

Viral Load SMS-Rwanda

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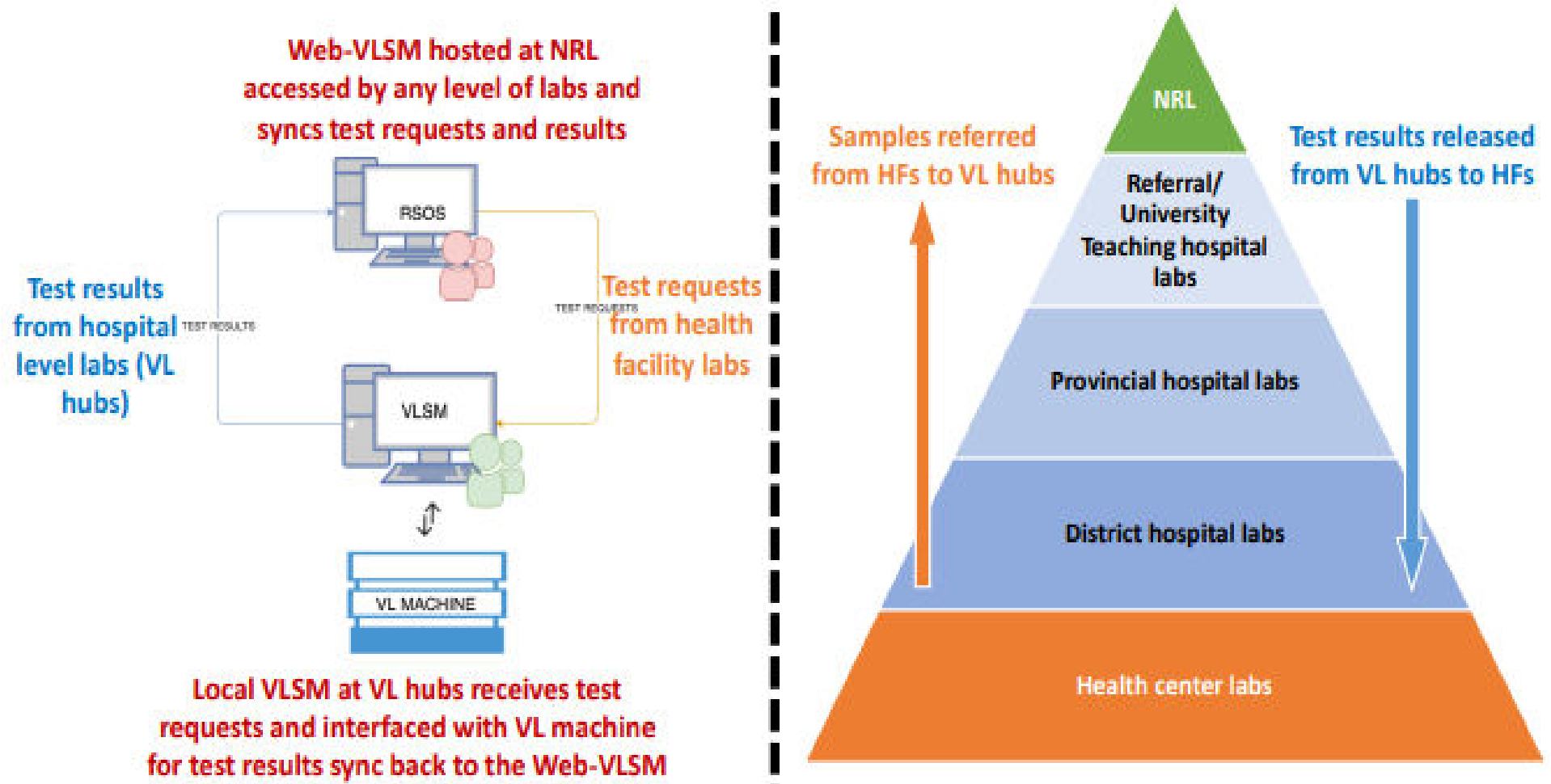


Background

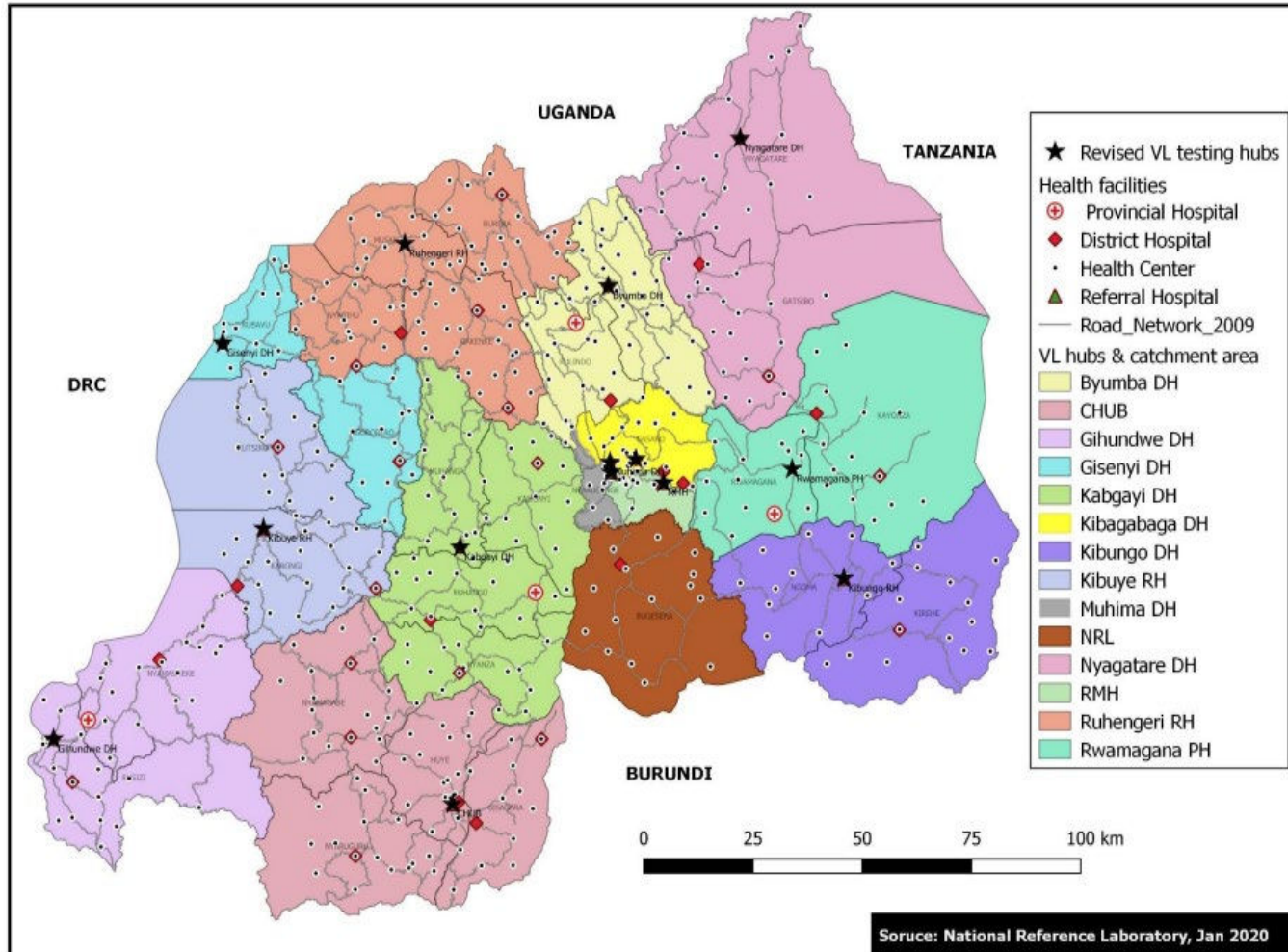


- VLSM is an open-source LIS that supports the sample tracking from test request to the return of test results for: **HIV VL, Early Infant Diagnosis (EID) and Hepatitis samples.**
- Established e-system for the decentralized **VL hubs** and hosted at the National Reference Laboratory (NRL) Division of the Rwanda Biomedical Center.
- NRL is mandated among other functions to oversee national laboratory network service delivery and quality assurance of testing in public health programs, surveillance and response.

VLSM Architecture and Tiered Lab Network





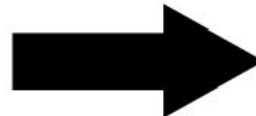
Map of VL Testing Hubs and Service Catchement Area




- 2020: 9 Hubs
- Current mapping: 16 functional hubs.
- Kigali: 6 hubs, East: 4 hubs, west: 3hubs, North: 1hub, South: 2 hubs
- Following diagnostic network optimization exercise and implementation plan under way additional hubs will be established

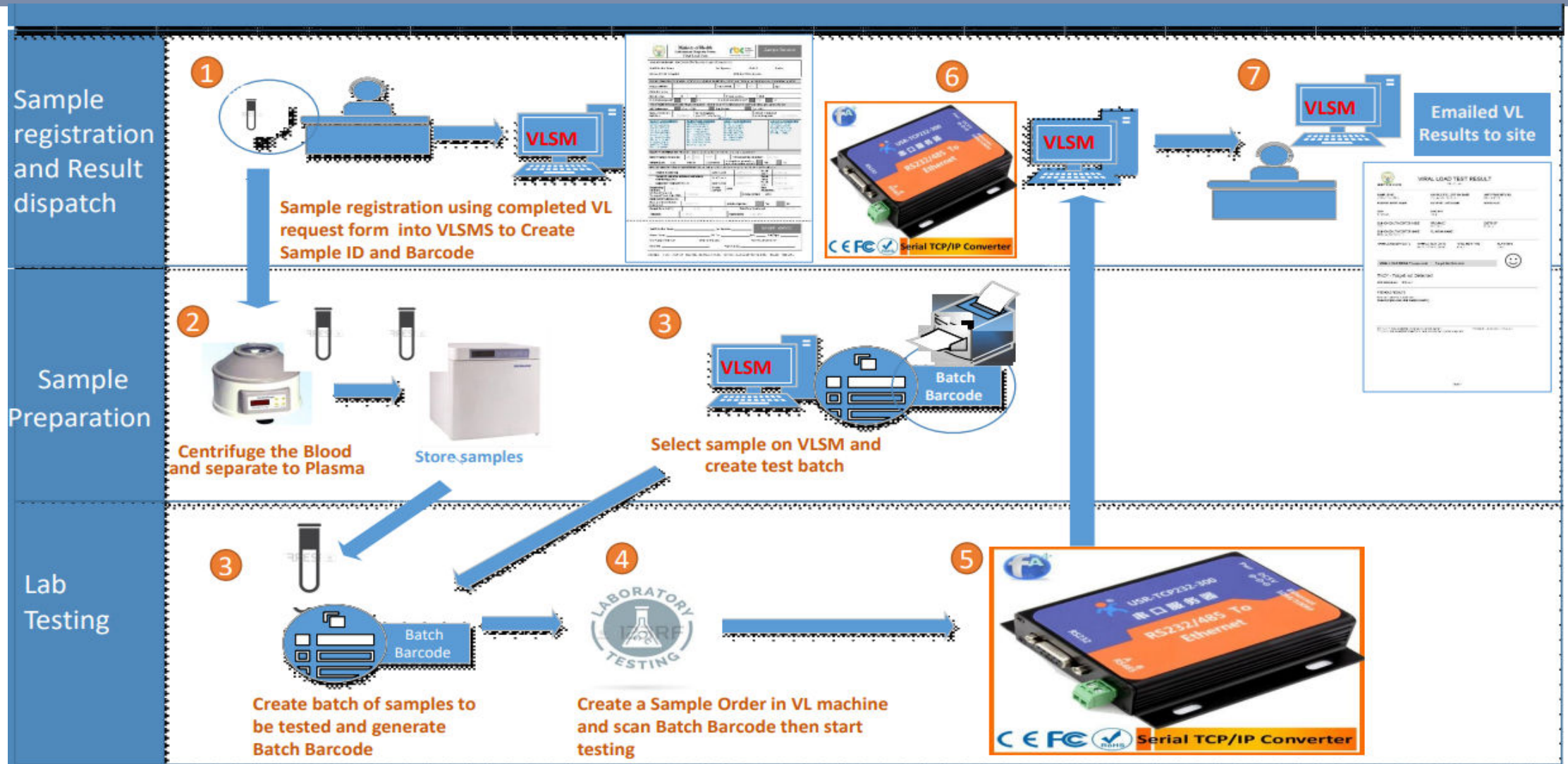
VLSM Lab request and VL test result formats

 Ministry of Health Laboratory Request Form Viral Load Test		 RBC Rwanda Biomedical Center A Healthier People, A Healthier Nation		Sample Barcode										
FACILITY INFORMATION (To be filled by requesting Clinician/Nurse) Health Facility Name: _____ Facility code: _____ District: _____ Sector: _____ Affiliated District Hospital: _____ Affiliated VL testing hub: _____														
PATIENT DETAILS: Complete full information on patient identification, contact and if female, indicate pregnancy or breastfeeding status Unique ART No. _____ Date of Birth: DD MM YY Age _____ Patient's name: _____ Gender: Sex: <input type="checkbox"/> M <input type="checkbox"/> F Phone contact: +250 _____ Is patient pregnant? <input type="checkbox"/> Yes <input type="checkbox"/> No Is patient breastfeeding? <input type="checkbox"/> Yes <input type="checkbox"/> No														
TREATMENT INFORMATION: Please complete full information on ARV adherence and treatment history and current regimen ARV Adherence: <input type="checkbox"/> Good > 95% <input type="checkbox"/> Fair 85-94% <input type="checkbox"/> Poor < 85% Date of treatment initiation: DDMMYY Current regimen (use ART codes below) _____ Date of initiation of current regimen: DDMMYY														
ART Codes <table border="1"> <tr> <td> Adult 1st Line Regimens: 1a = AZT+3TC+EFV 1b = AZT+3TC+NVP 1c = AZT+3TC+RPV 1d = ddI+3TC+NVP 1e = TDF+3TC+EFV 1f = TDF+3TC+RPV 1g = TDF+FTC+EFV 1h = TDF+FTC+NVP 1i = ABC+3TC+EFV 1j = ABC+3TC+NVP 1k = Other specify: _____ </td> <td> Adult 2nd Line Regimens: 2a = ABC+ddI+RPV 2b = ABC+ddI+NFV 2c = TDF+ddI+LPV/r 2d = TDF+ddI+NFV 2e = TDF+3TC+LPV/r 2f = TDF+3TC+ATZ/r 2g = AZT+3TC+LPV/r 2h = AZT+3TC+ATZ/r 2i = Other specify: _____ </td> <td> Child 1st Line Regimens: 3a = AZT+3TC+NVP 3b = AZT+3TC+RPV 3c = ddI+3TC+NVP 3d = ddI+3TC+EFV 3e = ABC+3TC+NVP 3f = ABC+3TC+EFV 3g = ABC+3TC+RPV 3h = TDF+3TC+LPV/r 3i = Other specify: _____ </td> <td> Child 2nd Line Regimens: 4a = ABC+ddI+LPV/r 4b = AZT+3TC+RPV 4c = ABC+3TC+LPV/r 4d = TDF+3TC+LPV/r 4e = Other specify: _____ </td> </tr> </table>						Adult 1st Line Regimens: 1a = AZT+3TC+EFV 1b = AZT+3TC+NVP 1c = AZT+3TC+RPV 1d = ddI+3TC+NVP 1e = TDF+3TC+EFV 1f = TDF+3TC+RPV 1g = TDF+FTC+EFV 1h = TDF+FTC+NVP 1i = ABC+3TC+EFV 1j = ABC+3TC+NVP 1k = Other specify: _____	Adult 2nd Line Regimens: 2a = ABC+ddI+RPV 2b = ABC+ddI+NFV 2c = TDF+ddI+LPV/r 2d = TDF+ddI+NFV 2e = TDF+3TC+LPV/r 2f = TDF+3TC+ATZ/r 2g = AZT+3TC+LPV/r 2h = AZT+3TC+ATZ/r 2i = Other specify: _____	Child 1st Line Regimens: 3a = AZT+3TC+NVP 3b = AZT+3TC+RPV 3c = ddI+3TC+NVP 3d = ddI+3TC+EFV 3e = ABC+3TC+NVP 3f = ABC+3TC+EFV 3g = ABC+3TC+RPV 3h = TDF+3TC+LPV/r 3i = Other specify: _____	Child 2nd Line Regimens: 4a = ABC+ddI+LPV/r 4b = AZT+3TC+RPV 4c = ABC+3TC+LPV/r 4d = TDF+3TC+LPV/r 4e = Other specify: _____					
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SAMPLE INFORMATION: Please fill information complete and check/tick one where appropriate Date of sample collection: DD MM YYYY Time of sample collection: HH:MM Sample type: <input type="checkbox"/> DBS <input type="checkbox"/> Plasma <input type="checkbox"/> Whole Blood Is sample re-ordered as part of corrective action? <input type="checkbox"/> Yes <input type="checkbox"/> No														
INDICATION FOR VIRAL LOAD TESTING: Please tick one of the below and complete last VL date and Result Value <table border="1"> <tr> <td><input type="checkbox"/> Routine monitoring</td> <td>Last VL date: DDMMYYYY</td> <td>Result Value: <input type="checkbox"/> ≤ 1000 <input type="checkbox"/> > 1000</td> </tr> <tr> <td><input type="checkbox"/> Repeat VL test after enhanced adherence counselling (EAC)</td> <td>Last VL date: DDMMYYYY</td> <td>Result Value: <input type="checkbox"/> ≤ 1000 <input type="checkbox"/> > 1000</td> </tr> <tr> <td><input type="checkbox"/> Suspected Treatment Failure</td> <td>Last VL date: DDMMYYYY</td> <td>Result Value: <input type="checkbox"/> ≤ 1000 <input type="checkbox"/> > 1000</td> </tr> </table>						<input type="checkbox"/> Routine monitoring	Last VL date: DDMMYYYY	Result Value: <input type="checkbox"/> ≤ 1000 <input type="checkbox"/> > 1000	<input type="checkbox"/> Repeat VL test after enhanced adherence counselling (EAC)	Last VL date: DDMMYYYY	Result Value: <input type="checkbox"/> ≤ 1000 <input type="checkbox"/> > 1000	<input type="checkbox"/> Suspected Treatment Failure	Last VL date: DDMMYYYY	Result Value: <input type="checkbox"/> ≤ 1000 <input type="checkbox"/> > 1000
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Requesting Clinician: Full Name: _____ Phone contact: +250 _____ Date Requested: DDMMYYYY VL Focal Person at Transport/Transit site (DH): Full Name: _____ Phone contact: +250 _____ Email for HF Lab results: _____ Date sample received at testing Lab: DDMMYYYY Sample Rejected: <input type="checkbox"/> Yes <input type="checkbox"/> No Sample Results (VL): <input type="checkbox"/> ≤ 1000 <input type="checkbox"/> > 1000 Date Results released: DDMMYYYY Tested by: Full Name: _____ Approved by: Full Name: _____														
Health Facility Name: _____ Facility code: _____		Sample Barcode												
Patient Name: _____ ART No: _____ Sex: _____ DOB/ Age: _____		Date Sample Collected: _____ Viral Load Results: _____ Date Results released: _____												
Tested by: _____		Approved by: _____												
RBC/ NRL KIGALI – RWANDA NRL-MOB-FORM 015-VERS 001 SOP No : NRL-MOB-SOP 007-VERS 005 06-2017 Page 1 of 1														



 MINISTRY OF HEALTH		VIRAL LOAD TEST RESULT KIBUYE RH			
SAMPLE ID VL09189123		SAMPLE COLLECTION DATE 10-Sep-2018 00:00:00		ART (TRACNET) NO. 0182100042	
PATIENT FIRST NAME [REDACTED]		MOBILE NO. [REDACTED]			
AGE 28		GENDER Female			
CLINIC/HEALTH CENTER CODE 0182		Province/State Western		District/County Rutiro	
CLINIC/HEALTH CENTER NAME Karumbi Health Center		CLINICIAN NAME KAGABO			
SAMPLE RECEIPT DATE 26-Sep-2018 17:06:00		SAMPLE TEST DATE 26-Sep-2018 17:06:00		SPECIMEN TYPE Venous Blood (EDTA)	
				PLATFORM Roche	
VIRAL LOAD RESULT (copies/ml) : 2430 					
APPROVED BY : _____					
PREVIOUS RESULTS Date of Last Viral Load Test : _____ Result of previous viral load(copies/ml) : _____					
<small> ☉ = VL <= 1000 copies/ml: Continue on current regimen ☹ = VL > 1000 copies/ml: Clinical and counselling action required </small>					
Printed on : 27-Sep-2018 16:37:22					

VLSM Workflow for VL sample Registration and Result Management



DEMO

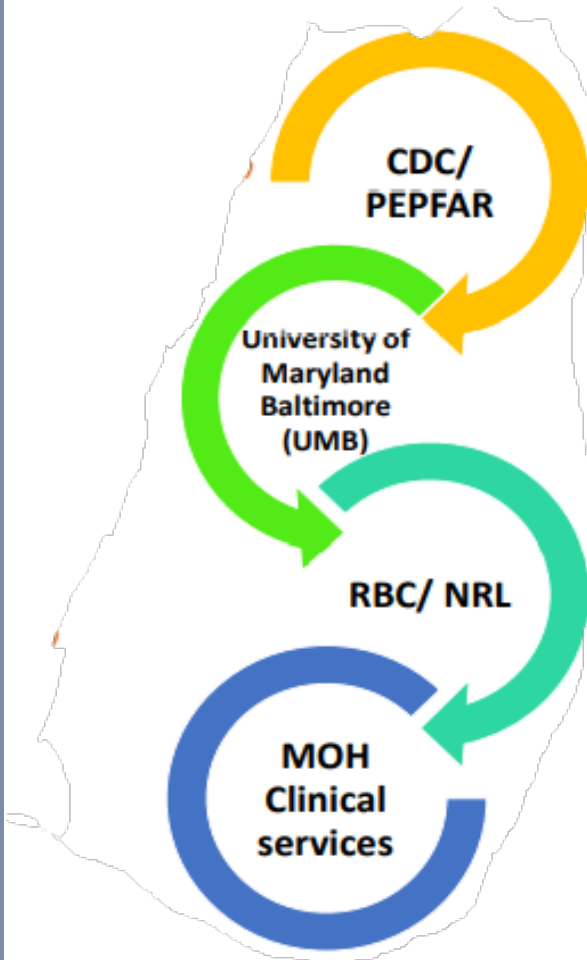
<https://vlsms.rbc.gov.rw/>

<https://vldashboard.rbc.gov.rw/>

Progress and Achievements

- 100% sites have access and utilizing VLISM for lab service delivery.
- 414 sites were trained which include 1 nurse and 1 lab staff per site.
- Documents were developed to support VLISM implementation (System validation, Job aides, Training manual, SOPs).
- Automated workflow process from sample collection to timely return of results with reduced TAT from 60 days to <7days (min 3days)
- Developed instrument interfacing solution to replace manual transfer of results from VL machine into VLISM (Roche and Abbott platforms).
- Developed VL dashboard and validation for routine use in monitoring and continuous quality improvement of VL testing services to meet optimal testing coverage and program outcomes.

Implementation timeline and Partnerships – CONT'D



CDC/PEPFAR: Support programmatic, strategic and technical guidance and planning of the VLSM implementation

ICAP: Provides TA to RBC/NRL staff for VLSM development, enhancements and implementation processing (replaced UMB)

RBC: Coordinate and implement plans and routine technical support to VL hubs and End-users at site levels

MOH CS: Provide resources to sites for infrastructure, equipment and End-users to access and utilize VLSM in lab-clinical services

Challenges

- Intermittent internet connectivity
- Capacity building for above site support staff such as NRL in system enhancement or upgrade of the VLISM
- Covers few lab services/ modules as its limited to HIV services
- Interoperability with other e-health systems for cost effective provision and delivery of laboratory services in the healthcare infrastructure
- Limited resources for IT hardware and replacement/ repair at site levels

Lessons Learnt

- Joint planning with program managers and strong partnerships to support rapid implementation of the VLISM solution to improve VL testing coverage
- Started VLISM for HIV VL testing but evolved to a modular platform with add-on such as EID and Hepatitis
- Encouraged and established tools to regularly gather and review End-user feedback to guide and modify implementation approaches
- Site uptake was motivated by timely return of results and system adopted to the sample referral network and testing workflow suiting End-user's needs and experience.
- Initial investment in IT equipment, and training of End-users; no need for license renewal costs but need continued investment in system enhancements and remote support to End-users
- Plan resources for site support visits, replacement/ maintenance of hardware and internet connectivity for users at primary site or in resource limited settings facilitate users to work at hospitals

Next Steps

- Enhancing the VLISM platform to have mobile applications for site with poor connectivity (allows for offline entry and ad-hoc use then sync later).
- Health information interoperability and data system integration including dashboards, DHIS2 tracker and CBS digital platform (RHIES & OpenMRS)
- More modules into the VLISM to cover other lab services offered in the lab network
- Making data available for use and strategic interventions or quality improvement by program managers, policy makers and Data governance, security, privacy and confidentiality

Acknowledgements

PEPFAR, Center for Disease Control

ICAP-Rwanda

National Reference Laboratory, Rwanda Biomedical Centre, Ministry of Health

Thank you!

