Requirements Specification for the Development of a Stock Status Monitoring Tool

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MSH/Health Commodities and Services Management

Stock Status Monitoring Tool

Stock Status Monitoring Tool

INTRODUCTION

MSH/HCSM is a key member of the Malaria drug management subcommittee, which is involved in the stock status monitoring of Malaria commodities both at the Central and County levels

On a monthly basis, the Malaria Control Unit, drug management committee meets to review the stock status of malaria commodities in the country, by analyzing data from various sources including:

1. Facility and County Level Stock Data from DHIS.
2. Central Level Stock Status data from the Supply Chain Agencies (KEMSA).
3. Procurement information based on incoming shipments per funding agency

This data is aggregated and analyzed for the different malaria commodities and a 2 pager report generated that indicates to management, the months stock status and pipeline status of Malaria commodities. Currently MCU uses an excel based tool to generate this information. The current requirement is to amend and enhance the current 2 pager tool to accommodate additional requirements including representation of Central and county level data for Malaria commodities, and to color code the different pending shipments based on the timelines for delivery. This request makes the current tool being used to develop the 2 pager report redundant as it will not meet the requirements of the Malaria control unit and the donor, hence the need to develop a new tool. It is recommended that the new tool be developed on a web based platform.

REQUIREMENTS FOR THE NEW 2 PAGER TOOL.

Master data setup

The tool should allow for the setup of the following master data:

A) Funding Agencies

The tool should allow for the setup of various funding agencies that provide the malaria commodities. Due to the dynamic nature of the program, the tool should allow for continuous addition of funding sources as and when required. The following information will be captured.

Data Element	Data Type	Comment
a. Funding agency	Character	e.g. PMI, Global Fund, UNITAID, GoK – Mandatory
b. Comment	Character	

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B) Supply Chain Agencies

The tool should allow for the setup of supply chain agencies that receive and issue malaria commodities. Due to the dynamic nature of the program, the tool should allow for continuous addition of funding sources as and when required. The following information will be captured

Data Element	Data Type	Comment
c. Supply Chain Agency	Character	e.g. KEMSA, CHAI – Mandatory
d. Comment	Character	
e. Contact Person	Character	
f. Contact Phone	Character	

C) List of Malaria Zones

The tool should allow for the setup of malaria zones. The following information will be captured

Data Element	Data Type	Comment
g. Zone	Character	Zone 1: Arid / Seasonal Zone 2: Endemic Zone 3: Epidemic Zone 4: Low Risk
h. Comment	Character	

D) List of counties

The tool should allow for the setup of counties information. The following information will be captured

Data Element	Data Type	Comment
i. County	Character	Name of county
j. Comment	Character	
k. Zone	Character	Zone 1: Arid / Seasonal Zone 2: Endemic Zone 3: Epidemic Zone 4: Low Risk (Picked from list of malaria zones) - Mandatory

E) Malaria commodities data

- The tool should have provision for setting up of Malaria commodities being tracked (AL 6s, AL 12s, AL 18s, AL24s, RDTs, Artesunate injection). The tool should have easy capability of adding malaria commodities as required due to the dynamic nature of the malaria program. The list of commodities generated is used in subsequent data capture sections

Data Element	Data Type	Comment
a. Commodity Name	Character	Mandatory
b. Unit of Measure	Alfa-numeric	Mandatory
c. Commodity Price	Number	Price in USD per unit of measure
d. Maximum Stock Level (MOS) – Central Level	Number	Mandatory – from quantification report
e. Minimum Stock Level (MOS) – Central Level	Number	
f. Maximum Stock Level (MOS) – County Level	Number	

Data Element	Data Type	Comment
g. Minimum Stock Level (MOS) – County Level	Number	

F) Commodity Forecast data

The tool should be able to allow for the following information to be defined:

- ✓ Forecast period (number of years that the forecast covers)
- ✓ Forecast start date
- ✓ Forecasted Monthly consumption for each commodity (obtained from the quantification report) – this is entered for every month across the forecast period

Data Element	Data Type	Comment
h. Forecast period	Number	Mandatory (number of years covered by the forecast)
i. Forecast start date	Date : mmm/yyyy	Mandatory
j. Forecast monthly consumption	Number	Mandatory – for each commodity

The above information is used in the generation of specific outputs outlined in the next sections

Monthly Transactions

The malaria commodity security TWG meets every month to review the stock status. The team works off the previous months excel sheet to update the information for the current month. To enable this process, the tool should allow for the capture of the following information.

A) Central level Data

- Central level stock on hand (SOH). This information reflects the status of stock at central level and is received from KEMSA on a monthly basis. Once captured, this information is used to generate various required outputs. The central level stock on hand data is captured for each malaria commodity. The tool should allow for the capture of the following:

Data Element	Data Type	Comment
a. Report date (month/year)	Date : mmm/yyyy	
b. Supply chain agency	Character	
c. Commodity Name	Character	
d. Unit of Measure	Alfa-numeric	
e. Opening balance	Number	
f. Total Receipts from Suppliers	Number	
g. Total Issues to facilities	Number	
h. Stock on Hand (Closing balance)	Number	SOH source could be : Warehouse

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Data Element	Data Type	Comment
		report or Physical Stock count. Have a drop menu allowing choice.
i. Earliest expiry date	Date : mmm/yyyy	
j. Quantity Expiring	Number	
k. Funding agency	Character	

- Planned procurement and Pending shipment.

This refers to :

1) **Planned procurement** : This is information from the supply plan - showing commodity quantity and proposed delivery date. Actual procurement (Tendering and contracting) has not happened yet. This information comes from the program (MCU).
2) **Pending shipment** : Actual procurement has been completed, but the goods have not been delivered yet. This information comes from the Supply chain agency.

NOTE : When computing MOS – only the Pending shipments are used, planned procurements are not used

- Information on planned procurement and pending shipments is captured at this stage. The tool should have provision for the capture of the following

Data Element	Data Type	Comment
Planned procurement details:		
a. Commodity Name	Character	
b. Unit of Measure	Alfa-numeric	
c. Quantity	Number	In units of measure
d. Planned delivery date	Date : mmm/yyyy	
e. Funding Agency	Character	Picked from list of funding agencies
f. Comment	Alfa numeric	
Pending Shipments details :		
g. Commodity Name	Character	
h. Unit of Measure	Alfa-numeric	
a. Quantity	Number	In units of measure
b. Expected Time of Arrival	Date : dd/mm/yyyy	
c. Funding Agency	Character	Picked from list of funding agencies
d. Comment	Alfa numeric	

B) **Facility level data**.

The tool should allow for the capture of aggregated facility Level consumption and stock on hand for ACTs and RDTs. This data is obtained by aggregating facility level data at national level.

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This information is obtained from DHIS2 and will be keyed in on a monthly basis. The tool should however have provision to retrieve this data from DHIS directly.

Data Element	Data Type	Comment
a. Report Period	Date : mmm/yyyy	
b. Commodity Name	Character	
c. Unit of Measure	Alfa-numeric	
d. Aggregated Facility Consumption (adjusted for reporting rate)	Number	Consumption In units of measure
e. Aggregated Facility Stock on Hand	Number	SOH in units of measure .Obtained from DHIS2

C) **County level data**.

The tool should allow for the capture of county Level consumption and stock on hand for ACTs and RDTs. This data is obtained by aggregating facility level data at respective county level.

This information is obtained from DHIS2 and will be keyed in on monthly basis. The tool should however have provision to retrieve this data from DHIS directly.

Data Element	Data Type	Comment
f. County	Character	
g. Report Period	Date : mmm/yyyy	
h. Commodity Name	Character	ACT/RDT (Picked from the list of commodities)
i. Unit of Measure	Alfa-numeric	
j. Aggregated County Consumption (adjusted for reporting rate)	Number	Consumption In units of measure – aggregated across all facilities in county
k. Aggregated County Stock on Hand	Number	SOH in units of measure - aggregated across all facilities in county
l. Zone	Character	Picked from list of characters

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Processes

After the capture of the monthly transaction data, the tool should calculate the MOS data for facility, county and central levels

The basic formula for Months of Stock (MOS) is :

$$Months\ of\ Stock\ (MOS) = \frac{Stock\ on\ Hand\ (SOH)}{Average\ Monthly\ Consumption\ (AMC)}$$

MOS is normally stated as a number, with one decimal point.

Notes :

Stock on Hand is captured as an absolute figure based on Physical Stock Count or a Warehouse report.

SOH is reported at different levels of the supply chain : central level, county level, facility level

Average monthly consumption (AMC) is captured only at facility level (where consumption happens), and may be adjusted for reporting rate to cater for consumption at non-reporting facilities.

MOS is computed at four levels :

A) Central level
B) Facility level
C) National level
D) County level

Central level MOS

$$\boldsymbol{Central\ level\ MOS\ = \frac{Stock\ on\ Hand\ at\ Central\ level}{Adjusted\ facility\ AMC}}$$

Where :

Stock on Hand : is the total quantity held in stock at the central level – as reported by the supply chain agency (KEMSA)

Total Monthly consumption (TMC) at Facility level is obtained by summing the quantity dispensed (across all facilities in the country). This monthly TMC is adjusted to cater for non-reporting facilities to obtain the adjusted facility AMC using the formula :

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$$Adjusted\ facility\ AMC\ = \frac{\frac{TMCN1}{NMRR1} + \frac{TMCN2}{NMRR2} + \frac{TMCN3}{NMRR3} \ldots\ldots + \frac{TMCNn}{NMRRn}}{n}$$

Where:

TMCN = Total Monthly Consumption National Level. Obtained by aggregating reported total quantity dispensed across all facilities in the country. (Data from DHIS2)

NMRR = National Monthly Reporting Rate expressed as a percentage (Data from DHIS2)

n = Number of months (Typically six months)

Note : Central level MOS is computed for all commodities.

In addition to the stock on hand, the central level also factors in commodity orders that have placed but not delivered. These are captured pending shipments and are converted to MOS using the formula below :

$$Pending\ Shipments\ MOS\ = \frac{Total\ pending\ shipment\ quantity}{Adjusted\ facility\ AMC}$$

Where :

Total pending shipment quantity is obtained by summing up all ordered quantities – for each commodity.

Adjusted facility AMC is obtained using formula and variables as defined above.

Facility level MOS

$$Facility\ \ level\ MOS\ = \frac{Total\ Stock\ on\ Hand\ at\ Facility\ level}{Adjusted\ facility\ AMC}$$

Where :

Total Stock on Hand at Facility Level : is the total quantity held in stock in health facilities across the country. Obtained by aggregating the physical stock count across all facilities in the country. (Data from DHIS2)

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Adjusted facility AMC is given by the formula below:

$$\textbf{Adjusted facility AMC} = \frac{\frac{TMCN1}{NMRR1} + \frac{TMCN2}{NMRR2} + \frac{TMCN3}{NMRR3} \ldots\ldots + \frac{TMCNn}{NMRRn}}{n}$$

Where :

TMCN = Total Monthly Consumption National Level. Obtained by aggregating reported total quantity dispensed across all facilities in the country. (Data from DHIS2)

NMRR = National Monthly Reporting Rate expressed as a percentage (Data from DHIS2)

n = Number of months (Typically six months)

Note : Facility level MOS is computed for all commodities.

National Level MOS

National level MOS is obtained by summing the Central Level MOS, Pending Shipment MOS and the Facility level MOS.

$$\textbf{National Level MOS} = \textbf{Central Level MOS} + \textbf{Pending shipment MOS} + \textbf{Facility Level MOS}$$

National level MOS is computed for each commodity.

County level MOS

$$\textbf{County level MOS} = \frac{\textbf{Total Stock on Hand at County level}}{\textbf{Adjusted County AMC}}$$

Where :

Total Stock on Hand : is the total quantity held in stock in the county. Obtained by aggregating physical stock count across all facilities in the county. (Data from DHIS2)

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Adjusted County AMC is given by the formula below:

$$\textbf{Adjusted County AMC} = \frac{\frac{TMCC1}{CMRR1} + \frac{TMCC2}{CMRR2} + \frac{TMCC3}{CMRR3} \ldots\ldots + \frac{TMCCn}{CMRRn}}{n}$$

Where :

TMCC = Total Monthly Consumption County level. Obtained by aggregating reported total quantity dispensed across all facilities in the county. (Data from DHIS2)

CMRR = County Monthly Reporting Rate expressed as a percentage (Data from DHIS2)

n = Number of months (Typically six months)

Note : County level MOS is computed for each county for all commodities.

Using the processes / formulas provided above, the tool should produce the outputs shown below.

Sample Output 1 – Facility Level Data

	AL 6s	AL 12s	AL 18s	AL 24s	RDTs	Artesunate Injection
Facility level data						
Adjusted Facility AMC	182,015	109,778	54,736	231,479	9,188	6,200
Total Stock on Hand – Facility Level	961,540	647,241	314,479	880,560	29,973	18,000
Facility level MOS	5	6	6	4	3	3

Sample Output 2 – County Level Data

The tool should also allow the user to select a county and view the information in table format below:

	AL 6s	AL 12s	AL 18s	AL 24s	RDTs	Artesunate Injection
County level data						
Adjusted County AMC	182,015	109,778	54,736	231,479	9,188	6,200
Total Stock on Hand – County Level	961,540	647,241	314,479	880,560	29,973	18,000
County level MOS	5	6	6	4	3	3

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Sample Output 3 – Central Level Data

Central level data						
Adjusted facility AMC	262,500	175,000	87,500	350,000	1,182,997	138,377
Central Stock on hand (KEMSA)	310,710	1	886,450	1,321,540	9,031,055	13,356
Pending shipments	3,615,920	2,943,233	1,172,437	4,286,806	3,400,000	463,509
Central Level MOS	1	0	10	4	8	0
Pending shipments MOS	14	17	13	12	3	3

Sample Output 4 – National Level Data

Central level data						
Adjusted facility AMC	262,500	175,000	87,500	350,000	1,182,997	138,377
Central Stock on hand (KEMSA)	310,710	1	886,450	1,321,540	9,031,055	13,356
Pending shipments	3,615,920	2,943,233	1,172,437	4,286,806	3,400,000	463,509
Facility Stock on hand	569336	869926	986936	1000696	8969867	266985
Central Level MOS	1	0	10	4	8	0
Pending shipments MOS	14	17	13	12	3	3
Facility level MOS	2.1	4.9	11.2	2.8	7.5	1.9
National MOS	17.1	21.9	34.2	18.8	18.5	4.9

Sample output 5 – Pending shipments – detailed

The tool should be able to list the Pending shipments information on monthly basis in the format below and color code each shipment based on the delivery dates as follows:

Delivery timeline	Colour code
ETA date within 0 – 3 months of report date	Green
ETA date 3 to 6 months from report date	Yellow
ETA date 6 to 9 months from report date	Orange
ETA date over 9 months from report date	Red

Report Date : dd/mmm/yyyy

Anti-malaria Commodities Pending Shipments/E.T.A Details

Commodity	Supporting Agency	Quantity	Unit of Measure	E.T.A Details	Delivery date colour code
Malaria Rapid Diagnostic Test (RDTs)	PMI	3,400,000		August-15	
Artemether-Lumefantrine (6s) 5-14 kgs	PMI	475,200		December-15	
Artemether-Lumefantrine (6s) 5-14 kgs	PMI	475,200		November-16	
Artemether-Lumefantrine (6s) 5-14 kgs	PMI	475,200		April-15	

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Artemether-Lumefantrine (6s) 5-14 kgs	PMI	475,200		April-15	
Artemether-Lumefantrine (6s) 5-14 kgs	Global Fund	1,715,120		February-15	
Artemether-Lumefantrine (24s) 35+ Kgs	PMI	424,620		February-15	
Artemether-Lumefantrine (24s) 35+ Kgs	PMI	424,800		March-15	
Artemether-Lumefantrine (24s) 35+ Kgs	PMI	424,800		April-15	
Artemether-Lumefantrine (24s) 35+ Kgs	PMI	425,760		April-15	
Artemether-Lumefantrine (24s) 35+ Kgs	PMI	300,000		April-15	
Artemether-Lumefantrine (24s) 35+ Kgs	Global Fund	2,286,826		February-15	
Artemether-Lumefantrine (18s) 25-34 Kgs	PMI	150,210		February-15	
Artemether-Lumefantrine (18s) 25-34 Kgs	PMI	150,240		March-15	
Artemether-Lumefantrine (18s) 25-34 Kgs	PMI	150,240		April-15	
Artemether-Lumefantrine (18s) 25-34 Kgs	PMI	150,240		April-15	
Artemether-Lumefantrine (18s) 25-34 Kgs	Global Fund	571,507		February-15	
Artemether-Lumefantrine (12s) 15-25 Kgs	PMI	450,000		February-15	
Artemether-Lumefantrine (12s) 15-25 Kgs	PMI	449,820		March-15	
Artemether-Lumefantrine (12s) 15-25 Kgs	PMI	450,000		April-15	
Artemether-Lumefantrine (12s) 15-25 Kgs	PMI	450,000		April-15	
Artemether-Lumefantrine (12s) 15-25 Kgs	Global Fund	1,143,413		February-15	

Sample Output 6 – Pending Shipments - summary

The tool should be able to aggregate the pending shipments data by commodity and output a summary in the format below :

Report Date : dd/mmm/yyyy		
Pending Shipments Summary		
Commodity	**Total quantity pending**	**Unit of Measure**
Artemether-Lumefantrine (6s) 5-14 kgs	3,615,920	
Artemether-Lumefantrine (12s) 15-25 Kgs	2,943,233	
Artemether-Lumefantrine (18s) 25-34 Kgs	1,172,437	
Artemether-Lumefantrine (24s) 35+ Kgs	4,286,806	
Malaria Rapid Diagnostic Test (RDTs)	3,400,000	

Sample Output 7 – Supporting agencies summary

The tool should be able to give a breakdown of the supporting agencies totals by commodity in the format below :

Report Date : dd/mmm/yyyy
Supporting Agencies Summary

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Artemether-Lumefantrine (6s) 5-14 kgs	Global Fund	1,715,120
	PMI	1,900,800
	IPCA (PMI)	0
	Norvatis (PMI)	0
Artemether-Lumefantrine (12s) 15-25 Kgs	Global Fund	1,143,413
	PMI	1,799,820
	IPCA (PMI)	0
	Norvatis (PMI)	0
Artemether-Lumefantrine (18s) 25-34 Kgs	Global Fund	571,507
	PMI	600,930
	IPCA (PMI)	0
	Norvatis (PMI)	0
Artemether-Lumefantrine (24s) 35+ Kgs	Global Fund	2,286,826
	PMI	1,999,980
	IPCA (PMI)	0
	Norvatis (PMI)	0
Malaria Rapid Diagnostic Test (RDTs)	Global Fund	0
	PMI	3,400,000
	IPCA (PMI)	0
	Norvatis (PMI)	0
Artesunate Injection	Global Fund	0
	PMI	0
	IPCA (PMI)	0
	Norvatis (PMI)	0

The tool should generate a graphical representation of

- Central level stock MOS – for stock on hand & Pending shipments
- Aggregated Facility level MOS
- National level MOS
- Individual county level MOS

The tool should calculate MOS for each of the four levels and display the same graphically as shown below

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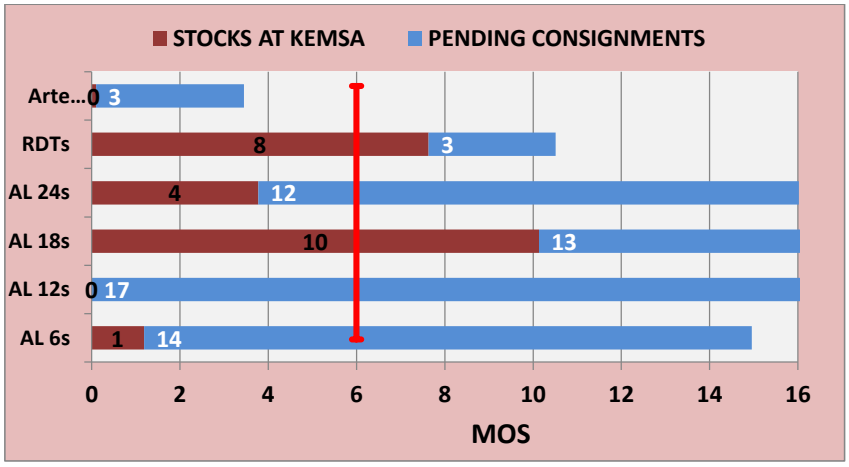
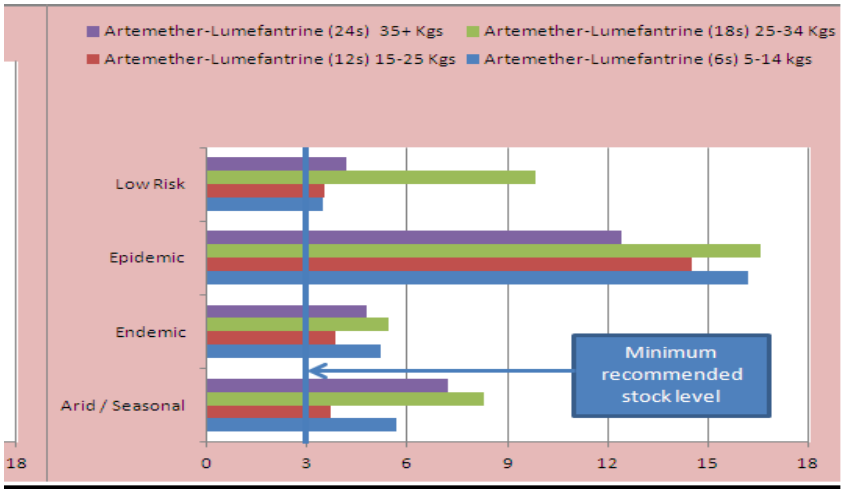
Sample output 8 - Central Level MOS chart



Comment [DL1]: Inside chart : delete consignments and replace with shipments, Delete MOS and write in full - Months of Stock, Insert minimum and maximum stokc level lines

Sample output 9 - Average months of stock in facilities per epidemiological zone



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Sample output 10 - Central level stocks and pending shipments summary

Central level stocks and Incoming Shipments.

Stock on Hand (SOH)				Pending Consignments			
Commodity	Unit	KEMSA	MOS	Total	MOS	Agency/Quantity	ETA
Artemether Lumefantrine (6s)	Doses	4,572,400	10	2,172,353	5	Novartis (PMI): 388,800	May 2012
						Novartis (PMI) 1,783,553	TBD
Artemether- Lumefantrine (12s)	Doses	1,789,940	6	1,205,655	4	Novartis (PMI): 216,000	May 2012
						Novartis (PMI): 989,655	TBD
Artemether- Lumefantrine (18s)	Doses	268,190	1	886,908	8	Novartis (PMI):124,800	May 2012
						Ajanta (GF) Call 2: 278,156	FEB 2012
						Novartis (PMI): 483,952	TBD
Artemether- Lumefantrine (24s)	Doses	1,595,430	2	4,685,149	9	Novartis (PMI): 508,800	May 2012
						Ajanta (GF) Call 2: 1,995,846	Feb 2012
						Novartis (PMI): 2,180,503	TBD
Malaria Rapid Diagnostic Tests (RDTs)**	Tests	686,175	N/A	1,701,000	N/A	Novartis (PMI)	TBD

Comment [DL2]: Inside chart : delete consignments and replace with shipments

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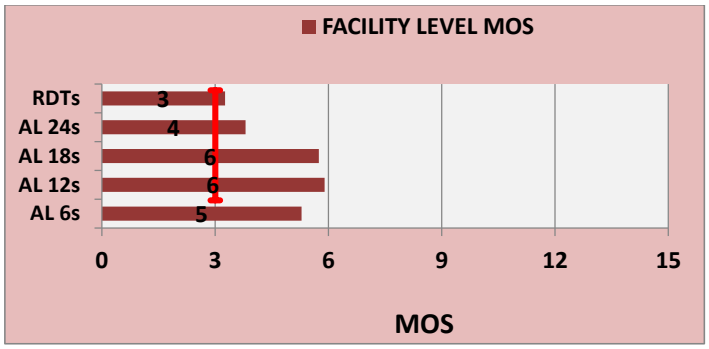
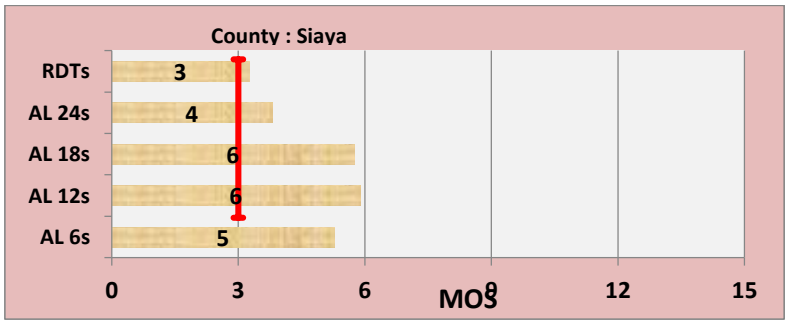
Sample output 11 - Aggregated Facility MOS



Sample output 12 - County Level MOS

The tool should allow for the user to select a county and view the MOS information for that county.



The tools should use the county MOS data to produce a county stock status summary table showing the MOS for each commodity - with color codes based on their months of stock as follows:

- ✓ 0 – 3 months RED
- ✓ > 3 months – 6 months Green
- ✓ > 6 months – 9 months Orange
- ✓ > 9 months Yellow

Comment [DL3]: Inside chart Delete MOS and write in full - Months of Stock, Insert minimum and maximum stock level lines

Comment [DL4]: Inside chart Delete MOS and write in full - Months of Stock, Insert minimum and maximum stock level lines

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This should be for all the Malaria commodities based on the Months of stock and average monthly consumption of the commodity at county level.

Sample output 13 - County stock status summary

Report date : dd/mm/yyyy						
County Stock Status Summary						
	County MOS for each commodity					
County name	**AL 6s**	**AL 12s**	**AL 18s**	**AL 24s**	**RDTs**	**Artesunate Injection**
County A	2	6.3	5.9	1.0	15.6	2.9
County B	10	2.6	7.8	5.6	4.8	10.9
County C	4	9.7	8.2	0.0	7.6	15.6
County D						
County E						
County F						
County G						
County H						
County I						

The tool should run a national level comparison of forecast consumption to actual consumption and produce a variance tracker for the preceding six months in the format below.

Sample output 14 - Forecast variance tracker

Report date : dd/mm/yyyy							
Forecast Variance tracker							
Commodity Name		**Jan 2015**	**Feb 2015**	**Mar 2015**	**Apr 2015**	**May 2015**	**Jun 2015**
MALARIA RDTs	Forecasted Consumption	15,000	15,000	15,000	15,000	15,000	15,000
	Actual Consumption	7,836	25,369	8,963	18,963	5,698	6,039
	Variance : quantity	**-7,164**	**10,369**	**-6,037**	**3,963**	**-9,302**	**-8,961**
	Variance : percentage	**-48%**	**69%**	**-40%**	**26%**	**-62%**	**-60%**
AL6s	Forecasted Consumption	12,000	12,000	12,000	12,000	12,000	12,000
	Actual Consumption	13,685	5,698	8,963	15,398	5,698	6,039
	Variance : quantity	**1,685**	**-6,302**	**-3,037**	**3,398**	**-6,302**	**-5,961**
	Variance : percentage	**14%**	**-53%**	**-25%**	**28%**	**-53%**	**-50%**
AL12s	Forecasted Consumption	25,000	25,000	25,000	25,000	25,000	25,000
	Actual Consumption	7,836	5,698	31,699	7,236	5,698	6,039

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	Variance : quantity	-17,164	-19,302	6,699	-17,764	-19,302	-18,961
	Variance : percentage	-69%	-77%	27%	-71%	-77%	-76%

The national forecast consumption will be entered once for the full year for all commodities based on the annual quantification report.

The actual national consumption will be entered on a monthly basis for each commodity, and will be given by the formula:

$$Actual\ Consumption\ = \frac{TMCN}{NMRR}$$

Where :

TMCN = Total Monthly Consumption National Level. Obtained by aggregating reported total quantity dispensed across all facilities in the country. (Data from DHIS2)

NMRR = National Monthly Reporting Rate expressed as a percentage (Data from DHIS2)

The computation of variance quantity and percentage will use the formulas below:

$$Variance : quantity\ = Actual\ Consumption - Forecast\ Consumption$$

$$Variance : Percentage\ = \frac{Actual\ Consumption - Forecast\ Consumption}{Forecast\ Consumption} x\ 100$$

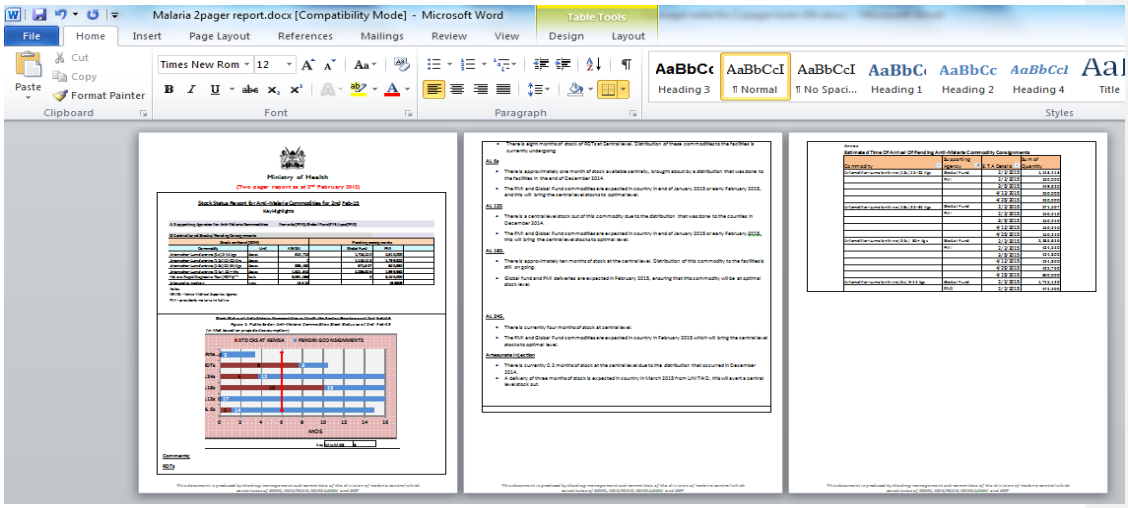
Note : Variance may be positive or negative.

Microsoft word and Microsoft Power point links

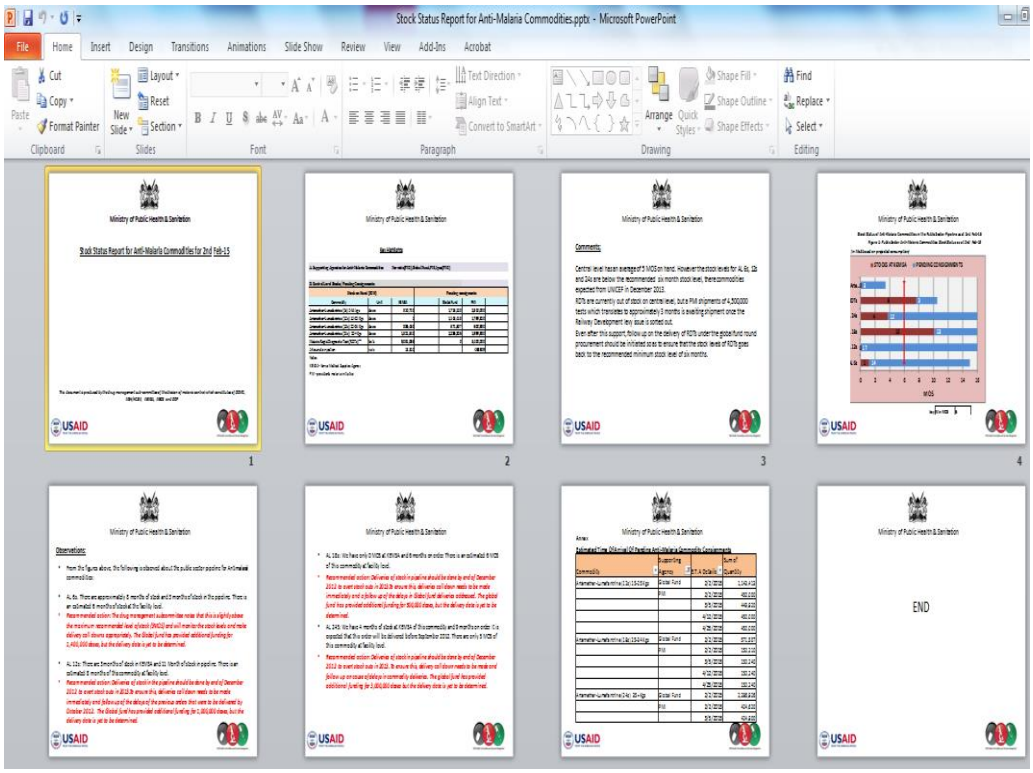
The tool should be able to dump the output tables / charts to Microsoft word and Microsoft power point and allow manual entry of comments next to each table/chart – refer to 2 pager report layouts as shown below.

Microsoft Word Output

Stock Status Monitoring Tool



Microsoft Powerpoint Output



Stock Status Monitoring Tool

Deliverables

After development and testing, deliverables to include :

1) Compiled end product

2) Product Source Code

3) Final Design Specifications document

4) User Manual

5) Training Manual

6) Test Report

7) Technical Guide (Software environment tools & components, frameworks, Installation, setup, configuration, Database Schema, Source Maps)