



**THE REPUBLIC OF UGANDA**

## **ASSESSMENT OF THE ESSENTIAL MEDICINES KIT-BASED SUPPLY SYSTEM IN UGANDA**



**Produced by:  
The Division of Pharmacy Services, Ministry of Health, Government of Uganda.  
December 2011**



## **ACKNOWLEDGEMENTS**

This report was made possible by the generous support of the American people through the U.S. Agency for International Development (USAID) under the terms of cooperative agreement number AID-617-A-00-09-00003-00. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

The authors express special thanks to the SURE program for their support, contribution in data collection, data analysis, and preparation of this report. We would like to specifically acknowledge Dr. Birna Trap (SURE Program) and Rebecca Copeland (USAID) for their valuable inputs to the report, and Ms. Dorthe Konradsen (SURE Program), the key surveyor, for arranging the data collection, analyzing the data, and writing the report.

Lastly, we would like to thank all the data collectors for their hard work in collecting the valuable data.

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## **RECOMMENDED CITATION**

This report may be referenced if credit is given to the Ministry of Health. Please use the following citation:

*Ministry of Health-Government of Uganda, 2011, Assessment of the medicines kit-based supply system in Uganda.*

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## ACRONYMS AND ABBREVIATIONS

ACT	Artemisinin-based combination therapy
AL	Artemether-lumefantrine
AMC	Average monthly consumption
Depo Provera	Medroxyprogesterone injection
emergency contraceptive	Levonorgestrel 750 µg tablets
EMHS	Essential medicines and health supplies
EMHSLU	Essential Medicine and Health Supplies List for Uganda
FP	Family planning
HC	Health centre
HC II kit	Kit delivered to HC II
HC III kit	Kit delivered to HC III
HMIS	Health Management Information System
kit 1	First version of the kit, refers to both HC II and HC III kits
kit 2	Second version of the kit, refers to both HC II and HC III kits
kit 3	Third version of the kit, refers to both HC II and HC III kits
LOC	Level of care
Microgynon	Ethinylestradiol–levonorgestrel 0.03–0.15 mg tablets
MOH	Ministry of Health
MOS	Months of stock
MSH	Management Sciences for Health
NMS	National Medical Stores
OPD	Outpatient Department
SURE	Securing Ugandans' Right to Essential Medicines
UGX	Uganda Shillings
UNEPI	Uganda National Expanded Programme on Immunisation
USAID	US Agency for International Development
USD	US Dollars
VEN	Vital, Essential, and Necessary items divided in groups based on health impact

## **EXECUTIVE SUMMARY**

This assessment was carried out by Ugandan Ministry of Health in collaboration with the Securing Ugandans' Right to Essential Medicines (SURE) Program. The data was collected from 35 facilities between 25<sup>th</sup> October and 6<sup>th</sup> November 2011, two months after introduction of the third version of the kit. The purpose of the survey was to assess demand for and use of medicine and health supplies at health facilities based on the demand for clinic-based services. Recommendations for kit content and quantity revisions are made to improve service at primary healthcare facilities by increasing availability of essential medicine and health supplies (EMHS).

This assessment found that the recent increase in essential medicines and health supplies (EMHS) funding has had a positive impact on the overall availability of EMHS in health centre 2 (HC II) and health centre 3 (HC III) facilities. Further, the incidence and duration of EMHS stock outs have been substantially reduced now that the central level uses a push (i.e. kit) system to determine the items and quantities that should be available at lower level facilities.

The use of the kit system provides a potential opportunity to maximize health impact in a limited resource setting. By determining kit contents with the newly introduced Vital, Essential, and Necessary (VEN) classification, the kit system can ensure delivery of Vital EMHS to lower levels, which are critical to prevent and treat major health conditions and to achieve national health goals. Simply delivering or improving EMHS supply does not optimize impact; effective coverage requires both supply and demand. For example, there is significant unmet need for family planning commodities as identified in Uganda's Demographic and Health Survey. However, a large proportion of HC III facilities did not use any of the contraceptives or other Vital reproductive health items in the two month period following kit delivery.

Data from the assessment shows that the kit system has introduced new problems. The content of the kit delivered sometimes differed from the standardized list both in terms of items and quantities. Half of the kit items exceeded a three month supply resulting in accumulating overstocks; one item in the HC III kit are provided to facilities in which a two-month delivery is equivalent to a one year supply. Districts have to redistribute overstocked items to other facilities, which is timely and requires transportation costs.

Further, the kit system poorly addresses demand. The volumes of some items were inadequate to meet demand and unrelated to the health facility patient load or catchment population. About 15% of items are not supplied in adequate quantities, such as two of the six tracer medicines: cotrimoxazole 480mg, which despite two kit revisions continues to be stocked out 12-13 days per month; and artemether and lumefantrine (AL) tablets with an average of 17 stock out days per month.

Quantities of the oversupplied items could be reduced and the money redirected to buying and delivering more undersupplied items and new Vital EMHS from the 2012 Essential Medicines and Health Supplies List for Uganda (EMHSLU). Between 35-39% of the items are supplied in appropriate quantities and need no adjustment at this time. Annexes 3 and 4 contain the entire list of kits contents, the average months of stock delivered in each kit, and

recommendations for adjustments to quantities. Annex 5 lists the Vital EMHS not yet included in the kits.

It is clear from this assessment that changes in kit contents over time (i.e. the second and third revisions of the kit contents) have not resulted in any notable improvements in the EMHS supplies at facilities, even though funding for kit 3 is substantially higher than kit 1. Decisions about kit contents need to be based on health priorities and data on medicine and health supplies availability, which are collected through surveys such as this one.

## BACKGROUND AND OBJECTIVES OF THE KIT SYSTEM

The Ministry of Health (MOH) re-introduced a kit system to primary healthcare facilities (HC IIs and HC IIIs) in June 2010; the system was previously implemented from 1985 to 2002. It was reintroduced to increase essential medicines and health supplies (EMHS) availability in primary health facilities by reducing stock outs.

The Ugandan kit system is a push system in which the central level (MOH) determines the content and quantities of EMHS. These are then sent (“pushed”) out to each health facility every two months with a standard set of medicines and supplies.

One advantage with a kit system is that the kit system requires no quantification skills in facilities; ordering is not required and minimum availability of prioritized items is theoretically ensured by the central level. Automation addresses potential errors from poor stock management and inappropriate and late facility orders, which led to frequent stock outs of EMHS in primary health facilities. However, the kit system does increase the risk of under- or oversupply and potential waste of EMHS. Table 1 provides a comprehensive list of kit systems’ advantages and disadvantages.

The National Medical Stores (NMS) also benefits from the kit system; it no longer has to process individual orders for 2,455 health facilities<sup>1</sup> (all public HC IIs and HC IIIs), which saves time in the picking and packing process. As a result, deliveries are more predictable and timely. Quantification of annual product requirements is facilitated by the kit system, which predetermines quantities of selected items for the majority of facilities.

**Table 1: Advantages and disadvantages of the kit system**

<i>Advantages of Kit System</i>	<i>Disadvantages of Kit System</i>
<ul style="list-style-type: none"> <li>No requirement for quantification capacity in health facility since ordering is not required</li> </ul>	<ul style="list-style-type: none"> <li>No flexibility in EMHS assortment and quantity with risk of under- or oversupply</li> </ul>
<ul style="list-style-type: none"> <li>Ensure minimum availability of prioritised EMHS in health facilities</li> </ul>	<ul style="list-style-type: none"> <li>Need for redistribution of oversupplied EMHS to avoid expiry</li> </ul>
<ul style="list-style-type: none"> <li>Possibly improve compliance with clinical guidelines, no inappropriate items being available to facility staff</li> </ul>	<ul style="list-style-type: none"> <li>No incentive for maintaining up to date stock cards and consumption-related records in health facilities</li> </ul>
<ul style="list-style-type: none"> <li>No order processing necessary, and the packing process is simplified</li> </ul>	
<ul style="list-style-type: none"> <li>Easier quantification centrally, since all HC II and HC III receive the same items and quantities</li> </ul>	

The first assessment of the kit system (“Assessment of the Essential Medicines Kit-Based Supply System in Uganda – May 2010”) found that overall, the kit system increased availability of EMHS in primary health facilities and decreased the number of items stocked out and duration of stock out days (compared to pre-kit situation). Availability is defined as the days per month an item is available (i.e. the days without stock outs). The improvement in

<sup>1</sup> According to the District Health Information System (DHIS) 2 data.

EMHS availability may also have been due to the 38% increase in the funding allocated to facilities for EMHS, making it possible to better meet the requirements of the health facilities.

Three out of four health facility staff preferred the kit system to the previous order-based system. However, the assessment also showed that 47% of health supplies and 23% of medicines were severely oversupplied (defined as over five months worth of stock delivered every two months). Also, stock outs of some priority medicines declined but persisted. The extreme oversupply of several items could potentially lead to expiry of EMHS worth USD \$1.5 million unless redistributed; the limited storage space in primary health facilities was also overburdened with the excess supplies.

The MOH with the NMS revise kit contents and quantities every six months to adjust to the requirements of health facilities. The kit has been revised three times since it was introduced; the three versions of the kit are referred to as kit 1, 2, and 3 in this report. Kit assessments are scheduled to take place before each revision to provide data for decision-making.

## **KIT ASSESSMENT OBJECTIVES**

It is impossible to create a perfect kit which meets anticipated demands and addresses all patient health problems; demand for EMHS varies across health facilities according to patient loads, disease patterns, and seasonality of diseases such as malaria. However, kits can be adjusted to meet the demands of the general public through careful assessment and review of current demands. Well-selected kits can increase availability of required items thereby reducing waste of expired items, and improving value for money. Further revision of kit composition and quantities can be made based on facility consumption data.

The overall objective of this study was to assess the appropriateness of kit contents and quantities in meeting facility patient needs. Appropriateness was defined as being useful to treat patients at the facility - at least one unit of all items must be issued during the assessment period – and that no facility should receive more than two months of stock of any item based on the facility's recent consumption history. The optimal finding would be that no kit item is out of stock<sup>2</sup> in any of the 2,455 facilities throughout the assessment periods: three months before and after kit 1 and two months after kit 2 and 3.

Vital, essential, and necessary (VEN) classification is a method to group medicines and health supplies according to health impact. The method is used to prioritize items when funding does not allow procurement or ordering of all desired items. The items are divided so that Vital items have first priority because they are lifesaving or critical for achieving targeted health outcomes; being without these items could mean the death of a patient or irreparable injury. Essential items have second priority; if these items are not available, the patient could suffer pain or great discomfort. Necessary items are needed but will not alter the outcome of a life and thus take third priority.<sup>3</sup> VEN classification of the kit items is used in this assessment to inform decision makers on which items should be included in the kit to obtain the largest health impact with the available funds.

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<sup>2</sup> Stock out was defined as zero units of a product in the facility store only; units might have been available elsewhere in the facility such as dispensing area but only availability in store was considered

<sup>3</sup> *Essential Medicine and Health Supplies List for Uganda 2012*. Uganda, Ministry of Health, 2012.

Other areas covered by the assessment are staff views on the kit system; stock management capacity of facility staff, which was a reason for introduction of the kit; timeliness and frequency of NMS deliveries; consistency of kit contents in each delivery cycle; EMHS funding per patient; and whether or not the kit affected facility prescribing practices.

## **METHODOLOGY**

The first kit assessment report investigated changes to the availability of EMHS from introducing the kit, whereas this report focuses on changes in EMHS availability as a result of kit revisions.

### **SAMPLING**

This survey re-visited the facilities surveyed in the first kit assessment to compare the pre-kit period to three different revision periods. Districts were randomly sampled according to NMS delivery zones and population. Delivery zones were used to representatively capture facilities throughout the country and ensure that differences in kit content and quantities were not specific to districts or facilities in different delivery zone. Districts located within each NMS delivery zone (ranging from four to 44 districts per delivery zone) were then stratified according to population: a district with high and low populations was randomly selected from each delivery zone. In the central zone (containing only four districts), only one district was randomly selected. See sampled districts in the figure below.

Two public HC II and HC III were randomly selected in each of the districts (the kit system is available only to the public sector). As mentioned, this survey re-visited all facilities sampled in the first assessment with the exception of one facility that was inaccessible on the day of the survey. Instead, a different facility at same healthcare level was visited (Bumulisha HC III instead of Buhugu HC III). One HC II was upgraded to HC III since last visit (Kalait HC II to Atangi HC III), thereby changing the ratio between HC II and HC III. A total of 35 facilities were included in the survey – 16 HC II and 19 HC III. Annex 1 lists all the facilities visited.



## **DATA COLLECTION, TOOL, AND ENTRY**

Data were collected and entered into an Adobe PDF, indicator-based data collection tool between 24<sup>th</sup> October and 7<sup>th</sup> November 2011. The indicator-based tool was developed for the first kit assessment and tested in one health facility before use. It captures data needed to address specific objectives (see the full tool in Annex 2), requiring that stock card data for all kit items be entered. Originally, there were three different tools for the district, HC II, and HC III, but these tools were condensed into one tool for both HC II and HC III. Data from the district is no longer collected; this information was mainly used to understand district opinions about the kit system.

Data were collected through in-depth interviews with healthcare workers and document reviews using Health Management Information System (HMIS) monthly reports, out-patient department (OPD) books, delivery notes from NMS, and stock cards. Calculations and assumptions made will be described where necessary in the “Results and Discussion” section.

Data were exported from Adobe PDF to Microsoft Excel 2007 where further analysis was performed. Data cleaning and validation were performed centrally and were based on experience from the first kit assessment.

## **RESULTS AND DISCUSSIONS**

This section compares the present findings with the findings from the first assessment. It analyzes whether or not revisions to the kit content and quantities have improved kit appropriateness and healthcare quality in HC II and HC III. Quality is defined as availability of medicine for treatment of diagnosed conditions.

For the assessments, medicines were defined as items with an active ingredient and included all tablets, injections, creams, and ointments. Health supplies were defined as all other items including medical supplies, stock management items, and cleaning products. Contraceptives and chlorhexidine are medicines, while condoms, hypochlorite (JIK), and stock cards are health supplies. The assessment periods were three months prior to and after kit 1 and two months after kit 2 and 3.

### **ANALYSIS OF THE DIFFERENCES IN KIT VERSION 1, 2, AND 3**

There have been three versions of the HC II and HC III kit since the introduction of the kit system in June 2010. These versions are referred to in this report as kit 1, 2, and 3. The kits contain medicines and health supplies, and the content and quantities are revised every six months. The table below shows the characteristics of the different kits.

**Table 2: Kit value and number of items since introduction in June 2010**

	Kit 1		Kit 2		Kit 3	
	HC 2	HC 3	HC 2	HC 3	HC 2	HC 3
In Use (Dates)	Jun-Dec 2010		Jan-Jun 2011		Jul-Dec 2011	
Value (UGX)	1,073,200	1,896,572	890,000	1,785,300	1,136,300	2,992,250
# Medicines	34	73	37	69	36	68
# Health Supplies	22	42	15	24	17	26
# Total Items	56	115	52	93	53	94
% Vital Items*	59	59	58	51	56	52
% Items Appropriate for Healthcare Level*	82	78	77	81	75	80

\*According to 2012 EMHSLU

The total number of items in the kits decreased from 56 to 53 items for HC II and from 115 to 94 items for HC III; the most notable change was the reduction of health supplies in the HC III kit (from 42 to 26 items). The number of medicines in HC II kits increased slightly but decreased in HC III kits between the first and third kit versions.

There has been a general increase in total value of the kits with a 6% increase from kit 1 to kit 3 for HC II and a 58% increase between kit 1 and kit 3 for HC III. The reason for the decrease in the value of kit 2 is not known.

The increased values of kit 3 have not translated into an increase in the percentage of vital<sup>4</sup> items (see more about VEN classification in section 5.4) or the percentage of items deemed appropriate for these healthcare levels. Only slightly more than half of the kit items for HC II and HC III are Vital, and 20% and 25% of the items in the kit are inappropriate for HC III and HC II level, respectively.

Prior to the kit system, the central level had control over items ordered by facilities, but did not have control over the quantities that would be ordered by the individual facility. However, the order form also had a provision for the facility to order additional items resulting in some facilities managing and dispensing items inappropriate for their level of care. With the introduction of the kit, it is possible for central level to assume control in a positive way over what EMHS are available at primary health care levels.

## PRODUCT AVAILABILITY

Reducing frequent stock outs of EMHS was one of the main reasons for introducing the kit system. The two kit surveys evaluated the availability of all items (according to stock cards) included in the kit during the assessment periods.

<sup>4</sup> According to the VEN classification in EMHSLU 2012, which identifies items as vital (life-saving items), essential, and necessary according to their health impact.

Table 3 shows that the kit system has improved product availability (by reducing stock out days), but only 15% of the 67 medicines were available in all facilities for the entire two month period, far below the 100% ideal. Twenty-seven percent of health supplies in HC II were continuously available, but only 9% were available in HC IIIs. The kit revisions have improved the availability of medicines in HC IIs but for HC III, the revisions have made minimal improvements to medicine availability and actually reduced the availability of health supplies.

**Table 3: Percent of kit items that are continuously available in all surveyed facilities throughout the two or three months assessment period after delivery of the kit**

% Full Availability	HC II				HC III			
	Before	Kit 1	Kit 2	Kit 3	Before	Kit 1	Kit 2	Kit 3
Medicines	5%	10%	11%	17%	1%	12%	15%	15%
Supplies	6%	28%	13%	27%	0%	31%	9%	9%

Table 4 shows the kits' effect on the average number of EMHS stock out days per month, which are based on stock out days recorded on stock cards during the assessment periods. The kit had a similar positive and substantial effect for medicines and health supplies, reducing stock out days by 69%. For medicines, the average number of stock out days were reduced from 19-20 days to 6-7 days per month, and stock out days for health supplies decreased from 18-21 days to 4-6 days. Except for HC II medicines, the kit revisions did not further reduce the overall stock out days. This is surprising especially as the value of HC III kit 3 is 58% higher than kit 1. This important finding is discussed in greater detail below.

**Table 4: Average number of stock out days per month for all kit items**

Stock Out Days	HC II				HC III			
	Before	Kit 1	Kit 2	Kit 3	Before	Kit 1	Kit 2	Kit 3
Medicines	20	14	8	7	19	5	6	6
Supplies	18	5	7	4	21	4	7	6

The number of stock out days for each item varied greatly across facilities. The same item could be available throughout the assessment period in one facility and stocked out throughout the period in another facility because of different patient loads and needs.

The MOH uses six tracer medicines to measure availability of priority healthcare medicines and supplies. Only five of the tracer medicines are included in the kit; measles vaccine is not delivered as part of the kit. Table 5 shows that the kit substantially reduced stock out days per month for four of the five tracer medicines included in the kits: the only exception was cotrimoxazole 480mg, which stocked out 12-13 days per month in both HC II and HC III despite two revisions. The revisions have eliminated stock outs of Depo Provera and sulfadoxine and pyrimethamine (SP). Depo Provera was not initially included in the HC II kit, explaining the NA in the table. Depo Provera was, however, later added to the HC II kit, but

deliveries were inconsistent. Progress made in reducing stock out days of artemether and lumefantrine (AL) tablets from 17 days to four days with kit 1 have been negated in subsequent kit revisions.

**Table 5: Average stock out days per month for tracer medicines.**

Item	HC II				HC III			
	Before	Kit 1	Kit 2	Kit 3	Before	Kit 1	Kit 2	Kit 3
Cotrimoxazole 480mg tabs	11	10	16	13	11	11	10	12
Depo Provera	NA	NA	NA	NA	19	0	0	0
SP 500+25mg tabs	22	3	0	0	19	4	1	0
ORS	16	2	2	1	13	2	3	3
ACT (AL) (lowest weight band)	17	4	14	17	17	7	1	17

The table below compares average stock out days during the pre-kit and kits 1, 2, and 3 periods for other selected items. The findings illustrate that stock out days per month vary across items and changed as a result of kit revisions. There have been some reductions, such as for quinine and ferrous sulphate and folic acid, but there is little if any change in the availability of the three antibiotics, all of which are classified as Vital in the 2012 Essential Medicines and Health Supplies List for Uganda (EMHSLU).

**Table 6: Average stock out days per month for selected items**

Item	HC II				HC III			
	Before	Kit 1	Kit 2	Kit 3	Before	Kit 1	Kit 2	Kit 3
Amoxicillin	20	14	20	16	17	13	13	12
Ciprofloxacin	NA	NA	NA	NA	23	14	15	15
Ferrous Sulphate and Folic Acid	20	2	3	2	12	7	5	10
Metronidazole	13	7	14	12	17	14	17	14
Quinine tablets	NA	NA	NA	NA	20	9	16	9
Tetracycline	12	4	5	1	12	4	8	7
Vitamin B	28	8	11	16	28	15	15	26
Mama kit	NA	NA	NA	NA	26	5	19	13
RDT	NA	NA	10	0	NA	NA	23	5
Syringe 5mL	17	11	8	3	14	9	9	7
Dispensing envelopes	19	8	23	12	19	7	18	9
Set infusion pediatric	NA	NA	NA	NA	20	0	10	8
Stock cards	NA	NA	8	10	15	1	16	20

## SUPPLY QUANTITIES

The increase in the kit value has not translated into increased overall availability of items. Much of the total funding per kit could be allocated towards increasing oversupplied items. The figures below tabulate the percentage of items in different supply groups.

Two months of stock (2.0-2.9 months) of an item is considered an “adequate” supply as it allows NMS to keep its established delivery schedule with deliveries every two month. Less than two months of stock is considered “undersupply”, and more than two months of stock is considered “oversupply” (more than 3.0 months per delivery). Oversupply is further subdivided into “severe oversupply” (5.0 to 12.0 months) and “extreme oversupply” (more than 12 months).

Months of stock (MOS) delivered are calculated by dividing the quantity of the item delivered by the facility’s average monthly consumption (AMC) of the item. AMC is the total number of units recorded as issued from the store divided by the days the item was available in the assessment period. Since quantities delivered varies across cycles and between facilities, the quantities delivered according to the written (official) MOH kit supply plan were used for calculations.

The latest version (kit 3) of the HC II kit increased the percentage of adequately supplied health supplies, but the number of items that were undersupplied increased for both medicines and health supplies. In total, almost half of the medicines and a third of the health supplies were oversupplied, and 3% of medicines are in extreme oversupplied. The 3% includes only mebendazole 100mg tablets with 15 months of stock delivered every two months.

**Table 7: Adequacy of supply of HC II items (under, adequate, oversupply)**

Supply Groups (% Items)	MEDICINE			HEALTH SUPPLIES		
	KIT 1	KIT 2	KIT 3	KIT 1	KIT 2	KIT 3
< 2 months	19	23	38	15	7	33
2.0-2.9 months	39	19	16	8	21	33
3.0-4.9 months	29	32	31	38	36	33
5.0-12.9 months	10	19	13	31	36	0
> 12 months	3	6	3	8	0	0

The table below summarizes delivered quantities to HC II in adequate, over, and undersupply. It clearly shows that there is a decline in adequately delivered medicines but an increase in percentage of adequately delivered health supplies.

**Table 8: Summary of adequate and over/undersupply of medicines and health supplies in HC II**

Supply Groups (% Items)	MEDICINE			HEALTH SUPPLIES		
	KIT 1	KIT 2	KIT 3	KIT 1	KIT 2	KIT 3
Adequate Supply	39	19	16	8	21	33
Over- and Undersupply	61	80	85	92	79	66

As revisions were made, adequate delivery of the HC III kit items declined (table 9), though there has been an increase in undersupplied health supplies from 0% for kit 1 to 26% for kit 3. However, 44% of medicines and 61% of health supplies were oversupplied, and the percentage of extreme oversupplied items has remained the same for health supplies.

**Table 9: Adequacy of supply of HC III items (under, adequate, oversupply)**

Supply Groups (% Items)	MEDICINE			HEALTH SUPPLIES		
	KIT 1	KIT 2	KIT 3	KIT 1	KIT 2	KIT 3
< 2 months	21	43	38	0	27	26
2.0-2.9 months	21	23	19	26	14	13
3.0-4.9 months	29	18	32	22	23	30
5.0-12.9 months	21	15	10	43	27	22
> 12 months	8	2	2	9	9	9

The different supply groups have been summarized in the table below. In HC III, there is a decline in the percentage of adequately supplied medicines and health supplies.

**Table 10: Summary of adequate and over/undersupply of medicines and health supplies in HC III**

Supply Groups (% Items)	MEDICINE			HEALTH SUPPLIES		
	KIT 1	KIT 2	KIT 3	KIT 1	KIT 2	KIT 3
Adequate Supply	21	23	19	26	14	13
Over- and Undersupply	79	78	82	74	86	87

It is crucial to revise the composition of the kit to maximize use of available EMHS funds. It is concerning that despite an increase of funding, a large percentage of both medicines and health supplies were under- or oversupplied, and the percentage is increasing even after kit revisions. Using Annex 3 and Annex 4 will help guide future kit revisions to deliver the right quantities.

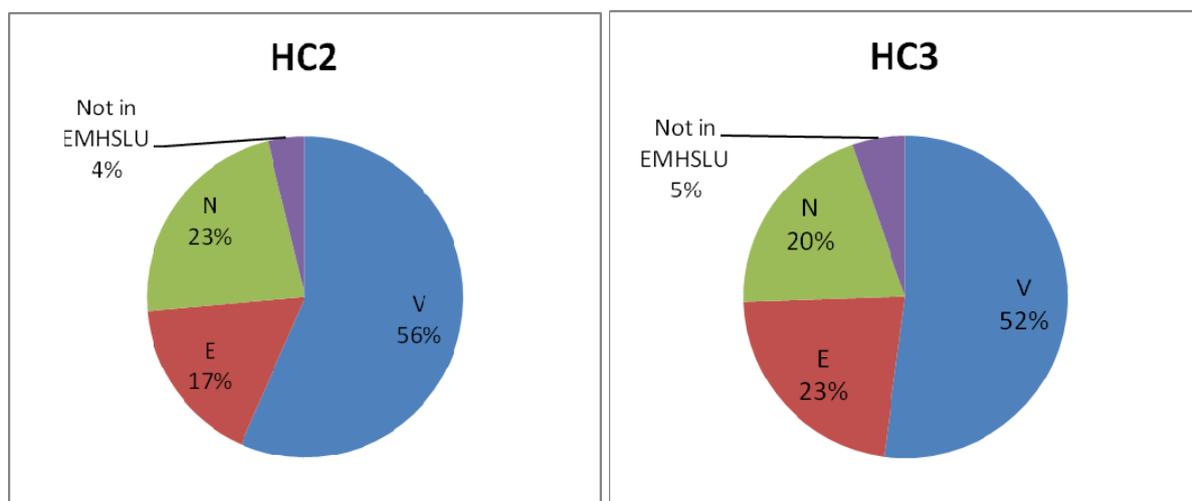
## VEN CLASSIFICATION AND LEVEL OF CARE ANALYSIS OF KIT ITEMS

The Essential Medicine and Health Supplies List for Uganda (EMHSLU) 2012 includes VEN classification of all medical items. The VEN classification is a method to prioritize medicine and health supplies according to potential health impact by assigning items as Vital, Essential, or Necessary. Vital items are potentially lifesaving and have major public health importance. Essential items are used against less severe illness but nevertheless significant conditions. Necessary items are used for minor or self-limited illnesses or are of high cost for marginal therapeutic effect. The VEN classification is used to provide guidance for procurement of medicines and supplies when funding is not enough to procure all items. It is expected that Vital medicines and supplies would have priority over Essential and Necessary items.

The VEN classification of medicine and health supplies is not yet implemented in Uganda; however, this section is included to guide revision of the kit content. To provide the best healthcare, Vital items must be available at all times, while Necessary items could be excluded from the kit.

Figure 2 shows that Vital items account for slightly more than half the total items in both kits with equal parts of Essential and Necessary items; 5% are not on the EMHSLU and will therefore no longer be provided. Reducing the proportion of Essential and Necessary items in HC II and HC III kits would allow more funding for Vital items.

**Figure 2: VEN classification of kit contents**



The 2007 Essential Medicines List for Uganda specifies which medicines are appropriate for use at each level of healthcare. In the past, HC II and HC III would often order and receive items that should not be used at their level of service. With the kit system, it is now possible for central level to control what EMHS are available at primary healthcare units. Compared to the 2012 EMHSLU, 25% of HC II kit items and 20% of HC III kit items are inappropriate for that level of care (these items are for use only at higher levels of health facilities) (Table 2).

Introduction of the kit system could help ensure availability of only Vital items to be used in HC II and HC III. Currently, 51% of HC II items and 50% of HC III items are Vital and appropriate for the level of care. This is the same as in the kit 1.

### 5.4.1 Supply Quantities of Vital Items

Consumption data collected from facilities found that 26% and 19% of the Vital items in the HC II and HC III kits, respectively, are delivered in appropriate quantities (2.0-2.9 months of stock) according to health facility demands. While the quantities of half of the Vital items in both kits need to be decreased to prevent overstocking, 26% and 28% of these items need to be considered for increase in the HC II and HC III kits, respectively. The table below summarizes the percent of Vital items in the kits that need adjustments.

**Table 11: Percentage of Vital items that need adjustments according to the health facility demand based on consumption data from stock cards**

% Items	HC II	HC III
No Adjustment	26	19
Increase Quantity	26	28
Decrease Quantity	48	53

Annex 3 contains the complete list of Vital kit 3 items appropriate for use in HC II and HC III facilities according to Essential Medicine and Health Supplies List for Uganda 2012. It also lists the average months of stock (MOS) that is delivered every two months. For each item, there are recommended adjustments to the quantities (none, upward or downward) to better meet the requirements of the health facilities. The range of MOS delivered for each item is also tabulated, reflecting the varying consumption levels across facilities.

The wide range of MOS delivered makes it difficult to decide the appropriate quantity of an item to include in the kit: if the decision is made based on quantities needed by facilities with high consumption of an item, those facilities with low consumption of the item will be overstocked, leading to waste of their credit line budget, crowded shelves, and potential for loss and expiry.

Importantly, the analysis in Annex 3 also shows the percentage of facilities that did not issue an item at all in the two-month period after delivery of kit 3 according to stock cards. This may indicate low attendance for those services at the surveyed facilities. For other items, no recorded consumption might be a sign of inappropriateness of the item for the level of care. The table below shows the high percentage of HC III with no recorded use of reproductive health products and other selected basic preventive medicines in a two-month period following delivery of kit 3.

**Table 12: Percent of sampled HC III with no recorded issues of selected reproductive health and primary healthcare kit items in the two-month period after delivery of kit 3**

Item	% HC III Facilities
Magnesium sulphate 50%	80
Vitamin A	75
Emergency contraceptive	60
Misoprostol	42
Depo Provera	30
SP	29
Male condoms	23

Annex 4 includes the same set of information for all Essential and Necessary items in kit 3.

The above observations underscore the challenges of the use of standard kits in the medicines delivery system especially more so if the kit for whatever reason is not reviewed on a regular basis and cumulative tendencies in the facilities monitored and appropriate redistribution mechanisms put in place.

HC II and HC III kits will need to be revised to include additional Vital items that are listed in the EMHSLU 2012. HC IIs need an additional 20 Vital medicines and 22 health supplies, while HC IIIs require an additional 24 Vital medicines and 25 health supplies to provide the full package of care at those levels. These do not include vaccines and anti-tuberculosis medicines, which are delivered outside the kit system but include items that are, for example, already included in a different strength. Annex 5 contains the lists of new items that will have to be added to the credit line kit system.

### **FUNDING ALLOCATION PER PATIENT**

Facilities must resourcefully utilize kit contents to their patients' needs and load size. Table 13 shows how the variation in patient load influences the funding per patient. Health facilities with low patient numbers will have a higher amount of funding per patient.

The average funding of EMHS per patient (in Uganda Shilling (UGX)) for each HC II and HC III kit is calculated by dividing the allocation (cost of the kit) by a facility's patient load in a two-month period. Patient number data for kits 1, 2, and 3 were collected in the Health Management Information System (HMIS) 105 report from November to December 2010, January to June 2011, and July to September 2011, respectively.

**Table 13: Average funding per patient**

Funding per Patient (UGX)	HC II		HC III	
	Average	Range	Average	Range
Kit 1	767	511 – 1,343	951	542 – 1,483
Kit 2	786	468 – 1,627	999	707 – 1,684
Kit 3	942	589 – 1,861	1,385	682 – 2,617

Each kit revision has resulted in increased funding per patient along with increased funding inequality (increased range) as shown in the table above. This inequality leads to differences of EMHS availability when patient loads and thus demands varied. Therefore, facilities were unable to provide a standard level of healthcare delivery quality. Rather than standardizing kits by facility level, kit contents and quantities should be standardized according to patient visits thereby streamlining the facilities' healthcare delivery quality.

One solution to minimize inequality is to supply supplementary kits to facilities with high patient loads thereby increasing volumes of EMHS to busy health facilities. Another possibility is to introduce regional kits taking into consideration variations in disease patterns in different regions of Uganda. A key issue is, however, that even if right quantities are delivered to more health facilities than before introducing a supplementary or regional kit, this is still a kit system having advantages and disadvantages. So regardless of the solution chosen, a well-functioning redistribution system must be in place both within districts and nationally to avoid waste of EMHS. However, this goes with a cost.

### **STOCK MANAGEMENT CAPACITY**

Poor stock management knowledge and skills of lower level health workers were key reasons for introducing the kit system. However, concerns arose that the kit system could negatively impact the already low stock management capacity of the staff, since the kit system does not require ordering, rendering facility stock management as redundant. This study indicates that the kit system does not erode capacity building efforts.

Immediately after kit introduction, one-quarter of the staff reported to be trained in ordering EMHS and stock management. For HC III, the percentage of trained staff remained the same when kit 3 was implemented. However, the percentage of trained HC II staff decreased from 27% to 11%. The reason for this decrease is unknown but could be a result of change of staff in the surveyed HC IIs.

Health workers in HC II and HC III were asked which data they used to calculate quantities to order. The correct calculation method consults stock card data, such as stock on hand and average monthly consumption (AMC). While only staff in one HC II and HC III indicated using stock card data, other HC III staff correctly calculated order quantities. This implies that though most staff are unable to identify the data sources needed to calculate orders, they capably demonstrate how to determine correct order quantities.

**Table 14: Staff ability to manage stock and orders**

Management Indicators	After Kit 1		After Kit 3	
	HC 2	HC 3	HC 2	HC 3
% Staff Trained in Ordering and Stock Management	27	28	11	25
% Staff Using Right Data to Quantify Amounts to Order	12	11	8	6
% Staff Capable of Calculating Right Quantity to Order	0	0	0	16

Stock cards need to be available and correctly updated for all items to enable facility staff to correctly calculate order quantities. The percentage of items with stock cards increased slightly over time at both HC II and HC III, except for HC III medicines, which showed a 20% decline. The percentage of stock cards that are correctly updated remains very low – only around 50% of all items—and this has not changed since the first assessment. Surprisingly, HC II staff are better stock managers than HC III staff.

**Table 15: Stock management indicators calculated as percentage per facility**

Stock Management Indicators	HC II				HC III			
	Medicine		Supplies		Medicine		Supplies	
	<i>After Kit 1</i>	<i>After Kit 3</i>						
% Items with Stock Card	74	78	74	85	74	54	50	66
% Items with Correctly Filled Stock Card Header	1	1	1	7	0	1	3	3
% Items with Correct Stock Card Balance	52	56	48	50	45	43	37	34

Though data show that the kit system has not reduced health worker's stock management performance, it is very clear that overall stock management performance must be improved if the order-based pull system is to be reintroduced.

## RATIONAL USE OF MEDICINE

This assessment also investigated whether there have been any changes in prescribing patterns as a result of the increased funding and kit revisions. The table below shows the number of medicines prescribed per patient and percentages of patients receiving antibiotics and injections, which are indicators for rational use of medicines.

The only significant change observed is the decrease in patients receiving injections between kit 2 and kit 3. One reason might be the reduction of the number and quantity of injectable medicines in kit 3 removed from particularly the HC II kit.

**Table 16: Rational use of medicine using the different kits**

Indicators for Rational Medicines Use	Before Kit	Kit 1	Kit 2	Kit 3
# Medicines per Prescription	3.2	3.2	3.1	3.0
% Patients Receiving Antibiotics	63	67	65	65
% Antibiotics of Total Medicine Prescribed	25	26	27	25
% Patients Receiving Injections	20	22	20	14
% Injections of Total Medicine Prescribed	8	8	8	5

### TIMELINESS AND FREQUENCY OF DELIVERY

NMS has a delivery schedule with dates for delivery of EMHS to all district health offices in the country, and delivery from district health officers to health facilities is carried out by a contracted private distribution company (last mile delivery). Each health facility is supposed to receive supplies every two months for a total of six deliveries per year.

The survey collected data on delivery timeliness by assessing the number of days between kit deliveries. The number of days between deliveries is a reflection of the timeliness of both NMS and the third party distributor.

Unpredictable and/or late deliveries were a major complaint of health facilities in the past, but delivery timeliness improved compared to the previous assessment. On average, there were 56 days between kit deliveries, corresponding well to the scheduled six deliveries per year. There were deliveries made, however, after the end-of-delivery dates. The improved delivery timeliness may be a result of simplifying NMS' responsibilities from processing individual orders to merely picking and packing kits. Improvements in the last stage of delivery with the introduction of last mile delivery from district health office to facility may have also contributed to on-time deliveries.

**Table 17: Time between deliveries**

Time between deliveries	Kit 1	Kit 2	Kit 3
Average (days)	48	63	56
Range (days)	28-90	37-84	31-83

### CONSISTENCY IN SUPPLY

Consistency in the items and quantities delivered each cycle is important to allow facilities to predictably plan for their use. The first kit assessment revealed inconsistencies in the delivery of kits: some facilities received more or less of an item with no apparent pattern.

The inconsistency continued for all revised kits as well. The inconsistencies may have been due to errors in picking and packing, rationing, or pushing of stocks that were under or

overstocked at NMS. The inconsistencies place a burden on health facilities since they need to manage these inconsistencies.

### STAFF VIEWS ON KIT SYSTEM

Three quarters (73%) of health facility staff reported they preferred the kit system to the order-based system due to timelier deliveries, no need for ordering and quantification, and better availability of EMHS. This observation notwithstanding, the health workers need to have the ability and capacity to quantify and determine appropriate items to use within their facilities. The main advantage of the order-based system was that facilities could order exactly what they needed.

**Table 18: Staff's reasons for preferring the kit system**

<b>Reason for Preferring Kit System</b>	<b>% Facilities</b>
Deliveries are timelier	64
Less stock outs/better availability	23
No ordering or quantification needed	14

The majority of interviewed staff at the surveyed HC II and HC III facilities agreed that the kit system has increased the range of EMHS available in their facilities. HC II staff were not as satisfied with the content of the kit (60%) as they were satisfied with the quantities of the items supplied in the kit (87%). The opposite was true for HC III staff: 85% of them agreed that the content met their requirements, while only 60% thought the quantities met the requirements. Less than half of the staff agreed that the content and quantities of kits were consistent.

**Table 19: Staff views on the kit system**

<b>The Kit System has –</b>	<b>HC II – staff agreeing</b>	<b>HC III – staff agreeing</b>
Increased the range of EMHS available in facilities?	86%	100%
Content that meets health facility requirements	60%	85%
Quantities that meet health facility requirement	87%	60%
Constant content	60%	45%
Constant quantities	40%	30%

Items that were already included in the kit according to MOH official supply list were reported as missing by staff. This suggests kits are inconsistently supplied or staff interviewed were not aware of the items delivered with the kit.

Some HC II staff requested that additional items, such as medicine for treatment of severe malaria and salbutamol tablets for asthma treatment, be included in their kits. These requests should be denied because though HC II previously ordered these items prior to the kit system, most of the requested items are for conditions that require higher health facility level referrals.

## **RECOMMENDATIONS**

- Supplying Vital items should take priority over supplying Essential and Necessary items. The Essential Medicine and Health Supplies List for Uganda with VEN classification of all items should be used for reference when deciding EMHS to include in kit.
- There is need to consider provision of supplementary kits to facilities with large patient loads to decrease inequality of funding allocations, reduce stock outs, and ensure better healthcare service in busy facilities.
- Kit contents should be revised based on evidence-based decision-making from the data collected in these surveys. Annexes 3 and 4 contain recommendations for each item.
- In the medium and long term, facilities that demonstrate a capability to manage and maintain EMHS supplies should be allowed to order EMHS to avoid stock outs and waste due to overstocking by better meeting the requirements of the individual facility. However, this will require an intensive capacity building program in aspects of management, supply chain management and the development of a plan to enable this. One determinant of good management and maintenance could be Good Pharmacy Practice certification by the National Drug Authority, a program that will be launched in the near future.
- The demand of underutilized, high health impact EMHS, such as family planning commodities, should be increased. A higher demand would reduce the amount of expiring items. Additional studies should be commissioned to assess this challenge.

## ANNEXES

## ANNEX A – SAMPLED FACILITIES

NMS Zone	District	Health Facilities
1	Sironko	Simu-Pondo HC II <b>Bumulisha HC III*</b> Buwalasi HC III
	Tororo	Magolo HC II <b>Atangi HC III**</b> Kiyeyi HC III Mudakori HC III
2	Ibanda	Bugarama HC II Rubaya HC II Nyamarebe HC III Rukiri HC III
	Rakai	Bbaale HC II Kasensero HC II Kifamba HC III Mutukula HC III
3	Bundibugyo	Bundingoma HC II Bubukwanga HC III Bukangama HC III
	Kibaale	Kabuubwa HC II Kigando HC II Muhorro HC II Nkooko HC III Nyamarwa HC III
4	Dokolo	Adok HC II Anyacoto HC II Atabu HC II Agwata HC III Bata HC III
	Pader/Agago	Lagile HC II Omot HC II (Agago) Pader HC III Paimol HC III (Agago)
5	Wakiso	Kanzize Kyondo HC II Bulondo HC III Mende HC III

\*Buhugu HC III (visited for kit assessment 1) was unavailable, so Bumulisha HC III was surveyed instead

\*\*Kalait HC II (visited for kit assessment 1) was upgraded and is now called Atangi HC III

## ANNEX B – DATA COLLECTION TOOL

## KIT ASSESSMENT FOR HEALTH CENTER II AND III

### 1. FACILITY AND SUPERVISOR/SUPERVISEE DATA

Name of facility: \_\_\_\_\_  
 Level of care: \_\_\_\_\_ Names of supervisor: \_\_\_\_\_  
 Name of district: \_\_\_\_\_ Names of supervisor: \_\_\_\_\_  
 Name of HSD: \_\_\_\_\_ Names of supervisor: \_\_\_\_\_

Record names and contacts of facility staff

Name: \_\_\_\_\_ Title: \_\_\_\_\_ Contact: \_\_\_\_\_  
 Name: \_\_\_\_\_ Title: \_\_\_\_\_ Contact: \_\_\_\_\_  
 Name: \_\_\_\_\_ Title: \_\_\_\_\_ Contact: \_\_\_\_\_  
 Name: \_\_\_\_\_ Title: \_\_\_\_\_ Contact: \_\_\_\_\_

### 2. ASSESSING STAFF CAPABILITY OF CALCULATING QUANTITIES TO ORDER

#### 2.1 Staff Training

- a. Total number of staff working with ordering/stock management: \_\_\_\_\_
- b. Total number of staff trained with ordering/stock management (including calculating average monthly consumption - AMC): \_\_\_\_\_

#### 2.2 Calculation of Quantity to Order (before Kit System)

- a. Ask the supervisee how s/he used to decide the amount to order (before receiving the kit) and mark with 1 when mentioned.

No.	Responses	1/0
1	Based on stock card data	
2	Based on AMC	
3	Based on Stock on Hand	
4	Based on the amount of money available	
5	Based on experience	
6	Patient data (patient register)	
7	Dispensing log	
8	Others, specify	

- b. Select a stock card (e.g. cotrimoxazole tabs) and check whether the person knows how to determine the quantity to order. Let the person show you how to calculate the quantity to order of the selected drug. **If staff does not use stock cards to calculate quantities to order, tick 'staff doesn't use stock cards to calculate quantities' and jump to next question.**

Record:

Stock on hand= \_\_\_\_\_ AMC= \_\_\_\_\_ Maximum quantity (AMCx5) = \_\_\_\_\_  
 (Quantity to order = Maximum stock (AMCx5) – Stock on hand)

Quantity to order according to staff: \_\_\_\_\_

Calculated/Correct quantity to order: \_\_\_\_\_

Does the calculated/correct quantity agree with the quantity to order according to staff?

- Yes  
 No  
 Staff doesn't use stock cards to calculate quantities

### 3. STAFF VIEW ON KIT SYSTEM

At your facility:

- a. In general, has the kit system increased the range of medicine available?  Yes  No
- b. In general, does the content meet your needs?  Yes  No
- c. In general, do the quantities meet your needs?  Yes  No
- d. In general, is the content of the kit constant?  Yes  No
- e. In general, are the quantities of items in the kit constant?  Yes  No
- f. Which items if any are missing in the kit?

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- g. Which items if any are supplied in too high quantities?

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- h. Which items if any are supplied in too low quantities?

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- i. Which items if any in the kit don't you need?

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- j. What is the biggest change in the medicine situation now compared to before the introduction of the kit system?

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k. Do you prefer the pull or push system?

- Pull       Push

Why?

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**4. PATIENT DATA**

*4.1 Patient data*

a. Ask to see the HMIS 105 reports from December 2010 to present. Record the total number of OPD patients and malaria incidents per month according to the reports:

November 2010:	Number of OPD cases _____	Malaria incidents _____
December 2010:	Number of OPD cases _____	Malaria incidents _____
January 2011:	Number of OPD cases _____	Malaria incidents _____
February 2011:	Number of OPD cases _____	Malaria incidents _____
March 2011:	Number of OPD cases _____	Malaria incidents _____
April 2011:	Number of OPD cases _____	Malaria incidents _____
May 2011:	Number of OPD cases _____	Malaria incidents _____
June 2011:	Number of OPD cases _____	Malaria incidents _____
July 2011:	Number of OPD cases _____	Malaria incidents _____
August 2011:	Number of OPD cases _____	Malaria incidents _____
September 2011:	Number of OPD cases _____	Malaria incidents _____

**5. KIT DELIVERY DATES**

a. Record the dates for kit deliveries in 2011. Use **delivery notes** to get the data.

- Kit # 1 delivery date (day/month/year): \_\_\_\_\_
- Kit # 2 delivery date (day/month/year): \_\_\_\_\_
- Kit # 3 delivery date (day/month/year): \_\_\_\_\_
- Kit # 4 delivery date (day/month/year): \_\_\_\_\_
- Kit # 5 delivery date (day/month/year): \_\_\_\_\_
- Kit # 6 delivery date (day/month/year): \_\_\_\_\_

## 6. RATIONAL MEDICINE USE

*Antibiotics do not include: antihelmintics, TB, antifungal, or antiamebic medicines*

*Antibiotics do include: penicillin and tetracycline eye ointments*

- a. Randomly select 20 prescriptions from **February to April 2011** (before introduction of the third kit) and from **August to October 2011** (after introduction of fourth kit). When the OPD book is divided into above and below age 5 years, sample 10 prescriptions from above and 10 prescriptions from below age 5 years. Record information in table below:

No.	No. of Medicines (Kit 2)	No. of Medicines (Kit 3)	No. of Antibiotics (Kit 2)	No. of Antibiotics (Kit 3)	No. of Injections (Kit 2)	No. of Injections (Kit 3)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						
16.						
17.						
18.						
19.						
20.						
<b>Total*</b>			/	/	/	/
<b>Average</b>	(Total/20)	(Total/20)	% of encounters:	% of encounters:	% of encounters:	% of encounters:
<b>*(total medicine/ encounters)</b>			% of drugs:	% of drugs:	% of drugs:	% of drugs:

## 7. STOCK ASSESSMENT AND STOCK MANAGEMENT CAPACITY

Fill in the table below, which includes all the items available in the kit for HC II and HC III. **The items in HC II kit only are marked with \*.** For HC IIs, write “NA” for items not included in kit.

Instructions:

Column A	The kit content is already filled. <b>If there are additional items supplied, add them at the end of the table.</b>
Column B	The numerical figure is already filled for kit content. Write the unit.
Column C	Record the shortest expiry date (month/year). Check the expiry dates when you do the <b>physical count</b> .
Column D	Conduct a <b>physical count</b> of useable items and record the available quantity.
Column E	Record if the <b>stock card</b> for the item is available (1= Yes / 0= No).
Column F	Record if the <b>stock card</b> header is filled correctly. Stock card header is correctly filled if all spaces in the header are filled (1= Yes / 0= No).
Column G	Record the stock balance on the day of visit according to <b>stock card</b> .
Column H	Record the quantities issued out according to <b>stock card</b> before introduction of kit 3 <sup>rd</sup> version. See table 1 for time period.
Column I	Record the stock out days according to <b>stock card</b> before introduction of kit 3 <sup>rd</sup> version. See table 1 for time period.
Column J	Record the quantities issued according to <b>stock card</b> after introduction of kit 3 <sup>rd</sup> version. See table 1 for time period.
Column K	Record the stock out days according to <b>stock card</b> after introduction of kit 3 <sup>rd</sup> version. See table 1 for time period.
Column L/M.N	Record the quantities received in the latest 3 kits – start with the latest supply - according to <b>stock card</b> .

**Table 1: Date intervals to use for issues out and stock out days before and after introduction of kit 3<sup>rd</sup> version.**

ZONE	DISTRICTS	DATE INTERVAL BEFORE KIT 3 INTRODUCTION	DATE INTERVAL AFTER KIT 3 INTRODUCTION
1	Sironko Tororo	14 <sup>TH</sup> February – 13 <sup>TH</sup> April 2011	26 <sup>TH</sup> July – 25 <sup>TH</sup> September 2011
2	Rakai Ibanda	24 <sup>TH</sup> February – 23 <sup>RD</sup> April 2011	9 <sup>TH</sup> August – 8 <sup>TH</sup> October 2011
3	Bundibugyo Kibaale	4 <sup>TH</sup> March – 3 <sup>RD</sup> May 2011	18 <sup>TH</sup> August – 17 <sup>TH</sup> October 2011
4	Doloko Padaer (Agago)	14 <sup>TH</sup> March – 13 <sup>TH</sup> May 2011	14 <sup>TH</sup> June – 13 <sup>TH</sup> August 2011
5	Wakiso	31 <sup>ST</sup> January – 30 <sup>TH</sup> March 2011	16 <sup>TH</sup> June – 15 <sup>TH</sup> August 2011

In the table header below \* refers to Table 1 for date intervals.

NUMBER	ITEM DESCRIPTION / NAME / FORM / STRENGTH	UNIT	EXPIRY DATE (MONTH/YEAR)	STOCK BALANCE ON DAY OF VISIT (PHYSICAL COUNT)	STOCK CARD AVAILABLE (I/O)	STOCK CARD HEADER FILLED CORRECTLY (I/O)	STOCK BALANCE ON DAY OF VISIT ACCORDING TO STOCK CARD	QUANTITIES ISSUED OUT BEFORE KIT 3 INTRODUCTION*	STOCK OUT DAYS BEFORE KIT 3 INTRODUCTION*	QUANTITIES ISSUED OUT AFTER KIT 3 INTRODUCTION*	NUMBER OF STOCK OUT DAYS AFTER KIT 3 INTRODUCTION*	QUANTITIES RECEIVED FROM KIT #1 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #2 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #3 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	ALBENDAZOLE 400MG *	500												
2	AMINOPHYLLINE 250MG/10ML INJ. SLOW IV/INF 10ML VIAL	1												
3	AMOXICILLIN 250MG *	1000												
4	BENDROFLUAZIDE 5MG	1000												
5	CALCIUM LACTATE 100MG TABS	1000												
6	CHARCOAL ACTIVATED 250MG	100												
7	CHLORAMPHENICOL 0.5% EYE DROPS 10ML *	1												
8	CHLORAMPHENICOL 5% EAR DROPS 10ML *	1												
9	CHLORAMPHENICOL SODIUM SUCCINATE 1G	50												
10	CHLORHEXIDINE GLUCONATE 20% 500ML *	1												
11	CHLORPHENAMINE MALEATE 4MG *	1000												
12	CIPROFLOXACIN 500MG	100												
13	CLOTRIMAZOLE 1% TOPICAL CREAM 20G *	1												
14	COTRIMOXAZOLE 400+80MG SCORED *	1000												
15	DEXAMETHASONE 4MG/1ML AMP	100												
16	DOXYCYCLINE HCL 100MG	100												

NUMBER	ITEM DESCRIPTION / NAME / FORM / STRENGTH	UNIT	EXPIRY DATE (MONTH/YEAR)	STOCK BALANCE ON DAY OF VISIT (PHYSICAL COUNT)	STOCK CARD AVAILABLE (1/0)	STOCK CARD HEADER FILLED CORRECTLY (1/0)	STOCK BALANCE ON DAY OF VISIT ACCORDING TO STOCK CARD	QUANTITIES ISSUED OUT BEFORE KIT 3 INTRODUCTION*	STOCK OUT DAYS BEFORE KIT 3 INTRODUCTION*	QUANTITIES ISSUED OUT AFTER KIT 3 INTRODUCTION*	NUMBER OF STOCK OUT DAYS AFTER KIT 3 INTRODUCTION*	QUANTITIES RECEIVED FROM KIT #1 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #2 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #3 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
17	ERYTHROMYCIN STEARATE 250MG	1000												
18	PROPRANOLOL 40MG TABLET	1000												
19	FUROSEMIDE 40MG TABLET	1000												
20	DEXAMETHASONE 0.5MG TAB	1000												
21	FERROUS SULPHATE (65MG IRON)+FOLIC ACID 0.25-0 *	1000												
22	FOLIC ACID 5MG *	1000												
23	AMOXICILLIN DISPERSABLE TABLETS 125MG	100												
24	GENTAMYCINE 0.30% EYE/EAR DROP 10ML *	1												
25	GLUCOSE 50% INJECTION 100ML	1												
26	GLUCOSE/DEXTROSE 5% INFUSION 500ML	24												
27	GRISEOFULVIN 500MG *	100												
28	HYPOCHLORITE (JIK) (CALCIUM OR SODIUM) 5% 750ML *	1												
29	LIDOCAINE HCL 2% INJECTION 20ML	1												
30	MAGNESIUM SULPHATE 50% INJ 10ML	1												

NUMBER	ITEM DESCRIPTION / NAME / FORM / STRENGTH	UNIT	EXPIRY DATE (MONTH/YEAR)	STOCK BALANCE ON DAY OF VISIT (PHYSICAL COUNT)	STOCK CARD AVAILABLE (1/0)	STOCK CARD HEADER FILLED CORRECTLY (1/0)	STOCK BALANCE ON DAY OF VISIT ACCORDING TO STOCK CARD	QUANTITIES ISSUED OUT BEFORE KIT 3 INTRODUCTION*	STOCK OUT DAYS BEFORE KIT 3 INTRODUCTION*	QUANTITIES ISSUED OUT AFTER KIT 3 INTRODUCTION*	NUMBER OF STOCK OUT DAYS AFTER KIT 3 INTRODUCTION*	QUANTITIES RECEIVED FROM KIT #1 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #2 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #3 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	
															A
31	MAGNESIUM TRISILICATE COMP 250+120MG *	1000													
32	MEBENDAZOLE 100MG TAB *	1000													
33	METHYLERGOMETRINE MALEATE 0.2MG/1ML INJ IM/IV	100													
34	METRONIDAZOLE TABLETS 200MG *	1000													
35	MULTIVITAMIN (BPC 73) *	1000													
36	ORAL REHYDRATION SALTS FOR 1LT *	25													
37	ZINC SULPHATE 20MG TABLET *	100													
38	PARACETAMOL 500MG *	1000													
39	GENTAMYCIN 80MG/2ML INJ IV/IM	100													
40	PENICILLIN, BENZATHINE BENZYL 2.4MU/1.44G	10													
41	PENICILLIN, PROCAINE 3MU+ BENZYL 1MU	10													
42	PENICILLIN, BENZYL 1MU/600MG INJ (PFR) IM *	10													
43	PHENOBARBITAL 30MG	1000													
44	CARBAMAZEPINE 200MG TABLET	1000													
45	POLYVIDONE-IODINE 10% SOLUTION, BOTTLE 200ML *	1													

NUMBER	ITEM DESCRIPTION / NAME / FORM / STRENGTH	UNIT	EXPIRY DATE (MONTH/YEAR)	STOCK BALANCE ON DAY OF VISIT (PHYSICAL COUNT)	STOCK CARD AVAILABLE (1/0)	STOCK CARD HEADER FILLED CORRECTLY (1/0)	STOCK BALANCE ON DAY OF VISIT ACCORDING TO STOCK CARD	QUANTITIES ISSUED OUT BEFORE KIT 3 INTRODUCTION*	STOCK OUT DAYS BEFORE KIT 3 INTRODUCTION*	QUANTITIES ISSUED OUT AFTER KIT 3 INTRODUCTION*	NUMBER OF STOCK OUT DAYS AFTER KIT 3 INTRODUCTION*	QUANTITIES RECEIVED FROM KIT #1 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #2 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #3 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
46	PROMETHAZINE HCL 25MG, FILM COATED *	1000												
47	PYRIMETHAMINE 25MG+SULFADOXINE 500MG *	1000												
48	QUININE DI-HCL 600MG/2ML INJ IV/DEEPI	100												
49	QUININE SULPHATE 300MG TABLET	1000												
50	SALBUTAMOL 4MG	1000												
51	SILVER NITRATE PENCIL 0.4%	1												
52	SILVER SULFADIAZINE 1% CREAM 15-20G TUBE	10												
53	SODIUM CHLORIDE/NORMAL SALINE 0.9% INFUSION	24												
54	TETRACYCLINE 1% EYE OINTMENT *	1												
55	VITAMIN A (RETINOL) 200.000 IU, DROPS *	1000												
56	VITAMIN B COMPLEX (BPC 73) TAB *	1000												
57	VITAMIN C (ASCORBIC ACID) 100MG TABLET *	1000												
58	WATER FOR INJECTION 10ML *	100												
59	IBUPROFEN 200MG TABLET *	1000												

NUMBER	ITEM DESCRIPTION / NAME / FORM / STRENGTH	UNIT	EXPIRY DATE (MONTH/YEAR)	STOCK BALANCE ON DAY OF VISIT (PHYSICAL COUNT)	STOCK CARD AVAILABLE (I/O)	STOCK CARD HEADER FILLED CORRECTLY (I/O)	STOCK BALANCE ON DAY OF VISIT ACCORDING TO STOCK CARD	QUANTITIES ISSUED OUT BEFORE KIT 3 INTRODUCTION*	STOCK OUT DAYS BEFORE KIT 3 INTRODUCTION*	QUANTITIES ISSUED OUT AFTER KIT 3 INTRODUCTION*	NUMBER OF STOCK OUT DAYS AFTER KIT 3 INTRODUCTION*	QUANTITIES RECEIVED FROM KIT #1 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #2 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #3 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
60	DIAZEPAM 10MG/2ML INJ IM/SLOW IV/IV INFUSION	100												
61	CONDOMS MALE GENERIC, BULK FOILED *	144												
62	ETHINYLESTRADIOL 0.03+LEVONORGESTREL 0.15MG TAB *	3												
63	LEVONORGESTREL 0.03MG TAB *	1												
64	LEVONORGESTREL 0.75MG TAB *	2												
65	MEDROXYPROGESTERONE W/SYRINGE	200												
66	MISOPROSTOL 200MCG TABS	20												
67	SAFE DELIVERY (MAMA) KIT	1												
68	ARTEMETHER-LUMEFANTRINE -24 TABLETS *	30												
69	ARTEMETHER-LUMEFANTRINE -18 TABLETS *	30												
70	ARTEMETHER-LUMEFANTRINE -12 TABLETS *	30												
71	ARTEMETHER-LUMEFANTRINE -6 TABLETS *	30												
72	RAPID DIAGNOSTIC TESTS (RDT) *	1												

NUMBER	ITEM DESCRIPTION / NAME / FORM / STRENGTH	UNIT	EXPIRY DATE (MONTH/YEAR)	STOCK BALANCE ON DAY OF VISIT (PHYSICAL COUNT)	STOCK CARD AVAILABLE (1/0)	STOCK CARD HEADER FILLED CORRECTLY (1/0)	STOCK BALANCE ON DAY OF VISIT ACCORDING TO STOCK CARD	QUANTITIES ISSUED OUT BEFORE KIT 3 INTRODUCTION*	STOCK OUT DAYS BEFORE KIT 3 INTRODUCTION*	QUANTITIES ISSUED OUT AFTER KIT 3 INTRODUCTION*	NUMBER OF STOCK OUT DAYS AFTER KIT 3 INTRODUCTION*	QUANTITIES RECEIVED FROM KIT #1 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)		QUANTITIES RECEIVED FROM KIT #2 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	
												L	M	N	O
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
73	AD SYRINGES 10ML+ NEEDLE DISP. DETACHED	100													
74	AD SYRINGES 2ML+ NEEDLE DISP. DETACHED *	100													
75	AD SYRINGES 5ML+ NEEDLE DISP. DETACHED *	100													
76	BANDAGE COTTON W.O.W. HYDROPHILIC, 75MM X 4M *	1													
77	BLADES SCALPEL SIZE 23 *	100													
78	CANNULA I.V, WITH INJ. PORT & STOPPER 24G, 1.9	100													
79	CANNULA IV 18G WITH INJ. PORT & STOPPER, 1.2MM	100													
80	DISPENSING ENVELOPES PLASTIC 75X110MM *	500													
81	GAUZE W.O.W HYDROPHILIC 90CM X 50M *	1													
82	GLOVES EXAMINATION LATEX (OR VYNIL), MEDIUM *	50													
83	GLOVES SURGEON 7 1/2 *	50													
84	GLOVES SURGEON 8	50													
85	OUT PATIENTS REGISTER HMIS 031, 200 PAGES *	1													

NUMBER	ITEM DESCRIPTION / NAME / FORM / STRENGTH	UNIT	EXPIRY DATE (MONTH/YEAR)	STOCK BALANCE ON DAY OF VISIT (PHYSICAL COUNT)	STOCK CARD AVAILABLE (I/O)	STOCK CARD HEADER FILLED CORRECTLY (I/O)	STOCK BALANCE ON DAY OF VISIT ACCORDING TO STOCK CARD	QUANTITIES ISSUED OUT BEFORE KIT 3 INTRODUCTION*	STOCK OUT DAYS BEFORE KIT 3 INTRODUCTION*	QUANTITIES ISSUED OUT AFTER KIT 3 INTRODUCTION*	NUMBER OF STOCK OUT DAYS AFTER KIT 3 INTRODUCTION*	QUANTITIES RECEIVED FROM KIT #1 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #2 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)	QUANTITIES RECEIVED FROM KIT #3 (ONLY SUPPLIES RECEIVED AFTER JUNE 2011)
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
86	PLASTER ADHESIVE ZINC OXIDE, 75MM X 5M *	1												
87	REQUISITION AND ISSUE VOUCHER BOOK MF124 *	1												
88	SET INFUSION ADULT, 15-20 DROPS/ML, 120CM LONG	1												
89	SET INFUSION PAEDIATRIC (BURETTE)	1												
90	STOCK CARD *	50												
91	WOOL COTTON B.P. 500G *	1												
92	PGA/POLYGLACTIN , G2/0, SL 75CM. 1/2 CIRCLE, RB&TP,NL 26MM	12												
93	NYLON MONOFILAMENT, G1, SL 200CM. 1/2 CIRCLE, TC. NL: 45MM	12												
94	GENERAL-OUT-PATIENT MEDICAL FORM 5,MF 5 *	100												
<b>ADD IF THERE WERE OTHER ITEMS SUPPLIED</b>														

COMMENTS:

## **ANNEX C – REVISED CONTENT AND ADJUSTMENTS NEEDED TO VITAL ITEMS SUITABLE TO THE LEVEL OF CARE ACCORDING TO EMHSLU 2012**

The items in the following tables are items from the third kit (kit 3) that are vital and suited for use at the appropriate level of care according to the Essential Medicine and Health Supplies List for Uganda 2012. These items can be used to revise the content and quantities of kit version 4. The tables are described as follows:

- **Item** is the name of the kit item. Only items in kit 3 are included.
- **n** is number of facilities with data.
- **% Facilities not consuming** is the percentage of facilities that did not record any item issues in the surveyed two month period.
- **MOS average** is the average month of stock (MOS) delivered to facilities every two months. MOS is calculated as quantity delivered (according to MOH supplies list) divided by average monthly consumption (AMC) based on stock card data on issue and stock out days in a two months period.
- **MOS (min-max)** is minimum and maximum months of stock (MOS) delivered to facilities every two months. MOS is calculated as quantity delivered (according to MOH supplies list) divided by average monthly consumption (AMC) based on stock card data on issue and stock out days in a two months period.
- **Quantity in kit 3** is delivered quantities of items from kit 3 according to MOH supplies list.
- **Adjustment needed** is based solely on the demand of the health facilities. The following criteria were used to suggest none, upward, or downward adjustment:
  1. No adjustment (**NONE**) needed when average MOS delivered is 2.0 – 2.9
  2. Upward adjustment (**UP**) when MOS delivered is below 2.0
  3. Downward adjustment (**DOWN**) when average MOS delivered is above 2.9

**HC II Kit**

This table includes all the vital items suitable for HC II level, which represent 53% (28/53) of the total items included in the HC II kit. The remaining items are included in Annex 4.

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY IN KIT 3	ADJUSTMENT NEEDED
1	ALBENDAZOLE 400MG	500	10	20	3.0	1.0 – 4.0	2	DOWN
2	AMOXICILLIN 250MG	1000	12	0	2.8	0.5 – 10.0	5	NONE
3	COTRIMOXAZOLE 400+80MG SCORED	1000	8	0	7.4	2.0 – 24.0	12	DOWN
4	FERROUS SULPHATE (65MG IRON)+FOLIC ACID	1000	12	42	3.5	1.9 – 4.0	2	DOWN
5	METRONIDAZOLE TABLETS 200MG	1000	15	0	1.5	0.4 – 6.0	3	UP
6	ORAL REHYDRATION SALTS FOR 1LT	25	13	15	5.2	0.8 – 12.0	12	DOWN
7	ZINC SULPHATE 20MG TABLET	100	10	10	3.2	0.3 – 6.0	3	DOWN
8	PYRIMETHAMINE 25MG+SULFADOXINE 500MG	1000	13	31	1.7	1.0 – 4.0	1	UP
9	TETRACYCLINE 1% EYE OINTMENT 3.5G	1	12	0	4.5	1.4 – 15.0	30	DOWN
10	VITAMIN A (RETINOL) 200.000 IU, DROPS	1000	6	50	2.3	1.4 – 4.0	1	NONE
11	WATER FOR INJECTION 10ML	100	12	8	1.5	0.3 – 4.0	1	UP
12	LEVONORGESTREL 0.75MG TAB	9	3	44	1.6	0.7 – 2.0	5	UP
13	ARTEMETHER-LUMEFANTRINE -24 TABLETS <sup>a</sup>	30	15	7	4.5	0.6 – 17.0	50	NONE
14	ARTEMETHER-LUMEFANTRINE -18 TABLETS <sup>a</sup>	30	11	55	3.5	0.2 – 12.0		

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY IN KIT 3	ADJUSTMENT NEEDED
15	ARTEMETHER-LUMEFANTRINE -12 TABLETS <sup>a</sup>	30	5	20	1.6	0.2 – 3.0		
16	ARTEMETHER-LUMEFANTRINE -6 TABLETS <sup>a</sup>	30	6	17	5.7	2.4 – 12.0		
17	CONDOMS MALE GENERIC, BULK FOILED	144	9	11	3.3	0.5 – 10.0	5	DOWN
18	AD SYRINGES 5ML+ NEEDLE DISP. DETACHED	100	13	15	2.7	0.1 – 5.1	2	NONE
19	DISPENSING ENVELOPES PLASTIC 75X110MM	500	7	14	5.2	0.6 – 10.0	5	DOWN
20	GAUZE W.O.W HYDROPHILIC 90CM X 50M	1	7	14	1.5	0.7 – 2.0	1	UP
21	GLOVES EXAMINATION LATEX, MEDIUM NON-STERILE	1	11	9	3.3	0.6 – 5.0	5	DOWN
22	GLOVES SURGEON 7 1/2	1	10	20	6.7	2.4 – 10.0	5	DOWN
23	OUT PATIENTS REGISTER HMIS 031, 200 PAGES	1	4	25	1.5	1.0 – 2.0	1	UP
24	PLASTER ADHESIVE ZINC OXIDE, 75MM X 5M	1	9	11	3.4	1.6 – 8.0	4	DOWN
25	REQUISITION AND ISSUE VOUCHER BOOK MF124 <sup>b</sup>	1	NA	NA	NA	NA	1	NA
26	STOCK CARD <sup>b</sup>	50	NA	NA	NA	NA	1	NA
27	WOOL COTTON B.P. 500G	1	13	15	2.3	0.7 – 6.0	3	NONE
28	RAPID DIAGNOSTIC TEST	1	9	0	2.5	0.7 - 8.0	200	NONE

<sup>a</sup>In the list with kit 3 contents and quantities, the pack size was not specified, so an average was used to total 32 delivered packs. No adjustment needed is based on the listed quantity of 50 packs in total.

<sup>b</sup>Not enough data

**HC III kit**

This table includes all Vital items suitable for HC III, which is 50% (47/94) items of the HC III kit items. The remaining items are included in Annex 4.

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	ADJUSTMENT NEEDED
1	ALBENDAZOLE 400MG	500	17	35	4.3	1.1 - 12.0	3	DOWN
2	AMOXICILLIN 250MG	1000	14	0	2.6	1.1 – 8.0	12	NONE
3	CHLORAMPHENICOL SODIUM SUCCINATE 1G	50	16	25	2.4	0.4 – 6.7	1	NONE
3	CIPROFLOXACIN 500MG	100	12	0	4.3	0.4 – 20.0	10	DOWN
4	COTRIMOXAZOLE 400+80MG SCORED	1000	13	0	6.0	1.4 – 13.3	20	DOWN
5	DOXYCYCLINE HCL 100MG	100	15	0	1.8	0.2 – 10.0	5	UP
6	FERROUS SULPHATE (65MG IRON)+FOLIC ACID 0.25-0	1000	12	17	1.9	0.3 – 4.0	2	UP
7	GLUCOSE 50% INJECTION 100ML	1	15	53	3.3	0.2 – 10.0	5	DOWN
8	GLUCOSE/DEXTROSE 5% INFUSION 500ML	24	15	7	1.8	0.1 – 10.0	1	UP
9	LIDOCAINE HCL 2% INJECTION 20ML	1	15	40	4.2	1.6 – 8.0	4	DOWN
10	MAGNESIUM SULPHATE 50% INJ 10ML	1	10	80	2.4	0.8 – 4.0	2	NONE
11	METRONIDAZOLE TABLETS 200MG	1000	13	0	1.6	0.6 – 5.2	4	UP
12	ORAL REHYDRATION SALTS FOR 1LT	25	16	13	3.3	0.4 – 8.0	12	DOWN
13	ZINC SULPHATE 20MG TABLET	100	9	11	2.6	0.9 – 6.0	3	NONE
14	GENTAMYCIN 80MG/2ML INJ IV/IM	100	17	6	3.9	1.0 – 20.0	2	DOWN

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	ADJUSTMENT NEEDED
15	PENICILLIN, PROCAINE 3MU+ BENZYL 1MU	10	17	6	0.9	0.3 – 2.4	1	UP
16	CARBAMAZEPINE 200MG TABLET	1000	6	67	3.6	0.5 – 6.7	1	DOWN
17	PYRIMETHAMINE 25MG+SULFADOXINE 500MG	1000	17	29	3.7	2.0 – 4.0	2	DOWN
18	SODIUM CHLORIDE/NORMAL SALINE 0.9% INFUSION	24	14	36	2.0	0.5 – 8.0	1	NONE
19	TETRACYCLINE 1% EYE OINTMENT	1	15	0	3.2	0.7 – 9.1	50	DOWN
20	VITAMIN A (RETINOL) 200.000 IU, DROPS	1000	12	75	1.9	1.7 – 2.0	1	UP
21	WATER FOR INJECTION 10ML	100	16	25	3.4	0.4 – 6.0	3	DOWN
22	LEVONORGESTREL 0.75MG TAB	2	10	60	1.6	0.2 – 2.2	10	UP
23	MEDROXYPROGESTERONE W/SYRINGE	200	10	30	6.6	2.0 – 16.0	1	DOWN
24	MISOPROSTOL 200MCG TABS	20	12	42	1.6	0.0 – 8.0	2	UP
25	ARTEMETHER-LUMEFANTRINE -24 TABLETS	30	15	7	4.2	1.5 – 12.0	85	DOWN
26	ARTEMETHER-LUMEFANTRINE -18 TABLETS	30	10	20	3.2	0.2 – 6.0		
27	ARTEMETHER-LUMEFANTRINE -12 TABLETS	30	10	10	3.8	0.1 – 11.1		
28	ARTEMETHER-LUMEFANTRINE -6 TABLETS	30	9	0	7.8	0.8 – 31.5		
29	CONDOMS MALE GENERIC, BULK FOILED	144	13	23	2.5	0.2 – 10.0	5	NONE
30	AD SYRINGES 5ML+ NEEDLE DISP. DETACHED	100	16	0	1.8	0.3 – 6.0	3	UP
31	CANNULA I.V, WITH INJ. PORT & STOPPER 24G, 1.9	100	7	14	5.7	0.4 – 15.4	1	DOWN

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	ADJUSTMENT NEEDED
32	CANNULA IV 18G WITH INJ. PORT & STOPPER, 1.2MM	100	7	14	27.3	2.9 – 100.0	1	DOWN
33	DISPENSING ENVELOPES PLASTIC 75X110MM	500	8	0	1.9	0.9 – 5.3	8	UP
34	GAUZE W.O.W HYDROPHILIC 90CM X 50M	1.1 1	12	33	3.6	0.6 – 6.0	3	DOWN
35	GLOVES EXAMINATION LATEX (OR VYNIL), MEDIUM	50	13	8	4.1	0.8 – 16.0	8	DOWN
36	GLOVES SURGEON 7 1/2	50	15	20	4.7	1.0 – 12.0	6	DOWN
37	OUT PATIENTS REGISTER HMIS 031, 200 PAGES	1	6	50	4.4	1.9 – 8.0	4	DOWN
38	PLASTER ADHESIVE ZINC OXIDE, 75MM X 5M	1	14	21	2.1	0.5 – 4.0	4	NONE
39	REQUISITION AND ISSUE VOUCHER BOOK MF124	1	3	33	2.0	1.9 – 2.0	1	NONE
40	SET INFUSION ADULT, 15-20 DROPS/ML, 120CM LONG	1	11	45	9.5	1.1 – 40.0	40	DOWN
41	SET INFUSION PAEDIATRIC (BURETTE)	1	8	50	1.9	0.1 – 3.3	10	UP
42	STOCK CARD	50	2	0	1.3	0.7 – 1.9	1	UP
43	WOOL COTTON B.P. 500G	1	16	0	3.0	0.7 – 10.0	5	DOWN
44	NYLON MONOFILAMENT, G1, SL 200CM. 1/2 CIRCLE, TC. NL: 45MM	12	NA	NA	NA	NA	1	NA
45	SAFE DELIVERY (MAMA) KIT	1	9	44	24.5	3.5 – 70.0	35	DOWN
46	RAPID DIAGNOSTIC TESTS (RDT)	1	12	8	10.4	0.0 – 32.5	300	DOWN

## **ANNEX D – MONTHS OF STOCK DELIVERED OF THE REMAINING ITEMS (NOT VITAL AND SUITABLE FOR SUITABLE FOR HEALTH CARE LEVEL) IN KITS, INCLUDING VEN AND LEVEL OF CARE**

Annex 3 includes all the items that are suitable for inclusion in the kit based on level of care and VEN. The tables below include the remaining kit items. The tables are described as follows:

- **Item** is the name of the kit item. Only items in kit 3 are included.
- **Pack size** is the standard pack size.
- **n** is number of facilities with data.
- **% Facilities not consuming** is the percentage of facilities that did not record any item issues in the two month period after the item's delivery.
- **MOS average** is the average month of stock (MOS) delivered to facilities every two months. MOS is calculated as quantity delivered (according to MOH supplies list) divided by average monthly consumption (AMC) based on stock card data on issue and stock out days in a two months period.
- **MOS (min-max)** is minimum and maximum months of stock (MOS) delivered to facilities every two months. MOS is calculated as quantity delivered (according to MOH supplies list) divided by average monthly consumption (AMC) based on stock card data on issue and stock out days in a two months period.
- **Quantity** is delivered quantities according to the MOH supplies list.
- **VEN** is the VEN classification of the item according to the Essential Medicine and Health Supplies List for Uganda (EMHSLU) 2012. Items are divided in **V** (vital), **E** (essential), or **N** (necessary) according to their potential health impact.
- **Level of care** is the level of care recommended to use the item according to EMHSLU 2012. If the level of care is HC II, then all levels from HC II and up can use the item. If the level of care is H, then all levels above hospital can use the item; however all levels below hospital are not permitted to use the item.

**HC II Kit**

The table includes the items in HC II kit that are not vital or suitable for HC II. The remaining items from the kit are included in Annex 3.

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	VEN	LEVEL OF CARE
1	CHLORAMPHENICOL 0.5% EYE DROPS	1	11	0	1.4	0.3 - 5.0	5	N	HC II
2	CHLORAMPHENICOL 5% EAR DROPS	1	11	9	0.9	0.3 - 2.0	5	N	HC II
3	CHLORHEXIDINE GLUCONATE 20% 500ML	1	9	44	2.7	1.3 - 4.0	2	N	HC II
4	CHLORPHENAMINE MALEATE 4MG	1000	13	15	1.4	0.4 - 2.0	1	E	HC II
5	CLOTRIMAZOLE 1% TOPICAL CREAM 20G	1	8	0	2.8	0.6 - 8.0	20	E	HC III
6	FOLIC ACID 5MG	1000	15	73	1.2	0.4 - 2.0	1	N	HC II
7	GENTAMYCINE 0.30% EYE/EAR DROP 10ML	1	12	8	2.2	0.2 - 5.0	10	V	H
8	HYPOCHLORITE (JIK) (CALCIUM OR SODIUM) 6% 1L	1	9	11	9.7	2.5 - 20.0	10	E	HC II (HC1)
9	MAGNESIUM TRISILICATE COMP 250+120MG	1000	14	7	1.9	0.2 - 4.0	2	E	HC II
10	MEBENDAZOLE 100MG TAB	1000	12	8	15.0	2.0 - 34.0	3	E	HC II
11	MULTIVITAMIN (BPC 73)	1000	12	17	11.7	2.0 - 28.0	1	N	HC II (HC1)
12	PARACETAMOL 500MG	1000	14	0	4.0	0.5 - 11.5	10	E	HC II
13	PENICILLIN. BENZYL 1MU/600MG INJ (PFR) IM	10	14	0	2.4	0.2 - 5.1	7	E	HC II
14	POLYVIDONE-IODINE 10% SOLUTION, BOTTLE 200ML	1	5	0	3.1	1.5 - 6.0	3	N	HC III
15	PROMETHAZINE HCL 25MG, FILM COATED	1000	5	100	NA	NA	1	N	HC III

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	VEN	LEVEL OF CARE
16	VITAMIN B COMPLEX (BPC 73) TAB	1000	8	13	0.8	0.0 - 1.3	1	N	HC IV
17	VITAMIN C (ASCORBIC ACID) 100MG TABLET	1000	2	50	0.5	0.5 - 0.5	1	NA	NA
18	IBUPROFEN 200MG TABLET	1000	7	0	1.1	0.2 - 2.0	1	E	HC III
19	GRISEOFULVIN 500MG TABLET	100	5	0	2.1	0.4 - 5.0	1	N	HC III
20	ETHINYLESTRADIOL 0.03+LEVONORGESTREL 0.15MG	3	9	56	3.3	0.5 - 10.0	5	E	HC II
21	LEVONORGESTREL 0.03MG TAB	1	4	50	8.3	1.7 - 14.9	5	NA	NA
22	AD SYRINGES 2ML+ NEEDLE DISP. DETACHED	100	12	8	9.0	1.4 - 30.0	1	N	HC II
23	BANDAGE COTTON W.O.W. HYDROPHILIC, 75MM X 4M	1	13	15	2,7	0.1 - 5.1	10	N	HC III
24	BLADES SCALPEL SIZE 23	100	8	25	3.4	1.5 - 10.0	1	N	HC IV
25	GENERAL-OUT-PATIENT MEDICAL FORM 5,MF 5	100	NA	NA	NA	NA	5	V	H

**HC III Kit**

This table includes the remaining items that are not vital or suitable for HC III. The remaining items from the kit (47/94) are included in Annex 3.

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	VEN	LEVEL OF CARE
1	AMINOPHYLLINE 250MG/10ML INJ. SLOW IV/INF 10ML VIAL	1	15	40	1.4	0.2 - 3.3	5	N	HC IV
2	AMOXICILLIN DISPERSABLE TABLETS 125MG	100	NA	NA	NA	NA	10	NA	NA
3	BENDROFLUAZIDE 5MG	1000	13	77	1.5	0.5 - 2.0	1	E	HC III
4	CALCIUM LACTATE 100MG TABS	1000	15	40	1.7	1.0 - 2.0	1	NA	NA
5	CHARCOAL ACTIVATED 250MG	100	16	31	1.5	0.6 - 2.0	1	E	HC II
6	CHLORAMPHENICOL 0.5% EYE DROPS 10ML	1	14	0	1.9	0.7 - 4.0	20	N	HC II
7	CHLORAMPHENICOL 5% EAR DROPS 10ML	1	15	27	3.7	0.8 - 20.0	20	N	HC II
8	CHLORHEXIDINE GLUCONATE 20% 500ML	1	10	20	7.5	2.5 - 10.0	5	N	HC II
9	CHLORPHENAMINE MALEATE 4MG	1000	15	7	1.5	0.5 - 4.0	2	E	HC II
10	CLOTRIMAZOLE 1% TOPICAL CREAM 20G	1	11	9	2.4	1.0 - 4.0	30	E	HC III
11	DEXAMETHASONE 0.5MG TAB	1000	13	15	1.4	0.4 - 3.1	1	N	H
12	DEXAMETHASONE 4MG/1ML AMP	100	17	35	3.5	0.1 - 20.0	1	E	HC IV
13	DIAZEPAM 10MG/2ML INJ IM/SLOW IV/IV INFUSION	100	9	56	7.9	2.0 - 20.0	1	V	HC IV
14	ERYTHROMYCIN STEARATE 250MG	1000	11	18	1.7	0.3 - 4.0	2	N	HC IV
15	ETHINYLESTRADIOL 0.03+LEVONORGESTREL 0.15MG TAB	3	7	43	5.9	0.5 - 20.0	10	E	HC II

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	VEN	LEVEL OF CARE
16	FOLIC ACID 5MG	1000	15	47	1.1	0.4 - 2.0	1	N	HC II
17	FUROSEMIDE 40MG TABLET	1000	15	73	1.3	0.4 - 2.0	1	E	HC IV
18	GENTAMYCINE 0.30% EYE/EAR DROP 10ML	1	17	0	4.8	0.9 - 30.0	30	V	H
19	GRISEOFULVIN 500MG	100	8	25	2.3	0.0 - 5.7	2	N	HC III
20	HYPOCHLORITE (JIK) (CALCIUM OR SODIUM) 5% 750ML	1	10	0	10.9	1.6 - 30.0	15	E	HC II (HC1)
21	IBUPROFEN 200MG TABLET	1000	12	17	1.7	0.4 - 6.0	3	E	HC III
22	LEVONORGESTREL 0.03MG TAB	1	8	50	3.3	1.0 - 10.0	10	NA	NA
23	MAGNESIUM TRISILICATE COMP 250+120MG	1000	14	7	1.9	0.6 - 3.7	4	E	HC II
24	MEBENDAZOLE 100MG TAB	1000	16	25	2.6	1.0 - 6.0	3	E	HC II
25	METHYLERGOMETRINE MALEATE 0.2MG/1ML INJ IM/IV	100	14	43	8.1	0.1 - 28.6	1	N	HC IV
26	MULTIVITAMIN (BPC 73)	1000	15	20	2.2	0.8 - 4.0	2	N	HC II (HC1)
27	PARACETAMOL 500MG	1000	17	0	3.1	0.8 - 6.7	20	E	HC II
28	PENICILLIN, BENZATHINE BENZYL 2.4MU/1.44G	10	17	6	1.6	0.7 - 4.0	2	E	HC III
29	PENICILLIN, BENZYL 1MU/600MG INJ (PFR) IM	10	18	6	2.5	0.5 - 10.0	20	E	HC III
30	PHENOBARBITAL 30MG	1000	15	60	1.2	0.3 - 2.0	1	E	HC II
31	POLYVIDONE-IODINE 10% SOLUTION, BOTTLE 200ML	1	8	63	3.7	2.0 - 6.0	3	N	HC III

NO	ITEM	PACK SIZE	n	% FACILITIES NOT CONSUMING	MOS AVERAGE	MOS (MIN-MAX)	QUANTITY	VEN	LEVEL OF CARE
32	PROMETHAZINE HCL 25MG, FILM COATED	1000	8	50	1.7	0.8 - 2.0	1	N	HC III
33	PROPRANOLOL 40MG TABLET	1000	11	73	2.0	2.0 - 2.0	1	E	HC IV
34	QUININE DI-HCL 600MG/2ML INJ IV/DEEPI	100	17	6	3.9	0.4 - 23.5	2	E	HC III
35	QUININE SULPHATE 300MG TABLET	1000	16	6	3.1	0.4 - 20.0	2	E	HC III
36	SALBUTAMOL 4MG	1000	16	56	1.8	0.4 - 2.0	1	E	HC III
37	SILVER NITRATE PENCIL 0.4%	1	12	100	NA	NA	3	N	HC III
38	SILVER SULFADIAZINE 1% CREAM 15-20G TUBE	10	11	36	16.4	1.0 - 100.0	5	N	HC III
39	VITAMIN B COMPLEX (BPC 73) TAB	1000	3	0	3.4	2.1 - 5.1	3	N	HC IV
40	VITAMIN C (ASCORBIC ACID) 100MG TABLET	1000	5	0	1.4	0.5 - 2.0	1	NA	NA
41	AD SYRINGES 10ML+ NEEDLE DISP. DETACHED	100	11	9	3.6	0.4 - 10.0	1	N	HC II
42	AD SYRINGES 2ML+ NEEDLE DISP. DETACHED	100	16	6	1.6	0.2 - 4.0	2	N	HC II
43	BANDAGE COTTON W.O.W. HYDROPHILIC, 75MM X 4M	1	7	14	3.8	1.4 - 10.0	10	N	HC III
44	BLADES SCALPEL SIZE 23	100	13	31	5.5	0.2 - 20.0	1	N	HC IV
45	GENERAL-OUT-PATIENT MEDICAL FORM 5,MF 5	100	NA	NA	NA	NA	10	V	H
46	GLOVES SURGEON 8	50	6	67	0.6	0.0 - 1.1	1	E	HC IV
47	PGA/POLYGLACTIN , G2/0, SL 75CM. 1/2 CIRCLE, RB&TP,NL 26MM	12	NA	NA	NA	NA	1	E	H

**ANNEX E – VITAL MEDICINES AND HEALTH SUPPLIES NOT INCLUDED IN KIT**

The list below is based on the Essential Medicine and Health Supplies List for Uganda 2012 and includes the vital items for HC II and HC III that are not already included in the kit. Vaccines and anti-tuberculosis medicine are not included; they are supplied through a different system.

**HC II Kit**

NO	DESCRIPTION	SPECIFICATION	UNIT	LEVEL OF CARE	VEN	COMMENTS
<b>MEDICINE</b>						
1	Artesunate	Suppository	50mg	HC II (HC1)	V	
2	Artesunate	Suppository	200mg	HC II (HC1)	V	
3	Lignocaine	Injection	2%	HC II	V	
4	Epinephrine/adrenaline	Injection	1mg/mL	HC II	V	
5	Diazepam	Rectal tube	2mg/mL	HC II	V	
6	Phenytoin	Tablet	50mg	HC II	V	
7	Phenytoin	Tablet	100mg	HC II	V	
8	Ethinylestradiol + levonorgestrel	Tablet	0.03mg + 0.30mg	HC II	V	Ethinylestradiol + levonorgestrel 0.03+0.15mg included in kit
9	Medroxyprogesterone acetate	Injection (aqueous suspension)	150mg/mL	HC II	V	
10	Misoprostol	Tablet	200µg	HC II	V	
11	Chlorpromazine	Tablet	100mg	HC II	V	
12	Diazepam	Tablet	5mg	HC II	V	
13	Benzhexol	Tablet	2mg	HC II	V	
14	Water for injection	Injection	2mL	HC II	V	10ml included in kit
15	Water for injection	Injection	5mL	HC II	V	10ml included in kit
16	Phytomenadione (vitamin K <sub>1</sub> )	Injection	1mg/mL	HC II	V	
17	Amoxicillin	Capsule	500mg	HC II	V	250mg included in kit
18	Ciprofloxacin	Tablet	500mg	HC II	V	
19	Cotrimoxazole	Tablet	120mg	HC II	V	480mg included in kit
20	Doxycycline	Tablet	100mg	HC II	V	

NO	DESCRIPTION	SPECIFICATION	UNIT	LEVEL OF CARE	VEN	COMMENTS
<b>HEALTH SUPPLIES</b>						
1	Ad Immunization Syringes, Needle 23G	0.5mL	200	HC II	V	
2	Ad Immunization Syringes, Needle 23G	0.05mL	200	HC II	V	
3	Alcohol Swabs		100	HC II	V	
4	Liquid Soap Detergent For Hospital Use		20L	HC II	V	
5	Blades Scalpel	Size 22	100	HC II	V	Scalpel size 23 included in kit
6	Suture, Chromic Catgut	2(M6), 75cm N:45mm Tapercut 1/2-C Heavy	12	HC II	V	
7	Catheter, Urethral, Foley	10-30mL, FG16 2-way	1	HC II	V	
8	Tube, Endotracheal, Oral/Nasal, Plastic, Cuffed	6mm	1	HC II	V	
9	Tube, Endotracheal, Oral/Nasal, Plastic, Plain	4.5mm	1	HC II	V	
10	Resuscitator, AMBU	Adult	1	HC II	V	
11	Resuscitator, AMBU	Infant	1	HC II	V	
12	Safe Delivery (Maternity) Kit	Standard	1	HC II	V	Not all HC IIs have delivery yet so risk of overstocking in some facilities.
13	Safety Box For Syringes & Needle Disposal		20	HC II	V	No need to supply more than once
14	Safety Glasses		1	HC II	V	No need to supply more than once
15	Bulb Sucker, Rubber	60mL	1	HC II	V	
16	Tape, Umbilical	3mm x 100m	1	HC II	V	
17	Set Infusion, Pediatric	60 drops/mL	1	HC II	V	
18	Set Infusion, Adult	15-20 drops/mL, 120cm long	1	HC II	V	
19	Tube, Endotracheal Oral/Nasal, Plastic, Cuffed	7mm	1	HC II (HC1)	V	
20	Tube, Endotracheal, Oral/Nasal, Plastic, Cuffed	8mm	1	HC II (HC1)	V	
21	Tube, Endotracheal, Oral/Nasal, Plastic,	3mm	1	HC II (HC1)	V	

NO	DESCRIPTION	SPECIFICATION	UNIT	LEVEL OF CARE	VEN	COMMENTS
	Plain					
22	HBMF Register For Community Distributors	Book	1	HC II (HC1)	V	

**HC III Kit**

NO	DESCRIPTION	SPECIFICATION	UNIT	LEVEL OF CARE	VEN	COMMENTS
<b>MEDICINE</b>						
1	Artesunate	Suppository	50mg	HC II (HC1)	V	
2	Artesunate	Suppository	200mg	HC II (HC1)	V	
3	Epinephrine/adrenaline	Injection	1mg/mL	HC II	V	
4	Diazepam	Rectal tube	2mg/mL	HC II	V	
5	Phenytoin	Tablet	50mg	HC II	V	
6	Phenytoin	Tablet	100mg	HC II	V	
7	Chlorpromazine	Tablet	100mg	HC II	V	
8	Diazepam	Tablet	5mg	HC II	V	
9	Benzhexol	Tablet	2mg	HC II	V	
10	Water for injection	Injection	2mL	HC II	V	10ml included in kit
11	Water for injection	Injection	5mL	HC II	V	10ml included in kit
12	Phytomenadione (vitamin K <sub>1</sub> )	Injection	1mg/mL	HC II	V	
13	Amoxicillin	Capsule	500mg	HC II	V	250mg included in kit
14	Cotrimoxazole	Tablet	120mg	HC II	V	480mg included in kit
15	Hydrocortisone sodium succinate	Powder for injection	100mg	HC III	V	
16	Carbamazepine	Tablet, chewable	100mg	HC III	V	
17	Ethinylestradiol + levonorgestrel	Tablet	0.03mg + 0.30mg	HC II	V	Ethinylestradiol + levonorgestrel 0.03+0.15mg included in kit
18	Amitriptyline	Tablet	25mg	HC III	V	
19	Promethazine	Injection	25mg/mL	HC III	V	

NO	DESCRIPTION	SPECIFICATION	UNIT	LEVEL OF CARE	VEN	COMMENTS
20	Salbutamol	Nebuliser solution	2mg/mL	HC III	V	Salbutamol 4mg tablet included
21	Darrow's solution	Injection	half strength in 5% glucose	HC III	V	
22	Ampicillin	Powder for injection	500mg	HC III	V	
23	Chloramphenicol	Powder for injection	1g	HC III	V	
24	Artesunate	Injection	60mg/mL	HC III	V	
<b>HEALTH SUPPLIES</b>						
1	Ad Immunization Syringes, Needle 23G	0.5mL	200	HC II	V	
2	Ad Immunization Syringes, Needle 23G	0.05mL	200	HC II	V	
3	Alcohol Swabs		100	HC II	V	
4	Liquid Soap Detergent For Hospital Use		20L	HC II	V	
5	Blades Scalpel	Size 22	100	HC II	V	Scalpel size 23 included in kit
6	Suture, Chromic Catgut	2(M6), 75cm N:45mm Tapercut 1/2-C Heavy	12	HC II	V	
7	Catheter, Urethral, Foley	10-30mL, FG16 2-way	1	HC II	V	
8	Tube, Endotracheal, Oral/Nasal, Plastic, Cuffed	6mm	1	HC II	V	
9	Tube, Endotracheal, Oral/Nasal, Plastic, Plain	4.5mm	1	HC II	V	
10	Resuscitator, AMBU	Adult	1	HC II	V	
11	Resuscitator, AMBU	Infant	1	HC II	V	
12	Safety Box For Syringes & Needle Disposal		20	HC II	V	Need to be delivered once
13	Safety Glasses		1	HC II	V	Need to be delivered once
14	Bulb Sucker, Rubber	60mL	1	HC II	V	
15	Tape, Umbilical	3mm x 100m	1	HC II	V	
16	Suture, Chromic Catgut	2/0 (M3.5) 150cm No Needle	12	HC III	V	
17	Suture, Silk	(1), 75cm Thread Length	12	HC III	V	

<b>NO</b>	<b>DESCRIPTION</b>	<b>SPECIFICATION</b>	<b>UNIT</b>	<b>LEVEL OF CARE</b>	<b>VEN</b>	<b>COMMENTS</b>
18	Tube, Endotracheal, Oral/Nasal, Plastic, Cuffed	6.5mm	1	HC III	V	
19	Tube, Endotracheal, Oral/Nasal, Plastic, Plain	5mm	1	HC III	V	
20	Tube, Nasogastric (Children)	G5	1	HC III	V	
21	Tube, Nasogastric (Children)	G8	1	HC III	V	
22	Tube, Endotracheal Oral/Nasal, Plastic, Cuffed	7mm	1	HC1	V	
23	Tube, Endotracheal, Oral/Nasal, Plastic, Cuffed	8mm	1	HC1	V	
24	Tube, Endotracheal, Oral/Nasal, Plastic, Plain	3mm	1	HC1	V	
25	HBMF Register For Community Distributors	Book	1	HC1	V	