TERMS OF REFERENCE



For the Caribbean Public Health Laboratory Network

Version II, 16 January 2012

1- BACKGROUND

In its Article 4, the Agreement Establishing the Caribbean Regional Public Health Agency (CARPHA), established the CARPHA **Objectives** as following:

- (a) To promote the health of Caribbean people and the wellness revolution in the Caribbean Community;
- (b) To provide strategic direction, in analyzing, defining and responding to public health priorities of the Caribbean Community;
- (c) To promote and develop measures for the prevention of disease in the Caribbean;
- (d) To support the Caribbean Community in preparing for and responding to public health emergencies; and
- (e) To support solidarity in health, as one of the principal pillars of functional cooperation in the Caribbean Community.

In order to achieve its objectives, CARPHA shall perform the following **Functions**¹:

- (a) Provide an evidence base for public health decision-making and policy in the Caribbean, including the definition of minimum data sets, health situation analysis, critical analysis of the impact of social and other determinants of health and response to public health interventions;
- (b) Conduct relevant research on public health priorities in the Caribbean;
- (c) Support and coordinate the development of regional standards and networks related to laboratory practice;
- (d) Coordinate effective responses to public health crises in the Caribbean;
- (e) Provide leadership in defining effective public health interventions in the Caribbean and developing/adapting models for different scenarios;
- (f) Provide accurate, reliable, timely and relevant public health information to various Caribbean and international audiences;
- (g) Enhance national capacities to deliver public health goods and services to address new and emerging public health priorities in the Caribbean, through on-going skill building and collaboration;

- (h) Produce an annual report on the state of public health in the Caribbean sub-region;
- (i) Build strategic alliances with regional and international partners;
- (j) Mobilize resources for priority public health issues; and
- (k) Monitor global agreements and developments that may impact on Public Health

These functions of CARPHA could be summarized as:

Function 1: Laboratory Services

Function 2: Surveillance and Health Analysis

Function 3: Leadership for Public Health Interventions

Function 4: Information, Education and Communication

Function 5: Research, Policy Development and Evaluation

Function 6: Human Resource Development and Training

Function 7: Emergency Preparedness and Response

Function 8: Strategic Planning and resource Mobilization

Function 9: Development of regional standards and networks

CARPHA Laboratory services are directly related to the Functions # 1, 2 and 7; and the laboratory network is associated with Function # 9.

Function 1: Laboratory Services

- 1.1 Provide reference and referral services in support of surveillance, prevention and control of important public health problems bacteriology, virology, parasitology, molecular biology, immunology, serology, mycology, anti-biotic resistance and some clinical chemistry (to support chronic disease surveillance and research).
- 1.2 Support laboratory strengthening in the region by i) Promote the development and implementation of CARICOM regional laboratory guidelines and systems, ii) support a network of national laboratories, and iii) facilitate access to quality assurance programmes to assure the quality of testing in the laboratories of CARICOM member states.

Function 2: Surveillance and Health Analysis

- 2.1 Conduct surveillance of both communicable and non-communicable diseases.
- 2.2 Strengthen national surveillance systems.
- 2.3 Provide outbreak surveillance, HIV/AIDS, vaccine-preventable diseases, water quality and environmental health surveillance in addition to food and vector borne disease surveillance under communicable disease surveillance.
- 2.4 Include under NCD surveillance, behavioural surveillance to include drug, alcohol, tobacco use, in addition to surveillance of obesity, food and nutritional status, mental illness and injuries and violence.
- 2.5 Provide evidence base for public health decision-making and policy in the Caribbean.

Function 7: Emergency Preparedness and Response

7.1 Co-ordinate responses to public health crises in the Caribbean.

Function 9: Development of regional standards and networks

9.1 Support and coordinate development of regional standards and networks related to laboratory practice, other public health and IT systems.

2- RATIONALE

In July, 2006 the CAREC Laboratory Assessment conducted by PAHO recommended that CAREC should define its public health laboratory core functions and prioritize them for funding. Hence priorities would be developed in the context of Caribbean Cooperation in Health, Phase II (CCHII) and Caribbean Cooperation in Health, Phase III (CCHIII) and with CAREC as part of a **Caribbean Public Health Laboratory Network** thereby allowing rationalization in light of resource constraints.

A formally established laboratory network facilitates the exchange of knowledge and expertise among experienced laboratory specialist, thus facilitating timely and appropriate support for patient management, surveillance, disease prevention and control².

There are **9 key competencies** that CARPHA must have in order to address the ever-changing public health environment in the Caribbean. These nine competencies represent the critical success factors of CARPHA. It is important that CARPHA be configured to deliver to the highest standards on each of these competencies.

Each of the 9 core competencies must be fully supported by the necessary functional capacity. A failure of any one of these key functions will significantly impact the effectiveness of CARPHA. Fourteen functional capacities were identified that are required to deliver the core competencies. This is significant amount of work given that each of the 14 capacities can have numerous sub-processes which will be standardized and automated¹:

- i. Strategic Management
- ii. Project Management
- iii. Quality Management
- iv. Stakeholder management
- v. Marketing and Communications
- vi. Information Management (Strategic/Programmes)
- vii. Information Technology Infrastructure Support and Telecommunications (Operational)
- viii. Resource Mobilization
- ix. Human Resource Management and Development
- x. Legal
- xi. Behavioral Science
- xii. Epidemiological Surveillance

xiii. Laboratory Surveillance

xiv. Administration

Similarly, two initiatives to implement an intelligent and responsive sub-regional laboratory networks were promoted by PAHO in the Andean Region (Red Andina de *Institutos de Salud Pública y sus Homólogos en los Países*, RAIS, 2007 and South America, *Red de Institutos Nacionales de Salud*, RINS, 2010).

Given the participating governments have endorsed several **resolutions** with public health services such as^{1,3-5}:

- Considering the importance of improving, through the national public health institutions, increasing surveillance, control of emerging and re-emerging diseases, and alert/response of countries to emergencies and epidemics in the Caribbean;
- Being aware of the need to provide a technical, virtual, reactive, flexible and real-time platform that would strengthen the national response capacity of health emergencies and give more autonomy to the countries in joint problem solving;
- Recognizing that the Millennium Development Goals set by the United Nations system, form a blueprint agreed by all nations of the world and all major development institutions worldwide;
- Recognizing the mandate of the World Health Organization to obtain for all peoples, the highest attainable standard of health;
- Recognizing the resolutions of the Pan American Health Organization to provide guidance to Member States for the purpose of addressing specific problems and implement regional and subregional measures for prevention and control of emerging and reemerging infectious diseases;
- Considering that the need for reforms in the health sector means increased attention to public health, the Pan American Health Organization has launched the "Public Health in the Americas" initiative as a basis for improving the practice of public health and strengthening the steering role of health authorities;
- Meeting the commitments to the International Health Regulations 2005, which requires each State
 to develop, strengthen and maintain the capacity to detect, assess, notify and report events with
 epidemic potential.

- Given the importance of ensuring complementarity and synergies with sub-regional networks and national reference laboratories and WHO collaborating centers;
- Aware of the need for the governments of the Caribbean to pool their resources for the financing of a Regional Public Health Laboratory Network;
- Considering that the Function # 9: development of regional standards and networks of the CARPHA Implementation Plan, 2010, will support and coordinate development of regional standards and networks related to laboratory practice, other public health and IT systems;

It is proposed to establish the **Caribbean Public Health Laboratory Network**, subject to the following purpose and organization:

3- PURPOSE OF THE CARIBBEAN PUBLIC HEALTH LABORATORY NETWORK

3.1. VISION

The vision of the Caribbean Public Health Laboratory Network, following models developed by APHL⁶ and CDC⁷ for the National Laboratory System, is to link private/public-sector, medical laboratories in the member countries, with public health, veterinary, food safety, environmental health and drug control and testing laboratories to create seamless systems within each state to enhance public health surveillance, emergency response, laboratory, quality improvement and research at national and regional levels.

3.2. Purpose

The long term purpose of the Network is to offer a proactive and responsive laboratory platform that allows for strengthening national capacity for preparedness and response to address situations of health emergency and public health surveillance and to provide more flexibility to countries in joint problem-solving.

3-3. PRINCIPLES

SovereigntyIntegrationComplementarityStandardization

Cooperation
 Solidarity
 Commitment
 Quality
 Safety
 Ethics

3-4. OBJECTIVE

Strengthen the laboratory capacity of member countries in support of surveillance, prevention and control of important public health problems, as well as provide more ready access to referral and specialized testing, through the establishment of a Caribbean Public Health Laboratory Network, which ensure quality standards across the Region.

3-5. Specific Objectives

- Strengthen surveillance and alert/response capacity of the member states for early detection and outbreaks characterization under the International Health Regulations 2005.
- Strengthen early intervention and coordinated response to environmental health problems, occupational and others relevant threats to public health.
- Develop mechanisms for coordination and communication among countries, institutions, agencies, and other networks for the exchange of reliable information to channel effective and timely response.
- Promote the harmonization of codes, regulations and laws that facilitate regional integration in the field of health.
- Establish rules, standards and protocols for the diagnosis of high-risk infectious agents, outbreak containment and the monitoring of antimicrobial resistance in hospital and community.
- Cooperate in the implementation of systems of quality management including Bio-Risk management and Maintenance.
- Improve technical and managerial education for laboratory staff
- Promote technology transfer mechanisms and scientific exchange.
- Strengthen the collaboration capabilities in early detection and early response in order to mitigate the consequences of potential natural and anthropogenic disasters.
- Develop integrated networks of researchers to enhance regional capacities in the production of critical knowledge to solve health problems defined by common guidelines and priorities for the region.
- Facilitate the exchange of strains, biological material and information derived from this, that allows better epidemiological characterization of pathogens circulating in the region.
- Develop mechanisms that allow the Caribbean Public Health Laboratory Network to manage international cooperation and resources

3-6. ORGANIZATION

The overall goal of the Caribbean Public Health Laboratory will be to support ongoing efforts aimed at strengthening national core capacity in disease surveillance including international health regulations, public health laboratory services, and medicine regulation through enhanced collaboration and cooperation within and between Member States⁸. The Caribbean Public Health Laboratory Network should be an integral part of the CARPHA Implementation Plan. The laboratory network should define the general relationship between the different actors of the regional and national health systems. The aim is to ensure that all laboratories can work together in an effective, practical and functional way, with clear patterns of referral, confirmation of certain types of results, and efficient provision of supplies and procurement². The expertise available with the specialized laboratories supporting the vertical diseases programs (e.g. HIV/STI, TB, Malaria, Dengue, Influenza and Acute Respiratory Syndromes and Diarrheal Diseases), should be harnessed to support other laboratories in the region and countries. Not all laboratory testing and outbreak investigations can be available at every facility or at every level of the national and sub-regional

health systems². An organized network as shown below in figures 1, 2, 3 and 4 ensures that complex test methods are referred to the appropriate level. The transport of specimens is usually more cost-effective than developing sophisticated capacity in every facility; therefore, coordination mechanisms should be in place to facilitate access to techniques that are complex or expensive and undertaken in selected existing facilities². In most of the countries in the Caribbean, specimens may be referred out.

In order to maximize economy of scale and to facilitate access to specialized services, some countries with limited diagnostic and resource capacity, will benefit to clearly defined mechanisms and a state of the art laboratory platform under the coordination of CARPHA and the guidance of the Caribbean Public Health Laboratory Network.

Every laboratory service should know where it stands within the national or regional laboratory network, and to where to refer/send specimens for different specialized testing and investigations.

The Caribbean Public Health Laboratory will be organized in four levels:

- 1. Regional Reference Laboratory: The CARPHA Laboratory
- 2. Centers of Excellence
- 3. National Reference Laboratories
- 4. Local laboratories (public and private)

1. CARPHA Laboratory

The successful development and maintenance of a public health laboratory network fundamentally depends on strong network leadership⁷. As the Regional Reference Laboratory, the CARPHA Laboratory will be responsible of the following 12 Laboratory Core Functions at regional level (see document on CARPHA Laboratory Core Functions):

- 1. Reference, referral and Laboratory Network Co-ordination;
- 2. Reference material resource;
- 3. Communicable, non-communicable and chronic disease prevention, control, and surveillance;
- 4. Monitoring, alert and response;
- 5. Environment Health and Protection
- 6. Drug control and testing
- 7. Scientific advice;
- 8. Laboratory improvement and regulation (Quality Assurance); Public health policy development;
- 9. Integrated data management;
- 10. Public health-related research;
- 11. Training and education of public health professionals; and
- 12. Partnerships and communication

Figure 1: First and second levels of the Caribbean Public Health Laboratory Network for the surveillance of specific diseases and/or for specific interventions

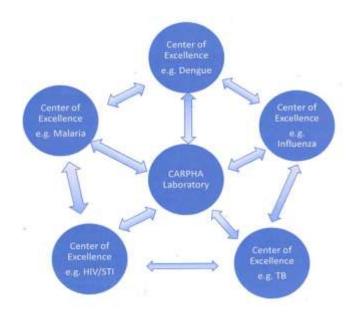
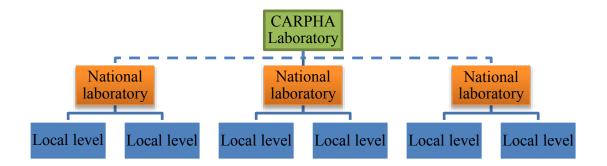


Figure 2: Caribbean Public Health Laboratory Network for epidemiological surveillance



2. Centers of Excellence

During the last ten years, some countries have strengthened their capacity in terms of infrastructure, human resource equipment and diagnostic testing in specialized areas. This can be used for the benefit of the Region.

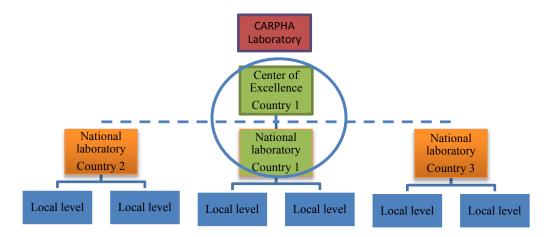
The Centers of Excellence will be selected on the basis of regionally defined criteria in order to respond to country needs. Under CARPHA administration and CARPHA Laboratory guidance, the role of these

specialized and strategically located Centers (selected national reference laboratories), to be determined through a diagnostic of the existing capacities in the Caribbean and the geographical and epidemic situation, would be to explicitly respond to some specific vertical surveillance program requirements.

The identification and selection of these Centers of Excellence within existing National Reference Laboratories, will allow an extension of the coverage for disease-specific programmes, such as HIV/STI, Malaria, Dengue, Tuberculosis, Influenza, through the decentralization of the specialized technical platform in sensitive, vulnerable and endemic areas. In line with the CARPHA Laboratory core functions, the activities to be developed at the Centers of Excellence will be:

- 1. Analyse the technical needs assessed at the national and sub-regional levels and make recommendations:
- 2. Develop strategies to address the technical capacity building and logistical and legal arrangements to support the functioning of the network;
- 3. Draft technical standards i.e. core functions, levels of service including reference and referral laboratories, quality standards in their area of expertise, for adoption by countries to facilitate the operation of the network;
- 4. Promote strategic alliances with Caribbean regional and international co-operation agencies for the benefit of CARPHA-Laboratory and the Caribbean Public Health Laboratory Network;
- 5. Provide technical support to the National Laboratories and local laboratories
- 6. Assist CARPHA Laboratory in the on-site visits to national labs and sentinel site
- 7. Provide trainings of laboratory personnel
- 8. Respond to queries or request for technical advise
- 9. Serve as distribution center for reference reagents and materials in their area of expertise to network in the region
- 10. Actively participate in the Implementation of the Quality Assurance/Quality control (QA/QC) System;
- 11. Develop External Quality Assessment schemes for National Laboratories
- 12. Report data to countries and CARPHA
- 13. Conduct research and participate in collaborative studies aimed at improving or developing methods for diagnostic and strain characterization
- 14. participate in field testing of new methods or reagents (i.e. new primers)
- 15. Make provisions to have sufficient capacity to support the sub-region in case of crisis situations

Figure 3: Caribbean Public Health Laboratory Network for the surveillance of specific diseases: the Centers of Excellence

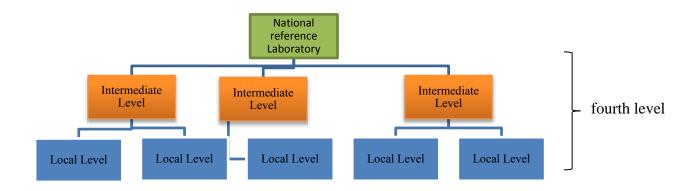


3. National Reference Laboratories

The role of the National Reference Laboratories would be to define both the vertical (between levels) and horizontal (across programmes) connections between laboratory services to strength patient care, treatment monitoring and surveillance. Even when laboratories remain separate, functional integration can improve efficiency, quality and health outcomes.

The implementation of national laboratory networks will promote the rational use of services. In many instances, transporting specimens or referring patients to other laboratories is more rational than developing capacity in every facility, or in every small country².

Figure 4: Third and fourth levels of the Caribbean Public Health Laboratory Network



NB: Some countries have no Intermediate level laboratories.

4. Local laboratories

Laboratory tests for diagnosis and monitoring should be defined at national level.

This fourth level laboratory will serve as sentinel laboratories. The majority of these sentinel laboratories are independent (public and private medical laboratories) and hospital laboratories that participate in the day-to-day health of their local communities, putting them in an ideal position to act as the early warning system for emerging health issues⁴.

Local laboratories participating in the national laboratory network and the Caribbean Public Health Laboratory Network should meet the quality standards of the national regulations for medical laboratories. This is based on the Regional Framework for Medical Licensure developed by the PAHO Technical Working Group, 2011 within the PAHO-CDC Joint Initiative on Strengthening Quality Management Systems for Medical Laboratories in a Step-Wise Approach toward Accreditation in the Caribbean and endorsed by the Caribbean Regional Organization for Standards and Quality (CROSQ).

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