

# *An Overview of the Global Laboratory Leadership Programme*

V2 2023

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# **An Overview of the Global Laboratory Leadership Programme**

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# Table of Contents

Health governance context .....	4
The One Health approach .....	9
GLLP: A partners collaboration .....	21
The Laboratory Leadership Competency Framework.....	23
GLLP: The programme.....	29
References.....	34

# Health governance context

## Health governance context

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2

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## International Health Regulations (IHR)

Global instrument for health security

- A global legal framework for protecting global public health security
- Countries required to develop, strengthen and maintain capacity to detect, assess, notify and report potential public health emergencies of international concern
- An efficient laboratory system is the cornerstone of a country's capacity to investigate and respond to such events



<https://www.who.int/ihr/en/>

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3


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## IHR continued

- WHO supports national processes aimed at building laboratory capability for the safe, secure, reliable and timely detection, confirmation, reporting of public health events and access to laboratory services at all levels of the health system
- Laboratory indicators:
  - Laboratory biosafety and biosecurity regime
  - Laboratory testing capacity for priority diseases
  - Specimen referral and transport system
  - Chemical events
  - Radiation emergencies
  - Zoonotic events and the human-animal interface



<https://www.who.int/ihr/en/>

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4

The IHR monitoring and evaluation framework (<https://extranet.who.int/sph/ihrmef>) consists of four components: mandatory

annual reporting and three voluntary components, viz, after action review, simulation exercise and voluntary external evaluation.

- The mandatory annual reporting is done through the state party self-assessment annual reporting (SPAR) tool. The three indicators listed on the slide are the indicators used to monitor the laboratory capacity in the SPAR. The “laboratory picture” at the country level can be complemented by other sources of information (e.g. from Joint External Evaluations (JEE), laboratory-specific evaluations, simulation exercises).

## WOAH International Standards for improving animal health worldwide

### Terrestrial Animal Health Code (The Terrestrial Code)

- Animal disease diagnosis, surveillance and notification
- Risk analysis
- Quality of veterinary services
- Disease prevention and control
- Trade measures, import/export procedures and veterinary certification
- Veterinary public health: Food safety, antimicrobial resistance and zoonoses
- Animal welfare measures

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Terrestrial Animal Health Code  
2019  
Volume I

<https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/>

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The World Organisation for Animal Health (WOAH) Terrestrial Animal Health Code (the Terrestrial Code) provides international standards for the improvement of terrestrial animal health and welfare and veterinary public health worldwide.

- The health measures in the Terrestrial Code should be used by the Veterinary Authorities of importing and exporting countries to set up measures providing for early detection, reporting and control of pathogenic agents, including zoonotic ones, in terrestrial animals (mammals, birds, reptiles and bees) and preventing their spread via international trade in animals and animal products, while avoiding unjustified sanitary barriers to trade.
- The Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (the Terrestrial Manual) aims to facilitate international trade in animals and animal products and to contribute to the improvement of animal health services worldwide. The principal target readership includes laboratories carrying out veterinary diagnostic tests and surveillance, plus vaccine manufacturers and regulatory authorities in Member Countries. The objective is to provide internationally agreed upon diagnostic laboratory methods and requirements for the production and control of vaccines and

- other biological products. The Terrestrial Manual covers infectious and parasitic diseases of mammals, birds, and bees.
- The WOAH also publishes the Aquatic Animal Health Code and the Manual of Diagnostic Tests and Vaccines for Aquatic Animals.

### WOAH international standards cont.

#### Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (The Terrestrial Manual)

- Good laboratory management
- Specimen collection, referral and transport
- Biological risk management
- Quality management
- Validation of diagnostic assays
- Vaccine production and biotechnology
- Fit-for-purpose diagnostic methods for more than 100 zoonotic and terrestrial animal diseases



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- The Terrestrial Manual covers infectious and parasitic diseases of mammals, birds, and bees.

## Definition of health laboratory/ies

Clinical, diagnostic, medical, public health, animal, toxicological, food safety, environmental or any other laboratories performing testing for the purpose of disease diagnosis, screening, prevention, treatment decisions, surveillance or public health.

definition adapted from: [Laboratory Leadership Programme](https://www.who.int/publications/m/item/laboratory-leadership-programme)

## Laboratory strengthening focus areas



Strengthening laboratory services requires an over-arching approach, inclusive of all aspects of laboratories.

## Current workforce challenges

### Health laboratory workforce challenges

- Lack of specialized training of laboratory professionals in the areas of leadership and management

### Laboratory leadership workforce challenges:

- Laboratory science education lacks adequate management training
- Uncertain career path
- Laboratory directors have limited input to national financial planning of health funding

Howard K. Koh, Marsha Jacobson, Fostering public health leadership, Journal of Public Health, Volume 31, Issue 2, 1 June 2009, Pages 199-201, <https://doi.org/10.1093/pubmed/fdp032>

Challenges are likely to differ in different geographic locations. However, some additional aspects to take into consideration especially in low-resources countries are the lack of a specialized workforce and a chronic turn-over of staff.

**Source:** 1Howard K. Koh, Marsha Jacobson; Fostering public health leadership, Journal of Public Health, Volume 31, Issue 2, 1 June 2009, Pages 199–201, <https://doi.org/10.1093/pubmed/fdp032>



Article that outlines critical gaps in laboratory leadership to meet global health security goals.

**Source:** Bull World Health Organ 2017;95:547–547A | doi: <http://dx.doi.org/10.2471/BLT.17.195883>





With a limited number of laboratory leadership training opportunities available there is a need for a Laboratory Leadership Competency Framework to guide comprehensive curriculum and programme development.

In addition, many of the issues identified are relevant for all sectors, and other audiences can benefit from a cross sectoral training programme.

## The One Health approach



### History of One Health

- 300 BC - Aristotle: introduced the concept of comparative medicine
- 1600s: Giovanni Maria Lancisi, physician and veterinarian, wrote of the role the environment plays in the spread of diseases to humans and animals
- 1800s: Rudolf Virchow coined the term 'zoonosis'
  - "Between animal and human medicines there are no dividing lines - nor should there be."*
- 2004: Wildlife Conservation Society international conference
  - Discuss and respond to reported and potential movements of diseases among human, domestic animal and wildlife populations.
  - Publication of the 'Manhattan Principles on One World - One Health'

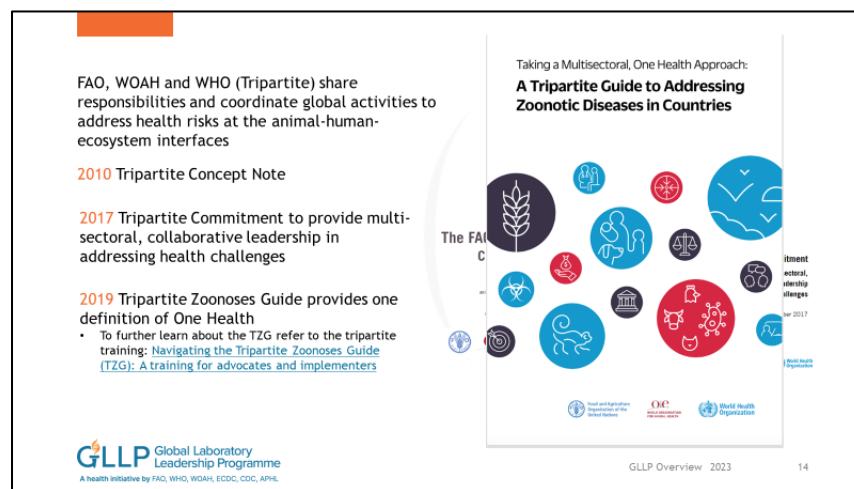
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- 300 BC - Aristotle: introduced the concept of comparative medicine through his study of common characteristics among different species, including people and other mammals
- 1600s: Giovanni Maria Lancisi, physician and veterinarian, wrote of the important role the environment plays in the spread of diseases to humans and animals. He was the first to recommend the draining of swamps and

the use of protection against biting insects in the management of human malaria.

- 1800s: Rudolf Virchow coined the term ‘zoonosis’ and is quoted as saying: ‘Between animal and human medicines there are no dividing lines – nor should there be. The object is different but the experience obtained constitutes the basis of all medicine’
- 2004, the Wildlife Conservation Society hosted a conference of international experts in multiple disciplines to discuss and respond to the reported and potential movements of diseases among human, domestic animal and wildlife populations. The symposium resulted in the publication of the ‘Manhattan Principles on One World – One Health’ whose title led to the coining of the term ‘One Health’



The term ‘One Health’ has been used for many years. FAO, WOAH and WHO have been working together to share responsibilities and coordinate global activities to address health risks at the animal-human-ecosystems interfaces. In 2019, A Tripartite Guide to Addressing Zoonotic Disease in Countries was published by FAO, WOAH and WHO. The guide provides one definition of ‘One Health’, but it is not the only definition. There is not one universally accepted definition of One Health.

Reference: <https://www.woah.org/app/uploads/2021/03/en-tripartitezoonosesguide-webversion.pdf>

## One Health definition

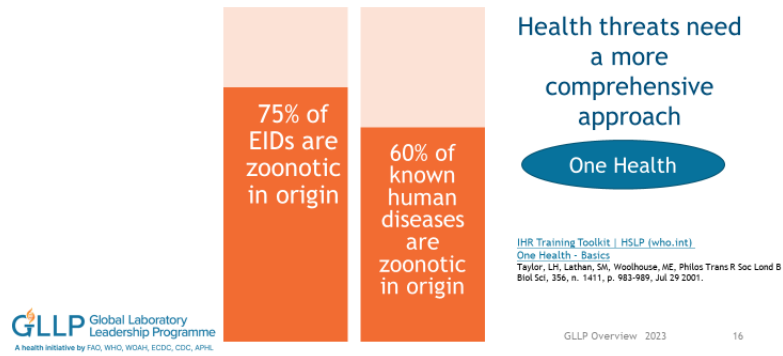
### One Health

- Is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems
- Recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent
- Mobilizes multiple sectors, disciplines and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean water, energy and air, safe and nutritious food, taking action on climate change, and contributing to sustainable development.
- Taking a multisectoral, One Health approach includes ensuring balance and equity among all the partners.

From: One Health High Level Expert Panel (OHHLEP), <https://wedocs.unep.org/bitstream/handle/20.500.11822/37600/TFOWU.pdf>, 1 Dec 2021.

There is a need for balance and equity among human, animal and environmental sectors.

## Emerging infectious diseases (EIDs) and One Health

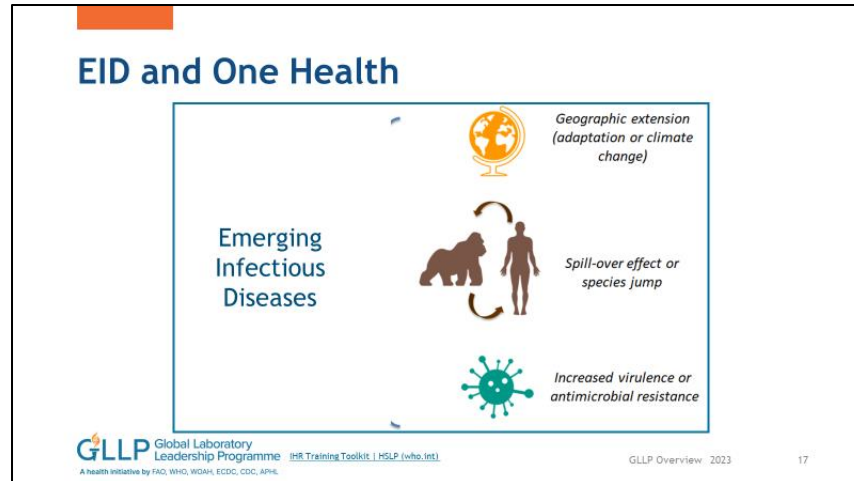


The world is changing and very few urgent health risks stay solely within national boundaries.

Coupled with increases in global traffic and trade, new microbes are detected and old diseases have re-emerged

The World Health Assembly has responded to these changes with a comprehensive IHR revision

Public health, animal health and environmental health threats need a more comprehensive approach: One Health.

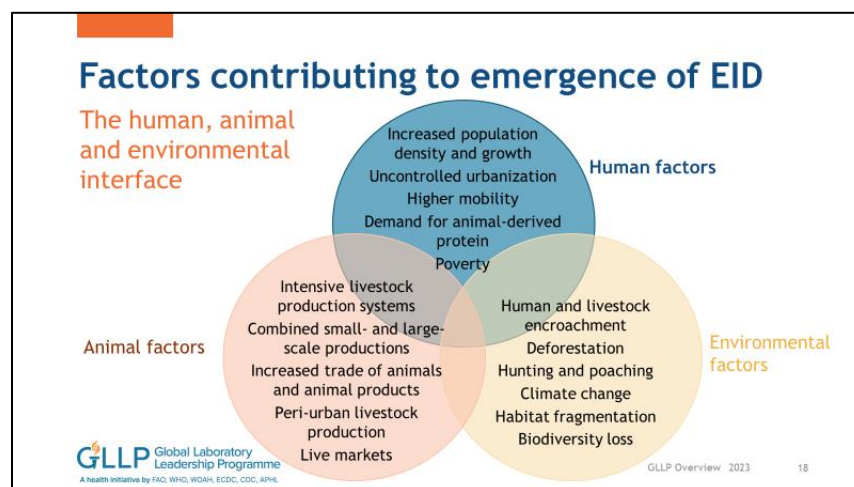


EIDs may emerge for varying reasons related to changes in a specific pathogen, its host specie(s) or the ecosystem in which it is found. These changes may result in:

- A spill-over effect or species-jump which creates new host species
- Acquired genetic attributes, such as antimicrobial resistance or increased virulence
- A geographic extension to new ecosystems (adaptation) or to environments which can afford the pathogen a more favorable condition for growth and proliferation (e.g climate change)

Although emerging infectious diseases are an important component of One Health, the One Health relationships between humans, animals and the environment are complex and actions in one area affect the other areas.

Source: <https://extranet.who.int/hslp/build-your-course/modules/ihr-implementation-human-animal-environment-interface-hae>



Why have zoonoses come to represent a growing proportion of emerging diseases over the several decades?

To better understand EIDs, attempts at mapping, using data from EIDs since the middle of the 20th century have been undertaken to try to identify and predict where new diseases may emerge.

- These have shown that certain areas, or “hotspots”, e.g., the Congo basin in Africa, the Gangetic plains in Asia and the Amazon basin in South America, are more at risk of EID outbreaks than others due to various socio-economic, environmental and ecological factors that coincide to create ideal conditions for zoonotic outbreaks.
- These factors are the result of the evolution of changing relationships between humans, animals and the environment, which have in turn led to new drivers for the emergence of diseases at the interface of all three sectors.

### One Health is more than just zoonotic disease

Animal, human and environmental health are linked in *many* other ways

- Non-zoonotic animal disease can wipe out livestock
- Animal die offs leave carcasses that can cause contamination of the water supply
- Declining bee populations will have effects on food availability for animals and humans
- Environmental contamination with pollutants can affect animal and human health
- Antibiotic residues in animal feed and/or food for human consumption leading to antimicrobial resistance
- Climate change and extreme weather events can destroy human and animal habitats



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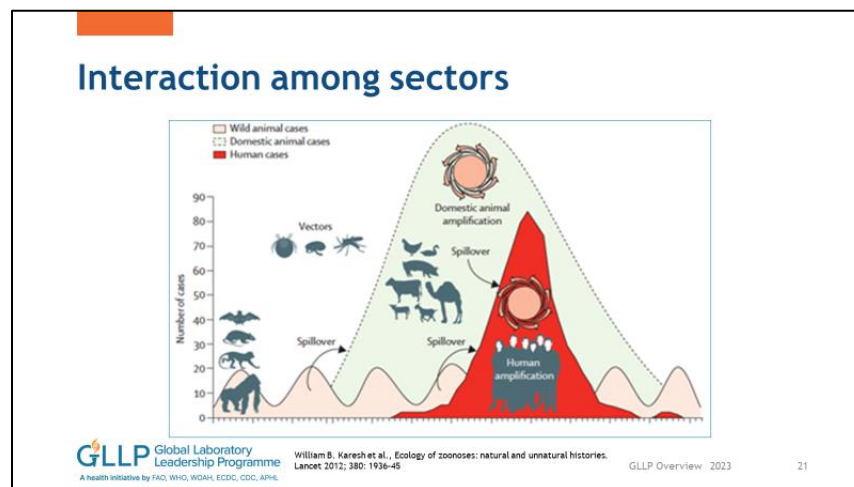
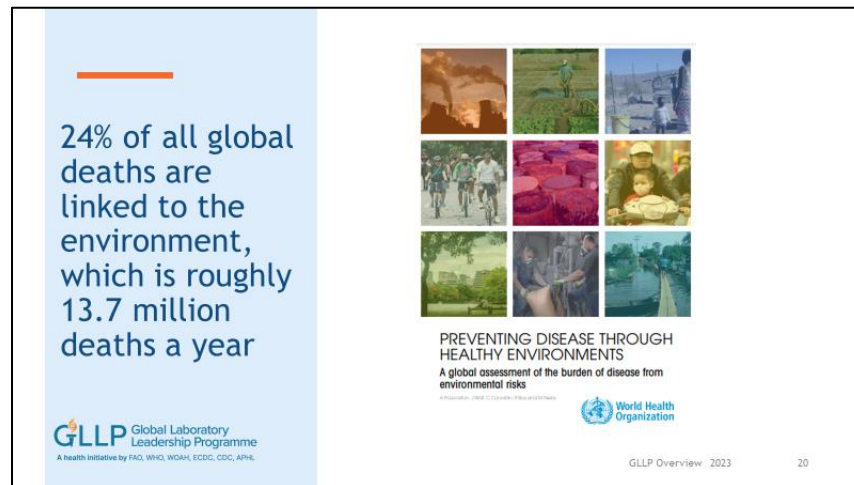
GLLP Overview: 2023 19

One health is more than just zoonotic disease, or even infectious disease. Zoonotic emerging infectious diseases (EIDs) are by far the most commonly used example when explaining One Health, but we must remember that EIDs are only a part of One Health. They provide a good example that everyone can relate to, especially with the emergence of COVID-19, but we must not restrict our thinking when it comes to understanding how the three sectors interact.

Animal, Human and Environmental health are linked in many other ways. A few examples include:

- Non-zoonotic animal disease can wipe out livestock that provide communities with protein, resulting in human malnutrition
- Animal die offs leave carcasses that, if not disposed of properly, can cause contamination of the water supply

- Declining bee populations will have effects on food availability for animals and humans and will affect plant biodiversity
- Environmental contamination with pollutants may affect animal and human health
- Antibiotic residues in animal feed and/or food for human consumption leading to antimicrobial resistance
- Climate change and extreme weather events can destroy human and animal habitats



Because of the blurring of the barriers between the three components of this complex system, the zones where they overlap hold a significant potential for EID through spill-overs from one environment to the next.

This figure shows pathogens may be underlying in wild populations with small, undetected outbreaks.



- A combination of the above-cited factors could lead to a spill over either to humans directly, or to domestic animal populations where the infection may amplify with greater risks of spillover to the human population
- Understanding the drivers of EIDs of zoonotic origins is the first step towards controlling infection at its animal source, before it reaches the human population


Source: William B. Karesh et al., Ecology of zoonoses: natural and unnatural histories. Lancet 2012; 380: 1936–45

### Benefits of One Health approach

Advantages of multisectoral collaboration

**Early detection**

- Early warning of potential epidemics before the first human case e.g., by using environmental or animal sentinels
- Better diagnosis and reporting due to cooperation of human and animal health laboratories
- More complete picture of the disease situation with joint risk assessment



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Taking a One health approach holds many advantages for multi sectional collaboration.

Benefits of early detection.

- Early warning of potential epidemics before the first human case e.g., by using environmental or animal health events as sentinels
- Here is an example using Rift Valley Fever (RVF):
- December 1997: 497 unexplained human deaths in Kenya reported to WHO
- Diagnosis: RVF
- 1997: flooding due to significantly more rainfall than normal
- A link was found: the flooding created more breeding places for mosquitoes which in turn spread more RVF
- Therefore, flooding is now an early warning sign for a potential increase in RVF cases.


References:

- [https://www.researchgate.net/publication/19283145\\_Rainfall\\_and\\_Epidemiological\\_Rift\\_Valley\\_Fever](https://www.researchgate.net/publication/19283145_Rainfall_and_Epidemiological_Rift_Valley_Fever)
- [https://www.researchgate.net/publication/11914871\\_Climate-disease\\_connections\\_Rift\\_Valley\\_Fever\\_in\\_Kenya](https://www.researchgate.net/publication/11914871_Climate-disease_connections_Rift_Valley_Fever_in_Kenya)
- Better diagnosis and reporting due to cooperation of human and animal health laboratories e.g., surge capacity across sectors, by sharing laboratory results, diagnostic kits, specimens, equipment or personnel
- Conducting joint risk assessments with input from relevant sectors and disciplines in order to have a more complete picture of the disease

### Benefits of One Health approach cont.

#### Rapid response

- More effective joint responses to disease outbreaks e.g., by sharing epidemiological information, safety equipment or treatment resources
- Improved cost-effectiveness
- Proactive rather than reactive response
- Additional benefits:
  - improved risk assessments
  - better understanding of disease prevalence
  - more efficient risk communication,
  - better prevention



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#### Benefits of rapid response.

- More effective joint responses to disease outbreaks e.g., by sharing epidemiological information, safety equipment or treatment resources. For example, Surge capacity using laboratories from relevant sectors during major public health events or pandemics such as COVID-19
- Ultimately improved cost-effectiveness due to a more aligned strategy, response and better control of economic side-effects
- Overall more proactive instead of reactive response

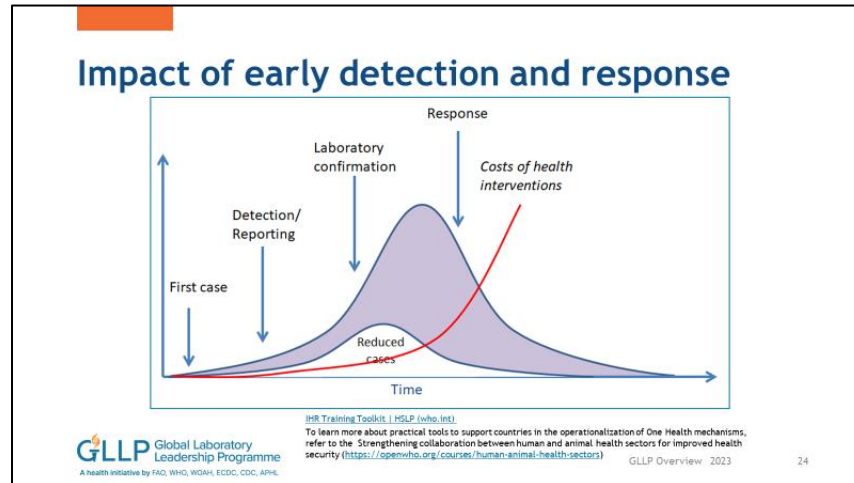
#### Example of better prevention:

- 2000: Vaccination covered only 50% of children in Chad
- 70% of the population live in rural areas and are poor: Their livelihood is based on livestock
- MoH and Veterinary Services conducted a joint human (polio) and livestock (anthrax, blackleg, pastoralises and CBPP) vaccination campaign



Results: 140 children and women were vaccinated per day (instead of 100 when human vaccination is done alone); cost per vaccinated child: 11.9€ instead of 30.3€ (Cost-sharing initiative)

Reference: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2725911/>



This graph illustrates the impacts of early detection and rapid response.

The later a response, the higher the costs

COVID example: in many countries, veterinarians were summoned to contribute to the response. Many veterinary laboratories are capable of doing the diagnostic tests for COVID and can therefore serve as back up and thereby increase the testing capacity. Since diagnostic testing capacity seemed to be quite a bottle neck in many places, this is a nice example of how (even if COVID had not been an EID), One Health can work.

Conversely, during non-zoonotic avian influenza outbreaks, human health laboratories can serve as overflow capacity for the veterinary sector even though there is no direct public health threat.

Source: <https://extranet.who.int/hslp/build-your-course/modules/ihr-implementation-human-animal-environment-interface-hae>

## Laboratory networks

**National health laboratory network:** A grouping of laboratories operating within or across different sectors, with specific shared goals, organized to exchange information and establish, maintain and expand collaborative connections related to a specific need or purpose.

**Sector:** A portion of the National Laboratory System that is directed by or under the authority of a specific Ministry or branch of the government

Laboratories may operate within one of several different sectors with each of the sectors under the authority of a specific ministry or multiple ministries

A National Laboratory Network is defined as the following for the purposes of GLLP:

A grouping of laboratories operating within or across different sectors, with specific shared goals, organized to exchange information and establish, maintain and expand collaborative connections related to a specific need or purpose.

Laboratory networks are usually but not necessarily:

- Set up in a tiered format
- Designed to meet a specific need, e.g., providing diagnostic services, supporting vaccination programmes, monitoring certain diseases or agents, etc.
- Linked with respect to: quality assurance requirements, biological risk management, training and continuing education, sharing data, and standardized testing protocols.
- Within a country, national laboratory networks may comprise one or more of the components that make up the national laboratory system.
- In some settings, even those without a fully developed National Laboratory System, Laboratory Networks may have already been created or are being created to meet specific challenges.

Note: Laboratory Networks may also exist at the international scale, with some national laboratories being members both of an international network as well as being part of the “national laboratory system”.

Source: Adapted and expanded upon from the GLLP definition of “Laboratory Network” provided in the Laboratory Leadership Competency Framework.


**Sector:** A portion of the National Laboratory System that is directed by or under the authority of a specific Ministry or branch of the government.

Note: For the purposes of GLLP training and the understanding of a national laboratory system, it is important to recognize and acknowledge that laboratories may operate within one of several different sectors. Each of these sectors are usually under the authority of a specific ministry or multiple ministries.

### International networks

**WOAH Reference Laboratories:** centres of expertise and standardisation of diagnostic techniques for its designated disease or topic area  
<https://www.woah.org/en/what-we-offer/expertise-network/>

**OFFLU WOAH/FAO Network of expertise on animal influenza:**  
 WOAH-FAO global network of expertise on animal influenza working to reduce the negative impacts of animal influenza viruses by promoting effective collaboration between animal health experts and with the human health sector  
<https://www.offlu.org/>



GLLP Overview 2023 26

Example: OFFLU's objectives:

- To exchange scientific data and biological materials (including virus strains) within the network, to analyse such data, and to share such information with the wider scientific community
- To offer technical advice, training and veterinary expertise to Member Countries in order to assist in the prevention, diagnosis, surveillance and control of animal influenza
- To collaborate with the WHO influenza network on issues relating to the animal-human interface, including early preparation of human vaccine
- To highlight influenza research needs, promote their development and ensure coordination

Source: <https://extranet.who.int/hslp/build-your-course/modules/ihr-implementation-human-animal-environment-interface-hae>

OFFLU:

- <http://www.offlu.net/index.php?id=1>

WOAH Reference Laboratories:

- <https://www.woah.org/en/what-we-offer/expertise-network/>

## International networks cont.

**WHO Collaborating Centres:** institutions designated by the Director-General of WHO to form part of an international collaborative network to support WHO in implementing its mandated work and priorities with time and expertise

[About WHO: Collaborating centres](#)

**FAO Reference Centers:** FAO Reference Centres for animal health are institutions designated to provide specific, independent technical/scientific advice on issues related to FAO's mandate  
[http://www.fao.org/ag/againfo/partners/en/ref\\_centres.htm](http://www.fao.org/ag/againfo/partners/en/ref_centres.htm)

The WHO Collaborating Centres (CCs) are institutions designated by the Director-General of WHO to form part of an international collaborative network set up by WHO in support of its programme at all levels. The WHO's network of WHO CCs brings together 822 highly regarded academic and scientific institutions in over 80 countries to support WHO in implementing its mandated work and priorities with time and expertise.

Source: <https://www.who.int/about/partnerships/collaborating-centres>

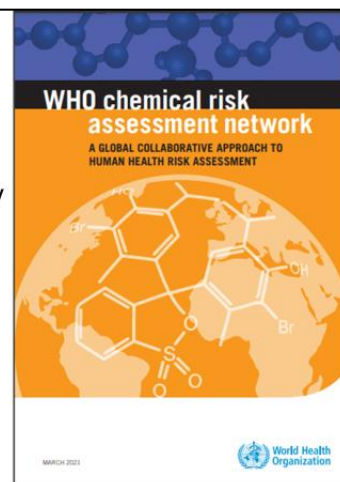
The FAO Reference Centers for animal health are institutions designated to provide specific, independent technical/scientific advice on issues related to FAO's mandate.

[http://www.fao.org/ag/againfo/partners/en/ref\\_centres.htm](http://www.fao.org/ag/againfo/partners/en/ref_centres.htm)

## WHO chemical risk assessment network

- 92 institutions in 52 countries many of which:
  - are located in low- to middle-income countries
  - maintain laboratories

<https://www.who.int/groups/chemical-risk-assessment-network>



# GLLP: A partners collaboration



Specialized training in leadership and management is needed to help laboratory directors and senior laboratory managers worldwide ensure that

laboratories can effectively fulfill their critical role in the detection, prevention and control of diseases. The GLLP collaborative initiative was formed to respond to this need.

In the spirit of One Health, six leading organizations are collaborating to develop the tools needed to develop laboratory leaders with the knowledge and skills needed to advance their laboratory systems.

## GLLP partners: vision and mission



**Vision:**

Laboratory leaders empowering national laboratory systems across the globe using a One Health approach to strengthen health security.



**Mission:**

To provide laboratory professionals with the tools to develop their laboratory leadership competencies and advance effective national laboratory systems for improved health security using a One Health approach.

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32

## GLLP partners: products

Laboratory Leadership Competency Framework

<https://www.who.int/publications/i/item/9789241515108>

GLLP Learning Package

<https://extranet.who.int/hslp/gllp>

Communication products

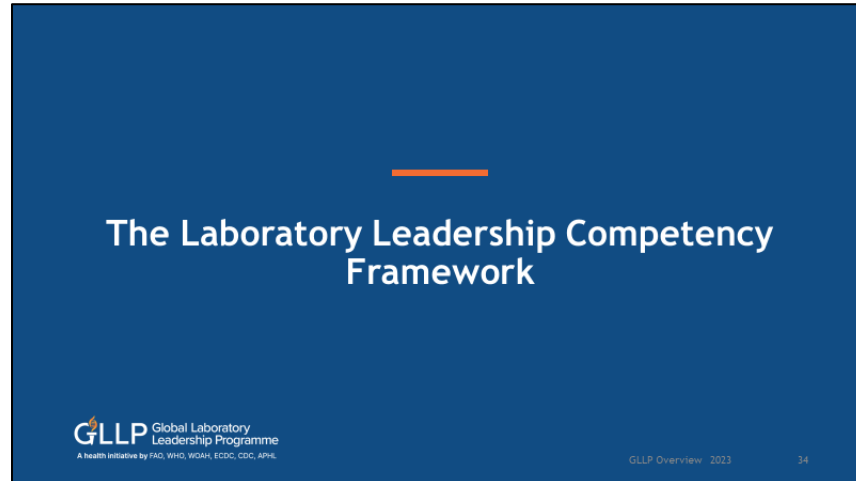
<https://www.who.int/initiatives/global-laboratory-leadership-programme>



GLLP Overview 2023

33

# The Laboratory Leadership Competency Framework

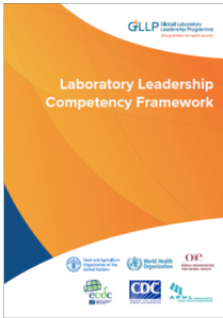


The GLLP Partners first collaboration was the development of the Laboratory Leadership Competency Framework.

## Laboratory Leadership Competency Framework

**Purpose:** to outline the essential competencies needed by laboratory leaders to build and direct sustainable national laboratory systems for disease prevention, detection and control in health systems

- Multisectoral, One Health approach
- Addresses entire national health laboratory system



GLLP Overview 2023 35

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 takes a multisectoral One Health approach addressing the entire “National health laboratory system”, defined in the context of the Framework as network(s) that includes human, animal, environmental, agricultural, food, aquatic and chemical laboratories in support of health systems



- Accordingly, this Framework provides a strong orientation to the One Health approach, recognizing that improving coordination between human, animal and environmental health sectors has reciprocal benefits and will lead to stronger health systems

## How to use the Competency Framework

The Laboratory Leadership Competency Framework can be used

### By organizations:

- Foundation for laboratory leadership learning programmes
- Standardized reference for laboratory workforce development
- Guidance to write job descriptions
- Staff development planning

### By individuals:

- Assess current level of knowledge, skills and abilities
- Identify areas in need of improvement
- Plan for achieving higher levels of proficiency

## Competency Framework structure

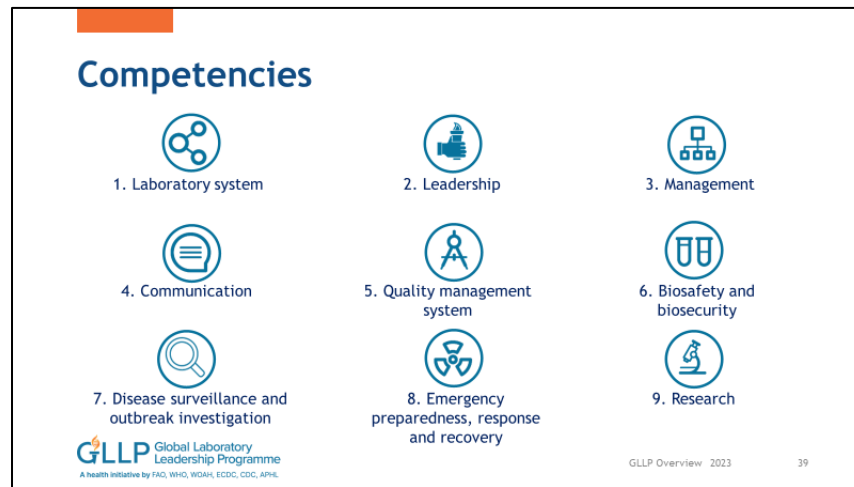
Competency	Competency domain	Competency subdomain	Areas of activity	Performance activities
A combination of the knowledge, skills and abilities that are critical to perform a task effectively	A discrete component of a competency	A subcomponent of a domain	Competency domains and subdomains are broken down further into areas of activity	Activities that allow for evaluation of individual performance at three levels of proficiency

## Levels of proficiency

Developing	Skilled	Expert
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 can perform a range of assignments under supervision, or during mentorship and/or coaching. (*Define, describe, identify, outline, list.)	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. (*Explain, analyse, apply, demonstrate, implement.)	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 can synthesize, critique or teach the competency and is able to provide coaching and mentoring. (*Create, design, develop, evaluate, perform, prioritize.




For each competency, there are three levels of proficiency: developing, skilled and expert.



The competencies are presented here in the order they are in the framework.

- Essential competencies needed for laboratory leaders to build sustainable national laboratory systems that improve disease detection, control and prevention efforts in health systems around the world
- Broad knowledge base of effective laboratory quality management practice to ensure quality laboratory services at all levels.
- Skills to improve visibility and awareness of laboratory capabilities and value
- Communication skills required for effective leadership

**Competencies**

 **1. Laboratory system**

Laboratory system and network of laboratories are key to the provision of laboratory services in support of a health system.

Competency 1. Laboratory System	
Domain 1.1	Policy and legal framework
Domain 1.2	Information systems
Domain 1.3	Infrastructure
Domain 1.4	Workforce

Develop, maintain and strengthen a complete and functional health laboratory system.

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Competencies



## 2. Leadership

Leadership is essential for success in the fast-paced, changing environment of health laboratory systems.

### Competency 2. Leadership

Domain 2.1	Strategic planning
Domain 2.2	Organizational leadership
Domain 2.3	Critical thinking, problem-solving and decision-making
Domain 2.4	Partnerships and coalition building
Domain 2.5	Ethics and integrity

Motivate and inspire a group of people to act towards achieving a common goal.

Competencies



## 3. Management

Strategic management of materials and personnel is necessary for success. Without sound management, leadership vision cannot be attained.

### Competency 3. Management

Domain 3.1	Laboratory management
	Resource management
Domain 3.2	Subdomain 3.2a Budget and financial management
	Subdomain 3.2b People management

Effectively and efficiently achieve quality laboratory results using available resources.

Competencies



## 4. Communication

Appropriate communication in all forms is vital for successful leadership and management.

### Competency 4. Communication

Domain 4.1	General communications skills
Domain 4.2	Proposal writing
Domain 4.3	Communication with media
Domain 4.4	Risk communication
Domain 4.5	Scientific communication

Communicate laboratory related information in a clear and concise manner adjusted to the level and type of audience.

Competencies



## 5. Quality management system

The cornerstone of a successful laboratory system is quality results that are reliable, repeatable and timely to allow effective decision-making.

Implement and sustain a culture of quality in laboratory operations.

### Competency 5. Quality Management System

	Process management
Domain 5.1	Subdomain 5.1a. Sample management Subdomain 5.1b Process control
Domain 5.2	Document and record management
Domain 5.3	Equipment and consumables
Domain 5.4	Purchasing and inventory
Domain 5.5	Nonconforming events management
	Assessments
Domain 5.6	Subdomain 5.6a Audits Subdomain 5.6b External Quality Assessment Subdomain 5.6c Norms and accreditation
Domain 5.7	Continual improvement
Domain 5.8	Customer focus

Competencies



## 6. Biosafety and biosecurity

Strong leadership is needed to ensure the necessary safeguards are in place to protect from biosafety or biosecurity breaches.

### Competency 6. Biosafety and Biosecurity

Domain 6.1	Biosafety
Domain 6.2	Biosecurity
Domain 6.3	Shipment of dangerous goods including nonbiological goods

Ensure optimal management of the risks related to biological and chemical hazards.

Competencies



## 7. Disease surveillance and outbreak investigation

Laboratory data are essential for accurate disease surveillance, detection and investigation.

### Competency 7. Disease Surveillance and Outbreak Investigation

Domain 7.1	Surveillance
Domain 7.2	Outbreak investigation

Management of a health surveillance system including outbreak detection and response.

## Competencies



### 8. Emergency preparedness, response and recovery

Emergencies require sufficient planning and preparation across involved sectors for an adequate and coordinated response.

#### Competency 8. Emergency Preparedness, Response and Recover

Domain 8.1	Preparedness
Domain 8.2	Response
Domain 8.3	Recovery

Prepare for, respond to and recover from an emergency.

## Competencies



### 9. Research

Laboratory research is a critical part of effective and innovative laboratory management and contributes to laboratory development and sustainability.

#### Competency 9. Research

Domain 9.1	Health research
Domain 9.2	Innovation and development

Plan, conduct and analyze hypothesis-driven investigations.

## Content example: communication

**Domain 4.1:** General communication skills

**Domain 4.2:** Proposal writing

**Domain 4.3:** Media media

**Domain 4.4:** Risk communication

**Domain 4.5:** Scientific communication

#### Domain 4.1 General communication skills

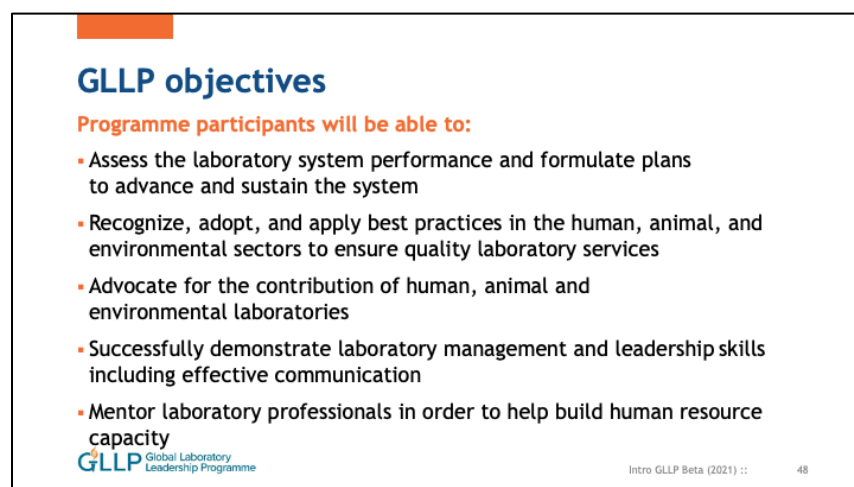
##### 4.1.1 Oral communication (see also 1.2.4, 9.1.5)

Performance activities	
Developing	Describe effective oral communication skills.
Skilled	Demonstrate effective oral communication skills.
Expert	Develop pathways for subordinates to strengthen oral communication skills.

##### 4.1.2 Written communication

Performance activities	
Developing	Describe principles of effective written communication.
Skilled	Apply principles of effective written communication.
Expert	Evaluate training in principles of effective written communication.

# GLLP: The programme



## GLLP objectives

Programme participants will be able to:

- Assess the laboratory system performance and formulate plans to advance and sustain the system
- Recognize, adopt, and apply best practices in the human, animal, and environmental sectors to ensure quality laboratory services
- Advocate for the contribution of human, animal and environmental laboratories
- Successfully demonstrate laboratory management and leadership skills including effective communication
- Mentor laboratory professionals in order to help build human resource capacity

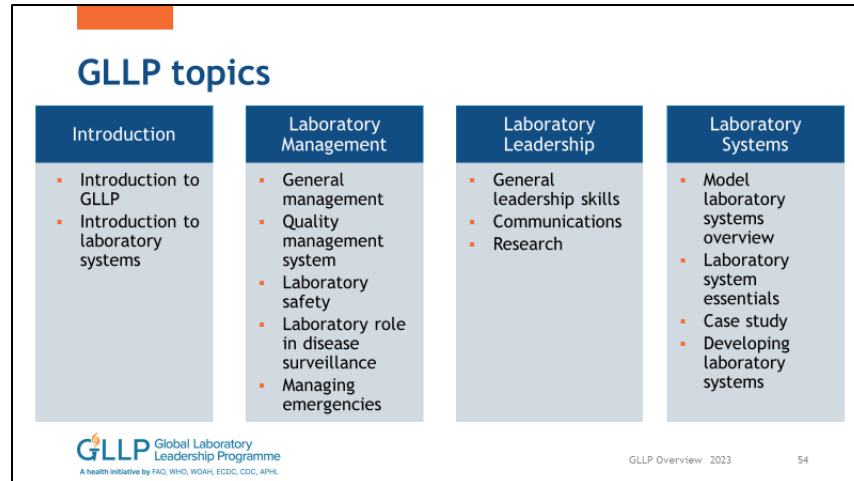
## Programme components

Duration of the programme



The programme consists of 4 components, didactic learning sessions, mentorship, individual projects and development of a community of practice.

- Each component of the programme is implemented throughout the duration of the programme but components may be more or less intensive at various times and will depend upon the individual programme schedule.



The GLLP is based on the Laboratory Leadership Competency Framework that identifies nine critical laboratory leadership competencies. The GLLP organizes those nine competencies into four programme sections:

- Introduction
- Laboratory Management
- Laboratory Leadership
- Laboratory Systems

Each section is composed of various units and units are broken down into modules.

### Mentorship

Each participant will be assigned a mentor for duration of the programme

**Mentor's role:**

- Review self-assessment questionnaire with mentee, identify skills mentee should improve
- Provide mentee with support and guidance for defining mentee learning goals
- Provide mentee with support and guidance on programme assignments and projects



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GLLP Overview 2023 55

Mentorship is an integral part of the programme.



## Projects

- Small Projects
  - On-the Job activities
  - Reinforce concepts learned in recent sessions
  - Improve participant's laboratory overall capacity
  - Support creation of Capstone Project
- Capstone
  - Put learning into practice
  - Support and benefit laboratories and/or the laboratory system

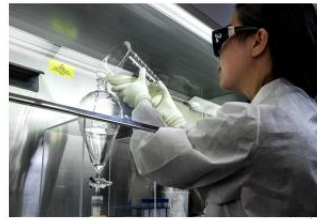


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Projects will put learning into practice and benefit the laboratory and/or laboratory system.

## Community of practice

A community of practice (CoP) is a group of individuals who share a common profession, interest or passion and who learn from each other and improve themselves through interaction with their community



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## Delivery methods

- Face-to-face
- Virtually or
- Blended learning approach
- Schedule



## Teaching methods

- A combination of methods will be used, based on adult learning principles:
  - Using your own experiences and knowledge to learn more
  - Highly interactive: plenary exercises, group work, individual exercises
  - Different types of exercises, e.g., brainstorm, test, quiz, role-play, discussions, etc.
  - Learning from each other

### Activity-based learning

- Between face-to-face sessions, complete on-the-job projects supported by mentors as needed



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## Evaluation and certificate

- Evaluation of participant learning will be conducted throughout the programme, using a combination of methods and tools such as:
  - Pre- and post-tests
  - Presentation/grading of on-the-job assignments/projects
  - Structured observation of participant by instructors
- Participants will receive a certificate of completion of the relevant GLLP modules upon completion of the programme

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