



Laboratory leadership

Competency framework to build a strong foundation



Laboratory leaders require meaningful education and training in leadership and management skills.



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The purpose of this article is to introduce the first edition of Laboratory Leadership Competency Framework published by the World Health Organization (WHO) in 2019. This Framework was sought for many years worldwide by laboratories in order to establish a unified “know-how” model, which can be used to build sustainable national health laboratory systems that are a component of overall health systems. The Framework is intended to be used as a tool in mentoring current and emerging laboratory leaders engaged in the process of building, strengthening and sustaining national laboratory systems. It can be used as a roadmap to build an effective and efficient learning and training programme for leadership and used as a benchmark tool to assess competency of not only laboratory leadership but healthcare leaders worldwide. It is the first of its kind that provides a consensus process by six leading organisations as a holistic approach for leadership competency. The Framework consists of nine competencies where each competency is designed in a way that allows complementary learning opportunities for those who need to develop a particular competency. The leadership performance activities are designed in three levels according to proficiency, which are developing, skilled or expert. The framework is a tool for assessment that has been launched and ready for use, however, the Learning Package, with its attendant course materials and guidance, is currently under development. The following sections are captured from the framework to emphasise on its importance of implementation in laboratories in particular and healthcare settings in general.

Background

Laboratories are an essential and fundamental part of health systems and play a critical role in the detection, diagnosis, treatment and control of diseases. However, reliable laboratory services continue to be limited in many low- and middle-income countries. Although there have been examples of effective laboratory responses to outbreaks, a well-documented number of such events, including some at the convergence of human, animal, and environmental health, have shown how a lack of robust laboratory systems can impede disease control and prevention efforts. Recent examples include outbreaks of Ebola viral disease, human H5N1 (avian) influenza, Zika viral disease, bovine spongiform encephalopathy (BSE) and foot and mouth disease (FMD). Likewise, the control and management of endemic diseases such as human immunodeficiency virus (HIV) disease,

malaria, cholera and brucellosis, as well as infections caused by antimicrobial resistant pathogens, are also hampered by a lack of adequate laboratory services. These circumstances highlight the importance of building sustainable national health laboratory systems that are a component of overall health systems. This would require a long-term commitment and laboratory leaders who are able to manage laboratories in complex environments and build strong collaborative networks at every level of the health system in order to attain optimal human, animal and environmental health. It is recognised that, in order to lead efforts in the development and direction of capable laboratory systems, laboratory leaders require meaningful education and training in leadership and management skills, and that most of them have not had sufficient specific training in these areas.

The lack of adequate leadership and management training is particularly acute in low- and middle-income countries and, in my opinion, is not optimally practiced in high-income countries. To effectively address this gap, a comprehensive, competency-based learning programme, applicable on a global scale, is needed to provide the foundation for training programmes for laboratory leadership and management.



Dr. Nafouri will be facilitating the Roundtable Discussion on Quality Control on February 3, at the Medlab Congress.



Table 1. Action verbs by level of proficiency

Developing	Skilled	Expert
<p>Define: to determine or identify the essential qualities or meaning of</p> <p>Describe: to represent or give an account of in words (or represent by figure, model or picture)</p> <p>Identify: to establish the identity of</p> <p>Outline: to indicate the principal features or different parts of</p> <p>List: to make a simple series of words or numerals</p>	<p>Explain: 1) to give the reason for or cause of; 2) to show the logical development or relationships of</p> <p>Analyse: to study or determine the nature and relationship of the parts</p> <p>Apply: to put to use, especially for practical purposes</p> <p>Demonstrate: 1) to prove or make clear by reasoning or evidence; 2) to illustrate and explain, especially with many examples</p> <p>Implement: to give practical effect to and ensure of actual fulfillment by concrete measures</p>	<p>Create: 1) to produce or bring about by a course of action; 2) to produce through skill; 3) to make or bring into existence something new</p> <p>Design: 1) to conceive and plan out in the mind; 2) to draw plans for</p> <p>Develop: to set forth or make clear by degrees or in detail</p> <p>Evaluate: to determine the significance, worth or condition of, usually by careful appraisal and study</p> <p>Perform: to carry out an action</p> <p>Prioritise: to list or rate in order of priority</p>

Towards this end, six leading organisations have partnered to develop the Global Laboratory Leadership Programme (GLLP) targeting professionals working in human and animal health laboratories, as well as laboratories with public health functions (for example, environmental, agricultural, food, chemical and aquatic laboratories). The partners include:

- Association of Public Health Laboratories (APHL)
- Centres for Disease Control and Prevention (CDC)
- European Centre for Disease Prevention and Control (ECDC)
- Food and Agriculture Organization of the United Nations (FAO)
- World Organization for Animal Health (OIE)
- World Health Organization (WHO)

This Framework was developed through a consensus process involving subject matter experts from the aforementioned GLLP partners.

Framework scope

The purpose of the Framework is to outline the essential competencies needed by laboratory leaders to build and direct sustainable national laboratory systems for disease detection, control

and prevention in health systems. This Framework provides a strong orientation to the One Health approach, recognising that improving coordination between human, animal and environmental health sectors has reciprocal benefits and will lead to stronger health systems. This Framework is designed to build bridges, enhance communication, and foster collaboration as well as to understand existing synergies within the human, animal and environmental health sectors.

Intended use of the Framework

The Framework can be used by national authorities from all sectors and disciplines, including policymakers, regulatory agencies, and educational institutions, as well as other stakeholders such as accrediting bodies donors, non-governmental organisations (NGOs) and private sector organisations. The Framework can be used for workforce development, leadership learning programme development, standardised job descriptions, guidance in developing a tool for self-assessment, observer assessment or a combination of both to identify individual or group needs and guide staff development planning.

The Framework is designed to build bridges, enhance communication, and foster collaboration.

Framework structure

The Framework consists of nine competencies:

1. Laboratory system
2. Leadership
3. Management
4. Communication
5. Quality management system
6. Biosafety and biosecurity
7. Disease surveillance and outbreak investigation
8. Emergency preparedness, response and recovery
9. Research

These competencies may be applied at the laboratory system or facility level, as appropriate.

Framework design


Each competency is structured as follows:

- **Competency:** A combination of the knowledge, skills and abilities that are critical to perform a task effectively (for example, “3. Management”)
 - **Competency domain:** A discrete component of a competency (for example, “3.2 Resource Management”)
 - **Subdomain:** A subcomponent of a domain (for example, “3.2a. Budgeting and financial Management”)
 - **Area:** Competency domains and subdomains are broken down further into areas of activity
(For example, “3.2.1 Laboratory budget”, “3.2.2. Financial auditing process”, “3.2.3 financial resource utilisation”)
 - **Performance activities:** Activities that allow for evaluation of individual performance at three levels of proficiency.
- Performance activities are designed in levels according to proficiency:
- **Developing:** The individual has advanced knowledge of the principles, concepts and/or methodologies related to the competency as attained through education or training (e.g. coursework, on-the-job orientation, mentorship, etc.) and is able to perform a range of assignments under supervision, or during mentorship and/or coaching.
 - **Skilled:** The individual analyses and independently applies principles, concepts and/or methodologies related to the competency as attained through education or training and successful experience in a variety of complex assignments.
 - **Expert:** The individual has mastered the principles, concepts and/or methodologies related to the competency and has demonstrated significant success in performing the most demanding assignments requiring the competency. Applies innovations in the competency to problem solving and task completion and is able to synthesise, critique or teach the competency and is able to provide coaching and mentoring.

For each performance activity, action verbs are standardised according to level of proficiency, as shown in Table 1.

In conclusion, I view this Framework as the first global masterpiece, which set up the foundation for instrumental professional assessment not only for laboratory leadership but all types of leaderships in healthcare settings. ✦

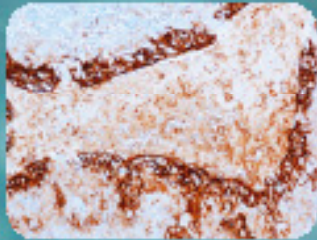
References available on request.



Monoclonal Antibodies

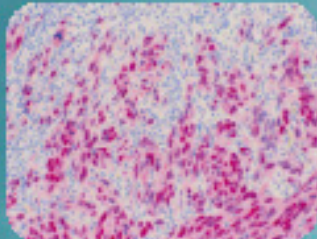
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PD-L1 (QR1)



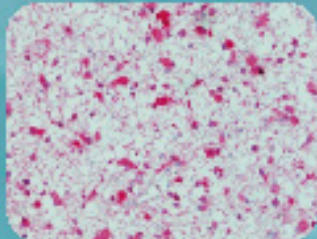
Human tonsil

PRAME (QR5)




Human melanoma

IDH1 R132H (QM2)



Human brain tumor

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