup>3</sup> Recommendations were only provided for Kit revision sessions

- had the final say on the volume of each commodity that was planned for despite the provision of minimum recommendations.
- iii. Quantity Adjustment to Budget: During both planning processes, the CCR verified whether the overall volume of the plan of kit was within the budget allocation. If this wasn't the case, facilities had to review the template again to make the necessary adjustments until the budgets matched allocations.
- iv. Procurement plan and Kit Sign Off: The procurement plan and EM kit were considered complete if;
  - ✓ All items in either templates had been planned for;
  - ✓ The overall budget remained within the recommended allocation;
  - ✓ All heads of facilities were in agreement with the allocations and had officially signed off on orders.
- v. <u>Health facility self-reported need</u>: In addition to completing the planning templates, in-charges were asked to prepare a separate plan indicating their actual facility needs. This was aggregated at a national level to determine the demand in the absence of budget limitations

At the Regional and the National referral level, the FY2016-17 procurement planning templates were sent to the respective pharmacists. Revisions were led by the pharmacists through commodity/therapeutic management committees. A 20% deviation of procurement order plans against allocations per commodity was permitted.

#### 2.3. Key Outputs of the planning processes

#### 2.3.1. Essential Medicines Kit

#### • Variation in the kit

The FY2016-2017 kit (new volume) was for the greater part similar to the previous year FY2015-2016 kit (old volume) with exceptions of commodities including:

- ✓ Misoprostol, kit volumes were reduced by over 50%
- ✓ Artemether Lumefantrine strips of 6 kit volumes were increased by over 50%
- ✓ Artesunate injections; kit volumes were increased by more than 100%

Table 2: Overall variation in kit volumes based on previous financial year (FY2015-2016) auantifications

			2015-2016 FY/Old kit Volume (number of units)			2016-2017FY/ New kit Volume (number of units)			Variance (New Volume vs. Old Volume)		
#	Ministry of Health Tracer commodities	Unit	HCIIs	HCIIIs	Combined	HCIIs	HCIIIs	Combined	HCIIs	HCIIIs	Combined
1)	AMOXICILLIN 250MG CAPSULE	1000	65,166	82,908	148,074	58,962	74,364	133,326	-10%	-10%	-10%
2)	AMOXICILLIN DISPERSABLE TABLETS 125MG	100	53,940	76,128	130,068	50,466	78,330	128,796	-6%	3%	-1%
3)	AMOXICILLI N DISPERSABLE TABLETS 250MG	100	Plan Unavaila	able		42,960	66,648	109,608	n/a	n/a	n/a
4)	ARTEMETHER 20 MG+LUMEFANTRINE 120MG (strip of 24 tabs)	30	208,281	193,938	402,219	277,812	255,534	533,346	33%	32%	33%
5)	ARTEMETHER 20 MG+LUMEFANTRINE 120MG (strip of 6 tabs)	30	65,928	71,886	137,814	102,822	139,764	242,586	56%	94%	76%
6)	ARTESUNATE INJECTION 60MG VIAL	1	13,500	483,030	496,530	2	1,648,410	1,648,410	-100%	241%	232%
7)	ARTESUNATE SUPPOSITORIES 50MG	6	9,000	9,645	18,645	11,162	7,488	18,650	24%	-22%	0%
8)	COTRIMOXAZOLE 480 MG TABLET	1000	61,656	65,766	127,422	52,302	49,872	102,174	-15%	-24%	-20%
9)	CO-PACKAGED ORS AND ZINC TABLETS	1	575,082	488,922	1,064,004	489,000	454,014	943,014	-15%	-7%	-11%
10)	MISOPROSTOL 200MCG TABS	20	4,593	10,566	15,159	2,414	5,082	7,496	-47%	-52%	-51%
11)	OXYTOCIN 10IU/1MLINJECTION	100	-	4,133	4,133	-	4,772	4,772	n/a	15%	15%
12)	COTRI MOXAZOLE 120 MG TABLETS	100	65,682	65,688	131,370	48,384	45,753	94,137	-26%	-30%	-28%
13)	MALARIA RAPID DIAGNOSTIC TEST KIT(RDT) WITH BLOOD LANCET	25	316,368	293,832	610,200	402,414	376,764	779,178	27%	28%	28%
14)	TETRACYCLINE 1% EYE OINTMENT	1	246,000	244,848	490,848	265,512	285,054	550,566	8%	16%	12%
15)	SAFE DELIVERY (MATERNITY) KIT	1	-	397,254	397,254	2,592	493,242	495,834	n/a	24%	25%

#### Uptake of recommendations:

Findings from the EM kit showed high uptake of recommendations for child and reproductive health commodities like Artemether lumefantrine (strips of 6), Co-packaged ORS and Zinc, Misoprostol (only at HC III level) and tetracycline eye ointment.

For the majority of commodities however, there was generally a low uptake of recommendations adapted from DHIS2. This was mainly due to budgetary constraints and wide margins against self-reported health facility consumption trends.

#### • Budget allocation by commodity:

EM kit analysis findings also showed that a significantly higher proportion of the HC3 budget was spent on Amoxicillin 250mg capsules at 13% compared to other commodities that were less than 1%. However, assuming recommendations for this product had been taken up, the budget allocation would have been 2%. This points to potential irrational use of this product among lower level facilities.

Table 3: Percentage share of selected Items on the EM Kit Budget Allocation for HCIIIs against Recommended values

Commodity	Recommendation	FY2015/2016 kit	FY2016/2017 kit
Co-Packaged Ors And Zinc Tablets	3.44%	3.90%	3.13%
Amoxicillin 250mg Capsule	2.24%	16.20%	12.77%
Pyrimethamine 25mg+Sulfadoxine 500mg Tablet	1.45%	1.45%	1.25%
Chloramphenicol Sodium Succinate lg Injection	1.17%	0.82%	0.67%
Doxycycline Capsules	0.91%	1.09%	0.93%
Tetracycline 1% Eye Ointment	0.63%	0.72%	0.71%
Vitamin K1 (Phytomenadione) 10mg/ML Inj IM	0.59%	0.21%	0.29%
Carbamazepine 200mg Tablet	0.56%	1.51%	1.22%
Magnesium Sulphate 50% 5ml Inj	0.44%	0.11%	0.11%
Amoxicillin Dispersable Tablets 125mg	0.42%	1.73%	1.54%
Lidocaine HCL 2% Injection	0.41%	0.23%	0.24%
Ciprofloxacin 500mg Tablet	0.39%	2.71%	2.33%
Penicillin, Procaine 3mu+ Benzyl 1mu Ampoule	0.37%	0.35%	0.31%
Albendazole 400mg Tablet	0.13%	0.73%	0.63%
Cotrimoxazole 120mg Tablets	0.09%	0.47%	0.28%
Promethazine Hcl 25mg Tablet	0.08%	0.15%	0.13%
Ampicillin 500mg Powder For Reconstitution IV/IM/Infusion	0.06%	0.44%	0.53%
Gentamycin 80mg/2ml Inj IV/IM	0.02%	0.44%	0.42%
Misoprostol 200mcg Tabs	0.00%	0.00%	0.00%
Artemether 20mg+Lumefantrine 120mg (Strip Of 24 Tabs)	0.00%	0.00%	0.00%
Artemether 20mg+Lumefantrine 120mg (Strip Of 6 Tabs)	0.00%	0.00%	0.00%
Artesunate Injection 60mg Vial	0.00%	0.00%	0.00%

# • Qualitative feedback

Table 4: Product specific challenges and recommendations

Product	Challenge	Proposed Action
Dollar Exchange rate	The fluctuating exchange rate resulted in increased prices of essential medicines	NMS advised to lock prices in contracts to avoid market fluctuations such as exchange rates, inflation etc.
Re-distribution	DHOs need more financial support to conduct redistribution of EMHS	MOH/DHOs advised to increase on the budgetary allocation for support supervision
MAMA (safe delivery) Kits	MAMA Kits are required by some HCIIs facilities yet not permitted at this level of care	HCIIs advised to refer expectant mothers to HCIIs and higher level facilities
Amoxicillin 250mg Dispersible	Product Kit price was quite prohibitive, affecting uptake to required levels	NMS to work with partners including CHAI to explore cost reduction strategies for this and other products
Glucose 50%	HCIIs were able to plan for this product; however, they were not allowed to order for the sundries to administer the fluid	MoH to review sundries as part of lower level kits
Artesunate 200mg Supp.	Product was very slow moving	MoH advised to remove this particular strength
Artesunate Injection 60mg	Strength size of this product was reported to result in a lot of wastage as it could only be opened for an hour.	MoH requested procurement of 30mg or 120mg ampoules instead
Cannula G24	Product not availed in Kit at HC3 level	MoH advised to include product in the kit
mRDTs	High number false negatives were reported from RDTs supplied. Patients still presenting with signs and symptoms of malaria	MoH and NDA advised to conduct QA Tests for sensitivity
Artemether/ Lumefantrine 20/120mg, Strips of 6 tablets	Product supplied had no effervescent properties which are more appropriate for children;	MoH to re-include this type in EM Kit
Silver sulphadiazine Cream 1% 500g	The cream was supplied in large containers that could not be split between clients	NMS to procure the smaller tubes that can be supplied to individual patients

# 2.3.2. Variations in the Percentage Share of XV and Non-XV Commodities

Table 4 below shows that overall, the annual forecast for XV items was 96.3% compared to only 3.7% for Non-XV items.

Table 5: Percentage Share of XV and Non-XV Commodities

FY16-17 Quantification									
Level of Care	XV	NON-XV (%)	Overall Total						
RRH	93.6	6.4	100.0						
GH	92.2	7.8	100.0						
HCIV	93.4	6.6	100.0						
HCIII	99.8	0.2	100.0						
HCII	99.9	0.1	100.0						
Total	96.3	3.7	100.0						

## 2.3.3. Demand Driven Planning (Desired Situation)

#### • Credit line commodities

The National Pharmaceutical Sector Strategic plan III (2015-2020) indicates the need for adequate financing for essential medicines for the people of Uganda. However, due to budgetary constraints, health facilities are currently unable to effectively quantify credit line commodities (commodities funded solely by the government of Uganda) according to actual need.

In order to address this, NMS conducted an additional exercise during the planning process where facilities provided their 'wish lists' i.e quantified as though budget was not a barrier. This was analysed against the current budget allocation to determine the unfunded proportion of demand. The overall value of unfunded demand for essential medicines was estimated at 52%.

Table 6: Allocation of funding by level of care and % of demand unfunded.

Level of care	Number of HFs	Total budget allocation FY2016/17 (UGX)	Actual Demand (UGX) (desired Allocation)	% gap (unfunded demand)	Desired allocation per cycle per level of care	Required* increment in budget allocation per cycle by level of care
HC2	1,757	11,163,237,000	24,495,517,704	54%	2,323,612	40%
HC3	955	18,360,000,000	34,625,943,060	47%	6,042,922	34%
HC4	180	7,992,000,000	22,277,323,080	64%	20,627,151	42%
GH	47	14,456,000,000	24,808,179,576	42%	87,972,268	31%
RRH	15	13,024,000,000	30,043,007,730	57%	333,811,197	45%
UCI	1	6,999,999,000	13,191,965,186	47%	2,198,660,864	47%
UHI	1	1,181,400,000	2,042,128,843	42%	340,354,807	42%
UBTS	1	7,888,909,000	21,270,187,156	63%	3,545,031,193	63%
Mulago NRH	1	11,366,157,000	17,444,659,850	35%	2,907,443,308	35%
Butabika NRH	1	999,443,000	1,369,156,380	27%	228,192,730	27%
Overall		92,431,702,000	191,568,068,565	52%	-	-

<sup>\*</sup>Required increment is computed using the desired allocation and expected allocation per cycle (see table 5 below)

Based on the current government allocations, health facilities are only able to fulfil less than 50% of the actual demand for essential medicines. In order to achieve 100%, government would need to increase the cycle allocation of each HC2 by 40%, HC3 by 34%, HCIV by 42%, GH by 31%, RRH by 45%, UCI by 47%, UHI by 42%, UBTS by 63%, Mulago NRH by 35% and Butabika NRH by 27%.

#### • Non-credit line commodities

Fortunately, the government of Uganda has been supported over the years by partner commitments on a selected group of items excluded from the credit line budget of essential medicines. A breakdown of this partner support by commodity category is summarised in the table below.

Table 7: Amount of funding commitments on commodities under the central pool for FY2016-17

Commodities in a central pool	Annual Forecast (Public sector) (Ugx)	Annual GoU Commitment (Ugx)	GoU commitm ent (%)	Annual Partner Commitment (UGX)	Partner commit ment (%)	% Gap <sup>4</sup> (**)
Laboratory(HIV Lab Quantification)	112,262,460,516	-	-	36,145,258,000	32.2	67.8
ACTs	71,617,957,179	5,108,625,000	7.13	46,506,644,424	64.9	27.9
Artesunate Injection Vials	34,800,747,664	-	-	24,721,309,940	71.0	29.0
mRDTs	34,692,248,710	-	-	19,626,590,876	56.6	43.4
ARVs	413,711,495,290	94,891,375,000	22.94	216,516,717,412	52.3	24.7
Reproductive Health <sup>5</sup>	84,329,038,698	8,000,000,000	9.5	N.A	N.A	90.5
Anti-TB	33,948,221,011	9,956,141,975	29.3	14,958,074,048	44.1	26.6
Immunisation <sup>6</sup>	13,868,772,348	9,000,000,000	65.0	N.A	N.A	35.0
Hepatitis B Vaccines <sup>7</sup>	8,622,212,390	8,000,000,000	100	-	-	-
Emergency <sup>8</sup> supplies	-	2,500,000,000	ı	-	-	ı
Laboratory(Gene ral lab reagents)	26,408,411,171	5,000,000,000	18.9	N.A	N.A	81.1
Overall	834,261,564,977	142,456,141,975	17.1	358,474,594,700	43.0	40.0

**Note:** a conversion rate of 1 USD to UGX 3409.93 was used to convert all values quoted in USD (Source: BoU 01-07-2016) All quantifications which made in calendar years in the source documents were converted to financial reporting system

<sup>&</sup>lt;sup>4</sup> Percentage unfunded after factoring government and partner funding

<sup>&</sup>lt;sup>5</sup> Commodities under RH include; Contraceptives, Male & Female condoms and Mama Kits

<sup>&</sup>lt;sup>6</sup> GoU finances the procurement of all traditional vaccines (BCG, Measles, Polio, & TT and related supplies including LPG). The above forecast does not include government contribution to the Gavi co-financed vaccines (PCV, Penta, & HPV).

<sup>&</sup>lt;sup>7</sup> This forecast is only for 25 districts if NMS is to distribute to 25 districts with Hep-B supplies requirements

 $<sup>^{\</sup>bf 8}$  Emergency supplies may include; cases of cholera outbreak, Malaria epidemic etc.

Artesunate injection, mRDTs and ACTs have the highest partner commitment as a proportion of the annual forecast for the public sector. This is followed by ARVs. RH, Laboratory and mRDT items had the highest unfunded proportions after discounting both government and partner commitments.

# 3.0.Risk Analysis

#### • Commodities with highest budgetary risk

Based on the aforementioned annual forecasts and assuming a complete absence of partner support, the estimated financial year requirement from the government of Uganda is over 1 trillion UGX (\$298,307,000). Currently, the overall GOU commitment stands at around 23% which poses a significant risk to the patient population.

The commodity categories with the highest risk include Laboratory items, ACTs, Artesunate injection, mRDTs, ARVs, and reproductive health supplies. Nearly 50% of the annual forecast is funded by partners.

Commodity category	Annual forecast (UGX)	Annual forecast (USD)	% Not funded by GOU
Essential Medicines	191,568,068,565	56,179,472	52
Laboratory(HIV Lab requirements)	112,262,460,516	32,922,218	100
ACTs	71,617,957,179	21,002,765	93
Artesunate Injection Vials	34,800,747,664	10,205,707	100
mRDTs	34,692,248,710	10,173,889	100
ARVs	413,711,495,290	121,325,510	77
Reproductive Health	84,329,038,698	24,730,431	90
Anti-TB	33,948,221,011	9,955,694	71
Immunisation	13,868,772,348	4,067,172	35
Laboratory(General lab reagents)	26,408,411,171	7,744,561	81
Overall	UGX1,017,207,421,152	\$298,307,420	77%

#### • Impact of new National HIV treatment guidelines

Uganda has recently engaged in the update of its National HIV Treatment guidelines in order to provide the most advanced guidance on the diagnosis of HIV, the care of PLHIV and the use of ARV drugs for treating and preventing HIV infection. From a supply chain and cost perspective, the latest guidelines will result in numerous considerations.

Due to the adoption of test and treat policy to all individuals living with HIV, an increase in total patient numbers is expected to occur. Similarly, the new guidelines advocate for regimen shifts towards more expensive options, such as LPV/r pellets and ABC/3TC based regimens for paediatric patients, which will increase average cost per patient. Both these developments will increase the size of the funding gap and require the acquisition of additional bridge funds.

From an overall system perspective, increasing the patient population will result in additional strains on the supply chain as commodity volumes grow. At a central level, NMS will be required to store, account for, and disseminate larger quantities of medicines. Regional distribution systems will also face additional requirements as current infrastructure (trucks, storage facilities) need to be assessed to ensure uninterrupted service despite increasing levels of medicine commodities. Similarly, the reduced demand or phasing out of certain ARVs (Kaletra syrup) increases the complexity placed upon the health system and the introduction of new products (Kaletra pellets, DTG) requires proper educational introduction, rollout, and demand generation. Phasing out Kaletra syrup will have a positive impact upon the supply chain as less cold chain requirements are needed since Kaletra pellets are heat stable. Lastly, due to the adoption of DSDM there will be a need to build a faster response mechanism to medicine shortages to prevent service disruption; increased reliance on real-time, effective data will need to be incorporated into this response.

Overall, for FY 2016/2017, preliminary analysis indicates an increase over the old guidelines of 2% in total ARV funding need in the public sector as new treatment guidelines begin implementation in the back-half of the year. However, FY 2018/2019 public sector expenditures are expected to be as much as 20% greater than FY 2016/2017 funding requirements as test and treat policy grows total patient base and new treatment protocol is fully initiated.

#### 4.0. Recommendations and Conclusions

The report highlights the following recommendations

- The government of Uganda should increase financial commitment for EMHLS as the current commitment stands at 23% which poses a significant risk to the patient population.
- Government should prioritize increased financial commitment for Laboratory items, ACTs, Artseunate injection, mRDTs, RH, and ARVs. Nearly 50% of the annual forecast of these commodities is funded by partners.
- The overall value of unfunded demand for credit line essential medicines was estimated at 52%. The government needs to increase the allocations of each HC2 by 40%, HC3 by 34%, HCIV by 42%, GH by 31%, RRH by 45%, UCI by 47%, UHI by 42%, UBTS by 63%, Mulago NRH by 35% and Butabika NRH by 27% to fully meet the needs of the public health system at these levels.
- The Ministry should increase capacity building on irrational drug use during quantification processes and prescription within health facilities
- Health facilities should use updated stock cards during quantification meetings to ensure accurate planning.
- The low uptake of recommendations adapted from DHIS2 shows the need for utilization of alternative data sources in developing decision models. Potential data sources include stock cards, Customer Care Representative stock surveillance data. However, there should be capacity building in HMIS reporting.
- Hospitals and HCIVs are advised to use systems such as Rx solutions as part of the annual procurement planning process.
- Facilities should track budget utilization throughout the financial year to inform future planning and allocations.

#### 5.0.Annexes

#### **A.** Introduction Letter for NMS staff to the Chief Administrative officer

Telephone: General Office PS's Office: TelePax Telex: 340874/231563/9 256-41-340872 256-41-231584 61372 HEALTH

In ANY CORRESPONDENCE ON THIS SUBJECT PLEASE QUOTE NO. 6/02 DE SEPUBLIC OF UGANDA Ministry of Health
P.O. Box 7272
Kampala,
Uganda
18<sup>th</sup> December, 2015.

The Chief Administrative Officer,

...... District

#### RE: PROCUREMENT PLANNING FY 2016/2017

This is to introduce to you a team from MOH/NMS who are in your district to guide government health facilities in preparing procurement plansfor Essential Medicines, Medical sundries and Laboratory supplies (EMHS)for FY 2016/17. This will include revision of Basic Kits for your HCII and HCIII facilities and procurement plans for HCIVs.

This planning is being conducted for all Government Health Facilities in Uganda targeting facility Accounting Officers, The feedback will be essential in guiding procurement and distribution of EMHS to all government health facilities in FY 2016/17.

The bearer of this letter is a staff of MOH/NMS and you are kindly requested to provide him/her all the necessary assistance that he/she requires.

Looking forward for your co-operation.

Yours faithfully,

Dr. Aceng Jane Ruth

DIRECTOR GENERAL HEALTH SERVICES

c.c. Permanent Secretary, Ministry of Health
General Manager, NMS
Director Health Services (Clinical & Community)
Director Health Services (Planning & Dev.)
Chairman LC. V
Resident District Commissioner
District Health Officer
Secretary for Health

B. MOH letter to districts on leveraging data to inform decision making during EM kit planning

TELEPHONE: General office MINISTRY OF HEALTH 340874/231563/9 P.O. Box 7272 PS office: 340872 KAMPALA. **TELEFAX: 231584** TELEX: 61372 HEALTH UGA. UGANDA In ANY CORRESPONDENCE ON THIS SUBJECT PLEASE QUOTE 7th December 2015 NO. ADM.45/273/01 To the District Health Officer RE: LEVERAGING DATA TO INFORM THE ESSENTIAL MEDICINES KIT REVISION 2016-2017 FY KIT PROCESS Annually, the Ministry of Health and National Medical Stores support districts to conduct the Essential Medicines Kit revision process for lower level facilities (HC IIs and HC Ilis). The process involves quantification of a list of medicines against which NMS makes deliveries per cycle for the subsequent financial year. The main challenge however, has been the criteria for determining appropriate quantities for the district level kit. In an effort to address this, the Ministry of Health in collaboration with National Medical Stores and Clinton Health Access Initiative will be applying a data driven approach in planning for the 2016-2017 FY kit. The process will involve utilisation of data extracted from DHIS2 as well as additional reports on consumption and availability trends at health facility level. This data will be used to guide health workers on the right quantities to plan per commodity The purpose of this letter therefore, is to request for your support in implementing this approach to ensure rational quantification of commodities. Yours sincerely Dr. Aceng Jane Ruth. Director General Health Sevices C.C. Director General Health Services Director Health Services (Community and Clinical) Assistant Commissioner Child health Division Ag Commissioner Health Services (Pharmacy) General Manager, National Medical Stores

# $\mathsf{C}.\;\;$ Sample extract of final EM kit template

			_												
		Bukomansimbi						HC	HC IIs Spend Tracking			HC IIIs Spend Tracking			
		UGX 1,400,000							V	E	N		V	E	N
		UGX 4,000,000						Spend in UGX	UGX 0	UGX 0	UGX 0	Spend in UGX	UGX 0	UGX 0	UGX 0
							A	s a % of Budget	0%	0%	0%	a % of Budget	0%	0%	0%
							Bu	dget Remaining	UG	X 1,400,0	00	dget Remaining	UG	4,000,0	00
									HC IIs				HC IIIs		
Bukomansimbi LEVEL II & LEVEL III KIT REVIEW FOR THE PERIOD JULY 2016 - JUNE 2017					E 2017	OLD FY15/16 QTY	FY 16/17 MIN. RECOMM	NEV FY16/17 QTY	NEV DISTRICT COST	OLD FY15/16 QTY	FY 16/17 MIN. RECOMM	NEV FY16/17 OTY	NEV DISTRICT COST		
S.I -	COE -	DESCRIPTION -	UN -	RAPEUT -	PRI -	LO( ~	VEF -	-	-	-	-	-	-	-	-
1	#####	IBUPROFEN 200MG TABLET	1000	ANALGESIC	11,000	HC3	E	0				2			
2	220178	PARACETAMOL 125MG SUPPOSITORIES	10	ANALGESIC	3,500	HC2	E	0			0	0			(
3	#####	PARACETAMOL 500MG TABLETS	1000	ANALGESIC	12,500	HC2	E	6			0	10			
4	#####	AMOXICILLIN 250MG CAPSULE	1000	ANTIBIOTIC	46,300	HC2		6	2		0	19	3		
5	#####	AMOXICILLIN DISPERSABLE TABLETS 125MG	100	ANTIBIOTIC	5,400	HC2		10	4		0	12	4		-
6	#####	AMOXICILLIN DISPERSABLE TABLETS 250MG	20	ANTIBIOTIC	8,200	HC2		Plan Unavailable	94		0	Plan Unavailable	87		Ī
7	215025	AMPICILLIN 500MG POWDER FOR RECONSTITUTION IV/II	100	ANTIBIOTIC	29,500	HC3	V	0				0	0.03		Ī
8	215055	CHLORAMPHENICOL SODIUM SUCCINATE 1G INJECTION	50	ANTIBIOTIC	59,400	HC3	V	0				1	0.35		_
9	220162	CIPROFLOXACIN 500MG TABLET	100	ANTIBIOTIC	9,200	HC2		8	2		0	18	2		_
10	220184	COTRIMOXAZOLE 120MG TABLETS	100	ANTIBIOTIC	1,700	HC2		5	2		0	5	2		•
11	220185	COTRIMOXAZOLE 480MG TABLET	1000	ANTIBIOTIC	27,300	HC2		7			0	13			•
12			100	ANTIBIOTIC	4,000	HC2		8	9		0	14	11		
13		GENTAMYCIN 80MG/2ML INJ IV/IM	100	ANTIBIOTIC	19,500	HC3		0				1	0.02		
14		METRONIDAZOLE 200MG	1000	ANTIBIOTIC	11,600	HC2		4			0	7			•
15	_	PENICILLIN, PROCAINE 3MU+ BENZYL 1MU AMPOULE	10	ANTIBIOTIC	7,500	HC3		0				2	0.87		•
16		TETRACYCLINE 1% EYE OINTMENT	1	ANTIBIOTIC	700	HC2	٧	20	42		0	50	44		•
17	_	PENICILLIN, BENZATHINE BENZYL 2.4MU/1.44G AMPOUL	10	ANTIBIOTIC	6,800	HC3	E	0				1			•
18		PENICILLIN. BENZYL 1MU/600MG INJ (PFR) IM	10	ANTIBIOTIC	2,300	HC3	E	0				2			•
19	202021	CHLORAMPHENICOL 0.5% EYE DROPS 10ML	1	ANTIBIOTIC	500	HC2	N	0			0	0			•
20	215334	MAGNESIUM SULPHATE 50% 5ML INJ	1	ANTIDOTE	5,500	HC3		0				1	1		

D. Communication from MOH to Districts on Policy change for pneumonia management with Amoxycillin 250mg Dispersable Tablet



#### E. MOH letter to districts communicating a policy guidance on injectable Artesunate



#### F. Letter from Director General (DG) Health Services to HFs on XV list

TELEPHONE: General office 340874/231563/9 MINISTRY OF HEALTH Permanent Secretary's Office: 256 - 41 - 340872 P.O. Box 7272 FAX: 256 - 41 - 231584 KAMPALA, ANDA In ANY CORRESPONDENCE ON THIS SUBJECT PLEASE QUOTE NO: ADM.386/01 14th December, 2015 att: To: **Hospital Directors** District Health Officers cc: 1. Medical Superintendents 2. Facility In-charges 3.

SUBJECT: EXTRA VITAL (XV) LIST OF ESSENTIAL MEDICINES AND HEALTH SUPPLIES

I am pleased to note that the list of Extra Vital essential medicines and health supplies here with attached was developed after extensive consultation.

National medical stores will now prioritize the procurement of these commodities and therefore, future orders from the facility should be informed by this list.

By copy of this letter, National Medical Stores is requested to ensure the availability of this Extra Vital list to all health facilities in a timely manner.

The purpose of this circular is direct that you use this list for all your future orders.

Dr. Aceng Jane Ruth

DIRECTOR GENERAL HEALTH SERVICES

CC.

- · Permanent Secretary, MOH
- Director Health services (Community and Clinical services)
- Director Planning and Development
- Commissioner Clinical services
- Ag Assistant Commissioner Pharmacy
- General Manager, National Medical Stores

# G. List of 41 Tracer Commodities

	b. List of 41 Tracer Commodities	l		
S N	Description	UNIT-PACK	VEN	LOC
	Recommended first line ACT(Artemether/Lumefantrine	Tablet	V	HC2
1	100/200mg)			
2	Cotrimoxazole 480mg	Tablet	V	HC2
3	Therapeutic milk F75(75Kcal/100ml)	Packet	V	HOSPITAL
4	Therapeutic milk F100(100Kcal/100ml)	Packet	Е	HOSPITAL
5	Ready to use Therapeutic feeds(RUTF)	Paste	N	HC1
6	Cotrimoxazole 960mg tablet	Pack of 1000	Е	HC3
7	Chlorhexidine 20%	Litres	V	HC2
8	Bendrofulazide(Aprinox) 5mg	Tablet	Е	HC3
9	Propranolol 40mg	Tablet	V	HC4
10	Nifedipine tablets 20mg	Tablet	V	HC3
11	Captopril 25mg	Tablet	Е	HOSPITAL
12	Metformin 500mg	Tablet	V	HC4
13	Glibenclamide 5mg	Tablet	V	HC4
14	Insulin short acting	Vial	V	HC4
15	Cardic Aspirin 75/80mg	Tablet	V	HC4
10	Tenofovir/Lamivudine/Efavirenz(TDF/3TC/EFV)	Packof 60	V	HC3
16	300mg/300mg/600mg	D 1 (60	<b>X</b> 7	1162
17	Zidovudine/Lamivudine/Nevirapine(AZT/3TC/NVP)	Packof 60	V	HC3
18	Zidovudine/Lamivudine(AZT/3TC)300mg/150mg	Packof 60	V	НС3
19	Tenofovir/Lamivudine(TDF/3TC) 300mg/300mg	Packof 60	V	НС3
20	Nevirapine(NVP) 200mg	Packof 60	V	НС3
21	Efavirenz(EFV) 600mg	Packof 60	V	НС3
22	Abacavir/Lamivudine(ABC/3TC)60mg/30mg(peadiatric	Packof 60	V	HC3
23	Nevirapine(NVP) 50mg	Packof 60	V	НС3
24	(RHZE) blister strip 150/75/400/275mg		V	
25	RH blister strip 150/75mg		V	
26	Determine HIV Screening test	Pack	V	HC2
27	Stat-pack HIV Comfirmatory rapid tests, tests	Pack	V	HC2
28	Unigold HIV RDT Tie-breaker test	Pack	V	HC2
29	CD4 reagent specify		V	HC4
30	Malaria Rapid Diagnostic tests	Tests	V	HC2
31	ZN Reagent for AFB		V	HC3
32	Blood 450ml	Millilitres	V	HC4
33	Depo-Provera	Ampoule	V	HC2
34	Sulfadoxine/Pyrimethamine	Tablet	V	HC2
35	ORS Sachets with zinc tablet	Sachet	V	HC2
36	Measles Vaccine	Sachet	V	HC2
37	Misoprostol 200mcg Tablet	Tablet	V	HC2
38	Amoxicillin dispersible 125mg tablet(For children)	30 Tablets	V	HC2
39	Ceftriaxone lg injection	Vial	V	HC2
40	Oxytocin Injection	Ampoule	V	HC2
41	Mama kit	Kit	V	HC2

# H. Overall volume of priority $^9$ commodities planned for the FY $^{10}$ (excluding NRH & NRI)

Product code	Product	Pack	Annual Qty (# of packs)
220047	ARTEMETHER 20MG+LUMEFANTRINE 120MG (STRIP OF 6 TAB)	30	327,160
220040	ARTEMETHER 20MG+LUMEFANTRINE 120MG (STRIP OF 12 TAB)	30	76,290
220041	ARTEMETHER 20MG+LUMEFANTRINE 120MG (STRIP OF 18 TAB)	30	77,145
220042	ARTEMETHER 20MG+LUMEFANTRINE 120MG (STRIP OF 24 TAB)	30	769,215
220034	AMOXICILLIN 250MG CAPSULE	1000	205,012
220035	AMOXICILLIN DISPERSABLE TABLETS 125MG	100	170,456
220070	AMOXICILLIN DISPERSABLE TABLETS 250MG	20	124,230
205068	CO-PACKAGED ORS AND ZINC TABLETS	1	1,161,744
220185	COTRIMOXAZOLE 480MG TABLET	1000	133,014
225048	MISOPROSTOL 200MCG TABLETS	100	13,008
220103	ARTESUNATE INJECTION 60MG VIAL	1	4,978,600
215380	OXYTOCIN 10IU/1ML INJECTION	100	11,284
202064	TETRACYCLINE 1% EYE OINTMENT	1	765,424
304098	SAFETY BOX FOR SYRINGES & NEEDLE DISPOSAL	25	2,796
205070	ORAL REHYDRATION SALTS FOR 1LT	25	7,965
220184	COTRIMOXAZOLE 120MG TABLETS	100	96,045
220181	ARTESUNATE SUPPOSITORIES 50MG	6	33,722
220182	ARTESUNATE SUPPOSITORIES 200MG	6	20,390
155360	MALARIA RAPID DIAGNOSTIC TEST KIT(RDT) WITH BLOOD LANCETS	25	790,494
225103	LEVONORGESTREL 0.75 MG	2	103,269
225046	ETHINYLESTRADIOL 0.03+LEVONORGESTREL 0.15MG TAB	3	217,854
225121	ETONOGESTREL 150MG IMPLANT (IMPLANON)	1	45,000

<sup>&</sup>lt;sup>9</sup> List of priority medicines includes tracer medicines as described by Ministry of Health, Pharmacy division

 $<sup>^{10}</sup>$  Data from National referrals not included as they are significant outliers and have different budgeting system

#### I. National Average Monthly Consumption (AMC) by level of care for all facilities

Code	Product	Pack size	RRH	GH	HCIV	HCIII	HCII	National
220047	ARTEMETHER 20MG+LUMEFANTRINE 120MG	30	1,431	1,437	3,542	12,032	8,822	27,263
	(STRIP OF 6 TAB)							
220040	ARTEMETHER 20MG+LUMEFANTRINE 120MG	30	1,319	1,455	3,585	-	-	6,358
	(STRIP OF 12 TAB)							
220041	ARTEMETHER 20MG+LUMEFANTRINE 120MG	30	1,350	1,581	3,498	-	-	6,429
	(STRIP OF 18 TAB)							
220042	ARTEMETHER 20MG+LUMEFANTRINE 120MG	30	4,725	4,026	9,950	21,980	23,421	64,101
	(STRIP OF 24 TAB)							
220034	AMOXICILLIN 250MG CAPSULE	1000	1,286	1,940	2,390	6,452	5,017	17,084
220035	AMOXICILLIN DISPERSABLE TABLETS 125MG	100	537	1,050	1,402	6,796	4,421	14,205
220070	AMOXICILLIN DISPERSABLE TABLETS 250MG	20	-	237	819	5,647	3,650	10,353
205068	CO-PACKAGED ORS AND ZINC TABLETS	1	2,383	5,313	7,709	39,107	42,301	96,812
220185	COTRIMOXAZOLE 480MG TABLET	1000	387	609	1,195	4,385	4,509	11,085
225048	MISOPROSTOL 200MCG TABLETS	100	135	84	112	485	268	1,084
220103	ARTESUNATE INJECTION 60MG VIAL	1	40,550	88,821	128,018	147,07	10,420	414,883
						5		
215380	OXYTOCIN 10IU/1ML INJECTION	100	198	142	199	401	-	940
304098	SAFETY BOX FOR SYRINGES & NEEDLE	25	76	98	60	-	-	233
	DISPOSAL							
250002	SAFE DELIVERY (MATERNITY) KIT	1	8,367	11,822	19,917	42,312	1,277	83,694
225103	LEVONORGESTREL 0.75 MG	2	504	1,153	1,983	2,413	2,554	8,606
225046	ETHINYLESTRADIOL 0.03+LEVONORGESTREL	3	909	1,523	2,800	6,120	6,803	18,154
	o.15MG TAB							
225121	ETONOGESTREL 150MG IMPLANT (IMPLANON)	1	616	1,186	1,949	-	-	3,750
205070	ORAL REHYDRATION SALTS FOR 1LT	25	110	304	250	-	-	664
220184	COTRIMOXAZOLE 120MG TABLETS	100	-	-	-	3,920	4,084	8,004
220181	ARTESUNATE SUPPOSITORIES 50MG	6	-	-	-	1,207	1,604	2,810
220182	ARTESUNATE SUPPOSITORIES 200MG	6	-	-	-	730	969	1,699
155360	MALARIA RAPID DIAGNOSTIC TEST KIT(RDT)	25	-	-	-	32,115	33,760	65,875
	WITH BLOOD LANCETS							
	*							

# J. Summary of clinical assumptions applied in the development of minimum recommendations

Description/DHIS2	Description	Indicator	Comments	Source
AMOXICILLIN 250MG CAPSULE	% of OPD	-100% of Pneumonia and SARI cases 20% of ENT, UTI and skin conditions		DHIS2 FY2014-15, Goverment HC II and HC III
AMOXICILLIN DISPERSABLE TABLETS 125MG	% of Under 5 pneumonia cases	-100% of Pneumonia and SARI cases - 20% of OPD ENT / Other ENT, Skin Diseases, Periodontal Diseases and UTIs	Assumed 10% of included case value would be treated by Amoxicillin Dispersible Tablets 125MG and 90% by A Amoxicillin Dispersible Tablets 250MG	DHIS2 FY2014-15, Government HC II and HC III
CIPROFLOXACIN 500MG TABLET	% of OPD	- 100% of Genital Ulcers -20% UTI, Dysentery, Typhoid fever		DHIS2 FY2014-15, Government HC II and HC III
COTRIMOXAZOLE 120MG TABLETS	% of under 5 OPD	20% ENT, UTI, Skin diseases, Dysentery, Typhoid fever		DHIS2 FY2014-15, Government HC II and HC III
COTRIMOXAZOLE 480MG TABLET	% of OPD	20% ENT, UTI, Skin diseases, Dysentery, Typhoid fever		DHIS2 FY2014-15, Government HC II and HC III
DOXYCYCLINE CAPSULES	% of OPD	- 100% PID and Urethral Discharge - 20% STIs		DHIS2 FY2014-15, Government HC II and HC III
METRONIDAZOLE 200MG	% of OPD	-100% of PID -20% GI, periodontal, urethral discharges, abortions		DHIS2 FY2014-15, Government HC II and HC III
PENICILLIN, PROCAINE 3MU+ BENZYL 1MU AMPOULE	% of OPD	- 100% of IPD pneumonia cases		
TETRACYCLINE 1% EYE OINTMENT	% of OPD	Live births (81% of all births in HC IIs are live nationally)     Ophtalmia neonatarum, other eye conditions	3% of OPD attendance in HC II are Ophtalmia neonatorum or Other Eye conditions Prophylactic treatment of all neonates soon after delivery	DHIS2 FY2014-15, Government HC II and HC III
MAGNESIUM SULPHATE 50% 5ML INJ	% deliveries	- Pre-eclampsia, eclampsia	Incidence of pre- eclampsia/eclampsia 6-8%, with higher incidence in African countries	Nakimuli et al. (2013)
ALBENDAZOLE 400MG TABLET	% of OPD	- 100% of Intestinal worms cases	8% of total OPD attendance in HC II are Intestinal Worms	DHIS2 FY2014-15, Government HC II and HC III
PROMETHAZINE HCL 25MG TABLET	% of OPD	- ~20% Skin Conditions		DHIS2 FY2014-15, Government HC II and HC III
ARTEMETHER 20MG+LUMEFANTRINE 120MG (strip of 24 tabs)	% of malaria OPD	- Malaria and Malaria in Pregnancy	- All malaria cases should receive ACTs, 46% of cases are >12 years (receiving 24 tabs) - ACTs can be used after the first trimester for malaria in pregnance (UCG 2012, pg. 42)	Table 2(b)_Uganda_NFM_Malaria CN_PR1 Approved 11 Oct 2014 revised 27 Oct 2014 UCG 2012
ARTEMETHER 20MG+LUMEFANTRINE 120MG (strip of 6 tabs)	% of malaria OPD	- Malaria and Malaria in Pregnancy	NMCP: 54% of cases will be treated with 6-packs. Of those, 28% will need 1x6, 13% will need 2x6 and 13% will need 3x6, so that needs to be adjusted for in the number of pills per case	Table 2(b)_Uganda_NFM_Malaria CN_PR1 Approved 11 Oct 2014 revised 27 Oct 2014 UCG 2012
ARTESUNATE SUPPOSITORIES 50MG	% of Severe malaria cases	- 100% of Severe Malaria cases	All Severe Malaria cases at HCII are expected to use Artesunate suppositories for pre-referral(Note from the DHIS2, 7% of the OPD cases are Severe malaria)	UCG 2012
ARTESUNATE SUPPOSITORIES 200MG	% of Severe malaria cases	- 100% of Severe Malaria cases	All Severe Malaria cases at HCII are expected to use Artesunate suppositories for pre-referral(Note from the DHIS2, 7% of the OPD cases are Severe malaria)	UCG 2012
PYRIMETHAMINE 25MG+SULFADOXINE 500MG TABLET	% of ANC visits	- 100% of ANC 1st visits	IPTP will consist of two doses of Sulfadoxine- Pyrimethamine (SP) given 4 weeks (one month) apart	NATIONAL MALARIA CONTROL POLICY - 2011 Signed (2)

			starting in the second trimester	
VITAMIN K1 (PHYTOMENADIONE) 10MG/ML INJ IM	% of births	- Live births (~81% of all births in HC IIs are live nationally)	Indicated for all live births, assuming 50% wastage	DHIS2 FY2014-15, Government HC II and HC III
LIDOCAINE HCL 2% INJECTION	% of OPD	- 100% of Injuries due to Animal Bites, Road Traffic Accidents, Gender Based Violence, Motorcycle	o.4% of total OPD attendance due to injuries	DHIS2 FY2014-15, Government HC II and HC III
CARBAMAZEPINE 200MG TABLET	% of mental OPD illnesses	- Epilepsy	75% of mental OPD cases due to epilepsy	DHIS2 FY2014-15, Government HC II and HC III
CO-PACKAGED ORS AND ZINC TABLETS	% of Diarrheoal cases	- Diarrhea	Do we need to split this for under and over 5?	
MISOPROSTOL 200MCG TABS	% of deliveries	Abortions/bleeding	Nationally 16% abortions/bleeding per births/HC II	DHIS2 FY2014-15, Government HC II and HC III
AMOXICILLIN DISPERSABLE TABLETS 250MG	% of Under 5 pneumonia cases	- 100% of Pneumonia and SARI cases -~20% of OPD ENT / Other ENT, Skin Diseases, Periodontal Diseases and UTIs	Assumed 10% of included case value would be treated by Amoxicillin DT 125MG and 90% by Amoxicillin DT 250MG	DHIS2 FY2014-15, Government HC II and HC III

# K. Summary of national caseload data utilized from DHIS2

K. Summary of national caseload data utilized from DHIS2
105-2.2a Deliveries in unit
105-1.3 OPD Diarrhoea-Acute
105-1.3 OPD Diarrhoea-Persistent
108-6 Diarrhoea - Acute
108-6 Diarrhoea - Persistent
Diarrhea - Acute - OPD
Diarrhea - Persistent - OPD
108-1 Admissions
105-1.3 OPD Malaria (Total)
Malaria - OPD
108-6 Malaria In Pregnancy
105-1.1 OPD New Attendance
105-1.1 OPD Re-Attendance
108-6 Malaria total
108-6 Dysentery
105-1.3 OPD Brucellosis (5-59 Years, Female)
105-1.3 OPD Dysentery
105-1.3 OPD Gastro-Intestinal Disorders (non-Infective) (5-59 Years, Female)
105-1.3 OPD Gastro-Intestinal Disorders (non-Infective) (5-59 Years, Male)
105-1.3 OPD Gastro-Intestinal Disorders (non-Infective) (60andAbove Years, Male)
105-1.3 OPD Gastro-Intestinal Disorders (non-Infective) (Female, 6oandAbove Years)
105-1.3 OPD Other ENT conditions (5-59 Years, Female)
105-1.3 OPD Other ENT conditions (5-59 Years, Male)
105-1.3 OPD Other ENT conditions (6oandAbove Years, Male)
105-1.3 OPD Other ENT conditions (Female, 6oandAbove Years)
105-1-3 OPD Other Sexually Transmitted Infections (5-59 Years, Female)
105-1.3 OPD Other Sexually Transmitted Infections (5-59 Years, Male)
105-1.3 OPD Other Sexually Transmitted Infections (Female, 6oandAbove Years)
105-1.3 OPD Typhoid Fever (5-59 Years, Female)
105-1.3 OPD Typhoid Fever (5-59 Years, Male)
105-1.3 OPD Urethral discharges (5-59 Years, Female)
105-1.3 OPD Urethral discharges (5-59 Years, Male)
105-1.3 OPD Urinary Tract Infections (UTI) (5-59 Years, Female)
105-1.3 OPD Urinary Tract Infections (UTI) (5-59 Years, Male)
105-1.3 OPD Urinary Tract Infections (UTI) (6oandAbove Years, Male)
105-1.3 OPD Urinary Tract Infections (UTI) (Female, 6oandAbove Years)
105-1.3 OPD Gastro-Intestinal Disorders (non-Infective) (29 Days-4 Years, Female)
105-1.3 OPD Gastro-Intestinal Disorders (non-Infective) (29 Days-4 Years, Male)
105-1.3 OPD Other ENT conditions (0-28 Days, Male)
105-1.3 OPD Other ENT conditions (29 Days-4 Years, Female)
105-1.3 OPD Other ENT conditions (29 Days-4 Years, Male)
105-1.3 OPD Other ENT conditions (Female, 0-28 Days)
105-1.3 OPD Other Sexually Transmitted Infections (29 Days-4 Years, Female)
105-1.3 OPD Other Sexually Transmitted Infections (29 Days-4 Years, Male)
105-1.3 OPD Typhoid Fever (29 Days-4 Years, Female)
105-1.3 OPD Typhoid Fever (29 Days-4 Years, Male)
105-1.3 OPD Urethral discharges (29 Days-4 Years, Female)

105-1.3 OPD Urinary Tract Infections (UTI) (0-28 Days, Male) 105-1.3 OPD Urinary Tract Infections (UTI) (29 Days-4 Years, Female) 105-1.3 OPD Urinary Tract Infections (UTI) (29 Days-4 Years, Male) 105-1.3 OPD Urinary Tract Infections (UTI) (Female, 0-28 Days) 105-1.3 OPD Urinary Tract Infections (UTI) (Female, 0-28 Days) 105-1.3 OPD Bipolar Disorders 105-1.3 OPD Bipolar Disorders 105-1.3 OPD Childhood Mental Disorders 105-1.3 OPD Dementia 105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Epilepsy 105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Hypertension 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Penumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	
105-1.3 OPD Urinary Tract Infections (UTI) (29 Days-4 Years, Male) 105-1.3 OPD Urinary Tract Infections (UTI) (Female, 0-28 Days) 105-1.3 OPD Anxiety Disorders 105-1.3 OPD Bipolar Disorders 105-1.3 OPD Childhood Mental Disorders 105-1.3 OPD Dementia 105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Epilepsy 105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis 0-7days	105-1.3 OPD Urinary Tract Infections (UTI) (0-28 Days, Male)
105-1.3 OPD Urinary Tract Infections (UTI) (Female, o-28 Days) 105-1.3 OPD Anxiety Disorders 105-1.3 OPD Bipolar Disorders 105-1.3 OPD Childhood Mental Disorders 105-1.3 OPD Dementia 105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Hypertension 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (o-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Urinary Tract Infections (UTI) (29 Days-4 Years, Female)
105-1.3 OPD Anxiety Disorders 105-1.3 OPD Bipolar Disorders 105-1.3 OPD Childhood Mental Disorders 105-1.3 OPD Dementia 105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Urinary Tract Infections (UTI) (29 Days-4 Years, Male)
105-1.3 OPD Bipolar Disorders 105-1.3 OPD Childhood Mental Disorders 105-1.3 OPD Dementia 105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Epilepsy 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Urinary Tract Infections (UTI) (Female, 0-28 Days)
105-1.3 OPD Childhood Mental Disorders 105-1.3 OPD Dementia 105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Anxiety Disorders
105-1.3 OPD Dementia 105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (o-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Bipolar Disorders
105-1.3 OPD Depression 105-1.3 OPD Epilepsy 105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Childhood Mental Disorders
105-1.3 OPD Epilepsy 105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (o-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Dementia
105-1.3 OPD Other Mental Health Conditions 105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis o-7days	105-1.3 OPD Depression
105-1.3 OPD Hypertension 105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis 0-7days	105-1.3 OPD Epilepsy
105-1.3 OPD Neonatal Sepsis (0-7days) 105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis 0-7days	105-1.3 OPD Other Mental Health Conditions
105-1.3 OPD Neonatal Sepsis (8-28days) 105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis 0-7days	105-1.3 OPD Hypertension
105-1.3 OPD Pneumonia 105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis 0-7days	105-1.3 OPD Neonatal Sepsis (0-7days)
105-1.3 OPD Severe Acute Respiratory Infection (SARI) 108-6 Neonatal Sepsis 0-7days	105-1.3 OPD Neonatal Sepsis (8-28days)
108-6 Neonatal Sepsis 0-7days	105-1.3 OPD Pneumonia
	105-1.3 OPD Severe Acute Respiratory Infection (SARI)
108-6 Pneumonia	108-6 Neonatal Sepsis 0-7days
	108-6 Pneumonia

# L. Detailed breakdown of financial year forecasts by product category

# **Laboratory Forecast**

Laboratory Forecast										
	Public Sector Requirements									
	FY2016/2017	7	FY2	017/2018	FY2016/2017					
Product Category	Category National Need		National Need	Public Sector (64%)	GF-Allocation of Funds					
HIV TEST KITS	21,215,467	13,153,589	22,670,242	14,508,955	5,873,795.0					
CD4	6,317,273	4,043,055	4,587,711	2,936,135	974,976.8					
HEMATOLOGY	9,375,288	6,000,185	9,169,482	5,868,468	826,555.7					
CHEMISTRY	7,275,163	4,656,104	7,557,827	4,837,009.41	1,159,926.1					
VIRAL LOAD	22,037,662	2,203,766	28,159,418	2,815,942	702,999.8					
EID	4,835,152	1,740,655	4,874,027	1,754,650	627,003.2					
OIs	3,124,623	1,124,864	4,874,027	1,237,351	434,743.4					
TOTAL	74,180,629	32,922,218	81,892,734	33,958,510	10,600,000.00					

Source: QPPU-MoH (October 2016)

#### **ARVs**

Gap Analysis for ARVs									
	FY 2016-2017	July 2017-Dec 2017	Summary Jul 2016 Dec 2017						
Public Sector forecast	121,325,510	72,211,339	193,536,848						
Stock value (SOH + Pipeline)*	37,774,773		37,774,773						
Public Sector Need	83,550,736	72,211,339	155,762,075						
GoU contribution	28,486,924	14,243,462	42,730,386						
PEPFAR contribution 1	8,633,814	-	8,633,814						

Gap Analysis for ARVs							
	FY 2016-2017	July 2017-Dec 2017	Summary Jul 2016 Dec 2017				
PEPFAR contribution 2	11,000,000						
Funding gap	35,429,999	57,967,877	104,397,875				
GF Allocation	43,862,128.38	26,023,979	26,023,979				
Funding gap	35,429,999	31,943,897	78,373,896				

Source: QPPU-MoH (October 2016)

**ACTs**Funding Gap with Scope and Scale Revised Programmatic and Financial Gap Analysis

		2016				2017	Unfunded	
Categ ory	Sector	Financial Need	Partner commitm ents	Gap within scope & scale	Need	Commit ted	Gap within scope & scale	Gap outside scope and scale to be met by other partners
	Public	25,472,694	23,293,513	2,179,181	\$16,532,835	3,983,671	12,549,164	
ACTs	Communit y	1,219,777	1,160,388	59,389	2,161,289	1,096,774	1,064,516	
	Private	14,158,060	14,158,060	-	\$12,852,765	8,423,495		4,429,270
	Public	10,649,044	10,056,623	592,420	9,698,734	1,454,810	8,243,924	
D.D	Communit y	1,338,737	1,345,733	(6,996)	2,122,835	1,077,260	1,045,576	
mRD Ts	Safety boxes and Gloves	462,205	266,355	195,850	651,125	330,422	320,703	
	Private	1,575,716	-		1,588,188	-		3,163,904
Artes	Public	11,127,182	12,178,541	(1,051,360)	9,284,233	2,321,058	6,963,175	
unate inject ion	Deizarta							2240.064
vials	Private Mass	1,634,908	-		1,705,156	-		3,340,064
LLIN	Campaign	96,994,741	85,866,842	11,127,899				
S	Routine	10,448,658	10,920,120	(471,462)	\$10,940,879	6,796,519	4,144,360	
IRS	Need	10,087,294	4,570,646	5,516,648				

Source: QPPU-MoH (October 2016)

Funding Gap with Scope and Scale Revised Programmatic and Financial Gap Analysis FY2016-17

Category	Sector	Financial Need (USD)	Partner commitments (USD)	Gap within scope & scale(USD)
			FY2016-17	
	Public	21,002,765	13,638,592	7,364,173
ACTs	Community	1,690,533	1,128,581	561,952
	Private	13,505,412	11,290,777	-
	Public	10,173,889	5,755,717	4,418,172
	Community	1,730,786	1,211,496	519,290
mRDTs	Safety boxes and Gloves	556,665	298,389	258,276
	Private	1,581,952	-	-
Artesunate	Public	10,205,707	7,249,800	2,955,908
injection vials	Private	1,670,032	-	-
LLINs	Mass Campaign	48,497,370	42,933,421	5,563,949
LLIINS	Routine	10,694,769	8,858,320	1,836,449
IRS	Need	5,043,647	2,285,323	2,758,324

Source: QPPU-MoH (October 2016)

#### Immunisation (Public Sector) for FY2016-17

Description	Forecast Period-FY2016-17	Forecast Value (USD)	Total Annual Forecast (USD)	
Syringes	Annual	183,513.86	183,513.86	
Vaccines	Quarter one	460,910.35	3,337,892.52	
	Quarter two	1,093,514.35		
	Quarter three	882,528.35		
	Quarter four	900,939.47		
LPG	Annual	545,765.78	545,765.78	
Total	Annual		4,067,172.16	

#### Anti-TB (Public Sector) FY2016-17

Category	Forecast Value (USD)
FLD supply plan	7,530,615.22
SLD Supply plan	595,012.12
Lab items	
Lab reagents	
cost of products	8125627.348
Total cost of procurements(ipsm inclusive)	9,984,770.89

Source: QPPU-MoH (October 2016)

#### **Reproductive Health**

Summary Costs of Commodity Forecast (public sector)

Summary Costs	2016 (USD)	2017 (USD)	2018 (USD)	2019 (USD)
Contraceptives - public sector	1,965,808	2,070,971	2,107,536	2,080,351
Contraceptives - PNFP sector	2,826,353	3,157,447	3,562,816	4,075,092
Contraceptives total	4,792,160	5,228,418	5,670,352	6,155,444
Condoms (male and female)	7,452,313	12,188,628	16,033,511	22,725,293
Maternal Health Products**	9,534,397	9,771,762	10,003,767	10,241,007
Child Health	684,075	1,112,990	1,198,043	1,283,097
Newborn Products	402,106	411,299	419,698	428,229
Resuscitation Devices	709,668			
TOTAL	23,574,720	28,713,097	33,325,371	40,833,069

Source: Uganda RMNCAH quantification technical report July 2016

Summary Costs of Commodity Forecast (public sector)

RH Public sector	FY 2016/2017	
contraceptives public sector	\$2,018,390	
condoms(female and Male)	\$15,914,785	
Mama Kits	\$6,797,257	
cost in USD	\$24,730,431	
Cost in UGX	UGX84,329,038,698	
Annual forecast FY 2016/2017 (UGX)	UGX84,329,038,698	

Source: Uganda RMNCAH quantification technical report July 2016

<sup>\*\*</sup> Table for Summary costs below only considered Mama Kits from this category