Republic of Uganda

Ministry of Health

Laboratory Supervision Performance Assessment and Recognition Strategy

Data Collection Tool & Support Supervision Visit Guidance

Version History:

#	VERSION	DATE	REASON
1	1.0	8th August 2017	Initial Release

This guide was prepared by:

The Uganda National Health Laboratory Services/Central Public Health Laboratories, Ministry of Health Uganda in collaboration with
The Uganda Health Supply Chain Project, Management Sciences for Health

Acknowledgements

Uganda National Health Laboratory Services/Central Public Health Laboratories, Ministry of Health, Uganda | Wilson Nyegenye, Kamaranzi Bakunda, Philip Kasibante, Bernard Baitabawo, Harriet Namanya and Jackson Were

USAID/Uganda Health Supply Chain Project, Management Sciences for Health | Amony Nancy, Moses Lubale, Henry Oundo, Macreen Mudoola and Philip Ankunda

Acronyms

AIDS:	Acquired Immune Deficiency Syndrome
CPHL:	Central Public Health Laboratories
DHIS2:	District Health Information System
HIV:	Human Immunodeficiency Virus
LMIS:	Logistics Management Information Systems
MOH:	Ministry of Health
MSH:	Management Sciences for Health
PEPFAR:	The United States President's Emergency Plan for AIDS Relief
SLIPTA:	Stepwise Laboratory Quality Improvement Process towards Accreditation
SPARS:	Supervision Performance Assessment and Recognition Strategy
UNHLS:	Uganda National Health Laboratory Services
USAID:	United States Agency for International Development

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Appendices

Section 1: Overview of Manual:

Purpose: This manual is a reference that provides guidance on how to collect and report data during a Lab SPARS supervision visit to a health facility. The intended audience are Lab SPARS Supervisors as well as those who train and oversee Lab SPARS data collection, analysis and reporting.

This manual provides definitions for all required Lab SPARS indicators and guidance on how to collect and record them.

How this Manual is organized: The first section of this manual provides a brief overview of the manual. The second section details the support supervision checklist. The third section provides a background on the Lab SPARS program. Section 4 gives guidance on the data collection process, interpretation of questions and scoring of indicators in the five thematic areas covered by Lab SPARS as well as the corresponding data requirements. Section 5 provides guidance on completion of the Lab SPARS Dashboard and finally Section 6 provides guidance on how to ensure quality during data collection. Appendix 1 is the Lab SPARS Data Collection Tool, Appendix 2 is the Lab SPARS Support Supervision Work plan Template, Appendix 3 is a list of tracer laboratory items by category and finally Appendix 4 is the Standard test menu and techniques by level of care.

Use of this Manual: This manual provides a comprehensive summary of all the Lab SPARS indicators required to be reported to the Uganda National Health Laboratories. This manual may also be applied as self-instruction or as a group training tool. It can be especially beneficial in providing basic guidance on the definitions of the required Lab SPARS indicators as well as guidance on how to collect and record data. Finally, it may be useful as a quick reference manual for all program staff. The Uganda National Health Laboratory Services will update this manual as required so that the manual remains a relevant for supervisors and program managers who are collecting and managing the data, as well as for users of the data.

Section 2: Supervision Readiness Checklist:

Purpose: In preparation for implementation of Lab SPARS Supervision activities, consider the implementation checklist below so as to not only ensure that critical steps are not left out but also efficiency of the data collection. The checklist includes major items to be addressed for successful implementation of Lab SPARS supervision, but is not an exhaustive list of all detailed steps that should be taken.

The checklist should be completed by the person who has primary responsibility for supervising the health facility. Items should be checked off only when they have been completely addressed. The checklist should be revisited prior to every Lab SPARS support supervision visit.

Checklist:

i. Planning for the Visit

□ Develop a supervision schedule/work plan (allow for some flexibility)

□ Identify and engage stakeholders (both internal and external) so as to have common understanding of visit goals and objectives

□ At least two weeks to the visit, communicate and make an appointment with the health facility so as to secure individuals to be engaged.

□ Two days to and on the day of the visit, confirm appointment with supervisee.

□ Identify and mobilize data collection resources required including but not limited to copies of the Lab SPARS data collection guidelines, data collection tool, a pen, pencil, note book and rubber as well as Lab SPARS Supervision book if required.

□ Determine and mobilize the logistics for the trip including transport & route.

ii. At the Facility

□ Starting with the health facility administration, introduce yourself to the health facility staff. Ensure that you record your visit in the health facility visitor's book if it is available.

□ Explain the purpose of your visit.

□ Request that one staff member assists and works with you through the support supervision process.

□ Arrange for feedback with staff.

iii. Prior to Data Collection

□ If it is the first visit, request for a guided tour of the health facility's laboratory, lab testing points and storage areas for laboratory commodities – Take note of key observations such as number of storage areas and use of stock cards.

□ Review the data collection tool, identify and note down separately all the Lab SPARS indicators to be covered in each of the areas visited above – This will limit the number of movements and ensure an area is completely exhausted before leaving it.

iv. Data Collection

□ Ensure that individuals managing or are responsible for the area being assessed is available.

□ Ensure that you involve the supervisee/health facility staff actively in the assessment process by;

1. Using open ended questions as much as possible (How, why...)
2. Reading out aloud the questions of interest
3. Actively participating in any corrective measures identified for example calculating & updating the average monthly consumption, physical counts and rearranging the storage areas.

□ Note down;

1. Actions undertaken during the assessment process
2. Positive/good practices identified
3. Negative practices identified

These will be important when completing the supervision report and sharing feedback.

v. Data Management & Quality Assurance

□ Review each indicator and ensure scores have been entered.

□ Review the scores and ensure that each has been correctly calculated taking care of areas that are not applicable (NA)

vi. Giving Feedback

□ Ensure that the feedback meeting is also attended by the In-charge or his/her representative

□ Thank the staff and administration for allowing you the time and opportunity to visit

□ Ensure that you state the positive/good practices you have identified

□ Read out percentage scores in each of the thematic areas taking care to explain the issues influencing level of performance.

□ Focus on behavior that can be changed comment on things that staff do well and areas for improvement

□ Ask for any reaction/questions

□ Confine yourself to the most important issues, i.e., have a limited set of specific priority areas on which to focus

Section 3: Background to Lab SPARS

Findings from an assessment conducted in 2012 revealed that commodity storage, disorganized storage areas and limited access to reliable power as being some of the major challenges at health facility. The report further showed that only 44% of the public health facilities were aware of the test menus relevant to their level of care. In addition, 7% of the facilities noted poor equipment maintenance as a concern with poor equipment functionality cited as having a major effect on alignment of test procedures as well as affecting overall laboratory logistics negatively[1].

A similar assessment conducted between 2010 and 2016 showed that documents and records was among the four worst performing components of the twelve SLMTA quality systems essentials. The average baseline score for documentation and records was 33% whereas the mid-term results indicated an average score of 48% which falls short of the 50% mark[2].

Initially implemented in the 45 MSH-led, USAID-funded program, Securing Ugandans' Right for Essential Medicines, (Uganda SURE), supported districts, SPARS was rolled out to other districts by implementing partners to cover a total of 105 districts as of July 2013. The Uganda SURE follow on program, Uganda Health Supply Chain (UHSC) program, (UHSC), is continuing with the medicines SPARS roll out to all districts in the country.

Implementation of SPARS by Medicines Management Supervisors (MMS) contributed to an improvement in medicines management with evidence from over 1000 health facilities indicating that SPARS has been successful in not only in improving medicines management but has also gone a long way in building health workers overall competence through regular on-the-job training and mentoring.

Therefore following practical considerations, stakeholder's recommendations and a comprehensive laboratory assessment, SPARS was identified as the most strategic option for UNHLS to roll out at facility level so as to improve laboratory logistics management.

Crucially, Lab – SPARS is expected to; improve stock and storage management practices at all health facilities, support the implementation of revised and new procedures in laboratory commodity management, improve utilization of resources, improve the laboratory logistics information management system, develop creative strategies to address issues and problems identified at health facility stores while eventually ensuring laboratory commodity availability.

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[1] Pedun MO and Larsen CH. (2012). Uganda Laboratory Logistics System Assessment (Uganda). Kampala: SURE-USAID.

[2] Yao et al, K. (2010). Improving Quality Management Systems of Laboratories in Developing Countries: An Innovative Training Approach to Accelerate Laboratory Accreditation. American Journal of Clinical Pathology, Vol 134(3): 401 - 409.

Section 4: Guidelines on Data Collection

<table>
<tr><th colspan="2">Cover Page</th></tr>
<tr><td colspan="2">The region that should be included in this form is the region which is allocated to the respective district in the DHIS2 System.
Ensure you enter all the details on the left side of the form before moving to the right. The last supervision number and other details of the same of the selected facility shall populate in the first part of the right part of the tool.
Persons supervised should include; the Lab In-charge, Records and Stores Officer
Ensure you have completed the cover page before moving on the other pages.</td></tr>
<tr><th colspan="2">I. Stock Management</th></tr>
<tr><td>Availability of reagents and correct use of stock card and stock book (Indicator 1-9)</td><td>This section looks at availability of reagents, appropriate use of stock cards and stock books at health facility stores as well as compliance with inventory control limits for the facility and order fill rates.
C1: To complete this section, determine the tests performed at the health facility’s laboratory.
Score 1 if test is done and 0 if test is not done at the health facility’s laboratory
If score is 0, (test is note done), then indicate NA from C2 to C22
C2: Only score in this section if the score in C1 is 1
To Complete this section, physically inspect the storage area to ascertain if commodity is available
Verify that the commodity has NOT expired
Score 1 if commodity is available and NOT expired
Score 0 if item is not available or if all items in storage are expired
Note down quantity of items expired, quarantine and update the facility expired commodity tracker
C3: Score 1 if the stock card is available for that specific item
Be careful to consider similar items with different pack sizes
If the Score is 0, then score 0 for C4 – C13
Also if the score is 0 for C3, score 0 for C15 – C20
C4: To complete this section, physically inspect the stock card
Score 1 if physical count was done and clearly indicated as PC/Physical count using a red pen in the last 3 complete months
Or else score 0
C5: To complete this section, physically inspect the stock card.</td></tr>
</table>

	▪ Only score 1 if the Health facility name and Item description and Pack Size and Unit of Issue and AMC and Max stock quantity and Min stock quantity and item storage conditions are recorded ▪ Please Note that the AMC, Min and Max stock quantity should be completed in Pencil ▪ Every page of the stock card should be correctly filled (check to see page number) 6. C6: Record the balance on hand from the item stock card 7. C7: To complete this section, conduct a physical count of the item in the store ▪ Take note and DO NOT consider any expired items found ▪ If expired items found, quarantine and update the facility expired commodity tracker 8. C8: To complete this section, compare the figure in C6 and C7 ▪ Score 1 only if the two figures agree 100% or else, score 0 9. C9: To complete this section, inspect the "Quantity Out" column on the stock card ▪ Add/Total up and record the quantities of item issued out in the last 3 complete months 10. C10: To complete this section, inspect the "Balance on Hand" column on the stock card specifically for the last 3 complete months ▪ Review and identify any point/date in the last 3 complete months when the stock on hand was zero ▪ Identify the date/point at which the stock was replenished ▪ Count the number of days between the dates when the stock on hand was zero and when the stock was replenished ▪ Record this as "the number of days stocked out" ▪ If there is no point at which the stock on hand was zero, write 0 as the number of stock out days. 11. C11: To complete this section, inspect the AMC section of the stock card ▪ Record the AMC indicated on the stock card ▪ Write NR if AMC is not recorded on the stock card 12. C12: To calculate the AMC, consider below: $\frac{Total\ Consumption\ in\ the\ last\ 3\ complete\ months}{3}$

	▪ If the value recorded on C10 is greater than zero, calculate the "adjusted AMC" using the formula below: $\left(\frac{Total\ consumption\ in\ the\ last\ 3\ complete\ months}{90 - Days\ out\ of\ stock}\right) x30$ 13. C13: To complete this section, compare the figure in C11 and C12 ▪ Score 1 only if the two figures agree 100% or else, score 0 ▪ Write NR is there is no record in C11 14. C14: Check to see if stock book is present ▪ Score 1 if stock book is present and 0 of not present 15. C15: To complete this section, physically inspect the stock book. ▪ Only score 1 if all the columns/parameters in the stock book are recorded and up to date ▪ Score 0 if there are gaps and not up to date 16. C16: Review and record the current AMC or adjusted AMC written in the stock book 17. C17: Calculate & Record the AMC/adjusted AMC based on the consumption data recorded in the stock book 18. C18: To complete this section, compare the figure in C16 and C17 ▪ Score 1 only if the two figures agree 100% or else, score 0 19. C19: To complete this section, inspect the "Balance on Hand" column on the stock card specifically for the last 4 complete months ▪ Review and identify any point/date in the last 4 complete months when the stock on hand was zero ▪ Identify the date/point at which the stock was replenished ▪ Count the number of days between the dates when the stock on hand was zero and when the stock was replenished ▪ Record this as "the number of days stocked out" ▪ If there is no point at which the stock on hand was zero, write 0 as the number of stock out days. 20. C20: To complete this section, inspect the "Balance on Hand" column on the stock card specifically for the last 4 complete months. ▪ Calculate the max stock quantity by multiplying the AMC recorded in C12 by 4 – record answer in your notebook ▪ Compare this answer with the balance on hand on the day of visit

	▪ Score 1 if the balance on hand, (on C7 is less than the max stock quantity calculated ▪ Score 0 if balance on hand is greater than the max stock quantity calculated 21. C21: To complete this section, request and obtain the most recent order form for which item were delivered. Also request and obtain the delivery note corresponding to that order form. ▪ Check and verify using the two documents above if the item was ordered and delivered ▪ Score 1 if the item was ordered and delivered ▪ Also score 1 if the item was not ordered and not delivered ▪ Score 0 if the item was ordered for and not delivered ▪ Also score 0 if the item was delivered but not ordered for ▪ Record "NR" if either the Delivery note or Order form is missing on day of visit 22. C22: To complete this section, request and obtain the most recent order form for which item were delivered. Also request and obtain the delivery note corresponding to that order form. ▪ In your note book, from order form record the quantity ordered for the item ▪ From the corresponding delivery note, record the quantity of the item actually delivered ▪ Score 1 if the quantity on the order form matches that on the delivery note 100% or else score 0 ▪ Record NA if item is pushed to facility and not ordered for example Malaria RDTs ▪ Record "NR" if either delivery note or order form is not available **How to Score the Indicator:** 1. Select **5** commodities for which scores will be based – Apply the VEN principle during selection. – Refer to the data collection tool instructions and list of tracer lab items for guidance. 2. For columns C2, C3, C5, C8, C13, C15, C18, C20 & C22 Sum up the scores for the 5 selected and indicate on the respective summation on the shaded area on Table 1 3. To obtain the score for Indicator 1, Availability of reagents for selected tests on day visit: $\frac{Sum\ C2}{5}$ 4. To obtain the score for Indicator 2, Stock card availability: $\frac{Sum\ C3}{5}$

	5. To obtain the score for Indicator 3, Correct filling of stock card: $\frac{Sum\ C5}{5}$ 6. To obtain the score for Indicator 4, Does physical count agree with stock card balance: $\frac{Sum\ C8}{5}$ 7. To obtain the score for Indicator 5, Is AMC in the stock card correctly calculated: $\frac{Sum\ C13}{5}$ 8. To obtain the score for Indicator 6, Is stock book correctly filled?; $\frac{Sum\ C15}{5}$. Multiply result by 100 to obtain percentage. 9. To obtain the score for Indicator 7, Is AMC in the stock book correctly calculated? $\frac{Sum\ C18}{5}$. Multiply the result by 100 to obtain the percentage. 10. To obtain the score for Indicator 8, Number of items not overstocked: $\frac{Sum\ C20}{5}$. Multiply result by 100 to obtain the percentage. 11. To obtain the score for Indicator 9, Order fill rate: $\frac{Sum\ C22}{5}$, multiply result by 100 to obtain the percentage. 12. To obtain the overall score for Stock Management, Sum up scores of indicators 1 – 9 and divide by 9 – multiply result by 100 to obtain percentage
II. Storage Management	
Cleanliness of the laboratory including storage facilities and store (**Indicator 10**)	1. Assess the level cleanliness and tidiness of the laboratory and store by observing to see if; ▪ Area is well organized and free of clutter ▪ Clean and free of dust and pests ▪ There are designated places for all inventory items for easy access 2. Score 1 if the requirements above are met for a,b,c and d or else score 0 3. Record "NA" if store is not available(10a and 10b) **How to Score the Indicator:** 1. Add up scores of a-d to obtain the sum 2. Discounting for areas that are not applicable where necessary, determine the final score using the formula; $\frac{Sum\ a-d}{(4-NA)}$ 3. Multiply result by 100 to obtain percentage
Hygiene of the laboratory (**Indicator 11**)	a. Check and verify that water in the laboratory is distributed through pipes and fixtures – Score 1 if water is distributed through pipes and fixtures or else score 0

	b. For this indicator you will need to verify the presence of a hand washing facility and that it separate from the staining area – Score 1 if hand washing facility is present and separate from the staining area or else score 0. c. Observe and determine if the hand washing facility is present, easily accessible, clean and functional – Score 1 if the hand washing facility is present, easily accessible, clean and functional or else score 0 d. Check and verify that waste water is discharged through pipes to a sewer system to prevent environmental contamination – Score 1 if waste water is discharged through pipes to a sewer system or else score 0 e. Check and verify that soap for washing hands is present at the hand washing facility at the time of visit – Score 1 if soap is present at hand washing facility or else score 0 Note: Please include comments for any response with "NA" **How to Score the Indicator:** 1. Add up scores of a-d to obtain the sum 2. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ a-e}{(4-NA)}$ 3. Multiply result by 100 to obtain percentage
System for storage of laboratory reagents and supplies (**Indicator 12**)	**Note!** 1. Before completing this section, assess to determine if laboratory commodities at the health facility are stored in the; i. Main/Central store ii. Laboratory Store 2. If both storage points are available & laboratory commodities are stored in both, assess and score both according to the instruction below 3. If only one storage point is applicable, score accordingly & indicate NA on the alternative **Instructions:** a. Observe and verify that there are shelves or cupboards for storage of items – Score 1 if present and 0 if not b. Check and verify if the lab reagents and supplies are stored on the shelves/cupboards identified in part a – Score 1 if lab reagents and supplies are stored on the shelves/cupboards identified in part a and 0 if not

	c. Observe if stock cards are kept next to the lab reagents and supplies or in a file – Score 1 if stock cards are kept next to the lab reagents and supplies or in a file d. Observe if lab supplies are stored on shelves/in cupboards in a systematic manner – Score 1 if items are stored by category or alphabetical order or else score 0 e. Observe to see if shelves are labelled appropriately – Score 1 if shelves are labelled appropriately or else score 0 **How to Score the Indicator:** **If only one storage point is present;** 1. Add up scores of a-d to obtain the sum 2. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ a-e}{(5-NA)}$ Multiply result by 100 to obtain percentage **If two storage points are present;** 1. For the Main Store, add up scores of a-d to obtain the sum 2. For the Lab Store, add up scores of a-d to obtain the sum 3. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ Main\ Store+Sum\ Lab\ Store}{(10-NA)}$ 4. Multiply result by 100 to obtain percentage
Storage conditions for laboratory supplies/reagents(**Indicator 13**)	**Note!** 1. Before completing this section, assess to determine if laboratory commodities at the health facility are stored in the; i. Main/Central store ii. Laboratory Store 2. If both storage points are available & laboratory commodities are stored in both, assess and score both according to the instruction below 3. If only one storage point is applicable, score accordingly & indicate NA on the alternative **Instructions:** a. Observe to see if there are droppings or other evidence of pests/harmful insects/rodents – Score 1 if there is no evidence of pests/rodents/harmful insects and score 0 if there are signs of pests/rodents/harmful insects b. Observe to see if the laboratory items are protected from direct sunlight using either painted glass, curtains or blinds – Score 1 if items are protected from direct sunlight or else score 0 c. Check for thermometer and daily room temperature records to verify that the storage room temperature is monitored – Score

	1 if thermometer and daily room temperature records are both available or else score 0 d. Observe to determine if the storage room temperature can be is being controlled at the time of visit through open windows, a fan or air conditioning system – Score 1 if the storage room temperature is being controlled at the time of visit or else score 0 e. Observe to determine if the roof in the storage area is in good condition and without signs of leakages – Score 1 if roof is in good condition and 0 if not f. Observe to determine if the storage area allows for; ▪ sufficient holding capacity for up to max levels ▪ easy access to commodities stored ▪ optimum workflow - Score 1 if storage area meets all the above requirements and 0 if it does not g. Observe to determine if the storage area is lockable and that access to it is restricted to only authorized personnel – Score 1 if the storage area is lockable and access to it is restricted or else score 0 h. Observe to determine if fire safety equipment is ▪ Present ▪ Accessible and ▪ Applicable to the storage area - Score 1 if the above requirements are met in regard to fire safety equipment or else score 0 i. Observe to determine if there is a functional cold storage equipment in the storage area ▪ Please note that the cold storage equipment may be located in the laboratory and should therefore be assessed and scored in accordingly ▪ Score 1 if cold storage equipment is present and functional or else score 0 j. Observe and determine if any foodstuffs and beverages are kept in the refrigerator – Score 1 if there is NO evidence of foodstuffs and beverages or else score 0 k. Check for an external thermometer and refrigerator temperature records to verify that the refrigerator temperature is monitored daily – Score 1 if external thermometer is present and daily refrigerator temperature records are both available or else score 0

	l. Check if boxes with commodities are placed directly on the floor – Score 1 only if boxes with commodities are not placed directly on the floor but are on pallets or else score 0 **How to Score the Indicator:** **If only one storage point is present;** 1. Add up scores of a-l to obtain the sum 2. Discounting for areas that are not applicable where necessary, determine the score using the formula; $\frac{Sum\ a-l}{(12-NA)}$ Multiply result by 100 to obtain percentage **If two storage points are present;** 1. For the Main Store, add up scores of a-l to obtain the sum 2. For the Lab Store, add up scores of a-l to obtain the sum 3. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ Main\ Store+Sum\ Lab\ Store}{(24-NA)}$ 4. Multiply result by 100 to obtain percentage
Storage practices of laboratory (**Indicator 14**)	**Note!** 1. Before completing this section, assess to determine if laboratory commodities at the health facility are stored in the; i. Main/Central store ii. Laboratory Store 2. If both storage points are available & laboratory commodities are stored in both, assess and score both according to the instruction below 3. If only one storage point is applicable, score accordingly & indicate NA on the alternative **Instructions:** a. Verify that there is an up to date health facility expired and spoilt commodity register/tracker present – Score 1 if expired & spoilt commodity register is present and up to date or else score 0 b. Determine if there is a place to store expired commodities separately – Score 1 if a separate location is available to store expired commodities or else score 0 c. Physically; ▪ Check to determine if products which expire first are placed in front of those with a later expiry date on the shelves and issued accordingly on the stock card - Score 1 only if products which expire first are placed in front of those with a later expiry date on the shelves and issued accordingly on the stock card or else score 0

	d. Observe to determine if bottles that have been opened in the store are labelled with the date of opening. – Score 1 if all opened bottles in the storage area are labelled with the date of opening or else score 0 e. Observe to determine if bottles that have been opened in the store have a lid on. – Score 1 if all opened bottles in the storage area have a lid on or else score 0 f. Observe to determine if all chemicals in the storage area clearly labelled with the chemical name and hazard markings – Score 1 if all chemicals in storage area are labelled with the chemical name and hazard markings g. Observe to determine if flammable chemicals are store away from direct sunlight and below their flashpoint – Score 1 if all flammable chemicals in storage area are stored away from direct sunlight and below their flashpoint – or else score 0 h. Observe to determine if corrosive and flammable chemicals are kept separate from each other – only score 1 if flammable and corrosive chemicals are kept separately in the storage area **How to Score the Indicator:** **If only one storage point is present;** 1. Add up scores of a-h to obtain the sum 2. Discounting for areas that are not applicable where necessary, determine the score using the formula; $\frac{Sum\ a-h}{(8-NA)}$ 3. Multiply result by 100 to obtain percentage **If two storage points are present;** 1. For the Main Store, add up scores of a-h to obtain the sum 2. For the Lab Store, add up scores of a-h to obtain the sum 3. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ Main\ Store+Sum\ Lab\ Store}{(16-NA)}$ 4. Multiply result by 100 to obtain percentage
III. Ordering, Receipt and Recording	
Reorder level calculation (**Indicator no. 15**)	a. Calculation of quantity to order; this section assesses whether all the facility orders were in the right quantity. ▪ Confirm this by selecting an item form either the stock card or stock book and requesting the supervisee to take you through the process of calculating how much of the selected item they would order. ▪ Score 1 if quantity calculated is correct and 0 if quantity calculated is wrong

	b. Request to obtain/observe a copy of the standard national test menu by level of care – Score 1 if standard test menu is present on day of visit and 0 if not c. This section assesses if the ordering process adheres to the VEN classification. For any 5 selected items that appear in all three previous orders, score 1 if all the 5 are vital else score 0. Note: for assessment of items refer to EMHS list of Uganda by level Sum up scores for a, b and c, then divide by 3 minus NA.
Timeliness of orders (**Indicator 16**)	**Note!** To complete this section request for a copies of; ▪ Of the current National warehouse ordering & delivery schedule. (Consider warehouse that supplies majority of the health facility's supplies) ▪ copies of the most recent order form with a corresponding delivery note **Instructions:** 1 & 2. This section assess the timeliness with which orders are placed and delivered at the health facility. ▪ Compare the scheduled date for placing orders with the actual date of ordering by the facility. 3. Score 1 if the date the order was actually placed is before or on the ordering schedule date as per warehouse schedule Score 0 if the date the order was actually placed is after the ordering scheduled date as per the warehouse schedule 4&5. In order to assess the timeliness of delivery of orders placed by the health facilities, compare the scheduled date of delivery with the actual date of delivery from the warehouse. ▪ Compare the scheduled date for delivery with the actual date of delivery by the warehouse as reflected on the delivery note. 6. Score 1 if the date the delivery was actually made by the warehouse is before or on the delivery schedule date as per warehouse schedule Score 0 if the date the delivery was actually made is after the delivery scheduled date as per the warehouse schedule **How to Score the Indicator:** 1. Add up scores for row 3 and 6 obtain the sum 2. Divide the sum obtained by 2 to obtain the final score using the formula here: $\frac{Score\ row\ 3\ + Score\ row\ 6}{2}$ 3. Multiply result by 100 to obtain percentage

Laboratory product catalogue availability (**indicator 17**)	1. Ask to be shown the official product catalogue from the national warehouses, ▪ Score 1 If available else score 0.
IV. Laboratory Equipment	
Facility equipment inventory (**Indicator 18**)	**Note!** This section assesses the availability and functionality of the facility equipment inventory **Instructions:** 1. Request for a copy of the inventory equipment form to confirm whether it is available. ▪ Score 1 if present of the said or else score 0. 2. Does facility have equipment inventory? Check if equipment inventory is available. ▪ Score 1 if available and 0 if not. 3. Inventory updated in last 1 year: check if status of both newly acquired and old equipment has been entered into the inventory form. ▪ Score 1 the inventory is updated or else score 0. 4. Request to obtain a copy of the equipment standardisation guideline to confirm whether it's available. ▪ Score 1 if available or else score 0. **How to Score the Indicator:** 1. Add up scores of 1-4 to obtain the sum 2. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ 1-4}{(4-NA)}$ 3. Multiply result by 100 to obtain percentage
Equipment management plan(**Indicator 19)**	**Instructions:** 1. Request for and review service information for all major equipment in the laboratory. Major equipment include CD4, Haematology, Chemistry, Calorimeter and Microscope ▪ Request for books of life for major equipment (vendor's installation records, laboratory's validation plan and records, calibration, maintenance and service schedules & manufacturer notification inserts & alerts) ▪ Also refer to contract details, engineer/service provider preventive maintenance records or service tags placed on the equipment ▪ Only score 1 if this information is available for ALL available equipment or else score 0.

	2. Review service the service information for each equipment above to determine if all equipment are serviced at manufacturer recommended intervals. ▪ Only score 1 if all equipment are serviced at manufacturer recommended intervals or else score 0 3. Request for and review the lab register and for the last 5 days and determine if Internal Quality Control records are available for all the major equipment including CD4, Chemistry, Haematology, Calorimeter and Microscope. ▪ Determine if critical values are documented and is there evidence of use and documentation. ▪ Only score 1 if internal quality control records are available for all equipment 4. Request for to confirm that Manufacturer's operator manuals are available for major equipment including; CD4, Haematology, Chemistry, Calorimeter and Microscope ▪ Only score 1 if manufacturer's operator manuals are available for all these major equipment or else score 0 **How to Score the Indicator:** 1. Add up scores of 1-4 to obtain the sum 2. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ 1-4}{(4-NA)}$ 3. Multiply result by 100 to obtain percentage
Equipment functionality(**Indicator 20**)	Instructions: 1. Determine if the laboratory has provided uninterrupted testing services (able to release results to patients) with no disruptions due to equipment failure in the last two months/since last day of visit ▪ On the first column of the table, only score 1 if the laboratory has provided testing services for each of the equipment listed without any interruptions or else score 0 ▪ If the equipment is not available at the facility, indicate NA ▪ If the score is 0, proceed to the next columns and, indicate: I. Total duration in months when the laboratory equipment was down By ticking in the appropriate cell, indicate if: II. Laboratory testing was interrupted due to equipment hardware or software issues III. Lack of reagents/stock outs

	IV. Other factors including power (electricity interruptions), manpower 2. On the last column of the table, indicate in months, the duration of time it took for the interruption to be resolved, the response time **How to Score the Indicator:** 1. Add up scores for column 1 2. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ 1-6}{(6-NA)}$ 3. Multiply result by 100 to obtain percentage
Equipment utilisation(**Indicator 21**)	**Note!** This indicator assesses the proportion of tests a piece of equipment is operating per month per month. The assessment should be done for chemistry, haematology and CD4 equipment only. **Instructions:** For column: C. Determine the average number of days the given equipment in each category available at the facility runs per month (consider last 2 complete months) D. Review the respective lab registers to determine the average number of tests done in last 2 complete months E. Calculate & record the "average expected output" for the equipment using the formula below: $Column\ B \times Column\ C$ F. Calculate & record the percentage utilization of the equipment selected using the formula below: $\left(\frac{Result\ for\ Column\ D}{Result\ for\ Column\ E}\right) \times 100$ G. Consider result in column F and: ▪ Only score 1 if the result in column F is $\geq 70\%$ ▪ Score 0 if the result in column F is $< 70\%$ H. Ask the specific equipment operator for the maximum number of tests the specific equipment can perform in a normal working day (8 working hours) I. Compare the result on column H and column B: ▪ Only Score 1 if the result in column B is equal to the result in column H or else score 0 **How to Score the Indicator:** 1. If equipment is not available, please indicate NA

	2. Where applicable add up the score of column G and Column I to obtain the sum 3. For each equipment, apply the formula below to obtain the score: $\frac{Score\ Column\ G+Score\ Column\ I}{(2)}$ 4. Multiply result by 100 to obtain the percentage 5. To obtain the final score for the indicator, sum up the scores for CD4, Chemistry & Haematology equipment, apply the formula below: $\frac{Sum\ of\ Score\ for\ Chemistry,\ CD4\ \&\ Hematology\ Equipment}{(3-NA)}$ 6. Multiply result by 100 to obtain the percentage
V. Laboratory Information System	
Availability of laboratory data collection forms(**Indicator 22**)	**Instructions:** For rows A – N; considering the level of care of the facility , check and verify that the data collection forms are; 1. Available 2. Official for Ministry of Health 3. Current ▪ Score 1 only if the above criteria are met or else score 0 ▪ Record "NA" – if document does not apply to the health facility or if the laboratory does not perform the test **How to Score the Indicator:** 1. Add up scores of A-N to obtain the sum 2. Discounting for areas that are not applicable, determine the final score using the formula; $\frac{Sum\ A-N}{(14-NA)}$ 3. Multiply result by 100 to obtain percentage
Availability of HMIS 105 reports(**Indicator 23**)	**Instructions:** For row: 1. Check and verify that a copy of the HMIS 105 section 7, page 9 monthly report is kept in the laboratory (request for a file) 2. Check and verify that a copies for the last 2 complete of the HMIS 105 section 7, page 9 monthly report are filed in the laboratory. ▪ Score 1 if the HMIS 105; section 7; page 9 is sent to the facility in charge and copies of the previous two months are available, else score 0 **How to Score the Indicator:** 1. Add up scores of 1 & 2 to obtain the sum 2. Determine the final score using the formula; $\frac{Sum\ 1\&\ 2}{2}$

	3. Multiply result by 100 to obtain percentage
Timeliness of HMIS105 reports(**Indicator 24**)	**Instructions:** 1. Request to obtain and review page 10 of the most recent HMIS 105 report that was submitted to the next level (health sub-district/District) ▪ From page 10, record the date the HMIS 105 report actually submitted to the next level ▪ Compare date the report submitted to the next level and the date the report was expected to have been submitted **How to Score the Indicator:** ▪ Score 1 only if the actual date of submission is before or on the expected date of submission or else score 0 ▪ This score is equivalent to the final score ▪ Multiply result by 100 to obtain percentage
Completeness and accuracy of HMIS 105 report: section 6 and 7 (**Indicator 25**)	**Note!** This indicator assesses whether all fields on the HMIS 105 report are correctly filled. **Instructions:** **a.** Part i) – Verify and Score 1 if all sections on the HMIS 105 report section 6 have been filled or else score 0. Part ii) - Verify and Score 1 if all sections on the HMIS 105 report section 7 have been filled or else score 0. **How to Score Indicator 25, part a:** 1. Add up scores of i & ii to obtain the sum 2. Determine the final score using the formula; $\frac{Sum\ i\ \&\ ii}{2}$ Multiply result by 100 to obtain percentage **b.** To complete this section obtain and refer to section 6, page 8 (Stock status report) of the last submitted HMIS 105 report as per the schedule and stock cards for Determine, Stat-pak, Unigold/SD-Bioline, CD4 test reagent, Malaria RDT, ZN reagent & Blood for transfusion. ▪ On the 1st column of the table, score 1 if both the stock cards/books and HMIS 105 reports for the last submitted month as per the schedule ▪ For the "Reported" section refer to the HMIS report section 6, page 8 and for each item & taking note of the UNITS OF REPORTING, record the 1) Quantity consumed 2) Number of days out of stock 3) Stock on Hand

	▪ For the "Actual (recounted) stock card/book" section refer to the corresponding period of specific item's stock card/book for each item & taking note of the UNITS of REPORTING record the 4) Quantity consumed 5) Number of days out of stock 6) Stock on Hand **How to Score Indicator 25 Part b:** To score this indicator, compare the values recorded in both sections. ▪ On the final column of the table, only score 1 if the values reported agree with those in the stock card/book 100% - If not, score 0 ▪ Also score 0 if there is either missing information or stock card/stock book is not available or not updated ▪ Record "NA" if test is not done at the health facility. ▪ Add scores of rows 1 – 7 to obtain the sum for part b ▪ Discounting for areas that are not applicable, apply the formula below to obtain the final score for part b: $$\frac{Sum\ 1-7}{7-NA}$$ **c.** To complete this section of the indicator, refer to section 7, page 9 & 10, (Laboratory tests) of the last submitted HMIS 105 report as per the schedule and the laboratory registers corresponding to the same period. ▪ On the 1st column, only score 1 if both the HMIS 105 report and respective register is available ▪ For the "No. of tests reported in HMIS 105" section refer to the HMIS report section 7, page 9 and for each record the number of tests done. ▪ For HIV, please consider the total number of tests for determine on page 10 of the HMIS 105 report (summary of HIV tests by purpose) ▪ For the "No of tests as recorded in the lab register in that month" section refer to the corresponding period of specific test's register and for each record the number of tests done. **How to Score Indicator 25 Part c:** ▪ To score this indicator, compare the values recorded in both sections. ▪ Only score 1 if the values reported agree with those in the stock card/book 100% - If not, score 0

	▪ Also score 0 if there is either information is missing ▪ Record the score on column 4 of the table ▪ Record "NA" if test is not done at the health facility. ▪ Discounting for areas not applicable, apply the formula below to obtain the final score for part c: $$\frac{Sum\ of\ scores\ 1-6}{6-NA}$$ **How to Obtain Final Score for Indicator 25** ▪ Add up final scores obtained for part a, b and c ▪ Apply the formula below to obtain the final score: $$\frac{Sum\ of\ scores\ a, b\ \&\ c}{3}$$ ▪ Multiply result by 100 to obtain percentage
Availability of displayed information on day visit(**Indicator 26**)	**Instructions:** Check for any display of the monthly laboratory report summaries preferably in graphical format. Check walls and/or notice boards. If there is evidence of display of the monthly laboratory statistics in the past 3 months. ▪ Column 1: Score if there is any display of monthly laboratory statistics or score 0 ▪ Column 2: Score only if the displayed laboratory statistics have been updated in the last quarter (3 months) or else score 0. **How to Score the Indicator:** ▪ Add up final scores obtained for column 1 and column 2 ▪ Apply the formula below to obtain the final score: $$\frac{Sum\ of\ scores\ for\ column\ 1\ and\ column\ 2}{2}$$
Filing of reports(**Indicator 27**)	**Note!** This indicator assesses the record keeping practices of the health facility staff particularly the filing system. **Instructions:** ▪ For each of the documents listed: 1-HMIS 105(6), 2-(Bi-monthly report & HIV test kit order calculation , 3-HMIS 018 and 4-requisition & issue vouchers, - Check that they are filed properly: ✓ Clearly labelled ✓ Arranged either chronologically or in alphabetical order). **How to Score the Indicator:**

	▪ Only score 1 if the documents listed meet the criteria above & score 0 if either of the criteria is not met ▪ Apply the formula below to obtain the final score: $\frac{Sum\ of\ scores\ 1-4}{4}$ ▪ Multiply result by 100 to obtain percentage

Section 5: Completing the Lab SPARS Dashboard and Spider Graph

This section provides guidance on completion of the Lab SPARS Dashboard and Spider Graph upon completion of data collection.

Instructions:

Stock Management Indicators (9)

1. Availability of reagents for selected tests on day of visit – Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
2. Stock card availability - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
3. Correct filling of stock card - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
4. Does physical count agree with stock card balance? - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
5. Is AMC in the stock card correctly calculated? - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
6. Is the stock book correctly filled? - - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
7. Is AMC in the stock book correctly filled? - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
8. Number of items not overstocked? - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage
9. Order fill rate - - Refer to the summary table on page 4 of data collection tool & obtain the score & percentage

How to compute the Spider Graph Score:

- Sum up the scores of indicator 1 – 9 to obtain the total score
- Discounting for areas not applicable, apply the formula below to obtain the spider graph score:

$$\left(\frac{Total\ score, 1-9}{9-NA}\right) x\ 5$$

Storage Management Indicators (5)

10. Cleanliness of laboratory including storage facilities – Refer to page 5 of the data collection tool to obtain the final score and percentage
11. Hygiene of the laboratory – Refer to page 5 of the data collection tool to obtain the final score and percentage
12. System for storage of laboratory reagents and supplies – Refer to page 5 of the data collection tool to obtain the final score and percentage
13. Storage conditions for laboratory reagents/supplies – Refer to page 6 of the data collection tool to obtain the final score and percentage

14. Storage practices of laboratory reagents – Refer to page 6 of the data collection tool to obtain the final score and percentage

How to compute the Spider Graph Score:

- Sum up the scores of indicator 10 – 14 to obtain the total score
- Discounting for areas not applicable, apply the formula below to obtain the spider graph score:

$$\left(\frac{Total\ score, 10-14}{5-NA}\right) x\ 5$$

Ordering, Receipt and Recording (3)

15. Reorder level calculations – Refer to page 7 of the data collection tool to obtain the final score and percentage
16. Adherence to ordering and delivery procedures – Refer to page 7 of the data collection tool to obtain the final score and percentage – Refer to page 7 of the data collection tool to obtain the final score and percentage
17. Availability of a laboratory product catalogue – Refer to page 7 of the data collection tool to obtain the final score and percentage

How to compute the Spider Graph Score:

- Sum up the scores of indicator 15 – 17 to obtain the total score
- Discounting for areas not applicable, apply the formula below to obtain the spider graph score:

$$\left(\frac{Total\ score, 15-17}{3-NA}\right) x\ 5$$

Laboratory Equipment Indicators (5)

18. Developing and maintaining the facility equipment inventory - Refer to page 8 of the data collection tool to obtain the final score and percentage
19. Equipment management to ensure equipment functionality - Refer to page 8 of the data collection tool to obtain the final score and percentage
20. Equipment functionality Refer to page 8 of the data collection tool to obtain the final score and percentage
21. Equipment utilization Refer to page 9 of the data collection tool to obtain the final score and percentage

How to compute the Spider Graph Score:

- Sum up the scores of indicator 15 – 17 to obtain the total score
- Discounting for areas not applicable, apply the formula below to obtain the spider graph score:

$$\left(\frac{Total\ score, 18-21}{4-NA}\right) x\ 5$$

Laboratory Information Systems (6)

22. Availability of laboratory data collection forms - Refer to page 10 of the data collection tool to obtain the final score and percentage
23. Availability of HMIS 105 reports - Refer to page 10 of the data collection tool to obtain the final score and percentage
24. Timeliness of HMIS 105 reports - Refer to page 11 of the data collection tool to obtain the final score and percentage
25. Completeness and accuracy of HMIS 105 report - Refer to page 12 of the data collection tool to obtain the final score and percentage
26. Availability of displayed information on day of visit - Refer to page 12 of the data collection tool to obtain the final score and percentage
27. Filing of reports - Refer to page 12 of the data collection tool to obtain the final score and percentage

How to compute the Spider Graph Score:

- Sum up the scores of indicator 22 – 27 to obtain the total score
- Discounting for areas not applicable, apply the formula below to obtain the spider graph score:

$$\left(\frac{Total\ score, 22-27}{6-NA}\right) x\ 5$$

Section 6: Data Collection Quality Assurance:

The Lab SPARS data collection quality assurance (QA) consists of a series of steps that begin prior to data collection through to post data collection activities to ensure that the data collected complete, accurate and consistent so as to inform proper decision making not only at the health facility but also at central level.

Steps for Data Collection QA

1. **Pre-data Collection:**
   - ✓ Lab SPARS Supervisors and Data managers should be trained on the data collection procedures
   - ✓ Lab SPARS Supervisors should be trained on how to use the Lab SPARS data collection tool, the variables they are collecting, and best methods for interviewing staff at health facilities through a practical field orientation program.

2. **Data Collection:**
   - ✓ Reference should be made to this guide during the process of data collection
   - ✓ While at the health facility, Lab SPARS Supervisors should ask every question in the Lab SPARS data collection tool
   - ✓ Lab SPARS Supervisors should ask the questions in a manner best suited for the client's level of understanding without altering the meaning and objective
   - ✓ Lab SPARS Supervisors should review responses during data collection to prevent the collection of inconsistent data
   - ✓ Lab SPARS Supervisors should take note of any corrective actions taken during data collection
   - ✓ The data collection tool should be reviewed for completeness, consistency and accuracy prior to conclusion of the data collection process.
   - ✓ The Lab SPARS Supervisor should ensure that no required data are missing from the data collection tool

3. **Post Data Collection**
   - ✓ The DLFP should periodically conduct spot checks at all health facilities in the district to verify the data collected
   - ✓ Regional and district level review meetings should be conducted to review data from the districts at a regular interval
   - ✓ Additional QA measures will be conducted by the Data Analyst at the central lev

Appendix 1: Lab SPARS Data Collection Tool

Appendix 2: Lab SPARS Support Supervision Work plan Template

Lab SPARS Support Supervision Work plan Template

Instructions:

1) **Frequency:** Every work plan submitted should cover a period of two months and should be submitted by the 5th of every month following discussion with the DLFP
2) **No. of Visits:** A maximum of 5 Lab SPARS visits should be planned for and conducted in a month
3) **Actions/Activities:** Input the number of Lab SPARS visit and key objective of visit based on the results of the previous visit
4) **Timing of Visit**: Indicate when your visit will occur by placing an X in the relevant week of the Month when the visit is to be made. You can adjust the time listed to fit any changes.

#	Details of Lab SPARS Supervisor	Health Facility	Actions/Activities	Month: December, 2017				Month: January, 2018				Comments
				WK 1	WK2	WK3	WK4	WK 1	WK2	WK3	WK4	
1	*Indicate Name and contact of Lab SPARS Supervisor e.g. Webisa Ismail, 0701364XXXX, Mbale District*	*Directions: Indicate the Name of Health Facility to be visited e.g. Adumi HCIV*	*Directions: Indicate the number of the visit & the key actions to be implemented based on previous visit's result in addition to the Lab SPARS visit e.g. Visit 1, Baseline visit, updating of stock cards and stock books*	*X*								*Comments are optional.*
2		Rhino Camp HCIV	Visit 2, Filing of Lab Orders and HMIS 105, section 7 reports		X							
3												
4												
5												
6												
7												
8												
9												
10												

Appendix 3: List of Tracer Laboratory Items by Category

#	Item Description	Unit of Measure
	HIV test Kits	
1	Determine HIV-1/2 Complete Kit, 100 Tests	Tests
2	HIV, Stat-Pak HIV 1 / 2 Kit, 30 Tests	Tests
3	HIV, Uni-Gold HIV Kit, 20 Tests	Tests
	Viral load /EID commodities	**Pack**
5	DBS collect. Kit VL sticker,50 Test, Single Use	Pack
6	DBS Collect.Kit for EID,50 Tests, Single Use	Pack
	CD4+ commodities	
7	BD FACS, MultiTest CD3/CD8/CD45/CD4, 50 Tests	Tests
8	BD FACSCount CD3/CD4 Reagent Kit 50 Tests	Tests
9	BD FACS Flow Sheath Fluid	Pack
10	Partec-CD4 % Easy Count Kit 100 tests	Tests
11	Pima Analyzer CD4 Cartridge Kit, 100 tests	Tests
	Chemistry commodities	
12	Cobas, C311, Creatinine Jaffe' Gen2 (CREA-J), 700 tests	Tests
13	COBAS, C311, ALTL, 500 Tests	Tests
14	COBAS, C311, ASTL, 500 Tests	Tests
15	Cobas c111 - Creatinine Jaffe (CREA)	Tests
16	Cobas c111 - Alanine Aminotransferase IFCC (ALT)	Tests
17	Cobas c111 - Aspartate Aminotransferase IFCC (AST)	Tests
18	Human, Auto creatinine	Tests
19	Human, GOT (ASAT) IFCC mod LiquiUV Kit, 10 x 10mL	Tests
20	Human, GPT (ALAT) IFCC mod LiquiUV Kit, 10 x 10mL	Tests
	Haematology commodities	
21	Humacount Diluent 20L	Pack
22	Sysmex, Cellpack, 20L	Pack
23	Nihon Kohden MEK Diluent 20L	Pack
24	Beckman Coulter, AcT5Diff, Diluent 20L	Pack
	TB Laboratory commodities	
25	GeneXpert catridges	Tests
26	Auramine-O	Pack
27	Strong Carbol Fuschin 1000ml Solution (ZN)	Pack
	Other commodities	
28	Blood Collection Tube, K2 EDTA, 4mL, Lav, 100 Pcs	Pcs
29	Blood Collection Needle, Multi-Sample, 21G x 1.5in	Pcs
30	Syphilis RPR Kit, 100 Tests	Tests
31	Pregnancy test kit	Tests
32	Malaria	Tests
33	Blood grouping Anti-Sera	Pack
	Infection Control	

#	Item Description	Unit of Measure
35	Gloves latex disposable	Pack
36	Goggles	Pcs
37	Masks	Pcs
38	Biohazard bags	Pcs
39	Disinfectants	Pack
40	Sharps boxes	Pcs

Appendix 4: National Laboratory Test Menu by Level of Care[3]

Test menu for HC II level

TESTS HEALTH CENTER II *(recommend only rapid diognistic test*)	
HIV testing	Pregnancy Test
Hepatitis B antigen Test	Syphilis Test
Malaria Test *(mRDT)*	Rapid Blood Sugar *(RBS)*
Urine testing	

Additional tests for HC III level

Health Centre III	
Haematology	**Urine Chemistry**
Haemoglobin estimation	Urobilinogen
Blood film comments	Glucose
Bleeding Time	Ketones (Acetoacetic acid)
Clotting Time	Specific Gravity
Differential count	PH
Sickle cell screening test	Blood
Erythrocyte sedimentation rate *(ESR)*	Protein (Albumin)
Microbiology	Bilirubin
AFB test	Nitrite
Stool analysis	Leukocytes in urine
Urinalysis	**Parasitology**
Blood Transfusion	Malaria test
ABO grouping	Filaria test
Rh grouping	Leishmania test
Serology	Trypanosoma test
Cryptoccocal Antigen test	Skin Snip Test
Brucella agglutinin test	**Immunology /Molecular**
Rheumatoid factor	CD4,CD3,CD8 Counts and Ratios
TB LAM Rapid Test	CD3/CD8 %
Typhoid test	DNA PCR –EID
Helicobacter pylori IgG	RNA PCR -VL
Hepatitis B antigen rapid test	
Hepatitis C antigen rapid test	

[3] Ministry of Health, Uganda, Guideline for the Standardization of the Test Menu, Equipment, Test Technique and List of Supplies for Laboratories in Uganda Health Care System, Second Edition

Additional tests for HC IV level

TESTS FOR HC IV	
Haematology	**Biochemistry**
Full blood count	**LFTs**
Coagulation Tests	SGOT (AST)
Thrombin clotting time (TT)	SGPT (ALT)
Prothrombin time (PT)	ALP
Blood Transfusion	Indirect bilirubin
Compatibility testing	Total protein
Infectious Disease	**RFTs**
HBcAg IgG	Urea
HBeAg IgG	Creatinine
Microbiology	**Electrolytes**
Swab analysis	Sodium
High Vaginal Swab (HVS) analysis	Potassium
Pus Swab analysis	Chloride
Wound swab analysis	**Immunology /Molecular**
CSF Analysis	GeneXpert

Additional tests for General Hospitals

GENERAL HOSPITALS	
Haematology	**Biochemistry**
Blood Film comment	**LFTs**
Coagulation Tests	Albumin
Thrombin time in the presence of Protamine Sulphate	GGT
Activated partial Thromboplastin Time (APTT)	**RFTs**
Fibrinogen test (Modified Clauses Assay)	Creatinine Clearance
Plasmin Inhibitor	**Lipid profile**
Lupus erythromatous	Triglycerides
Platelet function tests	Total Cholesterol
Thin film comment	Low Density Lipoproteins (LDL) LDLc
Blood Transfusion Services	High Density Lipoproteins (HDL) HDLc
Direct Coombs test	**Cardiac Profile**
Indirect Coombs test	Creatinine Kinase (CK-MB) test
Immediate Spin Cross Match(ISCM)	CK- NAC (Total)
Serology	Lactate dehydrogenase (LDH
Anti Streptomycin O-Test (ASOT)	Troponins (C,T,I)
TB Lam	**Thyroid Function Tests**
Infectious Disease	Free T3
Toxo IgG/IgM	Free T4
CMV IgG/IgM	Total T4

GENERAL HOSPITALS	
Microbiology	Total T3
Semen analysis	TSH
Occult blood Test	**Fertility Hormones**
Throat analysis	Follicle Stimulating Hormone (FSH)
Eye Swab analysis	Luteinizing Hormone (LH)
Nasal swab analysis	Cortisol
Ear swab	Progesterone
Histology / Cytology	Testosterone
PAP Smear	Oestrogen
HPV Test	**Tumour Markers**
Biopsy Tissue	Alpha fetoprotein
KOH	**Pancreatic function tests**
Lactophenol cotton blue	Amylase
CSF Chemistry	Uric Acid
Protein	Lipase
Glucose	**Metabolic Profile**
Globulins	Iron
	Lactic acid/Lactate

Additional Tests for Regional Referral Hospitals

REGIONAL REFERRAL HOSPITALS	
Haematology	**Biochemistry**
Reticulocyte test	**Extended Electrolytes**
Reticulocyte count	Lithium
Reticulocyte count(RET#)	Calcium
Immature RBC haemoglobin (RBC – HE)	Magnesium
Plasmin Inhibitor	**Cardiac Profile**
Erythrocyte sedimentation rate	hs-CRP
D.DIMER	ASO (RHD)
CRP test	NT Pro BNP
Peripheral Film Comment	Myoglobin
Lupus erythromatous test	**Bone profile**
Blood Transfusion	Calcium
Du test	Phosphates
Weak D Typing	**Blood gases ABG**
Serology	HCO3
Measles IgM test	PO2
Rubella IgG and IgM Test	PCO2
Microbiology	**Metabolic Tests**
Blood culture	Glycosylated Haemoglobin

REGIONAL REFERRAL HOSPITALS	
Gastric Aspirate	Lactic acid
Nasopharyngeal/oropharyngeal swab	Vitamin B12
Cervical /Endo-cervical swab	Iron
Urethral /Rectal Swab	Ferritin
Catheter Tips	Transferrin
Bacterial identification tests	G6PD
Bacterial susceptibility testing	**Tumour Markers**
Lymph Node Aspirate	Prostate antigen (PSA)
Corneal scraping	CA 19-9 Ag
Mycology	CA 15-3 Ag
Mycology Culture and sensitivity	CA 72-4 Ag
Fungal Identification Tests	**Fertility Hormones**
Parasitology	β-Hcg
Boleria test	**Immunology /Molecular**
	Viral load for HEPATITIS B Virus
	LPA

Additional Tests for National Referral Hospitals

National Referral Hospitals (Mulago and Butabika Hospital)	
Haematology	**Biochemistry**
Reticulocyte test	**RFTs**
Low Fluorescence Ratio (LFR)	Inulin Clearance
Medium Fluorescence Ratio (MFR)	Cystatin C
High Fluorescence Ratio (HFR)	**Extended Electrolytes**
Reticulocyte haemoglobin (RET-HE)	Bicarbonate
Immature RBC haemoglobin (RBC – HE)	Phosphate
Body fluid analysis	**Cardiac Profile**
Mono Nuclear cell count(MN)	Troponins (C,T,I)
Polymorph nuclear cell count (PMN)	NT Pro BNP
MN%	Myoglobin
PMN%	**Blood gases ABG**
Total Cell count (TC-BF#)	Ca2+ (Free & Bound)
PROGENITOR CELL# (HPC)	PH
Sickle cell test	HCT
HB electrophoresis test (Sickle cell)	**Metabolic Tests**
HB – F	Folate
HB – S	**Thyroid Function Tests**
HB-A2	Anti -TSH-IgG
HBA	PTHH
Immunotyping (light and heavy chains)	**Fertility Hormones**

National Referral Hospitals (Mulago and Butabika Hospital)	
Platelet function tests	Oestrone (E1)
Thin film report	Oestradiol (E2)
Clot retraction test	Oestriol (E3)
Thromboerythrogram	DHEA
Coagulation Tests	DHEA-S
Fibrinogen Antigen Assay by RIA	Prolactin
Repitlase Time	**Tumour Markers**
Batroxobin	CEA
Factor Assays(II)	B- h CG
Factor Assays(V)	A-FP
Factor Assays(VII)	NSE
Factor Assays(VIII)	S-100
Factor Assays(IX)	Cyfra 21-1
Factor Assays(X)	Enolase
One- stage Intrinsic Assay of prekallikren(PKK), and High Molecular Weight Kininogen (HMWK)	**Mycology**
Plasmin Inhibitor	Mycology Grocotts' silver stain
ANT THROMBIN(AT)	Toluidine Blue-O for pneumocystis jiroveci
Anti-Thrombin Liquid (AT)	**Infectious Disease**
ANTI Xa	Mumps IgG/IgM
Plasmin Inhibitor(PI)	HSV 1 IgG/IgM
Blood Transfusion	HSV 2 IgG/IgM
Anti-body typing	HZV IgG/IgM
Immediate Spin Cross Match (ISCM)	

Test Menu for Uganda Heart Institute (UHI)

Test menu for UCI	
Haematology	**Microbiology**
Full blood count	Stool analysis
Hemoglobin estimation	Urine analysis
White cell total & Differential count	**Parasitology**
Blood Film comment	Malaria test
Reticulocyte test:	Filaria test
Reticulocyte percentage (RET%)	Trypanosoma test
Reticulocyte count(RET#)	**Serology**
Immature Reticulocyte fraction (IRF)	HIV testing
Low Fluorescent Ratio (LFR)	Syphilis test
Medium Fluorescen Ratio (MFR)	Pregnancy test
High Fluorescen Ratio (HFR)	Brucella agglutin test
Reticulocyte hemoglobin (RET-HE)	Rheumatoid factor
Immacure RBC hemoglobin (RBC – HE)	Typhoid test
Body fluid analysis:	Helicobater pylori IgG
White cell count(WBC – BF)	Hepatitis B test

Test menu for UCI	
Red blood cell (RBC – BF)	Hepatitis C test
Mono Nuclear cell count(MN)	Malaria Rapid Diagnostic
Polymorph nuclear cell count (PMN)	Troponoin I
MN%	**Biochemistry**
PMN%	**LFTs**
Total Cell count (TC-BF#)	SGOT (AST)
PROGENITOR CELL# (HPC)	SGPT (ALT)
Platelet function tests:	ALP
Thin film report	Direct bilirubin
Clot retraction test	Total Bilirubin
Coagulation Tests	Indirect bilirubin
Bleeding and Clotting Time	Total protein
Thrombin clotting time(TT)	Albumin
Thrombin time in the presence of Protamine Sulphate	GGT
Prothrombin time (PT)	**RFTs**
Activated partial Thromboplastin Time (APTT)	Urea
Plasmin Inhibitor	Creatinine
Erythrocyte sedimentation rate	Creatinine Clearance
D.DIMER	Inulin Clearance
CRP test	Cystatin C
Peripheral Film Comment	**Lipid profile**
Blood Transfusion services	Triglycerides
ABO grouping	Total Cholesterol
Rh grouping	Low Density Lipoproteins (LDL) LDLc
Compatibility testing	High Density Lipoproteins (HDL) HDLc
Direct Coombs test	**Electrolytes**
Indirect Coombs test	Potassium
Immediate Spin Cross Match(ISCM)	Sodium
Cardiac Profile	Chloride
CK-MB	**Extended Electrolytes**
CK- NAC (Total)	Bicarbonate
LDH	Calcium
AST	Magnesium
hs-CRP	Phosphate
ASO (RHD)	Lithium
Troponins (C,T,I)	**Bone Profile**
NT Pro BNP	ALP
Pancreatic function tests	Calcium
Glucose	Phosphate
Amylase - Total	**Blood gases ABG**
Amylase - Pancreatic	HCO5
Lipase	PO2
Uric Acid	PCO2
Thyroid Function Tests	Ca2+ (Free & Bound)
Free T3	p H
Free T4	Hb
Total T4	HCT
Total T3	HCO3
TSH	

Test menu for Uganda Cancer Institute (UCI)

Test menu for UCI	
Other Specialized Tests	**Immunohistochemistry**
Protein S(PS)	A Foeto protein
Free Protein S (Free PS)	A1 anti chymotrypsin
Protein S Activity	A1 anti trypsin
Plasminogen (PLG)	ACE mono
Activated Protein C Resistance –Factor test (APCR-V)	ACE mono
Heparin-UHF (HepXa)	ACTH
Fibrinogen Clauss (Fib-C)	Actine muscle
α2-Antiplasmin (APL)	Actine muscle lisse
PFDP (P-FDP)	Actine muscle spé
Hepatocomplex (HPX)	Adenovirus
Chromogenic VIII High (F-VIII Chr H)	ALK Poumon
Proclot SP (P-ClotSP)	ALK1
Pro-IL Complex (PCX)	Androgen Receptor
Silica Clotting Time (SCT-S, SCT Screen)	Annexin
Homocysteine (HCY, HCYh)	Arginase-1
Bone marrow report	B Catenin
Other Hormones	B HCG
G.H	BCA 225
IGF-4	BCL2
ACTH	bcl-2
Aldosterone	BCL6
GnRH	BerEP4
Vasopressin	BG8
Insulin	BOB.1
	BRAF V600E
Biochemistry	CDX2
Lipid profile	CD1a,2,3,4,5,7,8,10,13,14,15,16,20..68
vLDLc	CA125
Barbiturates	CA19.9
Benzodiazepines	Cadherin 17
Cannabinoides	Calcitonin
Cocaine	Caldesmon
Ethanol	Calponin
Methadone	Calretinin
Methaqualone	Caveolin-1
Opiates	FITC Albumin
Phencyclidine	FITC C1Q
Propoxyphene	FITC C3
Tricyclic antidepressants	FITC C4
Lysergic Acid Diethylamide	FITC Fibrinogen
SPECIFIC PROTEINS	FITC IgA
ASLO	FITC IgG
APOA1	FITC IgM
APO B	FITC Kappa
C3c,C4	FITC Lambda
IgA	CK 34BE12
IgG	CK AE1

Test menu for UCI	
IgM	
Acid Glycoprotein	
Bone Profile	**Cardiac Profile**
PTH	Digitoxin
Vitamin D3	Digoxin
B-Crosslaps	Pro-BNP
Total P1NP	PCT
N-MID-Oesteocalcin	IL-6
Thyroid Function Tests	Anti-CCP
TG	IgE
T-Uptake	Antitrypsin
Anti-TG	Microglobulin a1
Anti-TPO	Microglobulin a2
Fertility Hormones	Microglobulin *B2*
s-Fit-1	Albumin Urine
SHBG	Myoglobin
PIGF	RF
G.H	Transferrin
IGF-1	Soluble Transferrin
ACTH	Kappa
C-Peptide	Free Kappa
Cortisol	Lambda
GnRH	Free Lambda
Insulin	Antithrombin
Tumour Markers	D-Dimer
FPSA	
B- h CG-free	
Cyfra-21-1	
Drug Abuse	
Amphetamines	

Test Menus for UBTS and NTRL

Blood Transfusion services (NBTS)	NTRL
Serological Testing (Ab, Ag, PCR)	Tuberculosis Culture
IgG Phenotyping: Fya, Fyb, Jka, JKb, S, s, Cellano	Identification of Mycobacteria tuberculosis complex (MTC)
IgM Rh-Kell C, c, E, e, K - Vertical	Drug susceptibility testing (DST) methods
High Titer	
Direct Anti globulin Test(DAT)	
Antibody screen, commonly known as Antibody detection test (ADT)	
Group and screen	
Anti globulin cross match	
Platelet Compatibility Test	
Serological Testing (CMIA, Ab, Ag, PCR)	