

Project Funded by the African Union Commission and Africa Centres for Disease Control and Prevention

Implementation of Laboratory Systems and Network in Central Africa Region

Activity Report for 2018/2019 Project Year



Project Implemented by Global Health Systems Solutions



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List of Acronyms / Abbreviations

AUC	→	African Union Commission
BLIS	→	Basic Laboratory Information System
CAR	→	Central African Republic
CDC	→	US Center for Disease Control and Prevention
ECCAS	→	Economic Community of Central African States
ECHO	→	Extension for Community Health Outcomes
EMC	→	Equipment Maintenance and Calibration
EQA	→	External Quality Assurance
DRC	→	Democratic Republic of Congo
GHSS	→	Global Health Systems Solutions
POC	→	Point of Care
QMS	→	Quality Management System
QA	→	Quality Assurance
RCC	→	Regional Collaboration Center
RISLNET	→	Regional Integrated Surveillance and Laboratory Network
SLMTA	→	Strengthening Laboratory Management Towards Accreditation
SLIPTA	→	Laboratory Improvement towards Accreditation



INTRODUCTION

Global Health Systems Solutions (GHSS), an international non-governmental organisation based in Cameroon, obtained a grant from Africa Centres for Disease Control and Prevention (Africa CDC) following a Call for Proposal to establish and strengthen public health laboratory systems and networks in Central Africa Region, advertised by the African Union Commission (AUC). GHSS has been working in close collaboration with Africa CDC and the Regional Collaboration Center (RCC) to strengthen public health laboratory systems and networks in the Central Africa Region. The Organisation has effectively established and operationalised the Regional Integrated Surveillance and Laboratory Network (RISLNET) in the Central Africa Region, also referred to as the Economic Community of Central African States (ECCAS). ECCAS is the largest economic community in Africa, regrouping the nine member states, which include: Gabon, Cameroon, Central African Republic (CAR), Chad, Congo Brazzaville, Equatorial Guinea, Burundi, Democratic Republic of Congo (DRC), Angola, and Sao Tome and Principe. However, Angola is not included in the Central Africa RCC.

OBJECTIVES & APPROACH

The AU/Africa CDC grant to Global Health Systems Solutions (GHSS) to develop laboratory networks for disease surveillance, and strengthen the quality of laboratory testing in the Central Africa Region, effectively started on October 1.

Objective

- Develop a framework and statute of the Central Africa Regional RISLNET that defines its functions and operations;
- Conduct mapping of centres of excellence and laboratories in the Region and linking them by the ECHO platform;
- Assist member states in Central Africa to develop laboratory strategic plans and policies;
- Implement Quality Management Systems (QMS) and biosafety in the region using the Strengthening of Laboratory Management Towards Accreditation (SLMTA) tool and Stepwise Laboratory Improvement towards Accreditation (SLIPTA) in selected reference laboratories in the Region;
- Develop a framework for implementing QMS for Point of Care testing resulting in the increased accuracy and reliability of diagnostic testing that can be used for rapid detection of endemic and outbreak of diseases;
- Implement the Basic Laboratory Information Systems (BLIS) to improve sample turnaround times to support clinical decision making;
- Develop equipment maintenance and biosafety guidelines;
- Develop a framework for biological specimen referral systems in the Region; and
- Support selected member states to develop laboratory components for regional proposals to address antimicrobial resistance.

Approach

- Develop framework and policy documents to set a platform for bringing laboratories together and establishing a network for disease surveillance within the Region;
- Develop guiding documents for quality improvement in the laboratories within the Central Africa Region;
- Conduct a mapping and baseline assessment of laboratories to set the stage for capacity building and quality improvement in selected first cohort of laboratories in seven countries of the Central Africa Region;
- Training workshops to introduce and build-in the quality culture in the heads and technical leads of the laboratories in the first cohort;
- Train key laboratory personnel on Laboratory Quality Assurance/ External Quality Assessment, to be able to train other laboratory staff in decentralised in-house trainings.

SINCE OCTOBER 1, 2018

KEY ACHIEVEMENTS



01

ECHO for lab and disease surveillance launched at GHSS in Douala to supervise seven labs enrolled for accreditation



01

Website created for RISLNET Central Africa



04

laboratories in four countries benefit from CGB BLIS installation

07

labs in 7 countries enrolled in ISO 15189 accreditation process



02

Meetings organized to launch RISLNET and National Lab Strategic plan & Policies



08

Frame work and guideline documents developed



247

Trained on BLIS, QA, EQA, SLMTA, QMS & EMC



ACHIEVEMENTS BY OBJECTIVE



DEVELOPMENT OF
A FRAMEWORK
AND STATUTE
OF RISLNET
CENTRAL
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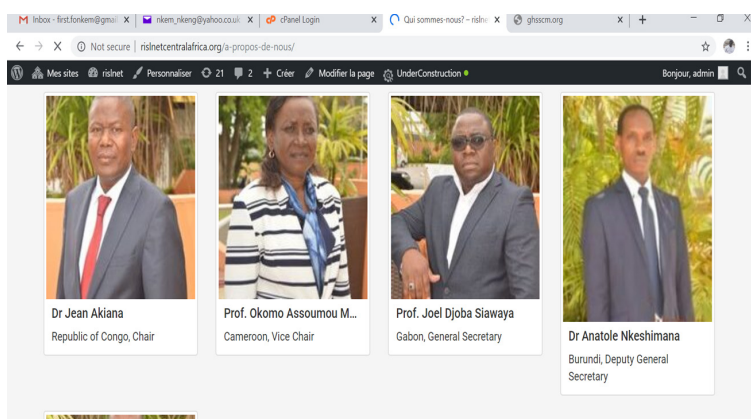


08 Framework and guideline documents developed

These documents include

- **Framework and Statute of Regional Integrated Surveillance and Laboratory Network (RISLNET)**
- **Framework for Sample Transport System for RISLNET Central Africa**
- **Roadmap and guideline document for the development of national laboratory strategic plans for the nine members states of RISLNET Central Africa**
- **Guidelines for Antimicrobial Resistance Testing**
- **Guidelines for Point of Care Testing in Central Africa Region**
- **Quality Manual for Laboratory Testing**
- **Guidelines for Laboratory Biosafety and Biosecurity**
- **Guidelines for Equipment Maintenance and Calibration**

A WEBSITE DEVELOPED for RISLNET Central Africa to serve as a platform to enhance sharing of disease resistance, laboratory quality best practices, laboratory quality documents etc.; and above all to encourage networking among public health laboratories in the Central Africa Region.



02 Meetings organised.

One workshop culminated in the launch of RISLNET for Central Africa at Brazzaville-Congo (November 07 to 09, 2018) by the Honourable Minister of Health of the Republic of Congo, with the installation of the bureau members, and another which led to the development of the National Laboratory Strategic Plan and Policies for member states in Malabo (March 19 to 22, 2019).



ACHIEVEMENTS BY OBJECTIVE



IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEMS AND BIOSAFETY IN THE REGION USING SLMTA TOOL AND SLIPTA IN SELECTED REFERENCE LABORATORIES

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laboratory personnel, cadres of public health, laboratory experts trained on Quality Management Systems (QMS), Basic Laboratory Information System (BLIS), Equipment Maintenance and Calibration (EMC), Strengthening Laboratory Management Towards Accreditation (SLMTA), Quality Assurance (QA)/ External Quality Assessment (EQA) and development of national laboratory strategic plans in the Central Africa Region since the launch of the Central Africa RISLNET in November 2018.

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TRAINING WORKSHOP	NUMBER OF PERSONNEL TRAINED PER MEMBER STATE									
	BURUNDI	CAMEROON	CONGO	EQUATORIAL GUINEA	RCA	GABON	TCHAD	SAO TOME	DRC	TOTAL
QA	03		03	03	03	03	03	03	03	26
NLSP	03	03	03	03	03	03	03	03	03	36
SLMTA 1	03		03		03	03	06	03		21
QA/EQA	04		03	02	04	04	04	03		24
EMC	03		09	03	03	03	03	03		27
EID POC	02	03	03	02	02	06	03	02	03	26
BLIS	26		18				26	17		87
Total	44	06	43	13	18	22	52	34	06	247



07 Labs from 7 member states enrolled for ISO15189 & WHO accreditation process

THESE LABORATORIES INCLUDE

- Laboratoire l'hôpital General de Reference National, (HGRN) N'djamena - Chad;
- Laboratoire de L'hôpital Prince Regent Charles (HPRC) Bujumbura - Burundi;
- Laboratoire National de Sante Publique (LNSP) Brazzaville - Congo;
- Laboratorio Nacional de Referencia Para Tuberculose Soa Tome – Sao tome and Principe;
- CIMF Franceville – Gabon;
- Laboratorio Castroverde Malabo – Equatorial Guinea;
- Laboratoire National de Biologie Clinique et de Sante Publique Bangui – Republique Centre Africaine.

190 laboratory personnel trained on SLMTA, QA, EMC, QMS, BLIS, and EQA;

- 39 from Burundi, 05 from Cameroon,
- 38 from Congo, 10 from Equatorial Guinea,
- 18 from Gabon, 14 from Republique Centrafricaine, 46 from Chad,
- 28 from Soa Tome et Principe and 06 from Republique Democratic du Congo.



IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEMS AND BIOSAFETY IN THE REGION USING SLMTA TOOL AND SLIPTA IN SELECTED REFERENCE LABORATORIES

24 Trainers from seven laboratories of seven member states trained on Quality Assurance and External Quality Assessment.

The training which took place, September 9-12, 2019, in Bujumbura – Burundi had at least 3 participants from each of the member states (Burundi, Congo, Equatorial Guinea, Gabon, Republique Centrafricaine, Sao Tome and Principe, and Chad).

Training Modules

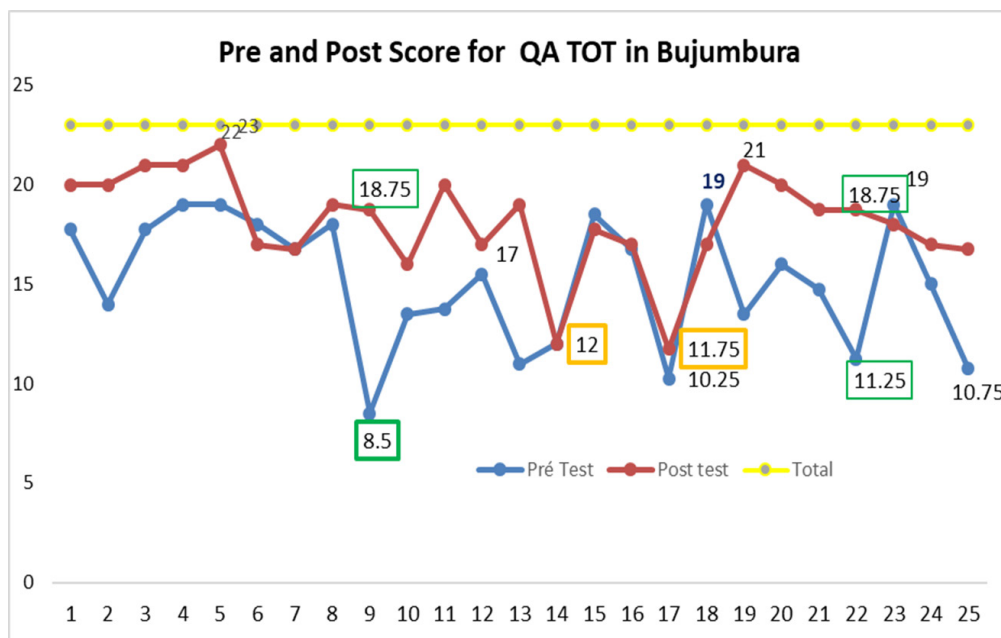
- HIV Testing Strategies and Algorithms
- Quality Assurance Register for the Biological Diagnosis of HIV Infection: example of Cameroon HIV Logbook
- Basics of Training
- Equipment
- Writing SOPs
- Freeze-dried Samples

Participants received lessons on how to carry out quality control in the laboratory, and hands-on training on receiving and replenishing external quality control samples.

Outcome

Participants acquired fresh knowledge on:

- Basic components of Quality Assurance in laboratories
- How to perform rapid HIV tests accurately
- How to have an effective EQA program
- How to be a Quality Assurance Trainer



IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEMS AND BIOSAFETY IN THE REGION USING SLMTA TOOL AND SLIPTA IN SELECTED REFERENCE LABORATORIES

21 Participated in SLMTA 1 training with three from each of the five participating countries and six from Chad (host).

The Strengthening Laboratory Management Towards accreditation (SLMTA 1) training workshop took place in Ndjamenas – Chad from July 22-26, 2019. Biologists, laboratory managers, and laboratory technicians were trained on Laboratory Quality Management Systems with the aim of implementing immediate improvements to speed up the WHO-AFRO accreditation process.

Developed by the US Center for Disease Control and Prevention (CDC), the American Society of Clinical Pathology (ASCP) and the Clinton Foundation, the training served as a springboard to the ISO-15189 certification.

Training Modules

- Use of the SLMTA Toolbox
- Productivity Management
- Quality Assurance
- Managing Documents and Records



ACHIEVEMENTS BY OBJECTIVE

Malabo - Equatorial Guinea from **18** to **21** March 2019

Reunión sobre planes estratégicos y políticas de laboratorios para la RISLNET de África central,
Malabo-Guinea Ecuatorial del 18 al 21 de marzo de 2019



ASSIST MEMBER STATES IN CENTRAL
AFRICA REGION TO DEVELOP LABORATORY
STRATEGIC PLANS AND POLICIES

ASSIST MEMBER STATES IN CENTRAL AFRICA REGION TO DEVELOP LABORATORY STRATEGIC PLANS AND POLICIES

09 Central Africa Countries' representatives participated in a Workshop on Development of National Laboratory Strategic Plans for RISLNET Central Africa.

Organised in Malabo Equatorial Guinea from March, 18-21, 2019, the workshop had the following objectives:

- To develop a template for a national laboratory strategic plan for Central Africa Region for different countries to customize for their needs;
- To provide guidance on setting up laboratory technical working groups (LTWG) that will develop country specific NLSP;
- To discuss how the developed NLSPs and policies can help advance compliance to International Health Regulations (IHR) by countries in Central Africa Region.

Outcome

- A template for National Laboratory Strategic plan developed for countries to customise
- Guideline provided for the setting up of LTWG in countries that had not started the process, to kick-start activities
- Compliance of IHR discussed, and how development of NLSP could enhance the adherence

Next Step

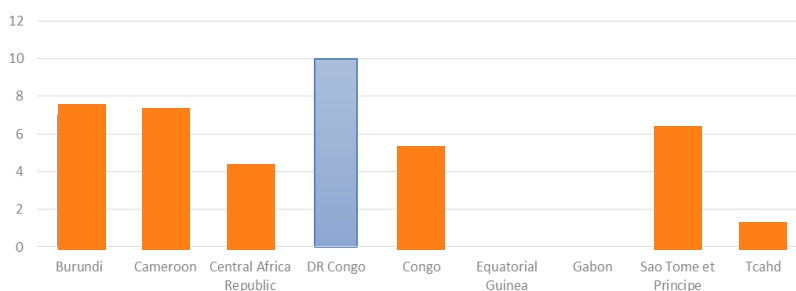
- Countries that have not started or are barely starting the process of developing NLSP like Equatorial Guinea, Gabon, Chad, will be remotely provided guidance for the setting up of NLTWG and the development of a first draft NLSP by GHSS and SMEs through internet and the ECHO platform.
- Countries that have begun drafting the NLSP and need to be guided to obtain a comprehensive document

like Central Africa Republic, Congo, Sao Tome and Principe, will be guided by SME to review and finalise a draft, as well as support financially and technically to organise a final workshop for the review and finalisation of the draft NLSP.

- Africa CDC will develop an advocacy approach to the governments of countries that have developed a NLSP that has been adopted, pending the approval of the Governments like Cameroon and Burundi, to encourage them to approve their NLSP for use.

Recommendation

- Long-term technical support focused on the design, development and adoption of a strategic plan
- Support for the establishment of technical working groups to validate the documentation of NHPs already developed, and the organization of workshops for validation and adoption
- Support updating the documents through a workshop, and routing the process for validation and adoption by the Ministries of Health



Level of Development of National Laboratory Strategic Plan and Policies



ACHIEVEMENTS BY OBJECTIVE



MAPPING OF CENTRES OF EXCELLENCE
AND LABORATORIES IN THE REGION AND
LINKING THEM BY THE ECHO PLATFORM

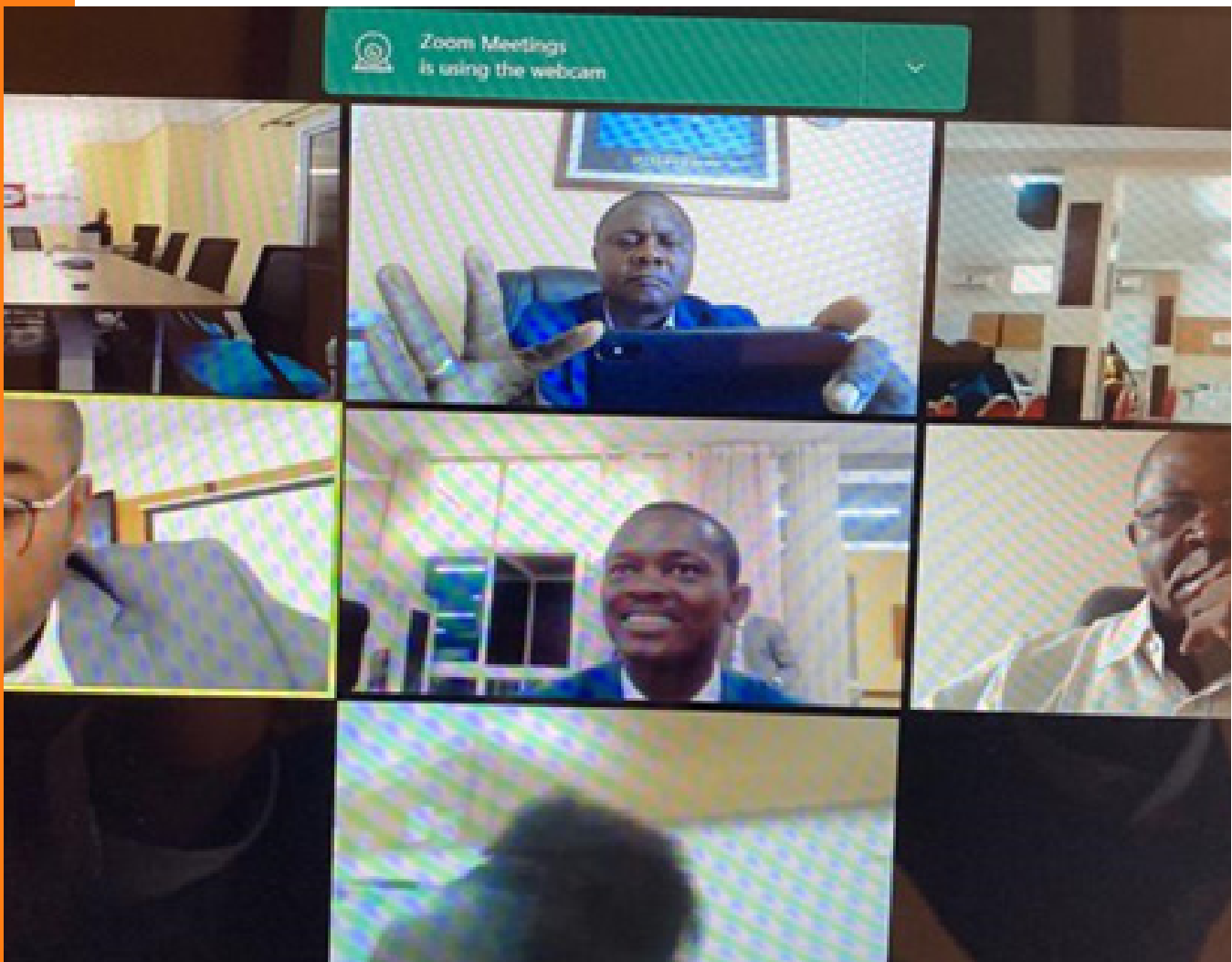
MAPPING OF CENTRES OF EXCELLENCE AND LABORATORIES IN THE REGION AND LINKING THEM BY THE ECHO PLATFORM

Extension for Community Health Outcomes (ECHO) launched at GHSS'

Head Office in Douala to support mentorship and supervision of the 7 laboratories enrolled for accreditation in the first cohort, as well as link up and coordinate centers of excellence and public health laboratories in event based and laboratory based disease surveillance, Sample Transport Systems and information sharing among the laboratories and countries.

CoEs and NRLs have been linked to ECHO to build the human and infrastructural capacity of targeted labs to operate the ECHO Platform.

GHSS organizes weekly meeting via conference calls with the laboratory heads of these laboratories to discuss the challenges they face in the implementation of the laboratory strengthening programs being supported by Africa CDC and GHSS and share relevant information on the improvement of Quality Management Systems in the RILSNET **for central Africa**. Sample Transport Systems and information sharing among the laboratories and countries.



ACHIEVEMENTS BY OBJECTIVE



INSTALLATION OF BASIC LABORATORY INFORMATION SYSTEMS (BLIS) TO
IMPROVE SAMPLE TURNAROUND TIMES TO SUPPORT CLINICAL DECISION MAKING

Installation of basic Laboratory Information Systems (BLIS) to improve sample turnaround times to support clinical decision making

04 Laboratories in 4 member states benefit from C4G MAKING INSTALLATION OF BASIC LABORATORY INFORMATION SYSTEMS TO IMPROVE SAMPLE TURNAROUND TIMES TO SUPPORT CLINICAL DECISION MAKING.

They include 2 hospital laboratories: 1 public health laboratory and 1 reference laboratory in 4 Central Africa states including Burundi, Congo, Chad and Sao Tome and Principe. These installations came after a baseline assessment survey was carried out in Laboratoire de Tuberculose et VIH in Sao Tome et Principe, l'Hopital Prince Regent Charles (HPRC) in Burundi, l'Hôpital General de Référence National in N'djamena - Chad and Laboratoire National de Santé Publique in Brazzaville - Congo.

The base line assessment provided an idea of the site's readiness and suitability of the various structures in place to facilitate the installation of BLIS. At the end of the survey, a BLIS survey report was developed for each of the laboratories. The outcome of the survey showed some insufficiencies in IT installations and computer equipment in most of the laboratories, absence of the BLIS network in all the laboratories and a few staff with skills in computer Base Laboratory Information Systems.

After the survey, the assessed needs of the laboratories in order to implement the BLIS network were procured and the GHSS BLIS team then embarked on the implementation phase to install and implement a C4G Basic Laboratory Information Systems (BLIS) network in these chosen Laboratories to improve sample turnaround times and to support clinical decision making.

Information Technology (IT) materials and network connectivity to support management of C4G BLIS in the labs were purchased and installed in the laboratories by IT specialist and BLIS software experts from GHSS. This was followed by a training of the laboratory staff in the use of BLIS for proper management of laboratory data/information, and in managing the day to day activities of the laboratory.



ACHIEVEMENTS BY OBJECTIVE



**DEVELOP EQUIPMENT MAINTENANCE
AND BIOSAFETY GUIDELINES**

27 Equipment managers & technicians from 16 lab within 7 member states trained on EMC.

Trainees came from Congo Brazzaville, Republic of Chad, Central African Republic, Republic of Burundi, Republic of Equatorial Guinea, Republic of Sao Tome and Principe and the Republic of Gabon. The emphasis of the training was on preventive maintenance of auxiliary equipment to strengthen the efficiencies for HIV Viral Load (VL) testing within the stated Region.

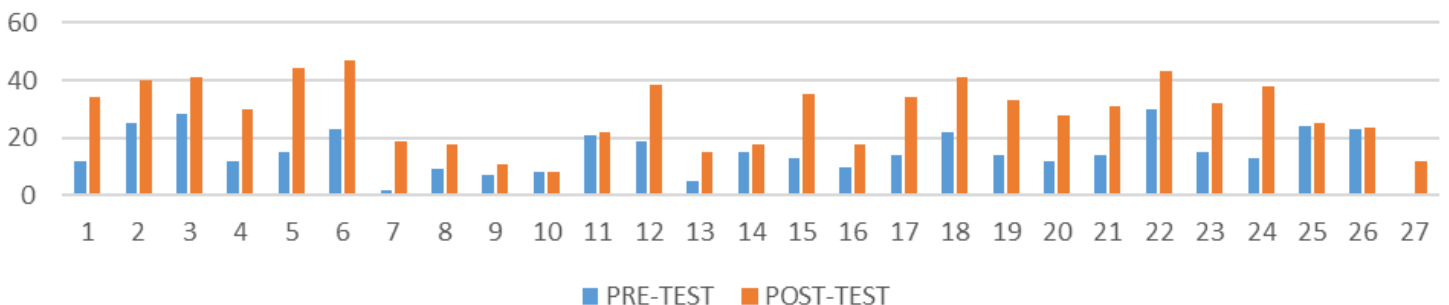
Equipment Trained On

ELISA Microplate Reader, Microplate Washer and their accessories, Classes I and II Biological Safety Cabinet, Chemical Fume Hood, Clean Bench and Laminar Flow Hood, Temperature controlled equipment among which are Water bath, Oven, Incubator, Stirring Hot Plate, Distiller and Autoclave, Microscope, Refrigerator and Freezer, Centrifuge, Weighing Balance, Micropipettes and Spectrophotometer.

Hands-on activities were done on at the National Public Health Laboratory in Brazzaville and the general and specific objectives of the training were realised.



PRE AND POST TEST



ACHIEVEMENTS BY OBJECTIVE



DEVELOP A FRAMEWORK FOR IMPLEMENTING QMS FOR POC TESTING RESULTING IN THE INCREASED ACCURACY AND RELIABILITY OF DIAGNOSTIC TESTING THAT CAN BE USED FOR RAPID DETECTION OF ENDEMIC AND OUTBREAKS DISEASES

DEVELOP A FRAMEWORK FOR IMPLEMENTING QMS FOR POC TESTING RESULTING IN THE INCREASED ACCURACY AND RELIABILITY OF DIAGNOSTIC TESTING THAT CAN BE USED FOR RAPID DETECTION OF ENDEMIC AND OUTBREAKS DISEASES

26 POC testers trained on QA and EQA procedures.

In a five days training of trainers workshop that took place from October 28 to November 01 in Libreville – Gabon aimed at building the capacity of health care personnel to support the institutionalization and sustainability of Point of Care testing.

To ensure that QAOs/EQAOs are equipped with the right kind of skills, knowledge and abilities to perform their assigned tasks, the WHO/CDC approved 4-day POC comprehensive quality assurance training package was used with emphasis on the stepwise process for improving the quality of HIV-related Point of Care Testing (SPI-POCT) checklist.

The training materials consisted of presentation slides, hands-on activities that engaged participants, questions and answers sessions, and test questions used for performance-based evaluation. The training content covered the three phases of the quality assurance cycle which relates to the laboratory Management Framework of Tasks. These are tasks which the laboratory manager should undertake to ascertain optimum patient care and service delivery.

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Global Health Systems Solutions



VISION

To be a leader in strengthening health systems for quality and improved clinical, laboratory, and disease surveillance in resource-poor countries.



MISSION

To develop innovative approaches to strengthen health systems necessary to deliver quality health care and diseases surveillance in resource-poor countries.

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