National Workforce Capacity for Essential Public Health Functions Collection

Global competency and outcomes framework for the essential public health functions

World Health Organization

National Workforce Capacity for Essential Public Health Functions Collection

Global competency and outcomes framework for the essential public health functions

World Health Organization

Global competency and outcomes framework for the essential public health functions

ISBN 978-92-4-009121-4 (electronic version)
ISBN 978-92-4-009122-1 (print version)

© World Health Organization 2024

Some rights reserved. This work is available under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo).

Under the terms of this licence, you may copy, redistribute and adapt the work for non-commercial purposes, provided the work is appropriately cited, as indicated below. In any use of this work, there should be no suggestion that WHO endorses any specific organization, products or services. The use of the WHO logo is not permitted. If you adapt the work, then you must license your work under the same or equivalent Creative Commons licence. If you create a translation of this work, you should add the following disclaimer along with the suggested citation: "This translation was not created by the World Health Organization (WHO). WHO is not responsible for the content or accuracy of this translation. The original English edition shall be the binding and authentic edition".

Any mediation relating to disputes arising under the licence shall be conducted in accordance with the mediation rules of the World Intellectual Property Organization (http://www.wipo.int/amc/en/mediation/rules/).

Suggested citation. Global competency and outcomes framework for the essential public health functions. Geneva: World Health Organization; 2024. Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Sales, rights and licensing. To purchase WHO publications, see http://apps.who.int/bookorders. To submit requests for commercial use and queries on rights and licensing, see https://www.who.int/copyright.

Third-party materials. If you wish to reuse material from this work that is attributed to a third party, such as tables, figures or images, it is your responsibility to determine whether permission is needed for that reuse and to obtain permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

General disclaimers. The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by WHO to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO be liable for damages arising from its use.

Contents

Preface vii

Acknowledgements ix

Abbreviations xii

Glossary xiii

Executive summary xxi

1. Introduction 1

1.1 Operationalizing the EPHFs is necessary for UHC, protection from emergencies and healthier populations 1

1.2 About the roadmap to build national workforce capacity to deliver the EPHFs 7

1.3 Competency-based education: preparing the workforce to deliver the EPHFs 10

1.4 Pathways between education and employment, and implications for educational design and delivery 14

1.5 About this framework 16

2. Competencies of the public health workforce 21

2.1 Introduction 22

2.2 Competencies and behaviours of individual public health workers to deliver the EPHFs 22

2.3 Additional behaviours for public health leadership 23

2.4 Competencies of public health workers: an overview 23

2.5 Competency domain I: Community-centredness 25

2.6 Competency domain II: Decision-making 26

2.7 Competency domain III: Communication 27

2.8 Competency domain IV: Collaboration 28

2.9 Competency domain V: Evidence-informed practice 30

2.10 Competency domain VI: Personal conduct 31

3. Practice activities to deliver the EPHFs 33

3.1 Introduction 34

3.2 Practice activities towards the EPHFs 34

3.3 Curricular guides and illustrative profiles 35

3.4 Practice activities to deliver the EPHFs: an overview 41

3.5 Practice activity domain I: Health system enablers for public health 43

3.6 Practice activity domain II: Public health intelligence 79
3.7 Practice activity domain III: Public health programmes and services 115
3.8 Practice activity domain IV: Management of resources for public health programmes and services 150
3.9 Practice activity domain V: Public health emergency management 168

4. Contextualizing the framework to inform the design and delivery of competency-based education 187
4.1 Introduction 187
4.2 Defining competency-based education outcomes 188
4.2.1 Stage 1: Planning 188
4.2.2 Stage 2: Information gathering 191
4.2.3 Stage 3: Drafting competency-based outcomes, including milestones towards competence 192
4.2.4 Stage 4: Consultation, validation and finalization 196
4.2.5 Stage 5: Dissemination 196
4.3 Curriculum planning, development, implementation, evaluation and quality improvement 198
4.3.1 Stage 1: Planning 198
4.3.2 Stage 2: Curriculum development: content of learning 198
4.3.3 Stage 3: Curriculum implementation 202
4.3.4 Stage 4: Continuous quality improvement and programmatic evaluation 204

References 205

Annex 1. PHEWF Steering Committee 212
Annex 2. Membership of the Technical Advisory Group 213
Annex 3. Methodology and governance 220
Annex 4. Scoping review search strategy 230
Annex 5. Library of competency frameworks 233
Annex 6. Mapping the 12 EPHFs, their subfunctions and the practice activities to operationalize them 248
Annex 7. Writing principles for the components of a competency and outcomes framework: competencies, behaviours, practice activities and tasks 297

List of tables

Table 1. The 12 EPHFs and their subfunctions

Table 2. Competencies, behaviours, practice activities and tasks: definitions and characteristics

Table 3. A stepwise approach to use this framework to strengthen competency-based education programmes

Table 4. Interrelationships between the EPHFs and their subfunctions, and practice activities

Table 5. Practice activities in domain 1: health system enablers for public health, organized according to the WHO building blocks for health systems

Table 6. Practice activities in domain II: public health intelligence

Table 7. Practice activities in domain III: planning, delivering and assessing public health programmes and services

Table 8. Practice activities in domain IV: management of resources for public health programmes and services

Table 9. Practice activities in domain V: public health emergency management, organized around the prevention, preparedness, response and recovery framework

Table 10. Approaches to educational (re)design incorporating UNESCO's six principles of good practice

Table 11. Guiding questions for information gathering to define competency-based education outcomes

Table 12. Key themes and sources of information to inform competency framework development

Table 13. A checklist for competency-based education outcomes

Table 14. Prompts to develop curricular content for competency-based education outcomes

Table 15. Assessment formats and their relevance to competency-based learning objectives and programme outcomes

Table 16. Examples of programmatic evaluation of curriculum design and implementation, using Kirkpatrick level of outcome

Table A3.1 Timeline for the development of this framework (2022–2023)

Table A3.2 Participation in reviews of the evolving drafts of the framework

Table A3.3 Geographical perspectives of the Technical Advisory Group, principal peer reviewers and expert peer reviewers

Table A3.4 Gender distribution of the Technical Advisory Group, principal peer reviewers and expert peer reviewers

Table A3.5 Occupational perspectives of the Technical Advisory Group, principal peer reviewers and expert peer reviewers, organized by the three public health workforce groups

Table A3.6 Number of years of public health experience of the Technical Advisory Group, principal peer reviewers and expert peer reviewers

Table A4.1 Inclusion and exclusion criteria for the scoping strategy

Table A4.2 Search terms for the scoping strategy

Table A5.1 Descriptive statistics about the library of competency frameworks identified up to June 2023

Table A5.2 List of frameworks identified and used for validation and content analysis

List of figures

Fig. 1. Conceptual approach to scoping, defining and building capacity of the workforce that delivers the EPHFs

Fig. 2. The public health workforce

Fig. 3. WHO competency model

Fig. 4. Examples of the interconnections between competencies and practice activities

Fig. 5. Log frame from competency-based education to UHC, health security and improved health and well-being

Fig. 6. Illustrative profiles and examples of occupational groups, to guide the contextualization of practice activities

Fig. 7. Four dimensions of competency-based curriculum development

Fig. 8. The learning continuum

Fig. 9. Stages of strengthening education programmes through curriculum re(design)

Fig. A3.1 PRISMA flow diagram of systematic research evidence

Preface

Achieving and sustaining national progress towards universal health coverage, health security and the health-related Sustainable Development Goals cannot be achieved without a health workforce that can deliver the full range of both the essential health services and the essential public health functions, including national and international emergency preparedness and response.

Whether dealing with the repercussions of the COVID-19 pandemic, preparing for and preventing the next pandemic, or addressing diverse challenges such as climate change and natural and man-made disasters, the escalating burden of noncommunicable diseases and/or antimicrobial resistance, there are economic, health, ethical and moral imperatives to strengthen the public health workforce.

In May 2022, the World Health Organization (WHO) and partner organizations agreed on a roadmap for national workforce capacity to implement essential public health functions. This roadmap emphasizes three interconnected steps: identifying the services, programmes, policies and actions for essential public health functions tailored to the regional, national or subnational context; mapping and measuring the diversity of occupations involved in delivering these functions, along with projected needs; and developing the competencies and skills of the workforce.

This framework addresses the last of the three steps. It provides evidence-based guidance and an international reference set of competencies and educational outcomes, aligning education with employment and public health needs to build and maintain the workforce required to deliver the essential public health functions.

This document belongs to the National Workforce Capacity for Essential Public Health Functions Collection, which includes an operational handbook and guidance on functions, competency-based education and workforce enumeration.

We extend our heartfelt appreciation and acknowledgment to all partners and individuals involved in the scientific collaboration to produce this framework. This includes the WHO Technical Advisory Group, and in particular its co-chairs, over 120 expert peer reviewers and the Public Health and Emergency Workforce Roadmap Steering Committee. The process thematically analysed over 100 existing competency-based frameworks, curricula and standards, along with relevant grey literature and guidelines covering the breadth of public health services, programmes and essential functions. Drafting, consultation and validating the framework content, including behaviours demonstrating competencies and curricular guides for each of the 40 practice activities, was an iterative process, incorporating expert feedback and review.

The result is a global public good for educators, decision-makers and leaders of public health systems, associations, institutions and schools, as well as their national, regional and international partners.

We call upon these groups to utilize this framework to stimulate national dialogue and, most importantly, action on the competency-based education, employment and retention of a public health workforce that can deliver the essential public health functions in every country of the world. When the next pandemic arrives, as it surely will, our public health workforce must be ready.

Jim Campbell
Director
Health Workforce Department
World Health Organization
(WHO)

Laura Magaña
President
Global Network for Academic
Public Health (GNAPH)

Bettina Borisch
Executive Director
World Federation for Public
Health Associations (WFPHA)

Duncan Selbie
President
International Association of
National Public Health Institutes
(IANPHI)

Acknowledgements

The development of the *Global competency and outcomes framework for the essential public health functions* was led by Siobhan Fitzpatrick, under the general coordination of Lizzie Tecson and Huan Xu and the strategic oversight of Giorgio Cometto and Jim Campbell, Health Workforce Department, World Health Organization (WHO).

WHO thanks the members of the research team: Aleksandra Conversano, Jack Haywood, Natalya Hickey, Sheila Kaur, Clare Kerswill, Madison Weir and Daniel Iestyn Atthey Williams, under the supervision of Thomas Hughes-Waage and Ian Wheeler (NHS England WHO Collaborating Centre for Human Resources for Health, United Kingdom of Great Britain and Northern Ireland); and Lamis Abuhaloob, Federica Amati, Ela L. Augustyniak, Marisa Papaluca, Mays Raheem, Salman Rawaf and Celine Tabche (Imperial College London WHO Collaborating Centre for Public Health Education and Training, United Kingdom).

WHO is grateful to members of the Technical Advisory Group, who provided technical guidance on the development of the conceptualization and elaboration of the framework. Without their support, guidance and expertise this work would not have been possible: Hanan F. Abdul Rahim (Qatar University, Qatar), Palitha Abeykoon (Ministry of Health, Sri Lanka), Ruba Al-Souri (Eastern Mediterranean Public Health Network, Jordan), Geneviève Chêne (University of Bordeaux, France), Leanne Coombe (Public Health Association of Australia, Australia), Katarzyna Czabanowska (Care and Public Health Research Institute, Maastricht University, Netherlands (Kingdom of the)), Abiodun Egwuenu (Nigeria Centre for Disease Control and Prevention, Nigeria), Allison Foster (National Board of Public Health Examiners, United States of America), Erica Frank (NextGenU.org, University of British Columbia, Canada), Vinod Kumar SV (SD Gupta School of Public Health, IIHMR University, India), Samia Latif (Faculty of Public Health, United Kingdom), Thanes Marthammuthu (Ministry of Health, Malaysia), Sonoe Masahino (Research Institute of Nursing Care for People and Community, University of Hyogo, Japan), Alfonso Mazzaccara (Instituto Superiore di Sanità, Italy), Atiya Mosam (College of Public Health Medicine, South Africa), Leah Christina Neubauer (Northwestern University, United States of America), Oladele A. Ogunseitan (University of California, Irvine, United States of America), Abraham Opare (University of Cape Town, South Africa), Senthil Kumar Rajasekaran (Khalifa University, United Arab Emirates), Karol Rojas (University of Costa Rica, Costa Rica) and Jiming Zhu (Vanke School of Public Health, Tsinghua University, China). Particular thanks are given to Co-Chairs, Laura Magaña (Global Network for Academic Public Health, United States of America) and Priscilla Robinson (World Federation of Public Health Associations, Switzerland).

WHO thanks the many individual educators, practitioners, regulators, students and partner organizations, whose dedicated efforts and expertise contributed to the development, drafting and finalization of the framework. Special thanks is given to the principal peer reviewers: Fan Hongmin (North China University of Science and Technology, China), Chaojie Liu (La Trobe University, Australia), Shiv Chandra Mathur (independent consultant, India), Linda Murray (Massey University), Jasmine Pawa (University of Toronto, Canada), Gaetano Privitera (Istituto Superiore di Sanità, Italy), Rishabh Kumar Rana (Shaheed Nirmal Mahto Medical College and Hospital, India), Diego S. Silva (University of Sydney, Australia), Marc Soethout (Union of European Medical Specialists, Belgium) and Andreea Steriu (Carol Davila University of Medicine and Pharmacy, Romania).

Thanks also to the peer reviewers of the advanced draft of the framework: Kanza Ahmed (UK Health Security Agency, United Kingdom), Godwin Nwadibia Aja (Graduate School, Public Health Department, Adventist International Institute of Advanced Studies, Philippines), François Alla (University of Bordeaux, France), Veronica Alovisetti (LIUC Carlo Cattaneo University, Italy), Guglielmo Arzilli (University of Pisa, Italy), Babatunde Abiodun Balogun (University of Tasmania, Australia), Donatella Barbina (Instituto Superiore di Sanità, Italy), Corey B. Bills (University of Colorado, United States of America), Bindi Borg (independent, Australia), Andrew N. Brown (Management Sciences for Health, United States of America), Henry H. Campos (Federal University of Ceará, Brazil), Olle ten Cate (University Medical Center Utrecht, Netherlands (Kingdom of the)), Paul Comyn (independent, Australia), Paul Coulthard (The Bloomsbury Trust, United Kingdom), Manas Dave (University of Manchester, United Kingdom), Sébastien Denys (Santé publique France), Gayo Diallo (University of Bordeaux, France), Alessandra Di Pucchio (Instituto Superiore di Sanità, Italy), David B. Duong (Harvard Medical School, United States of America), Stephen Fawcett (University of Kansas, United States of America), Pedro Moreno da Fonseca (International Labour Organization, Switzerland), Roch Giorgi (Aix-Marseille University, France), Ashley L. Greiner (Centers for Disease Control and Prevention, United States of America), Jonathan Hallett (Curtin University, Australia), Maren Hopfe (International Labour Organization, Switzerland), Laetitia Huiart (Santé publique France), Nobuaki Inoue (National Center for Global Health and Medicine, Japan), Richard James (Foreign, Commonwealth and Development Office, United Kingdom), Helen Keen-Dyer (Central Queensland University, Australia), Geri Kemper Seeley (George Washington University, United States of America), Jerry Kollie (National Public Health Association of Liberia), Bharathy Kumaravel (University of Leicester, United Kingdom), Karishma Krishna Kurup (Chatham House, United Kingdom), Victoria Lazenby (Terravale Consulting, Australia), Vivian Lin (University of Hong Kong, China), Suzanne Lindqvist (University of East Anglia, United Kingdom), Simone Mathoulin-Pelissier (University of Bordeaux, France), Nicolas Meda (Université Joseph Ki-Zerbo, Burkina Faso), Lois Meyer (University of New South Wales, Australia), Susan Michaels-Strasser (Columbia University Mailman School of Public Health, United States of America), John Middleton (Association of Schools of Public Health in the European Region, Belgium), Hoang van Minh (Hanoi University of Public Health, Viet Nam), Nazar A. Mohamed (Ministry of Health, Kuwait), Michael Moore (World Federation of Public Health Associations, Switzerland), Elisabeth Tshiama Mukendi (independent, Democratic Republic of the Congo), Murallitharan Munisamy (National Cancer Society of Malaysia), Martin Murray (independent, United Kingdom), Kamarul Imran Musa (Universiti Sains Malaysia), Mari Nagai (National Centre for Global Health and Medicine, Japan), Fitsum Taye Negash (Ethiopian Emergency Surgery Association, Ethiopia), Tsinuel Girma Nigatu (Jimma University, Ethiopia), Tomoko Nishioka (National Center for Global Health and Medicine, Japan), Mohannad Al Nsour (Eastern Mediterranean Public Health Network, Jordan), Fatai Ogunlayi (Faculty of Public Health, United Kingdom), Emma Patregnani (Instituto Superiore di Sanità, Italy), Bahie Mary Rassekh (Bahá'í Institute for Higher Education, Iran and The World Bank Group, United States of America), Steen Carsten Rees (RedR Australia), Tanya Robinson (independent, Switzerland), Milena Santric-Milicevic (University of Belgrade Faculty of Medicine, Serbia), Eliezer Shinnar (University of Arizona, United States of America), Mary Showstark (Yale University, United States of America), Gryphon Sou (United Nations Educational Scientific and Cultural Organization Hong Kong Association, China), Pascal Staccini (Université Côte d'Azur, France), Sunita Sturup-Toft (UK Health Security Agency, United Kingdom), Kyoko Sudo (National Center for Global Health and Medicine, Japan), Nordino Ibraimo Sulemane (independent, Italy), Sean Tackett (Johns Hopkins Bayview Medical Center, United States of America), Aliki Traianou (University of Glasgow, United Kingdom), Pierre de Vasson (independent, France), Georgia Venner (London School of Hygiene & Tropical Medicine, United Kingdom), Cynthia R. Whitehead (University of Toronto, Canada),

Linda Wittkop (University of Bordeaux, France), Mitchell Wolfe (independent, United States of America), Fujie Xu (Bill & Melinda Gates Foundation, China) and Zhen Xu (Chinese Center for Disease Control and Prevention, China).

Finally, WHO thanks the following WHO staff and consultants for their technical review and advice: Jhilmil Bahl (Immunization, Vaccines and Biologicals Department), Melanie Bertram (Division of Data, Analytics and Delivery for Impact), Andrew Black (WHO Health Emergencies Programme), Evelyn Boy-Mena (Department of Gender, Rights and Equity – Diversity, Equity and Inclusion), Diarmid Campbell-Lendrum (Department of Environment, Climate Change and Health), Claire Chaumont (Division of Data, Analytics and Delivery for Impact), Renée Christensen (Global Outbreak Alert and Response Network), Laurence Codjia (Health Workforce Department), Khassoum Diallo (Health Workforce Department), Deirdre Dimancesco (Health Products Policy and Standards), Nedret Emiroglu (Country Readiness Strengthening Department, WHO Health Emergencies Programme), Lester Sam Geroy (Country Readiness Strengthening Department, WHO Health Emergencies Programme), Emilie Di Grazia (Department of Gender, Rights and Equity – Diversity, Equity and Inclusion), Arabella Hayter (Department of Water Sanitation and Hygiene), Lisa Jensen (Global Outbreak Alert and Response Network), Catherine Kane (Health Workforce Department), Kanokporn Kaojaroen (Health and Migration Programme), Geoffrey Larde (Department of Operations Support and Logistics, WHO Health Emergencies Programme), Geraldine McDarby (Health Systems Resilience), Maggie Montgomery (Water, Sanitation and Hygiene), Saqif Mustafa (Health Systems Resilience), Tapas Sadasivan Nair (Health Workforce Department), Manjulaa Narasimhan (Department of Sexual and Reproductive Health), Raquel Medialdea Carrera (Department of Pandemic and Epidemic Intelligence Systems, WHO Health Emergencies Programme), Tim Nguyen (Epidemic and Pandemic Preparedness and Prevention), Anne Perrocheau (WHO Health Emergencies Programme), Tina D. Purnat (Department for Epidemic and Pandemic Preparedness and Prevention, WHO Health Emergencies Programme), Kwang Rim (Country Readiness Strengthening Department, WHO Health Emergencies Programme), Sohel Saikat (Department of Integrated Health Systems), Flavio Salio (Country Readiness Strengthening Department, WHO Health Emergencies Programme), Amy Savage (Department of Environment, Climate Change and Health), Santino Severoni (Health and Migration Programme), Ryoko Takahashi (High Impact Events Preparedness, Epidemic and Pandemic Preparedness and Prevention), Heini Utunen (Learning Capacity and Development Unit, WHO Health Emergencies Programme), Nicole Valentine (Department of Social Determinants of Health), Pascal Zurn (Health Workforce Department) and Yu Zhang (Department of Integrated Health Systems).

Abbreviations

EPHFs	essential public health functions
ICSO	International Standard Classification of Occupations
IHR	International Health Regulations
PHEWF roadmap	Public health and emergency workforce roadmap
PRISMA	Preferred Reporting Items for Systematic Review
SDGs	Sustainable Development Goals
UHC	universal health coverage
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHO	World Health Organization

Glossary

Advocacy — A combination of individual and social actions designed to gain political commitment, policy support, social acceptance and systems support for a particular health goal or programme *(1)*.

Attitude — A person's feelings, values and beliefs, which influence their behaviour and the performance of tasks *(2)*.

Behaviour — Observable conduct towards other people or tasks that expresses a competency. Behaviours are measurable in the performance of tasks *(2)*.

Behavioural sciences in education — The theory of behavioural science focuses on education interventions designed to change practice behaviours. Practice behaviours are influenced by capability (or competence), opportunity and motivation. Competency-based education can influence and guide the capability and motivation of individuals for their public health practice. Adapted from *(3)*.

Community — A specific group of people, often living in a defined geographical area, who share a common culture, values and norms, and are arranged in a social structure according to relationships that the community has developed over a period of time *(4)*.

Community engagement — A process of developing relationships that enable stakeholders to work together to address health-related issues and promote well-being to achieve positive health impact and outcomes *(5)*. It encompasses the full spectrum of ways in which a government (or policy-maker) can involve communities in decision-making.

Competence — The state of proficiency of a person to perform the required practice activities to the defined standard. This incorporates having the requisite competencies to do this in a given context. Competence is multidimensional and dynamic. It changes with time, experience and setting *(2)*.

Competencies — The abilities of a person to integrate knowledge, skills and attitudes in their performance of tasks in a given context. Competencies are durable, trainable and, through the expression of behaviours, measurable *(2)*.

Competency-based assessment — The assessment of the performance of practice activities for which specified competencies are required.

Competency-based curriculum — A curriculum that emphasizes the complex outcomes of learning for real-world practice rather than the traditional focus on defined subject content. In principle, such a curriculum is learner centred and adaptive to the changing needs of students, teachers and society *(6)*. The curriculum encompasses: content of learning, organization and sequencing of content, learning experiences, teaching methods, formats of assessment, and quality improvement and programmatic evaluation *(7)*.

Competency-based education	An approach to preparing individuals for practice that is oriented to outcome abilities and organized according to competencies. It de emphasizes time-based training and facilitates greater accountability, flexibility and learner-centredness *(8)*.
Competency framework	An organized and structured representation of a set of interrelated and purposeful competencies *(9)*.
Competent	Possessing the ability to perform the specified practice activities to the defined standard and level of autonomy. This equates to having the requisite competencies for this standard, for the context *(2)*.
Crisis standards of care	A substantial change in usual health-care operations and the level of care it is possible to deliver, which is made necessary by a pervasive (e.g. pandemic influenza) or catastrophic (e.g. earthquake, hurricane) disaster. This change in the level of care delivered is justified by specific circumstances and is formally declared by a government entity, in recognition that crisis operations will be in effect for a sustained period. In some countries, the formal declaration that crisis standards of care are in operation enables specific legal/regulatory powers and protections for health and care workers in the necessary tasks of allocating and using scarce medical resources and implementing alternate care facility operations *(10)*.
Determinants of health	The determinants of health may be structural (rooted in key institutions and processes of the socioeconomic and political context) or intermediary (material circumstances, psychosocial circumstances, behavioural and/or biological factors, and the health system itself) *(11)*. There is no single agreed list of those determinants, but they are broadly taken to include behavioural, commercial, cultural, economic, environmental, political and social determinants *(11)*.
Disinformation	Deliberate (including malicious) content such as hoaxes, spear phishing and propaganda. Discrimination spreads fear and suspicion among the population *(12)*.
Domain	A broad, distinguishable area of content. In aggregate, domains constitute a general descriptive framework *(13)*.
Essential public health functions	A set of fundamental and interconnected functions within and beyond the health sector that are required to ensure effective public health action. They provide a coherent and holistic framing for defining, planning, delivering and reviewing public health capacities within a national context *(14)*.
Governance for health	Actions of governments and other actors to steer communities, countries and/or groups of countries in the pursuit of health as integral to well-being through both whole-of-government and whole-of-society approaches *(15–17)*.
Health in all policies	An approach to policy decision-making that aims to address policies such as those influencing transport, housing and urban planning, the environment, education, agriculture, finance, taxation and economic development so that they promote overall health and health equity. This recognizes that population health is not merely a product of health sector programmes but largely determined by policies that guide actions beyond the health sector *(18)*.

Infodemic	Too much information, including false or misleading information, in digital and physical environments during a disease outbreak. It causes confusion and risk-taking behaviours that can harm health. It also leads to mistrust in health authorities and undermines the public health response. An infodemic can intensify or lengthen outbreaks when people are unsure about what they need to do to protect their health and the health of people around them. With growing digitization – and an expansion of social media and internet use – information can spread more rapidly. This can help to fill information voids more quickly but can also amplify harmful messages *(19)*.
In-service education	Any structured learning activity for persons already employed in a service setting *(9)*.
Inter-professional education	A situation in which learners from two or more occupations learn about, from and with each other *(20)*.
Knowledge	The recall of specifics and universals, the recall of methods and processes, and/or the recall of a pattern, structure or setting *(21)*.
Knowledge translation	The exchange, synthesis and effective communication of reliable and relevant research results. The focus is on promoting interaction among the producers and users of research, removing the barriers to research use, and tailoring information to different target audiences so that effective interventions are used more widely *(22)*.
Learning outcomes	Statements of what an individual should know, understand and/or be able to do at the end of a learning process. They are defined in terms of knowledge, skills, responsibilities and autonomy *(23)*.
Lifelong learning	Learning is a process that occurs at all times in all places, including in both formal and informal learning. It should be a process of continuous learning directed towards an individual's needs and to those of the relevant community *(24)*.
Milestone	A level of proficiency on the learning journey to competence. A milestone marks a significant event, watershed or landmark. It is acknowledged on reaching a specific stage in the development of a project, a personal achievement or a time point. Adapted from *(25)*.
Misinformation	False or inaccurate information. Examples include rumours, insults and pranks *(12)*.
One Health	An integrated, unifying approach to balance and optimize the health of people, animals and the environment. It is particularly important to prevent, predict, detect and respond to global health threats *(26)*.
Participatory approaches	A collaborative approach that equitably involves all partners in the process and recognizes the strengths that each brings with the aim of combining knowledge and action for social change to improve community health and eliminate health disparities. Adapted from *(27)*.

Performance (individual work performance)	What the organization hires one to do and do well *(28)*. Performance is a function of competence, motivation and opportunity to participate or contribute *(29)*. Where competence reflects what a health worker can do, performance is what a health worker does do.
Performance (of the workforce)	A well performing workforce works in ways that are responsive, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances. There are four dimensions of health workforce performance: (i) availability in terms of space and time: encompasses distribution and attendance of existing workers; (ii) competence: encompasses the combination of technical knowledge, skills and behaviours; (iii) responsiveness: people are treated decently, regardless of whether or not their health improves or who they are; and (iv) productivity: producing the maximum effective health services and health outcomes possible given the existing stock of health workers, and reducing waste of staff time or skills *(30)*.
Practice activity	A core function of health practice comprising a group of related tasks. Practice activities are time limited, trainable and, through the performance of tasks, measurable. Individuals may be certified to perform practice activities *(2)*.
Pre-service education	Any structured learning activity that takes place prior to and as a prerequisite for employment in a service setting *(31)*.
Proficiency	A person's level of performance *(2)*. A commonly used framework includes five developmental stages: novice, advanced beginner, competent, proficient and expert *(32)*.
Public health	All organized efforts (whether public or private) to prevent disease, promote health and prolong life among the population. Public health focuses on the entire spectrum of health and well-being from health promotion, protection and prevention of disease to early identification and management to rehabilitation and end of life care. Public health usually includes three broad domains of practice: health protection, health service improvement and health improvement; with each domain underpinned by health intelligence *(33)*.
Public health workforce	All people who contribute to the delivery of at least one of the 12 essential public health functions as part of integrated services and systems. This workforce comprises people working in diverse occupations across many sectors and can be conceptually framed as three overlapping groups: core public health personnel, health and care workers, and occupations allied to health *(34)*.
Situation analysis	A systematic process of gathering and analysing information to describe and understand the health situation, including health determinants, challenges and resources. It is used to identify priorities and guide decision-making in public health *(35)*.
Skill	A specific cognitive or motor ability that is typically developed through training and practice and is not context specific *(2)*.

Social accountability of institutions	The obligation of institutions to direct their education, research and service activities towards addressing the priority health concerns of the community, region and/or nation that they have a mandate to serve *(36)*.
Social accountability of individuals	A commitment to respond as best as possible to the priority health needs of the community, region and/or nation that they have a mandate to serve. Adapted from *(36,37)*.
Social participation	The involvement of communities, civil society groups and others in the development, planning, design, development, delivery and evaluation of policies, programmes or services. Social participation is initiated by the beneficiary or community group to meet their needs, which differs from engagement that is initiated by the policy- or decision-maker. Adapted from *(38)*.
Stakeholder	Individuals, groups or organizations who have an interest or stake in a particular issue or situation, and who may be impacted by or have an impact on the outcome of that issue or situation *(39)*.
Task	Observable unit of work within a practice activity that draws on knowledge, skills and attitudes. Tasks are time limited, trainable and measurable *(2)*.
Universal health coverage	All individuals and communities receive the health services they need without suffering financial hardship. It includes the full spectrum of essential, high-quality health services, from health promotion to prevention, treatment, rehabilitation and palliative care *(40)*.

References

1. Health promotion glossary of terms 2021. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/350161, accessed 5 February 2024).
2. Global competency and outcomes framework for universal health coverage. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/352711, accessed 6 February 2024).
3. Hart J, Byrne-Davis L, Maltinsky W, Bull E. Training to change practice: behavioural science to develop effective health professional education. Chichester: Wiley Blackwell; 2023.
4. MacQueen KM et al. What is community? An evidence-based definition for participatory public health. Am J Public Health. 2001: 91(12):1929–1938. doi:10.2105/AJPH.91.12.1929
5. Community engagement: a health promotion guide for universal health coverage in the hands of the people. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/334379, accessed 5 February 2024).
6. UNESCO International Bureau of Education. Glossary of curriculum terminology. Geneva: UNESCO International Bureau of Education; 2013 (https://unesdoc.unesco.org/notice?id=p::usmarcdef_0000223059, accessed 6 February 2024).

7. Van Melle E et al. A core components framework for evaluating implementation of competency-based medical education programs. Acad Med. 2019: 94(7):1002–1009. doi:10.1097/ACM.0000000000002743

8. Frank JR et al. Toward a definition of competency-based education in medicine: a systematic review of published definitions. Med Teach. 2010: 32(8):631–637. doi:10.3109/0142159X.2010.500898

9. Englander R et al. Toward a shared language for competency-based medical education. Med Teach. 2017: 39(6):582–587. doi:10.1080/0142159X.2017.1315066

10. Institute of Medicine (US) Forum on Medical and Public Health Preparedness for Catastrophic Events. Crisis standards of care: summary of a workshop series. Washington (DC): National Academies Press (US); 2010. doi:10.17226/12787

11. Solar O, Irwin A. A conceptual framework for action on the social determinants of Health. Social determinants of health discussion paper 2 (policy and practice). Geneva: World Health Organization; 2010 (https://iris.who.int/handle/10665/44489, accessed 5 February 2024).

12. Factsheet 4: types of misinformation and disinformation. In: Using social media in community-based protection. United Nations High Commission for Refugees; 2021:23. (https://www.unhcr.org/innovation/wp-content/uploads/2021/01/Using-Social-Media-in-CBP.pdf, accessed 5 February 2024).

13. Englander R et al. Toward a common taxonomy of competency domains for the health professions and competencies for physicians. Acad Med. 2013: 88(8):1088–1094. doi:10.1097/ACM.0b013e31829a3b2b

14. Application of the essential public health functions: an integrated and comprehensive approach to public health. Geneva: World Health Organization; 2024 (https://iris.who.int/handle/10665/375864, accessed 8 February 2024).

15. Kickbusch I, Gleicher D. Governance for health in the 21st century. Copenhagen: WHO Regional Office for Europe; 2012 (https://repository.graduateinstitute.ch/record/279386/files/RC62BD01-Governance-for-Health-Web.pdf, accessed 6 February 2024).

16. Health systems governance for universal health coverage. Action plan. Geneva: World Health Organization; 2014 (https://iris.who.int/handle/10665/341159, accessed 5 February 2024).

17. Barbazza E, Tello JE. A review of health governance: definitions, dimensions and tools to govern. Health Policy (New York). 2014: 116(1):1–11. doi:10.1016/j.healthpol.2014.01.007

18. Health in all policies as part of the primary health care agenda on multisectoral action. Technical series on primary health care. Geneva: World Health Organization; 2018 (https://iris.who.int/handle/10665/326463, accessed 5 February 2024).

19. Infodemic [website]. World Health Organization; (https://www.who.int/health-topics/infodemic#tab=tab_1, accessed 6 February 2024).

20. Health professions network nursing and midwifery office department of human resources for health. Framework for action on interprofessional education and collaborative practice. Geneva: World Health Organization; 2010 (https://interprofessional.global/wp-content/uploads/2019/11/WHO-2010-Framework-for-Action-on-Interprofessional-Education-and-Collaborative-Practice.pdf, accessed 6 February 2024).

21. Bloom BS, Krathwohl DR, Masia BB. Taxonomy of educational objectives: the classification of educational goals. Handbook I: cognitive domain (McKay D, ed.). New York: Longmans, Green; 1956.

22. World report on knowledge for better health: strengthening health systems. Geneva: World Health Organization; 2004. (https://iris.who.int/handle/10665/43058, accessed 16 February 2024).

23. Council recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning and repealing the recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning. 2017:C189:15-27. (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017H0615(01), accessed 9 February 2024).

24. Laal M. Lifelong learning: what does it mean? Procedia – Soc Behav Sci. 2011: 28:470–474. doi:10.1016/j.sbspro.2011.11.090

25. Oxford English Dictionary [website]. Oxford University Press; 2023 (https://www.oed.com/search/dictionary/?scope=Entries&q=Milestone, accessed 5 February 2024).

26. One Health [website]. World Health Organization; 2017 (https://www.who.int/news-room/questions-and-answers/item/one-health, accessed 9 February 2023).

27. Minkler M, Chang C. Engaging communities in participatory research and action. In: Kawachi I et al., eds. Oxford Handbook of Public Health Practice 4e.,4th ed. Oxford University Press; 2020:0. doi:10.1093/med/9780198800125.003.0020

28. Campbell JP. Modeling the performance prediction problem in industrial and organizational psychology. Palo Alto, CA: Consulting Psychologists Press; 1990.

29. Boxall P. HR strategy and competitive advantage in the service sector. Hum Resour Manag J. 2003: 13(3):5–20. doi:10.1111/j.1748-8583.2003.tb00095.x

30. World health report 2006: working together for health. Geneva: World Health Organization; 2006 (https://iris.who.int/handle/10665/69256, accessed 5 February 2024).

31. Integrated management of childhood illness (IMCI): planning, implementing and evaluating pre-service training. Geneva: World Health Organization; 2001 (https://cdn.who.int/media/docs/default-source/mca-documents/child/imci-integrated-management-of-childhood-illness/imci_planning_implementing_evaluating_pre-service-training.pdf?sfvrsn=cfed526d_5&download=true, accessed 6 February 2024).

32. Dreyfus HL, Dreyfus SE, Zadeh LA. Mind over machine: the power of human intuition and expertise in the era of the computer. IEEE Expert. 1987: 2:110–111. doi:10.1109/mex.1987.4307079

33. 21st century health challenges: can the essential public health functions make a difference? Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/351510, accessed 9 February 2024).

34. National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response. Action plan (2022-2024) for aligning WHO and partner contributions. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/363519, accessed 9 February 2024).

35. Public health information service. Public health situation analysis (PHSA) standard operating procedures. Geneva: World Health Organization; 2018 (https://healthcluster.who.int/docs/librariesprovider16/meeting-reports/public-health-situation-analysis-sops.pdf?sfvrsn=6eae61ab_1&download=true, accessed 6 February 2024).

36. Boelen C, Heck J. Defining and measuring the social accountability of medical schools. Geneva: World Health Organization; 1995 (https://iris.who.int/handle/10665/59441, accessed 7 February 2024).

37. Boelen C, Woollard B. Social accountability and accreditation: a new frontier for educational institutions. Med Educ. 2009: 43(9):887–894. doi:10.1111/j.1365-2923.2009.03413.x

38. Voice, agency, empowerment – handbook on social participation for universal health coverage. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/342704, accessed 9 February 2024).

39. Morton KL et al. Engaging stakeholders and target groups in prioritising a public health intervention: the Creating Active School Environments (CASE) online Delphi study. BMJ Open. 2017: 7(1):e013340. doi:10.1136/bmjopen-2016-013340

40. Universal health coverage (UHC) [website]. World Health Organization; 2023 (https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc), accessed 9 February 2024).

Executive summary

This framework provides guidance, and a reference set of competencies and education outcomes, for aligning education with employment and public health needs to build and maintain the workforce required to deliver the essential public health functions (EPHFs). The guidance should be contextualized to suit country contexts and public health priorities. It can then assist the design and delivery of competency-based education programmes oriented to the skills and competencies for employment that meet public health priorities. The framework can also be used by employers, regulators and workforce planners to define competency-based performance requirements for public health practice, and to inform staffing needs; and individuals can use it to assess their own competence.

A comprehensive public health approach is essential to build resilient health systems, achieve the Sustainable Development Goals, and progress towards the three interrelated goals of universal health coverage, protection from health emergencies and healthier populations *(1)*. The growing complexity of improving public health has led to renewed interest in, and focus on, operationalizing the EPHFs. The World Health Organization (WHO) has proposed a unified list of 12 EPHFs *(2)*, which maps onto the different regional and other approaches to defining EPHFs. Collectively, the 12 EPHFs provide an integrated and comprehensive approach to public health that is rooted in the ethics and values of accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice.

The workforce that delivers the EPHFs includes all individuals who contribute to the delivery of at least one of the EPHFs as part of integrated services and systems. This workforce comprises people working within and outside of the health sector. The diverse occupations involved, which vary from country to country, can be conceptually framed as three overlapping groups: core public health personnel, health and care workers, and occupations allied to health. No single occupational group can deliver any of the EPHFs in isolation: collaborative intersectoral efforts by a range of occupations are required to achieve the interrelated functions, for example, public health emergency management (EPHF 2), health protection (EPHF 5) and health promotion (EPHF 7).

The components of work undertaken by individuals towards the delivery of the EPHFs can be described in terms of practice activities, comprising tasks within role responsibility. Practice activities are the core activities of public health practice. They comprise groups of related tasks, such as interpreting surveillance data, or planning a public health programme. The provision of public health programmes, services and emergency management requires more than the performance of discrete or sequential tasks, but rather the ability to adapt practice, make judgements, navigate health systems and collaborate with individuals and communities, civil society groups, organizations and intersectoral and intrasectoral partnerships. Competencies are a person's abilities to integrate knowledge, skills and attitudes in their performance of tasks. Where task lists and practice activities are useful for workforce planning, the performance of tasks and activities requires public health workers to have the requisite competencies, such as decision-making, effective communication and collaboration.

Competency-based education is a form of outcomes-based education, rooted in mastery learning relating to work performance, which can effectively prepare the workforce for public health practice and emergency management. Competency-based education is a whole-of-education-programme approach,

encompassing: competency-based outcomes oriented to health needs; progressive sequencing of learning; learning experiences tailored to competency-based outcomes; teaching tailored to competency-based outcomes; and programmatic assessment of the achievement of learning.

Harnessing the promise of competency-based education requires a holistic interpretation of competence as the summative outcomes of education programmes leading to employment, encompassing a dual focus on both the practice activities and tasks to be provided, and the competencies and behaviours of the individual.

Transitioning to a fully competency-based education programme may occur incrementally. It requires resources, trained faculty, supervised practical experience and pathways from formal education programmes to decent employment.

This framework is one of the tools developed by WHO and partners as part of a roadmap *(3)* with a collective vision of a strengthened public health workforce in every country, delivering all 12 EPHFs, including emergency preparedness and response, for universal health coverage, health security and improved health and well-being for all.

The aims of this framework are intended to enable the delivery of the EPHFs, guiding countries to strengthen education programmes in order to strengthen the workforce.

- Aim 1: Bring together and build on existing frameworks and resources to strengthen education programmes, using the lens of a common conceptual model for competency-based education.
- Aim 2: Define the practice activities required to deliver the 12 globally defined EPHFs, encompassing the whole of the public health workforce.
- Aim 3: Provide a modular, foundational tool to adapt and adopt, and guide the strengthening of competency-based education approaches. This involves combining the art and the science of public health, linking academic and technical skills with the competencies needed to deliver the EPHFs.
- Aim 4: Guide a consistent and concerted effort to align education programmes with employment throughout the lifelong learning continuum (pre-service, in-service and specialization education) towards the delivery of the EPHFs.

Chapter 1 provides an overview of the 12 EPHFs, the roadmap to support countries in strengthening their public health workforce, and the conceptual model and the theoretical foundations for competency-based education. It also describes the stepwise approach to using this framework to strengthen competency-based education programmes.

Chapter 2 identifies 20 interrelated competencies essential for effective public health practice, organized into six domains: community-centredness, decision-making, communication, collaboration, evidence-informed practice, and personal conduct. This chapter also identifies behaviours that demonstrate these competencies, as well as additional leadership behaviours, forming a theoretical framework for good practice rooted in the ethics and values of public health.

The competencies and behaviours are relevant for the whole of the public health workforce, at all career stages, and for the range of practice activities and tasks within role responsibility. The way in which these competencies and behaviours are demonstrated in practice varies between individuals, according to their role responsibilities and the context. For example, all effective public health practice should be

rooted in evidence: some health workers follow guidelines or protocols formulated in evidence, while others will balance different types of evidence to make complex and contextually relevant decisions. Specific behavioural indicators must be elaborated to contextualize the competencies for different practice activities and contexts, and to inform education and/or practice standards.

The competencies and behaviours can be used by educators, employers and regulators to define contextually relevant competency-based performance standards. Individual learners and workers can assess their own competence in relation to their role responsibilities, and build portfolios demonstrating these competencies in practice. Educators can use the guidance in this chapter to consider approaches that enable learners to develop these competencies in the context of the practice activities within role responsibility.

Chapter 3 provides a reference list of 40 practice activities that operationalize the EPHFs, when contextualized to public health priorities and settings. Collectively this set of practice activities is relevant to the whole range of role responsibilities of the public health workforce (unlike most education programmes, which are typically oriented to a subset of role responsibilities for a specific occupational group or context only). The set of practice activities does not define what should be in a curriculum, or indeed in a role responsibility: instead it offers a map of the different practice activities for consideration. This chapter thus provides a modular curricular guide to be adapted and adopted, alongside the competencies and behaviours outlined in Chapter 2.

The 40 practice activities are organized into five domains: the **systems** building blocks for public health, such as workforce planning, physical infrastructure and quality assurance (practice activity domain I); **intelligence** about public health risks, threats (hazards) and health status, including data collection, surveillance and monitoring, and dissemination and risk communication (practice activity domain II); public health **programmes and services** (practice activity domain III), informed by intelligence about public health priorities, and encompassing planning, stakeholder collaboration, delivery, monitoring, evaluation and continued quality improvement; the **management** of the human, physical and financial resources for those programmes and services (practice activity domain IV); and **emergency management** across the spectrum of prevent, detect, respond and recover (practice activity domain V).

In the same way that the EPHFs are interrelated, so too are the practice activities. Further, the relationship between the EPHFs and their subfunctions and the practice activities are both many-to-one and one-to-many. Operationalizing each EPHF requires between 17 and 40 practice activities; some practice activities, such as quality improvement, community engagement and regulatory frameworks, are relevant to all the EPHFs, whereas other practice activities are narrower in application: for example, the provision of education and training, and the planning of public health investigations, operationalize fewer EPHFs.

There are five elements to each of the practice activities in this framework:

- Public health impact statement: a brief description of linkages with the delivery of the EPHFs.
- EPHF subfunctions: the subfunctions that are directly supported by the practice activity.
- Tasks: the range of tasks needed for the practice activity, for contextualization.
- Illustrative profiles: indicative tasks for five illustrative profiles.
- Curricular guide: key areas of knowledge and skills linked to the tasks within the illustrative profiles for the practice activity concerned.

The practice activities, task lists and illustrative profiles can be used by educators, employers and regulators to define the tasks within role responsibility, as well as the contexts in which an individual will be working, and the tools, teams, resources and supervision available to them. Together with the competency-based standards defined in Chapter 2, these contextualized practice activities can be used to inform assessment of learning achievement or micro-credentialling, and education outcomes (including milestones) towards competence. The curricular guides can be used by educators to identify the foundational knowledge and skills necessary for performing those contextualized practice activities, and to inform curricular content and curricular sequencing.

Chapter 4 provides guidance for educators to contextualize the framework in order to inform competency-based education design and delivery. The framework is high-level, and must be contextualized to the role responsibilities, environmental and social context, including the available tools, resources and teams, as well as public health priorities. This approach to educational design is relevant to pre-service, in-service and specialization education programmes.

This chapter outlines a process both for contextualizing the practice activities (as set out in Chapter 3) relevant to role responsibility and for defining competency-based education outcomes aligned with practice standards, integrating the competencies and behaviours detailed in Chapter 2. It then guides an international approach to whole-of-programme design of competency-based education programmes, oriented to those competency-based education outcomes, and rooted in the development of the foundational knowledge, skills, attitudes and values required for practice.

References

1. Thirteenth General Programme of Work, 2019–2023: promote health, keep the world safe, serve the vulnerable. Geneva: World Health Organization; 2019 (https://iris.who.int/handle/10665/324775, accessed 5 February 2024).
2. Application of the essential public health functions: an integrated and comprehensive approach to public health. Geneva: World Health Organization; 2024 (https://iris.who.int/handle/10665/375864, accessed 5 February 2024).
3. National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response: roadmap for aligning WHO and partner contributions. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/354384, accessed 5 February 2024).

1. Introduction

Summary

- The World Health Organization (WHO) has proposed a set of 12 globally relevant essential public health functions (EPHFs) to be implemented by governments, departments and various sectors to bridge gaps and improve health systems resilience.
- Operationalizing the EPHFs is crucial for universal health coverage (UHC), protection from health emergencies and healthier populations.
- Public health interventions, actions, programmes and services that operationalize the EPHFs focus on prevention, protection and health promotion at the population level, aiming for equitable access and improved health outcomes.
- A roadmap has been developed, aligning WHO and partner contributions, to support efforts to strengthen national workforce capacity to operationalize the EPHFs, including emergency preparedness and response.
- The workforce that delivers the EPHFs encompasses core public health personnel, health and care workers, and those working in other sectors in occupations allied to health.
- Education-to-employment pathways need to align educational goals with workforce needs, along with lifelong learning opportunities, so that workers can continually update their skills and competencies to meet evolving needs.
- Competency-based education is an effective means of preparing the workforce to deliver the EPHFs, emphasizing outcomes-oriented learning, progressive sequencing, tailored teaching and assessment, and programmatic assessment.
- Competency-based education requires a holistic interpretation of competence that integrates knowledge, skills, attitudes and values for effective practice, and is oriented to the practice activities within role responsibility.
- This framework provides a reference set of practice activities needed to deliver the EPHFs, which can be contextualized to country contexts and public health priorities. It then provides guidance on the design and delivery of competency-based education programmes, oriented to the skills and competencies needed for employment.

1.1 Operationalizing the EPHFs is necessary for UHC, protection from emergencies and healthier populations

Public health aims to prevent disease and injury and to promote health and well-being at the community and population levels, through identifying the root causes of disease and disability, and implementing large-scale solutions. Without a public health approach, health systems and health services can be fragmented with inequities in access. A comprehensive public health approach is essential to achieve the

Sustainable Development Goals (SDGs), and for progress towards the three interrelated goals of UHC, protection from health emergences and healthier populations *(1)*.

The cornerstone of any effective public health approach is its commitment to safeguarding the well-being of all vulnerable groups and communities. Successful public health interventions must be thoughtfully guided by and targeted to the specific populations they aim to serve, recognizing and addressing the diverse range of social identities that can influence health outcomes. Health is a fundamental human right. Health equity is achieved when everyone can attain their full potential for health and well-being *(2).* Equity in public health means striving for fairness and justice, ensuring that everyone has equal opportunities to access and benefit from the resources and services necessary for optimal health. By prioritizing equity, public health initiatives can bridge gaps and disparities, empowering individuals and communities to attain the highest level of health and well-being.

Public health interventions play a vital role in promoting the health and well-being of individuals and communities by focusing on prevention, protection and health promotion, addressing social and environmental conditions rather than merely delivering health services in reaction to health crises. By prioritizing population-level impact over individual-level care, such interventions have proven cost-effective, if not cost-saving, by reducing the burden on health systems and improving the health and well-being of individuals who require fewer health services and less support. However, despite the clear benefits of prevention, many health systems still rely heavily on reactive measures and disease-focused approaches, resulting in fragmented, under-prioritized and under-resourced public health efforts. This can be attributed, in part, to the challenges of defining and quantifying returns on investment and the accountability arrangements for different funding mechanisms. It is essential to emphasize the integrated and intersectoral approach to be adopted by public health interventions, including setting conditions to improve people's health and well-being by removing barriers to access, providing needed services, and strengthening policies for health promotion and protection.

Many countries are struggling to deliver the EPHFs, compounded by the challenges of the COVID-19 pandemic, natural disasters and conflicts. Countries face a myriad of public health challenges, including: adverse impacts of the wider determinants of health and inequity; natural, human-induced and environmental hazards (including those from climate variability and change, and in the built and lived environment); the rising burden of noncommunicable diseases; ageing populations; multimorbidity; emerging and re-emerging infectious diseases; antimicrobial resistance; economic inflation; and the increasing frequency and scale of health emergencies.

This growing complexity has led to a renewed focus on strengthening the EPHFs *(3).* This involves comprehensively operationalizing the public health approach, which is rooted in the ethics and values of accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice, and building health systems resilience. WHO has proposed a unified list of 12 EPHFs *(3)* based on mapping the various regional and other approaches that define EPHFs (Table 1). This list presents 12 fundamental functions, primarily the responsibility of national governments, which should be delivered in a national context by the government at national and subnational levels, public and private sectors, communities and individuals or groups of individuals. These functions can be operationalized through public health programmes and services, according to country context, including population health needs, priority risks and local approaches to assuring health protection and delivering health services.

Table 1. The 12 EPHFs and their subfunctions

EPHFs	Subfunctions
EPHF 1: Public health surveillance and monitoring Monitoring and surveillance of population health status, risks, protective and promotive factors, threats to health, and health system performance and service utilization	Subfunction 1.1: Planning for public health monitoring and surveillance
	Subfunction 1.2: Routine and systematic collection of public health data
	Subfunction 1.3: Analysing and interpreting available public health data
	Subfunction 1.4: Communicating public health data, information and evidence with key stakeholders, including communities
EPHF 2: Public health emergency management Managing public health emergencies for international and national health security	Subfunction 2.1: Monitoring and analysing available public health information to identify and anticipate potential and priority public health risks, including public health emergency scenarios
	Subfunction 2.2: Planning and developing capacity for public health emergency preparedness and response as part of routine health system functioning in collaboration with other sectors, including development of a national health emergency response operations plan
	Subfunction 2.3: Carrying out and coordinating effective and timely public health emergency response activities while supporting the continuity of essential functions and services
	Subfunction 2.4: Planning and implementing recovery from public health emergencies with an integrated health system strengthening approach
	Subfunction 2.5: Engaging with affected communities and stakeholders in the public and private sectors and health and allied sectors as part of whole-of-government and whole-of-society approaches to public health emergency management
EPHF 3: Public health stewardship Establishing effective public health institutional structures, leadership, coordination, accountability, regulations and laws	Subfunction 3.1: Advocating public health-oriented planning, policies and strategies
	Subfunction 3.2: Strengthening institutional public health structures for the coordination, integration and delivery of public health functions and services in the health and other sectors
	Subfunction 3.3: Developing, monitoring and evaluating public health regulations and laws that act as formal, regulatory, institutional frameworks for public health governance, functions and services
	Subfunction 3.4: Maintaining and applying public health ethics and values in governance

EPHFs	Subfunctions
EPHF 4: Multisectoral planning, financing and management for public health Supporting effective and efficient health systems and multisectoral planning, financing and management for public health	Subfunction 4.1: Conducting evidenced-based health system planning and prioritization for managing population health needs, including alignment of national strategies, policies and plans for public health
	Subfunction 4.2: Promoting integrated cross-sectoral prioritization and planning for public health with intersectoral accountability mechanisms and WHO's Health in All Policies approach to manage population health needs
	Subfunction 4.3: Promoting sustainable and integrated financing for public health by improving the generation, allocation and utilization of public and pooled funds to strengthen health system foundational capacities in all contexts
	Subfunction 4.4: Planning and developing appropriate infrastructure for meeting population health needs, including key services in health facilities (e.g. water, sanitation, waste and energy)
	Subfunction 4.5: Monitoring and assessment of policies and plans, financing of health systems, and multisectoral efforts for health that improve public health, promote equity and inclusion, and strengthen resilience
EPHF 5: Health protection Protecting populations against health threats, for example, environmental and occupational hazards, communicable and noncommunicable diseases, including mental health conditions, food insecurity, and chemical and radiation hazards	Subfunction 5.1: Developing, implementing, monitoring and evaluating regulatory and enforcement frameworks, including compliance with international legislation, and mechanisms for the protection of specified populations (e.g. workers, patients and consumers) and the general public from health hazards
	Subfunction 5.2: Conducting risk assessments, risk communication and other risk management actions needed for all manner of health hazards
	Subfunction 5.3: Monitoring, preventing, mitigating and controlling confirmed and potential health hazards
EPHF 6: Disease prevention and early detection Prevention and early detection of communicable and noncommunicable diseases, including mental health conditions, and prevention of injuries	Subfunction 6.1: Designing, implementing, monitoring and evaluating interventions, programmes, services and platforms for primary, secondary and tertiary prevention, including consideration of equity
	Subfunction 6.2: Integrating consideration of prevention and early detection into service delivery platform design or redesign
	Subfunction 6.3: Working with partners to support the development, implementation and monitoring of legislation, policies and programme activities aimed at reducing exposure to risk factors and promoting factors that prevent disease

EPHFs	Subfunctions
EPHF 7: Health promotion Promoting health and well-being as well as actions to address the wider determinants of health and inequity	Subfunction 7.1: Designing, implementing and evaluating specific interventions or programmes to promote health, including changes in behaviours, lifestyle, practices, and the environmental and social conditions that promote health and reduce health inequities
	Subfunction 7.2: Taking and supporting action, with partners, to address wider determinants of both communicable and noncommunicable diseases through a whole-of-government, whole-of-society approach, including increasing individual and community participation in health-impacting decisions
	Subfunction 7.3: Advocating, developing and monitoring legislation and policies aimed at promoting health and healthy behaviours and reducing inequities
	Subfunction 7.4: Undertaking evidence-based advocacy and health communication to promote healthy behaviours and socioecological environments and build community trust
EPHF 8: Community engagement and social participation Strengthening community engagement, participation and social mobilization for health and well-being	Subfunction 8.1: Promoting participatory decision-making and planning for health and the promotion of societal changes that enhance, promote and protect health and well-being
	Subfunction 8.2: Building community capacity for participating in public health planning, interventions, services, and preparedness and response measures
	Subfunction 8.3: Monitoring and evaluation of community engagement in public health planning, interventions, services, and preparedness and response measures to promote equity and inclusion
	Subfunction 8.4: Mobilizing and collaborating with communities and civil society groups in health services, interventions and programmes as part of a whole-of-society approach
	Subfunction 8.5: Engaging communities in health preparedness, readiness, response and recovery

EPHFs	Subfunctions
EPHF 9: Public health workforce development Developing and maintaining an adequate and competent public health workforce	Subfunction 9.1: Undertaking planning and regular monitoring and evaluation of the public health workforce in relation to density, distribution and skills mix required to meet population health needs
	Subfunction 9.2: Assessing and developing the education and training of the public health workforce, encompassing the full spectrum of public health competencies (for example, technical, strategic and leadership skills), including development of essential competencies for intersectoral work for health and for emergency response
	Subfunction 9.3: Promoting the sustainability of the public health workforce by developing appropriate career pathways and assessing and creating safe and dignified working conditions
EPHF 10: Health service quality and equity Improving appropriateness, quality and equity in provision of and access to health services	Subfunction 10.1: Assessing and improving the quality and appropriateness of health services and social care services as delivered to meet population health needs
	Subfunction 10.2: Assessing and promoting equity in the provision of and access to health and social care services
	Subfunction 10.3: Aligning the planning and delivery of health services and social care services with population health needs and priority risks
EPHF 11: Public health research, evaluation and knowledge Advancing public health research and knowledge development	Subfunction 11.1: Strengthening and broadening the capacity to conduct and promote research in order to enhance the knowledge base and inform evidence-based policy, planning, legislation, financing and service delivery at all levels and in all contexts
	Subfunction 11.2: Supporting knowledge development and implementation, including the translation of public health research into decision-making based on the best available evidence and practices for addressing population health needs
	Subfunction 11.3: Promoting the inclusion and prioritization of public health operational research within broader research agendas
	Subfunction 11.4: Promoting and maintaining ethical standards in public health research that promote a human rights-based approach to health

EPHFs	Subfunctions
EPHF 12: Access to and utilization of health products, supplies, equipment and technologies Promoting equitable access to and rational use of safe, effective and quality-assured health products, supplies, equipment and technologies	Subfunction 12.1: Developing and implementing policies, laws, regulations and interventions that promote the development of and equitable access to essential medicines and other medical products and health technologies in both national and international contexts
	Subfunction 12.2: Developing and implementing evidence-based standards, laws, regulations, policies and interventions that ensure the safety, affordability and efficacy of essential medicines and other medical products and health technologies
	Subfunction 12.3: Working with partners to manage the inclusion of evidence-based essential medicines and other medical products, health technologies and non-pharmacological interventions into clinical and public health practices
	Subfunction 12.4: Managing supply chains for essential medicines and other medical products and health technologies in support of their rational use and equitable access in both national and international contexts, including stockpiling and prepositioning essential medicines, equipment and supplies
	Subfunction 12.5: Monitoring and assessing the safety, effectiveness, efficacy and utilization of, and access to, essential medicines and other medical and surgical products, health technologies and non-pharmacological interventions, in clinical and public health settings

Note: There is no significance to the ordering of the list presented here: each EPHF is fundamental to the effective delivery of public health, with prioritization depending on country context.

Source: WHO *(3).*

1.2 About the roadmap to build national workforce capacity to deliver the EPHFs

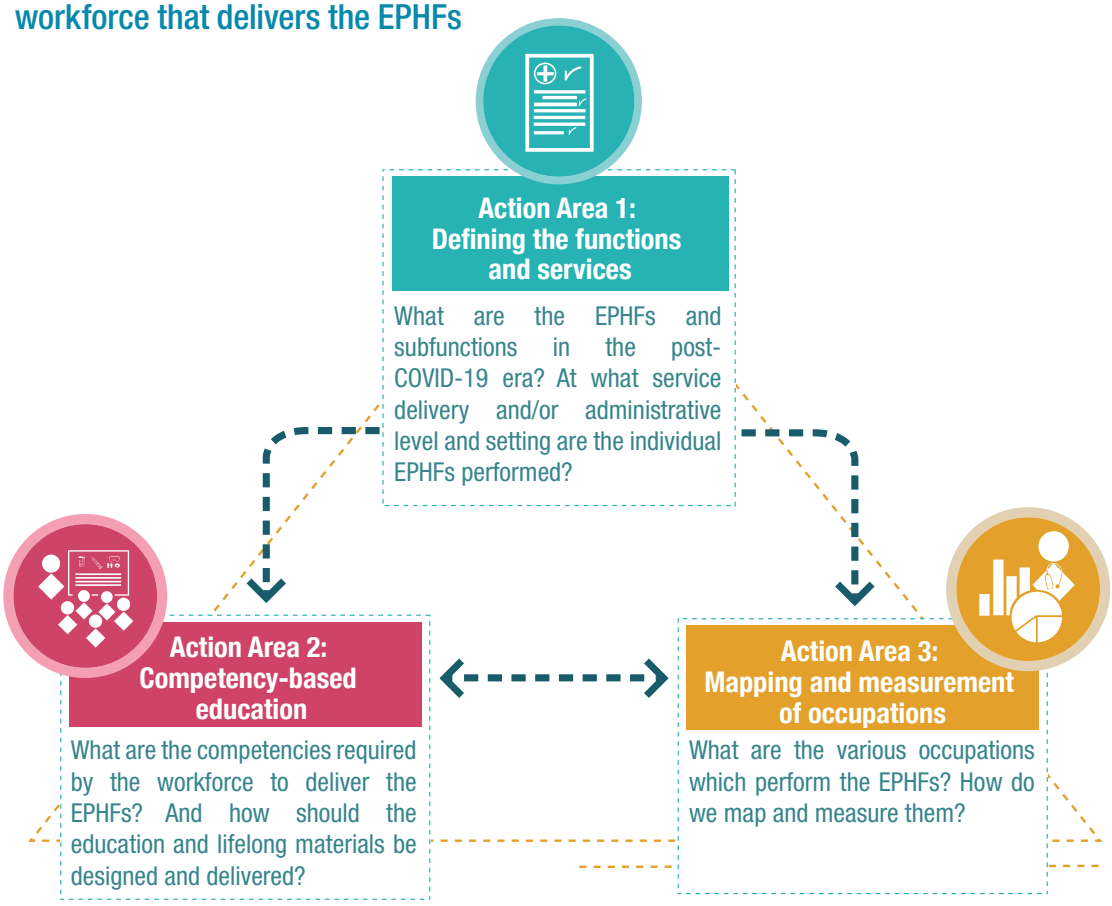
The vital role of the public health workforce in implementing the EPHFs cannot be overstated. However, their capacity to deliver them has become increasingly diluted. In some cases, individuals lacking the necessary skills or training are tasked with delivering these functions, while those who possess the required expertise and training are underrecognized and underutilized. Additionally, the significance of public health is often not fully acknowledged or prioritized, further contributing to this issue. To address these challenges and strengthen countries' capacity to operationalize the EPHFs, a comprehensive and collaborative effort is essential. This requires the support and engagement of a diverse coalition of partners and stakeholders, including governments, associations, institutions and schools of public health, civil society groups, communities and development partners. By working together, these entities can

address the challenges, enhance the capabilities of the public health workforce and ensure the successful implementation of the EPHFs at all levels.

Building from the consensus among the G20 in Italy in 2021, WHO, leading public health institutes and partners collaborated to develop a roadmap entitled *National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response: roadmap for aligning WHO and partner contributions (4)* (hereafter "PHEWF roadmap"). Building an integrated, multidisciplinary and multisectoral workforce that can perform part or all of the EPHFs through health, environmental, community and other integrated system strengthening is not only a prerequisite for the delivery of high-quality public health services, but also produces sound returns on investment. This can help the world to anticipate, prevent and respond to future pandemics and other public health hazards, to achieve equity and health for all, and to contribute to the achievement of the SDGs.

The PHEWF roadmap envisions "a strengthened workforce in every country; delivering all the essential public health functions including emergency preparedness and response for universal health coverage, health security and improved health and well-being for all." The approach to strengthening the capacity of the public health workforce and delivering on this vision is oriented to three interlinked action areas described below and in Fig. 1; they build on existing national policies, plans, investments and capacities, advanced in parallel.

Fig. 1. Conceptual approach to scoping, defining and building capacity of the workforce that delivers the EPHFs



Source: WHO *(4)*.

- **Action area 1:** define the EPHFs, their subfunctions and the programmes and services to operationalize them. These include the services and system inputs needed to deliver a consolidated package of critical public health interventions, including a focus on emergency preparedness and response.
- **Action area 2:** identify the skills and competencies required to deliver these functions and services, and develop a suite of competency-based education tools to deliver the functions and services relevant to role responsibilities and context.
- **Action area 3:** map and measure the size and profile of the range of occupations engaged in delivering the EPHFs.

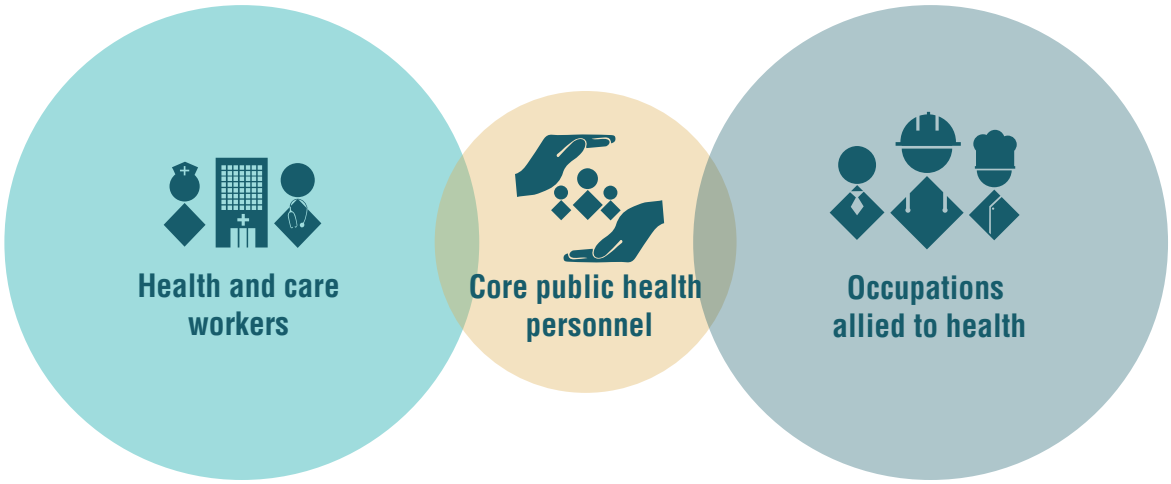
WHO defines the health workforce as all people engaged in actions whose primary intent is to enhance health *(5)*. The workforce that delivers the EPHFs comprises all individuals who contribute to the delivery of at least one of the functions as part of integrated services and systems. This workforce includes people with diverse occupations in the health and other sectors. Further, the job titles, qualifications, educational backgrounds, skills, experiential knowledge and roles and responsibilities of people involved in delivering the EPHFs vary according to their context.

This public health workforce comprises individuals from all of the following groups (Fig. 2).[1]

- Core public health personnel. These personnel work exclusively on the EPHFs. They may have undergone specialized professional public health training, or be registered with professional public health bodies, and they may have either a health or a non-health background. Their work may contribute to multiple EPHFs, or specialized in one EPHF. Such personnel include epidemiologists, public health managers, district surveillance officers, chief public health officers and public health educators.
- Health and care workers. This group includes personnel from the health and care workforce who spend some of their time delivering the EPHFs in the course of their usual clinical/social care tasks. Examples include nursing personnel, medical doctors, midwifery personnel, community health workers, social work and counselling personnel, pharmacists, medical and pathology laboratory technicians and biomedical engineers.
- Occupations allied to health. This group includes a wide range of allied occupations outside of the health sector that play critical roles in addressing the determinants of health. Examples include personnel engaged in animal health, urban planning, water and sanitation, food supply chains, transport, road safety and human security.

1 A wide range of job titles and role responsibilities are included in the public health workforce. The examples provided here are not exhaustive, but are aligned with the International Standard Classification of Occupations (ICSO–08) structure. Many other occupations can be categorized as core public health personnel, including not only health and care workers but also personnel from allied occupations, or from multiple overlapping groups *(31)*.

Fig. 2. The public health workforce



1.3 Competency-based education: preparing the workforce to deliver the EPHFs

Competency-based education is a form of outcomes-based education, rooted in mastery learning related to work performance. Research has identified the five core components of competency-based education programmes as: defined competency-based outcomes oriented to health needs; progressive sequencing of learning; learning experiences tailored to competency-based outcomes; teaching tailored to competency-based outcomes; and programmatic assessment of the achievement of learning *(6).*

Within education programmes, many different types of education outcomes have been developed through formal and informal learning activities: from the knowledge acquired, to skills, to the values and behaviours required for effective practice. Harnessing the promise of competency-based education requires a holistic interpretation of competence as the summative outcomes of education programmes leading to employment, encompassing a dual focus on the practice activities and tasks to be provided as well as the competencies and behaviours required of the individual *(7).*

Practice activities are the core functions of public health practice. They comprise groups of related tasks, such as interpreting surveillance data, or planning a public health programme. These activities are widely used for workforce planning and for the definition of occupational groups and job descriptions, for example, in the WHO's Workforce Indicators for Staffing Needs tools *(8)* and the International Labour Organization's International Standard Classification of Occupations (ISCO-08) *(9).*

The provision of public health programmes, services and emergency management requires not merely the performance of discrete or sequential tasks, but the ability to adapt practice, make informed judgements, navigate health systems and collaborate with individuals, populations and intersectoral organizations. This draws on a person's competencies.

Competencies are a person's abilities to integrate knowledge, skills and attitudes in their performance of tasks, as needed for the context. Competencies are durable, trainable and measurable through behaviours. Practice activities differ from competencies in that they can be observed from start to finish, they are time limited, measurable through the performance of tasks, and they are not attributes of individuals, but of work. Individuals may be certified to perform practice activities, with the relevant specifications.

The competency-based performance of practice activities is the focus of education oriented towards employment. This behavioural competency model is illustrated in Fig. 3 and Table 2.

Competency-based education de-emphasizes time in learning *(10)*, and shifts the focus from knowledge to skills and competencies acquired *(11)*, relevant to employment upon course completion. Traditionally, education programmes are focused on the premise that learners require the aggregate of knowledge, skills and attitudes for practice, which are seen as distinct from each other and stable. By contrast, mastery learning is oriented to the application of the interrelated and integrated knowledge, skills, attitudes and behaviours required for actual practice *(12)*. This requires a whole-of-programme approach to organizing authentic learning activities that foster independent and collaborative learning that mimics actual practice, and the assessment of learning achievement.

Competency-based education approaches are associated with: higher assessment scores *(13)*; a faster pace of learning *(14)*; decreased variation among learner outcomes *(15)*; better learner preparedness for assessments *(16)* and for practice *(17)*; learner satisfaction with the relevance of learning *(16)*; and meeting the needs of learners, administrators, faculty, employers and the public *(18)*.

When a competency-based education approach is used together with a gender and equity focus on the design and delivery of education, transformative effects on both employment and improved health outcomes are observed. This offers the potential to promote equity and inclusion through flexible education pathways *(19)*.

Fig. 3. WHO competency model

Table 2. Competencies, behaviours, practice activities and tasks: definitions and characteristics

	Competencies	Behaviours	Practice activities	Tasks
Definitions	The abilities of a person to integrate knowledge, skills and attitudes in their performance of tasks for the context. Competencies are durable, trainable and, through the expression of behaviours, measurable.	Observable conduct towards other people or tasks that express a competency. Behaviours are measurable in the performance of tasks.	A core function of health practice, comprising a group of related tasks. Practice activities are time-limited, trainable and, through the performance of tasks, measurable. Individuals may be certified to perform practice activities.	Observable unit of work within a practice activity that draws on knowledge, skills and attitudes. Tasks are time-limited, trainable and measurable.
Characteristics	• Continuous, ongoing abilities • May develop or erode over time • Competencies enable performance of multiple practice activities • Competencies are attributes of a person, demonstrated in the context of performance • Competencies are multifaceted and interrelated • Competencies can be demonstrated through several different behaviours • Behaviours are the measurable expression of a competency • Performance is measurable as a judgement on a scale of frequency (never, sometimes, always)		• The practice activity involves the common goal of a group of tasks; tasks in isolation are abstract and can be defined as skills • Time-limited, discrete actions, observable from start to finish • Tasks are attributes of a practice activity or job, but not of a person • The standard of proficiency is anchored in behaviours that demonstrate competencies • The practice activity (encompassing tasks) is the unit of assessment, certification or regulation • Performance is measurable on a dichotomous scale (yes or no)	
Example	When someone navigates the set of tasks necessary for the goal of the practice activity for the context, they draw on their competencies to do so. The emphasis in competency-based education and proficiency for practice should therefore be on competency-based performance of practice activities or competence.			
	Competency 7: Communicates actively and attentively Competency 10: Engages in collaborative practice within defined teams	7.1 Presents information clearly, coherently, concisely and logically 10.2 Works towards shared goals while respecting individual roles and responsibilities	Practice activity 1: Establishing and maintaining public health governance mechanisms	Participating in governance mechanisms

Competency-based education is rooted in a blend of constructivist and behaviourist learning theories, emphasizing both learning through authentic tasks and behaviours that demonstrate learning. Educational approaches are guided by: Bloom's (1956) taxonomy of educational outcomes *(20)*; Anderson and Krathwohl's (2001) revision of those outcomes *(21)*; and the social sciences discourse around interprofessional education and collaborative practice. When used to guide learning activities, including reflective practice, this approach can harness the behavioural sciences through its focus on intended behavioural outcomes *(22)*.

When a public health lens is deliberately applied to the education outcomes of a learning programme, and oriented to employment requirements, competency-based outcomes frameworks provide a common language for educators, employers and regulatory organizations. In this framework, the EPHFs and the programmes and services required to operationalize them offer this public health lens, and the range of competency-based education outcomes are identified in relation to them. From these outcomes, the foundational knowledge, skills, attitudes and values can be identified.

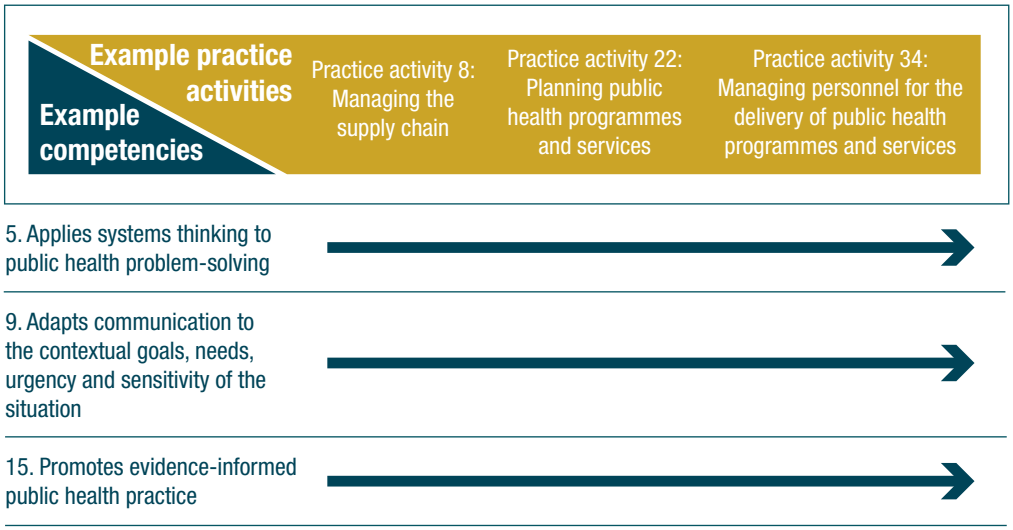
Education programmes must enable learners to develop the knowledge, skills, attitudes and values both to perform individual tasks of public health practice and to adapt and sequence those tasks, navigating the complexities of the context. It is the person's competencies that enable them to integrate and apply the interrelated knowledge, skills, attitudes and values to the practice activity at hand. Competence is therefore defined in terms of the performance of practice activities to the standard required for the context. This requires the individual to have the requisite competencies.

Public health practice is a blend of art and science. Simplistically, so too is competency-based education with its holistic focus on both the scientific basis of public health approaches, defined in terms of practice activities, and the art of interpreting evidence for the context and integrating the ethics and values of public health. The provision of public health services cannot be automated; no two public health programmes – even those with the same goals or focus – are the same; the contexts differ, including the health needs of the populations, their priorities, the teams and the economic and cultural context. This means that individual health workers need to be able to perform the tasks required of their role in the provision of public health services, and they need the competencies to perform those tasks to the standard required for the context, such as decision-making, collaboration and effective communication.

Achieving competency-based education outcomes requires individual learners to integrate and apply the interrelated competencies outlined in Chapter 2 to ensure effective performance of the specified public health practice activities for the context. An individual may draw upon their competencies differently in different contexts and for the different practice activities outlined in Chapter 3; but all competencies have the potential to underpin effective performance of all practice activities. As such, the behaviours that demonstrate the competency in the context of practice activities represent the performance standard: what does systems-thinking or effective communication look like in the context of the specified practice activity? Competencies and practice activities are interpreted together, as illustrated in Fig. 4.

The theoretical competency model provides more than semantics: the development, acquisition and ultimately the integration and application of the different components of knowledge, skills, attitudes and values towards competency-based practice activities are learned differently, require different learning activities, and crucially are assessed differently. Further guidance on educational design and delivery are provided in Chapter 4.

Fig. 4. Examples of the interconnections between competencies and practice activities



1.4 Pathways between education and employment, and implications for educational design and delivery

Competency-based education has its origins in technical and vocational education since the 1950s and 1960s, encompassing many programmes for occupations allied to the health sector. It has also been a prominent focus of educational reform over the last 30 years in the health sector, for both health and care workers, and for core public health personnel, upon which this work aims to build. The Lancet Commission report of 2010 and its follow-up paper in 2022 on health professional education *(23,24)* reiterated the call for a competency-based approach to curricula that is rooted in health and health system needs, but noted that progress towards implementation is variable. This is important across pre-service, in-service and specialization education programmes.

Education-to-employment pathways are not always linear: individuals may alternate between education and employment many times as they upskill and develop competence in increasing, evolving or new practice activities; others engage in education while in employment. To establish the strongest education-to-employment pathways, it is necessary to align the goals and objectives of education and workforce systems so that learners can experience a seamless transition between what they learn in formal education programmes and what they need to succeed in the workplace and to improve public health. However, this education-to-employment alignment is variable for the public health workforce. Graduates of specialist academic public health programmes go into a range of professions, and many public health sector employees lack a public health background *(25–27)*. Yet for core public health personnel there is wide acknowledgement that formal academic education in public health or related subjects does not provide a direct pathway to employment within public health *(28).*

For health and care workers, pre-service education pathways tend to focus on the provision of individual health services, even for graduates who go on to have responsibilities across both individual and population health. On-the-job learning and formal short courses across the lifelong learning continuum are essential to address this divide, and to keep the workforce flexible and responsive to evolving public health needs and evolving roles and responsibilities. Finally, there is a challenge in naming and narrative: not all the occupational groups identified in Fig. 2 as part of the public health workforce self-identify as such.

The goal of some formal learning programmes is competence (such as pre-service clinical practitioner training for a licence to provide individual health services) but in other programmes the goal is explicitly a milestone towards competence. For example, many master's degree programmes in public health provide broad foundational knowledge as a basis for later specialization and experience towards competence through employment. Similarly, experience does not necessarily provide the technical and scientific knowledge that is essential for competence, nor is technical knowledge alone (without practical experience in the context) enough for knowledge application to be successful.

Considering all these factors, pathways in public health from formal education programmes to employment may need to be oriented to the EPHFs that meet population health needs. This involves defining competence for the practice activities for the roles and responsibilities, or the milestone for the education outcomes, and then working backwards to identify the knowledge, skills, attitudes and competencies – rather than starting from the premise of the essential knowledge to be imparted. This approach can be utilized across the lifelong learning continuum (pre-service, in-service and specialization).

There are calls for professionalization of the public health workforce, with regulated entry points *(29)*, often referring to core public health personnel only, rather than the range of groups that contribute to the EPHFs, illustrated in Fig. 2. The framework presented here is not intended as advocacy for the professionalization of specific groups. Rather it seeks to identify the breadth of practice activities necessary to fully operationalize the EPHFs. This relates to the public health workforce as a whole and positions these practice activities as the basis for developing education programmes to develop the necessary competencies, knowledge, skills and attitudes to effectively deliver these work responsibilities, towards public health goals.

The terms EPHFs, competencies, job tasks, certification and licensing are not always clearly distinguished *(30)*. Where the EPHFs are provided by the workforce as a whole, it is the individual practice activities that are both the units of work and the units of licensing for practice. An individual cannot be licensed for a competency: rather, the competencies are the performance standards for the practice activities. Milestones on the learning journey can be the subject of certification.

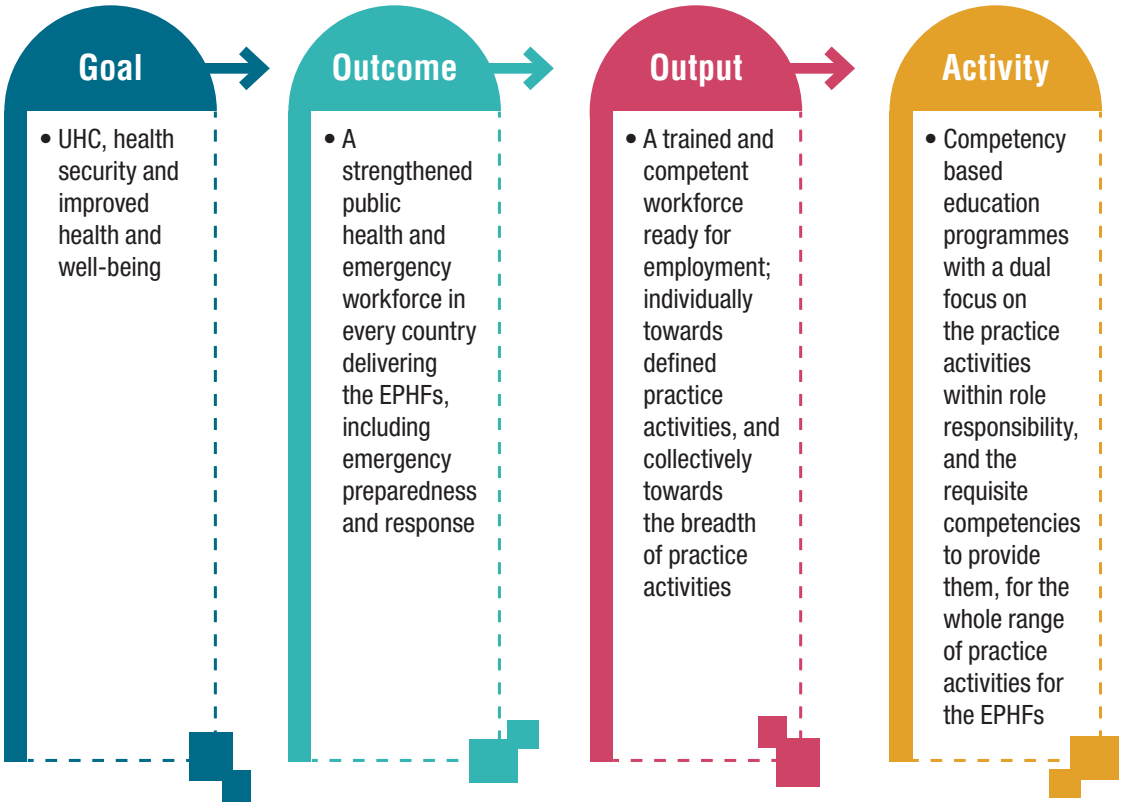
1.5 About this framework

This framework is intended to guide the strengthening of competency-based education programmes oriented to practice activities within role responsibility, which can contribute to overall public health workforce strengthening alongside efforts to create employment that values this training and provision of the resources, support and supervision in practice. Fig. 5 describes the framework's goal, outcome, output and activity.

A global Technical Advisory Group for competency-based education was convened to guide the development of this framework and provide technical advice on the content, organization and language used, under the oversight of the PHEWF Roadmap Steering Committee (Annex 1 and 2). This framework was developed between November 2022 and June 2023 through a combination of task analysis for the EPHFs, content analysis from existing competency-based frameworks and curricula, iterative drafting and with wide expert consultation. Annex 3 provides further detail about the methods, and Annex 4 outlines the scoping review search strategy and library of frameworks.

The primary audience of the framework are educators and education institutions providing education and training of the public health workforce, across the lifelong learning continuum, and employers and regulators of the public health workforce. However, the framework is also an important reference for anyone with an interest in the education of the public health workforce, including learners and practitioners themselves.

Fig. 5. Log frame from competency-based education to UHC, health security and improved health and well-being



Aim 1

Bring together and build on existing frameworks and resources to strengthen education programmes through the lens of a common conceptual model for competency-based education

More than 100 existing competency frameworks and curricula guides were identified during the development of this framework, each relating to a subset of occupational groups, EPHFs or specific practice contexts. These are listed in Annex 5.

Collectively, these frameworks incorporate a wide range of terminologies, levels of detail and conceptual models, which can be a barrier to implementation for educators and others seeking to interpret content from multiple sources. Individually they provide a specific angle or aspect of competence; and some are focused on the contents of learning rather than the orientation to employment.

Content of the frameworks identified as competencies relates to a range of education outcomes within public health and emergencies, from tasks or activities, behaviours (sometimes referred to as "soft skills" and cross-cutting abilities) and knowledge. Content analysis also identified an array of other elements that cannot be learned or assessed in a learning programme, including assigned thoughts or feelings, or the impact of the person's actions on improving public health.

This framework is the first to cover all aspects of public health as defined by the EPHFs. Further, through interpreting content from existing works that define competency sets using a consistent competency model orienting education to employment, this framework offers clarity in language, terminology and the design and development of competence-oriented education programmes.

Aim 2

Define the practice activities required to deliver the 12 globally defined EPHFs encompassing the breadth of the public health workforce

The EPHFs are comprehensive, interrelated and multifaceted, and require input from the whole range of the public health workforce, as well as systems enablers, resources and policy underpinned by the ethics and values of public health. Delivery of the EPHFs requires a workforce with the requisite knowledge, skills, attitudes, values and competencies for the context.

This competency and outcomes framework identifies the practice activities needed for delivery of the EPHFs, to be further contextualized within public health priorities, services, interventions and geographical, cultural and economic considerations (and the competencies of the individual to provide them). The practice activities and EPHFs are both one to many and many to one. This framework provides the first step towards operationalizing the EPHFs through defining the many practice activities necessary to operationalize the EPHFs. Each practice activity contributes to the modular approach, enabling the relevant education outcomes to be defined. Illustrative profiles accompanying the practice activities highlight the intersectoral nature of the provision of these practice activities.

Aim 3

Provide a modular, foundational tool to adapt and adopt and to guide the strengthening of competency-based education approaches, combining the art and the science of public health, and linking academic and technical skills with the competencies needed to deliver the EPHFs

Operationalizing the EPHFs requires the whole range of occupations within the public health workforce. Not all members of the workforce need to have an identical skillset or level of mastery at the same time; nor is that desirable. Instead, a wide range of skills is necessary across the workforce, with the skillsets and systems to collaborate in delivering trusted public health services.

In order to align education-to-employment pathways it is first necessary to define the role responsibilities in practice, which will vary by occupational group and context, and to identify the education needed for individual learners to develop competence. This will depend on whether the education programme is for in-service learning for workers already in employment, or for pre-service or entry qualification, oriented to a milestone on the learning journey to competence and the learner's starting point. This framework therefore offers guidance on the principles for competency-based education design, and a menu of practice activities for the whole workforce. It must be adapted and adopted to both public health priorities and the envisioned role responsibilities of learners. It is not a framework for a single education programme, but rather for the wide range of complementary educational offerings for the whole public health workforce.

This framework is rooted in a behavioural conceptual model that, by definition, adopts a holistic approach to competence, with a dual emphasis on the practice activities to be provided and the competencies of the person providing them. The framework is oriented to practice activities for delivering the EPHFs, defined at a high level and requiring contextualization. Illustrative profiles are provided to guide this contextualization.

Aim 4

Guide a consistent and concerted effort to align education programmes with employment throughout the lifelong learning continuum (pre-service, in-service and specialization education) towards the delivery of the EPHFs

Competency-based education approaches to educational design and delivery throughout the lifelong learning continuum are highly effective. Some formal education programmes are designed to lead to competence (proficiency to perform practice activities) while others are oriented to a milestone towards competence. In competency-based education programme design focuses on the outcomes to be achieved: curricula must be designed and delivered to provide learning oriented to performance. Knowledge-focused instruction alone does not improve public health; only when knowledge is oriented to application in practice, alongside skills, attitudes, values and competencies, can improvements in public health be realized.

Work experience alone does not necessarily provide the requisite technical knowledge, yet competence for the wide range of roles needed to achieve the EPHFs requires technical public health knowledge, as outlined throughout this framework, as well as the competencies to remain adaptive, agile and fit for purpose to meet diverse, ongoing and future public health challenges.

Following competency-based educational design principles, this approach starts with the contextualized programmes and services that operationalize the EPHFs to meet population health needs; then defines competence of practice activities; and then, working backwards, identifies the necessary knowledge, skills, attitudes and competencies, rather than starting from the premise of essential knowledge to impart. This approach is further outlined in Table 3.

Table 3. A stepwise approach to using this framework to strengthen competency-based education programmes

Actors	Steps	Resources
Outside the provision of education[2]	Identify population health needs and threats to public health Identify the needs, gaps and priorities for the EPHFs, including for subfunctions, public health services and system enablers Plan public health service delivery towards operationalizing the EPHFs, including by: national, subnational or local government; the private sector; tertiary, secondary or primary health care; district health departments; and allied sectors Map and measure the workforce for the delivery of the EPHFs Plan the scope of practice, role responsibilities and settings for service delivery, for different occupational groups, to delivery of the EPHFs Create jobs and pathways to employment	Essential public health functions: a guide to map and measure national workforce capacity *(31)* Defining essential public health functions and services to strengthen national workforce capacity *(3)*

Continued on next page

2 Actors outside the provision of education include others in the health sector, workforce planning, employers, ministries and research institutions, including universities.

Actors	Steps	Resources
Education	Define competency-based education outcomes • What are the practice activities towards the EPHFs within which the learner will have responsibilities? • What specifications need to be added for the certification of the practice activity? — What subset of tasks will be within responsibility? — What context(s) will they be working in (which communities, named services, programmes or public health priorities; named tools or technologies; teams or levels of supervision; language or other specificities) • What kinds of competencies are required to perform the contextualized practice activities? — What are the behaviours that demonstrate those competencies? — What are the behavioural indicators? • What milestone on the journey to competence does this learning programme represent?	Chapter 2. Competencies of the public health workforce Chapter 3. Practice activities to deliver the EPHFs
	Curricula design, delivery and evaluation • What knowledge, skills, attitudes and values are necessary for the competency-based education outcomes? • What is the learner's starting point: what prior knowledge, skills, attitudes, values and experience relevant to the competency-based education do they have? What then are the learner's needs? • How will the learning journey be sequenced? • What is the local context? • What learning activities are needed and appropriate? • What assessment formats will be used? What evidence is needed to demonstrate achievement of learning and application to practice? • How will the learning and assessment be delivered? • What resources and assets are needed and available for implementation? • What is the training plan for facilitators? • What barriers or resistance are anticipated? • Who are the learners and what is the demand for the learning? How can demand be generated? • What are the regulatory or institutional requirements? • How will monitoring and evaluation help document implementation of activities, support accountability and contribute to learning and adjustment?	Chapter 2. Competencies of the public health workforce Chapter 3. Practice activities to deliver the EPHFs Chapter 4. Contextualizing the framework to inform the design and delivery of competency-based education programmes

2. Competencies of the public health workforce

Summary

- Competencies are a person's ability to integrate and apply the relevant knowledge, skills, attitudes and values, demonstrated through behaviours, to the performance of practice activities to the standard required for the context.
- This framework identifies 20 interrelated competencies essential for effective public health practice, organized around six domains: community-centredness, decision-making, communication, collaboration, evidence-informed practice and personal conduct, forming a theoretical framework for describing good practice.
- Applying these competencies to daily work contributes to the effectiveness and impact of every individual's decisions, interactions and daily practice on the collective public health.
- These competencies are relevant to the breadth of the EPHFs and to the three groups that comprise the public health workforce: core public health personnel, health and care workers and occupations allied to health.
- Each competency is demonstrated in practice by behaviours. In this framework, several behaviours are identified that signpost the nuances of each competency. Additional behaviours are also identified for leadership.
- The way in which these behaviours are demonstrated in practice will vary between individuals, according to their role responsibilities and the context. For example, all effective public health practice should be rooted in evidence: some health workers will follow evidence-based guidelines or protocols, where others will be involved in evidence-informed policy decision-making.
- Specific behavioural indicators must be elaborated to contextualize the competencies for different practice activities and contexts, to inform education and/or practice standards.
- Competency-based curricula should be rooted in the development of the competencies from this framework, learned and assessed in the context of relevant work tasks, and supplemented with the specific knowledge, skills, attitudes and values relating to the practice activity within role responsibility.
- A focus on the development of competencies harnesses behavioural sciences in educational design. While technical knowledge and skills may need to be updated as practice standards and role responsibilities change, competencies continue to develop through the life course and through practice. Competencies enable individuals to respond, evolve, reflect, learn and contribute to a flexible, resilient, trusted and future-proofed workforce.

2.1 Introduction

Effective public health practice requires competent public health workers, working in a system with decent employment, resources, support and supervision. Competence is defined as the ability to perform the specified practice activities for role responsibility, to the defined standard and level of autonomy. This equates to having the requisite competencies to perform the practice activities for this standard, for the context.

Competencies, demonstrated through behaviours, include interrelated abilities, such as effective communication, learning to learn, problem-solving and collaborative practice. These competencies are relevant across public health practice, and across the public health workforce. Indeed, many competencies are developed through life experience and outside of formal education programmes; but harnessing and further developing these competencies – and the foundational knowledge, skills, attitudes and values that drive them – are essential preparation for practice.

The development of competencies in educational design harnesses the latest thinking in behavioural sciences, with a focus on the transfer of learning to practice and the desired behaviours. While technical knowledge and skills may need to be updated as practice standards and role responsibilities change, competencies enable individuals to respond, evolve, reflect, learn and contribute to a flexible, resilient and future-proofed workforce.

2.2 Competencies and behaviours of individual public health workers to deliver the EPHFs

This framework identifies 20 interrelated competencies essential for effective public health practice, organized around six domains: community-centredness, decision-making, communication, collaboration, evidence-informed practice and personal conduct. Together they form a theoretical framework for describing good practice relevant to all the EPHFs and the whole public health workforce: core public health personnel, health and care workers and occupations allied to health. Many competencies are also individually applicable beyond public health: this framework identifies the range of behaviours that embody these competencies in the provision of high-quality public health services involved in the delivery of the EPHFs.

The extent to which individual health workers draw upon their competencies varies according to the practice activities within their role responsibilities and the context. For example, each member of the workforce must be able to make decisions effectively at different levels, whether conducting a survey guided by a decision-making aid, or making ethically challenging decisions about the prioritization of resources. In these situations, although all health workers need to make effective decisions, the process of that decision-making, and level of responsibility and impact of those decisions, vary greatly between contexts.

2.3 Additional behaviours for public health leadership

There is growing consensus, accentuated by the lessons from the COVID-19 pandemic, about the importance of leadership in public health, at every level of the system, for effective functioning. Leadership is not limited to those in powerful executive positions *(32)* but can be demonstrated by all individuals at any stage of their career.

Leadership can be learned, taught and evaluated. It is influenced by one's professional ambition, engagement, experience, environment, opportunities and challenges in both professional and personal spheres *(33)*. While management focuses on controlling entities to achieve goals, leadership involves influencing, motivating and enabling others to act. Leaders are distinguished by their ability to inspire and influence, rather than merely exercising power and control *(34)*. Not everyone aspires to executive power, but anyone may be called upon to lead at some point *(33)*. Simplistically, managers manage tasks, and leaders manage people.

Within this framework, all competencies are equally applicable to the wider workforce as well as leaders. However, the behaviours that demonstrate leadership differ, and include creating conditions that enable others to develop and demonstrate their competencies.

2.4 Competencies of public health workers: an overview

The 20 competencies organized into six domains listed below are interrelated and interdependent.

Competency domain I: Community-centredness

Competencies rooted in community-centred approaches to public health that promote equity, increase people's control over their health and lives and mobilize community assets.

1. Promotes health equity among individuals and communities
2. Enables people to increase control over, and to improve, their health and lives
3. Fosters inclusive and participatory approaches to public health that embrace cultural diversity and inclusion

Competency domain II: Decision-making

Competencies relating to the approach to individual decision-making in daily practice, and contribution to collective decision-making mechanisms, that embody the ethics and values of public health.

4. Takes an evidence-informed approach to decision-making
5. Applies systems thinking to public health problem-solving
6. Adapts to unexpected or rapidly changing situations

Competency domain III: Communication

Competencies relating to an individual's interactions with individuals, communities, partners and others, and their individual contributions to public health goals.

8 Communicates actively and attentively

9 Conveys information purposefully, including through trusted sources and key partners

10 Adapts communication to the contextual goals, needs, urgency and sensitivity of the situation

Competency domain IV: Collaboration

Competencies relating to the public health approaches rooted in diplomatic collaborations with communities and stakeholders across sectoral and geographical boundaries, as part of whole-of-society and whole-of-government approaches.

11 Engages in collaborative practice within and between defined teams

12 Engages in collaborative practice within partnerships and coalitions

13 Learns from, with and about others

14 Constructively manages tensions, conflicts, resistance and opposition

Competency domain V: Evidence-informed practice

Competencies relating to the generation and application of evidence to public health practice.

15 Assesses data, information and evidence from a range of sources

16 Promotes evidence-informed public health practice

17 Contributes to continuous quality improvement

Competency domain VI: Personal conduct

Competencies relating to self-governed behaviours.

18 Works within the limits of competence and role responsibilities

19 Demonstrates high standards of ethical conduct

20 Engages in lifelong learning

21 Adopts strategies to manage one's own health and well-being

The domains, competencies and their associated behaviours are described in more detail in sections 2.5–2.10. Additional behaviours for public health leadership are denoted in italics and labelled with (L).

2.5 Competency domain I: Community-centredness

A community-centred approach to public health practice is oriented to community engagement and social participation that aims to promote equity, increase people's control over their health and lives and mobilize community assets *(35)*, including knowledge, skills and lived experience, social networks, civil society groups and community organizations. Community-centred approaches include both bottom-up, voluntary community actions and activities, and top-down strategies that are informed by, and responsive too, the community concerned *(36)*. At its core, competencies in community-centredness aims to build an environment where well informed citizens can take decisions and responsibilities regarding their own health, and to enhance community capacity and engagement in public health planning, service design and delivery, and emergency preparedness and response.

Competency 1: Promotes health equity among individuals and communities	
Behaviours	1.1 Contributes to the systematic identification and elimination of inequities resulting from differences in conditions for health
	1.2 Works to address unequal conditions experienced by groups, including the wider determinants of health and inequity[3]
	1.3 Advocates for public health decision-making, planning and action that prioritizes the most vulnerable groups and addresses the greatest health inequities
	1.4 Practises social accountability[4]
Competency 2: Enables people to increase control over, and to improve, their health and lives	
Behaviours	2.1 Strives to mobilize, and enhance the effectiveness of, community assets
	2.2 Participates in mechanisms for community collaboration and social mobilization
	2.3 Promotes the principles of community collaboration, social mobilization, co-design, co-delivery and co-decision-making
	2.4 *Promotes social infrastructure for community participation, including the development of community leaders (L)*
	2.5 *Facilitates the inclusion of women, youths and other often excluded voices in participatory approaches to public health (L)*
	2.6 *Motivates others to take ownership of the public health mission (L)*
Competency 3: Fosters inclusive and participatory approaches to public health that embrace cultural diversity and inclusion	
Behaviours	3.1 Promotes participation of affected individuals and communities, and cultural safety in public health practice
	3.2 Demonstrates respect for the autonomy, goals, perspectives, preferences, priorities, rights and values of all people
	3.3 Adopts an approach to engagement that is inclusive, non-discriminatory, non-judgmental and non-stigmatizing
	3.4 Seeks to mitigate the impact of individual beliefs, biases, emotional responses and values on decisions, actions and communication
	3.5 Champions a culture of zero tolerance for racism, discrimination and stigma
	3.6 Takes positive action to avoid and dispel abuse, harassment and other disruptive behaviours

3 The determinants of health may be structural (rooted in key institutions and processes of the socioeconomic and political context) or intermediary (material circumstances; psychosocial circumstances; behavioural and/or biological factors; and the health system itself). There is no fixed list of those determinants, but they are broadly taken to include: behavioural, commercial, cultural, economic, environmental, political and social determinants *(87)*.

4 Social accountability of individuals is a commitment to respond as well as possible to the priority health needs of the community, region and/or nation that they are mandated to serve (adapted from *(88,89)*).

2.6 Competency domain II: Decision-making

All members of the public health workforce make decisions daily that impact on and contribute to the goals of public health. Individual decisions about their practice affect communication, evidence interpretation, approach to practice and community engagement, all while adapting to the specific context. These decisions have various impacts within the public health ecosystem, for example, an impact on the experience and engagement of individuals and communities, the effectiveness of collaborative practices, the use and stewardship of scarce resources, and the approach to collective decisions about programmes, interventions and systems oriented to specific contexts and health goals. Decision-making, whether at the individual or the collective level, should embody the ethics and values of public health.

Competency 4: Takes an evidence-informed approach to decision-making	
Behaviours	4.1 Seeks feedback, information and evidence from a range of sources and stakeholders when approaching decision-making
	4.2 *Demonstrates critical thinking to reach decisions that are well reasoned, ethical, evidence-informed, feasible, timely and based on the best available information (L)*
	4.3 *Navigates evidence gaps, ethical situations and influences from external factors such as political drivers, misinformation and media campaigns, in decision-making (L)*
Competency 5: Applies systems thinking to public health problem-solving	
Behaviours	5.1 Takes initiative to identify and anticipate problems and opportunities
	5.2 Anticipates the health and intersectional consequences of decisions, actions and inaction
	5.3 Focuses on solutions, end goals and results
	5.4 *Engages with problems and problem-solving from many different viewpoints (L)*
	5.5 *Promotes positive relationships with and between humans, animals and environments, and between the ecosystem partners and sectors that affect public health (L)*
	5.6 *Identifies opportunities for growth, innovation, change and redirection towards improved conditions for population health and equity (L)*
Competency 6: Adapts to unexpected or rapidly changing situations	
Behaviours	6.1 Maintains situational awareness
	6.2 Adjusts priorities to respond to changing situations and demands
	6.3 Demonstrates flexibility and patience
	6.4 Demonstrates calmness, respect and kindness under pressure
	6.5 *Adopts agile thinking characterized by flexibility, adaptability, iterative problem-solving and responsiveness to change (L)*
	6.6 *Adapts the approach to decision-making to reflect the complexity, urgency, availability or absence of information and consequences of the decision (L)*

2.7 Competency domain III: Communication

Communication is fundamental to the daily activities undertaken by individual members of the public health workforce. Communication can take various forms: it may be direct or indirect, and may utilize written, visual, verbal or non-verbal approaches and digital tools. The competencies within this domain are focused on facilitating effective and impactful communication in individual work, inclusive of interactions with colleagues and a range of stakeholders, including governments, associations, institutions and schools of public health, civil society groups, communities' and development partners' emergency operations centres, and media outlets; or for public health communication tasks, such as behavioural change communication and public health campaigns.

Competency 7: Communicates actively and attentively	
Behaviours	7.1 Presents information clearly, coherently, concisely and logically
	7.2 Listens actively, using a range of non-verbal cues and verbal affirmations
	7.3 Clarifies understanding of information from other people
	7.4 Responds sensitively and thoughtfully to others
	7.5 Works to overcome communication barriers, including those due to cognitive, physical or sensory impairment, culture, geography or language
	7.6 *Facilitates meaningful dialogue among communities, partners and other stakeholders, including across sectors (L)*
	7.7 *Promotes inclusive communications by creating opportunities for others to express their views and insights, including those without positions of power (L)*
Competency 8: Conveys information purposefully, including through trusted platforms and key partners	
Behaviours	8.1 Provides timely, relevant, accurate and complete information
	8.2 Adopts strategies that encourage common understanding of information and decisions
	8.3 Expresses professional perspectives with clarity, confidence and respect, based on the best available evidence
	8.4 Engages with trusted platforms and key partners in disseminating communication messages to achieve common communication goals
	8.5 *Advocates for communication mechanisms that engage communities and key partners (L)*
Competency 9: Adapts communication to the contextual goals, needs, urgency and sensitivity of the situation	
Behaviours	9.1 Clarifies with others the intended audience, goals and timelines for communications
	9.2 Adapts the style, language and methods of communication to the audience and context, considering needs, urgency, confidentiality and sensitivity
	9.3 Uses a range of communication tools, technologies and approaches to inform, persuade, influence, negotiate and mediate
	9.4 Demonstrates compassion, cultural sensitivity, empathy and respect for all people[5] (e.g. using gender-inclusive language that does not reinforce stereotypes)

5 "All people" signifies irrespective of age, asylum or migration status, criminal record, culture, disability, economic status, ethnicity, gender identity and expression, health literacy, health status, language, nationality, ethnicity, Indigeneity, religion, sex, sexual orientation, treatment adherence, vulnerability to ill-health and other characteristics.

2.8 Competency domain IV: Collaboration

Public health challenges are inherently dynamic, transcending intersectoral, intrasectoral and even national boundaries, and necessitating collective action across sectors, organizations and communities. In the face of complex health issues, collaboration is a cornerstone for effective action. At the heart of public health values lies the fundamental principle of community collaboration and mobilization. Collaboration in public health must be standard practice, recognizing that no single member of the public health workforce can manage the complexities of public health. Mobilizing and collaborating with other individuals, communities and interest groups is vital for the effective implementation of public health actions, as part of a whole-of-society approach. By fostering these collaborations, individual workers can effectively address the multifaceted nature of public health and work collectively to improve population health outcomes. Collaboration also enables avoidance of duplication of services in a given community, and the incorporation of public health orientation into wider work that affects public health. By harnessing the strengths of diverse stakeholders, collaborative efforts can create comprehensive strategies that address the complex nature of public health challenges. In essence, collaboration is not just an option but a necessity: the pursuit of a healthier society requires collective commitment and coordinated efforts by everyone.

	Competency 10: Engages in collaborative practice within and between defined teams[6]
Behaviours	10.1 Engages in opportunities to improve collaboration within and between teams
	10.2 Works towards shared goals while respecting individual roles and responsibilities
	10.3 Supports team decisions even when personal preferences differ
	10.4 Jointly distributes roles and responsibilities to maximize strengths within a team
	10.5 Takes accountability for individual contributions to the team's work
	10.6 *Creates opportunities for team listening, dialoguing, negotiating, rewarding, encouraging and motivating (L)*
	Competency 11: Engages in collaborative practice within partnerships and coalitions[7]
Behaviours	11.1 Engages with others as partners across cultural, geographical, hierarchical, organizational, religious and sectoral boundaries
	11.2 Fosters transparent, constructive, collaborative and mutually accountable working relationships with others
	11.3 Strives to develop positive rapport with others, characterized by respect, humility, inclusivity, support and trust
	11.4 Seeks to establish a shared mission, vision and purpose, and trusting relationships (L)
	11.5 *Builds and maintains meaningful interprofessional, interdisciplinary and intersectoral collaborations and partnerships (L)*

Competency 12: Learns from, with and about others	
Behaviours	12.1 Shares perspectives on and promotes insights into public health issues, challenges and potential solutions
	12.2 Listens to others' experiences, perspectives, values and with openness and curiosity
	12.3 Seeks and provides constructive, sensitive and timely feedback, support and advice
	12.4 *Fosters an environment of shared learning within and across teams, stakeholders, partnerships and communities (L)*
	12.5 *Fosters a culture of co-design, co-creation, co-implementation and participatory evaluation with communities (L)*
	12.6 *Builds communities of practice among those with shared roles and interests (L)*
Competency 13: Constructively manages tensions, conflicts, resistance and opposition	
Behaviours	13.1 Anticipates, identifies and acts upon tensions or potential areas of conflict in a calm and non-judgemental manner
	13.2 Focuses on the sources of tensions rather than resultant conflicts
	13.3 Supports a blame-free environment in which one is safe to question and seek support and guidance
	13.4 Considers different perspectives when seeking compromise, consensus or a decision
	13.5 *Mediates between different interests, and seeks solutions that are accepted by others where possible (L)*

6 Teams, whether from a single organization or community or across multiple and intersectoral organizations and communities, share a common goal, and usually share accountability.

7 Partnerships and coalitions may comprise individuals, governments, communities and other interested entities. They have vested interests in an outcome, but are not necessarily part of a team with accountability for achieving that outcome.

2.9 Competency domain V: Evidence-informed practice

Leveraging evidence is crucial for improving the effectiveness, efficiency and equity of public health interventions *(37)*. Evidence may come from research, interpreted for the context alongside considerations of other factors such as context, public opinion, equity, feasibility of implementation, affordability, sustainability and stakeholder acceptance Evidence can be broadly categorized as scientific, tacit, global or local *(37)*. This may underpin public health practice through following evidence-based protocols, contributing to generating new evidence, or championing evidence-to-practice translation. By collectively using evidence-based guidelines and engaging in evidence-informed decision-making, public health interventions and policies can be more impactful and responsive to the needs of the population.

Competency 14: Assesses data, information and evidence from a range of sources	
Behaviours	14.1 Seeks data, information, scientific evidence and other types of evidence from a range of contexts and from reliable and appropriate sources
	14.2 Detects and corrects disinformation, misinformation and infodemics
	14.3 *Critically appraises scientific (un)certainty, ambiguities, assumptions, limitations, quality, relevance and significance of data, information and evidence (L)*
	14.4 *Balances values, needs, resources and evidence (L)*
Competency 15: Promotes evidence-informed public health practice	
Behaviours	15.1 Promotes transparency of data, information and evidence
	15.2 Participates in the generation, evaluation and application of evidence-based and experience-informed practice
	15.3 *Exemplifies the integration of best available evidence into practice (L)*
	15.4 *Champions evidence-informed decision-making in public health (L)*
Competency 16: Contributes to continuous quality improvement	
Behaviours	16.1 Adheres to protocols that reduce vulnerabilities and reduce or mitigate risks of adverse events, errors and incidents of harm and unsafe practice
	16.2 Learns, and shares learning about, what works and what has not gone well
	16.3 Unlearns redundant or superseded practices, including misplaced beliefs
	16.4 Suggests improvements to address identified problems
	16.5 Participates in quality measurement and continuous quality improvement
	16.6 Adopts a mindset of quality-consciousness
	16.7 *Creates expectations of and opportunities for using shared learning to improve quality (L)*

2.10 Competency domain VI: Personal conduct

Demonstrating high personal standards in public health practice is crucial for building trust, fostering positive relationships with others and contributing to ethical, effective and high-quality public health interventions. Members of the workforce should adhere to ethical principles, fulfil their role responsibilities, manage their own health and engage in lifelong learning.

	Competency 17: Works within the limits of competence and role responsibilities
Behaviours	17.1 Maintains awareness of one's own competence and role responsibilities
	17.2 Adheres to the duties, obligations and codes of conduct defined by occupational standards, community standards, crisis standards of care, ethical frameworks, legal regulations and organizational procedures
	17.3 Seeks appropriate evidence, guidance and technical support when encountering situations beyond one's competence or role responsibilities
	17.4 *Creates a safe environment and safeguards for others to abide by ethical standards and codes of conduct (L)*
	Competency 18: Demonstrates high standards of ethical conduct
Behaviours	18.1 Acts with honesty, integrity and transparency
	18.2 Seeks to address any negative impact of one's own attitudes, views and behaviours
	18.3 Upholds ethical principles in public health, including capacity, confidentiality, consent, absence of conflict of interests, duty of care, dignity and privacy
	18.4 Practices with zero tolerance for sexual exploitation, sexual abuse and sexual harassment
	18.5 *Motivates others to adhere to ethical standards of practice and a culture of ethics, integrity and responsibility (L)*
	Competency 19: Engages in lifelong learning
Behaviours	19.1 Approaches practice with humility, openness and curiosity
	19.2 Seeks and engages in continuous formal and non-formal learning linked to evolving contexts for practice and professional development
	19.3 Engages in self-learning and critical reflective practice
	19.4 Engages in, and acts on feedback received during, peer review, appraisals and performance evaluations
	19.5 *Adapts and adjusts one's own ideas and thoughts in the light of conflicting or emerging evidence and evolving population needs (L)*
	Competency 20: Adopts strategies to manage one's own health and well-being
Behaviours	20.1 Monitors one's own mental, physical and social health and well-being
	20.2 Uses a range of strategies to manage fatigue, ill health, stress and exposure to distressing and stressful and emergency situations
	20.3 Seeks help or support from others when needed for one's own health and well-being
	20.4 Engages in self-care practices that promote emotional resilience, health and well-being
	20.5 *Creates a culture of psychological safety in the workplace (L)*

3. Practice activities to deliver the EPHFs

Summary

- Practice activities are broad units of work that can be performed by individual members of the workforce that delivers the EPHFs, with specifications as to the context, level of supervision, health system and team.
- Delivering any of the EPHFs or their subfunctions requires a multisectoral workforce, with specialized skills and responsibilities for tasks across the range of practice activities.
- Practice activities guide the alignment of education programmes to employment: by orienting education to the tasks and contexts required for employment, and developing the necessary knowledge, skills, attitudes, values and competencies, learners will be better prepared to transition to employment, and to provide effective public health care.
- The practice activities in this framework are organized into five domains: the **systems** enablers for public health; **intelligence** about public health risks, threats and health status; public health **programmes and services**, and the **management** of those programmes and services; and **emergency management**. These domains provide a theoretical organizing framework for practice activities for the whole public health workforce.
- The performance of each practice activity requires the integration and application of the competencies, demonstrated through behaviours, outlined in Chapter 2. A holistic approach to competence is needed to focus on both the practice activities to be performed, and the competencies of the person performing them to the standard required by the context. Chapters 2 and 3 must therefore be interpreted together.
- The practice activities are not a service planning tool: rather, they offer guidance for policy authorities and planners to consider the skills and competencies of the whole workforce to carry out the range of practice activities, and for individual education institutions to consider which practice activities will fall within the responsibility of learners on course completion, as part of efforts to orient education to employment.
- The content of this chapter is high-level, generalizable and requires specification to the health priorities (or the goals of a programme or service), the role responsibility of the individual learner and the context of the practice (e.g. the tools and technologies, language, culture, supervision, teams and access to resources). The role responsibilities of one learner may be focused within a single practice activity, or may include tasks from several different practice activities.
- Each domain includes five to 10 practice activities, and each practice activity includes a range of tasks that may be performed by an individual towards that practice activity. A curricular guide, supported by illustrative profiles to select the relevant curricular content, is also provided for each practice activity. The content is neither exhaustive nor prescriptive: it is offered as guidance and as a starting point for defining the content required for curricula.
- Chapter 4 provides guidance for developing curricula for learning programmes oriented to practice activities for employment. When reviewing the content of this chapter, it should be borne in mind that some practice activities cannot be fully learned in formal education programmes, such as preparation for emergency settings. Education programmes may thus be oriented to competence to perform some practice activities, and oriented to a milestone on the learning journey for others.

3.1 Introduction

While the EPHFs describe the public health functions to be delivered by the public health workforce as a whole, it is individuals who deliver the interventions, actions, programmes and services required for those functions. The units of work provided by individual workforce members are described in this framework in terms of the practice activities, comprising groups of related tasks. Competence to perform these practice activities to the required standard for the context requires competencies, knowledge, skills, attitudes and values.

In the context of education-to-employment pathways, practice activities provide an organizing framework with two broad applications: describing roles and responsibilities for individual workforce members; and (re)designing competency-based curricula to enable the performance of those responsibilities, including the development of the competencies set out in Chapter 2. In terms of public health needs and priorities, a contextualized set of practice activities provides a common language between education and employment sectors regarding the skills and tasks for practice. Individuals may be certified or licensed to perform practice activities, with specified limitations for the context, public health services, tools and technologies.

3.2 Practice activities towards the EPHFs

This framework identifies 40 practice activities towards the delivery of the EPHFs, organized around into five domains: the **systems** building blocks for public health, such as workforce planning, physical infrastructure and quality management (practice activity domain I); **intelligence** about public health risks, threats and health status, from data collection, surveillance and monitoring through to dissemination and communication of that intelligence (practice activity domain II); public health **programmes and services**, informed by information about public health priorities, encompassing planning, stakeholder collaboration, delivery, monitoring, evaluation and continued quality improvement (practice activity domain III); the **management** of human, physical and financial resources for those programmes and services (practice activity domain IV); and **emergency management** across the spectrum of prevention, detection, response and recovery (practice activity domain V).

In the same way that the EPHFs are interrelated, so too are the practice activities: although they can be performed in isolation, practice activities must often to be delivered together to achieve the greatest impact on health and health equity. For example, establishing public health intelligence systems and collecting and inputting data are usually the responsibilities of different types of workers. Further, relationships between the EPHFs and their subfunctions, on one hand, and practice activities, on the other, can be either many-to-one or one-to-many, as illustrated in Table 4.

For each practice activity guide in this chapter, a task list is provided. Not all tasks will be (or should) be within the role responsibility of an individual, or the subject of the same education programme: they must be contextualized, as shown in Chapter 4. Tasks are not necessarily sequential and often happen concurrently. Further, the task list is not exhaustive but indicative: it is intended to illustrate the scope of the tasks within the practice activity.

The practice activities are not a service planning tool, but, once the public health interventions, services and programmes needed to deliver the EPHFs have been determined, they offer guidance. Policy authorities and planners can use the full list of practice activities to consider the skills and competencies of the whole workforce for the range of practice activities, and education institutions can use it to assess which practice activities should be within the role responsibility for learners upon course completion.

Of course, although broad in scope, these practice activities alone will not deliver the EPHFs: their full achievement requires many other inputs across numerous sectors. Examples include: constructing the buildings in which people can live, learn or access health services; and ensuring that all children (the future workforce) have access to high-quality primary and secondary education. However, for the purpose of this framework, we consider the practice activities that contribute directly to the EPHFs.

3.3 Curricular guides and illustrative profiles

Knowledge, skills, attitudes and values form the foundation necessary to perform the practice activities, together with the competencies to do so (see Fig. 3). A curricular guide for each practice activity is provided as a reference. These more or less universal guides to the knowledge and skills required to perform the specified tasks within practice activities may be supplemented by local knowledge in order to contextualize the framework.

During contextualization, learning objectives should be specified that incorporate measurable verbs reflecting the depth of knowledge. These learning objectives should align with learning and assessment formats. Further the detailed curricular content, should be identified and elaborated. Bloom's taxonomy of learning objectives *(38)* puts forward the widely accepted notion that learning can be categorized as either cognitive (mental skills; knowledge), affective (growth in feelings or emotional areas; attitudes and values) or psychomotor (manual or physical skills). While the task list, together with the tools and technologies to perform them, outlines the psychomotor skills, and the competencies guide the elaboration of attitudes and values, in this chapter, curricular guides are provided to accompany the practice activity tasks, focusing on the different areas of knowledge and skills that provide the necessary foundations.

Practice activities must be contextualized, not only to the context of the setting and the public health priorities, but also to the role responsibility of the individual, which may vary by role, sector and career stage. As described in Chapter 1 (Fig. 2), the three broad groups of the public health workforce are identified as: core public health personnel (group 1), health and care workers (group 2) and occupations allied to health (group 3). These three groups illustrate how the practice activity tasks may be contextualized. Take surveillance (practice activity 16) as an example: core public health personnel may be involved in interpreting surveillance data from multiple sources; health and care workers are involved in surveillance of health threats through humans; and occupations allied to health are involved in surveillance efforts relating to animals or agriculture. These profiles also illustrate the intersectoral collaboration necessary for each practice activity. For groups 1–3, a mid-career role is typified; thus, to illustrate the more specialized tasks, requiring substantial further training and/or executive role responsibilities, two further illustrative profiles are provided: that of a senior specialist and that of a member of a policy authority working at the systems level, who may be from any of groups 1–3.

Curricular design and development in competency-based education first considers what the worker is required to do in practice, and then identifies the knowledge, skills, attitudes, values and behaviours needed for those practice activities. Curricular guides should therefore be interpreted in relation to the illustrative profiles for that practice activity. So an illustrative profile may require specific knowledge for one practice activity, but not for another.

No individual is expected to have responsibilities across all the practice activities; indeed, some may have responsibilities for tasks within one practice activity only. Thus, when interpreting the content of this chapter, consider whether the practice activity is within a particular role responsibility, then use the illustrative profiles to guide the adaptation of the practice activity and curricular guide for that role responsibility. Instead, consider whether the practice activity is within a particular role responsibility, then use the illustrative profiles to guide the adaptation of the practice activity and curricular guide for that role responsibility.

In order to support the development of curricula, the framework sets out five elements for each practice activity.

- Public health impact statement: a brief description of the linkages with the delivery of the EPHFs.
- EPHF subfunctions: the subfunctions (listed in Chapter 1, Table 2) directly operationalized by the practice activity (Table 4). These are also mapped from subfunction to practice activity in Annex 6.
- Tasks: the range of tasks needed for the practice activity, for contextualization.
- Illustrative profiles: indicative tasks for the five illustrative profiles in Fig. 6.
- Curricular guide: key areas of knowledge and skills linked to the tasks within the illustrative profiles for the practice activity.

Chapter 4 provides further details about the principles of competency-based educational design and delivery.

Table 4. Interrelationships between the EPHFs and their subfunctions, and practice activities

		EPHF 1				EPHF 2					EPHF 3				EPHF 4				
	Practice activities (PA)	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	4.1	4.2	4.3	4.4	4.5
Domain I	PA 1: Establishing and maintaining public health governance mechanisms	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 2: Establishing and maintaining mechanisms for community engagement and social participation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 3: Setting public health strategies	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 4: Developing and operationalizing policy with public health impact	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 6: Optimizing resource allocations within multisectoral financing mechanisms	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 7: Optimizing the workforce for the delivery of the EPHFs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 8: Managing the supply chain						x	x	x			x			x			x	x
Domain I	PA 9: Quality assurance of public health infrastructure	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 10: Establishing and updating public health information and informatics systems	x	x	x	x	x	x	x	x	x		x	x	x	x			x	x
Domain I	PA 11: Establishing and updating public health intelligence systems	x	x	x	x	x	x	x	x	x		x		x				x	x
Domain II	PA 12: Planning investigations for public health	x	x	x	x	x	x		x	x			x					x	x
Domain II	PA 13: Designing and adapting instruments, tools and methods for data collection	x	x			x	x		x	x			x		x			x	x
Domain II	PA 14: Gathering qualitative and quantitative data for investigations for public health	x	x	x		x			x	x			x	x	x			x	x
Domain II	PA 15: Conducting risk assessments and emergency preparedness assessments			x		x	x		x	x									x
Domain II	PA 16: Maintaining continuous data surveillance and monitoring mechanisms		x	x		x			x	x			x						x
Domain II	PA 17: Conducting a rapid risk assessment			x		x	x		x	x									
Domain II	PA 18: Conducting a public health situation analysis			x		x	x	x	x	x									
Domain II	PA 19: Analysing and interpreting data, information and evidence			x		x	x		x	x			x		x			x	x
Domain II	PA 20: Communicating intelligence to decision-makers	x		x	x	x	x	x	x	x			x	x	x			x	x
Domain II	PA 21: Risk communication and community engagement				x	x	x	x	x	x			x	x	x			x	x
Domain III	PA 22: Planning public health programmes and services	x			x	x	x		x	x	x	x	x	x	x	x		x	x
Domain III	PA 23: Developing a stakeholder engagement strategy	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain III	PA 24: Collaborating with stakeholders	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain III	PA 25: Executing public health programmes and services	x			x	x	x	x	x	x	x		x	x	x	x		x	x
Domain III	PA 26: Advocacy for public health				x		x	x	x	x	x				x	x			
Domain III	PA 27: Providing information and resources to improve community health and well-being				x		x	x	x	x	x								
Domain III	PA 28: Developing and delivering public health campaigns				x		x	x	x	x	x			x					
Domain III	PA 29: Monitoring, evaluation and reporting	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain III	PA 30: Continuous quality improvement of programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 31: Managing financial resources for public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 32: Managing physical resources for public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 33: Managing public health infrastructure	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 34: Managing personnel for the delivery of public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 35: Providing education and training programmes for the public health workforce	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain V	PA 36: Planning for risk management and emergency management actions						x		x	x	x			x	x		x	x	
Domain V	PA 37: Implementing risk management and emergency preparedness actions						x	x		x	x			x					
Domain V	PA 38: Coordinating emergency response							x		x	x			x					
Domain V	PA 39: Providing health services as part of emergency response							x		x	x			x					
Domain V	PA 40: Coordinating service continuity and equitable recovery							x	x	x	x			x					

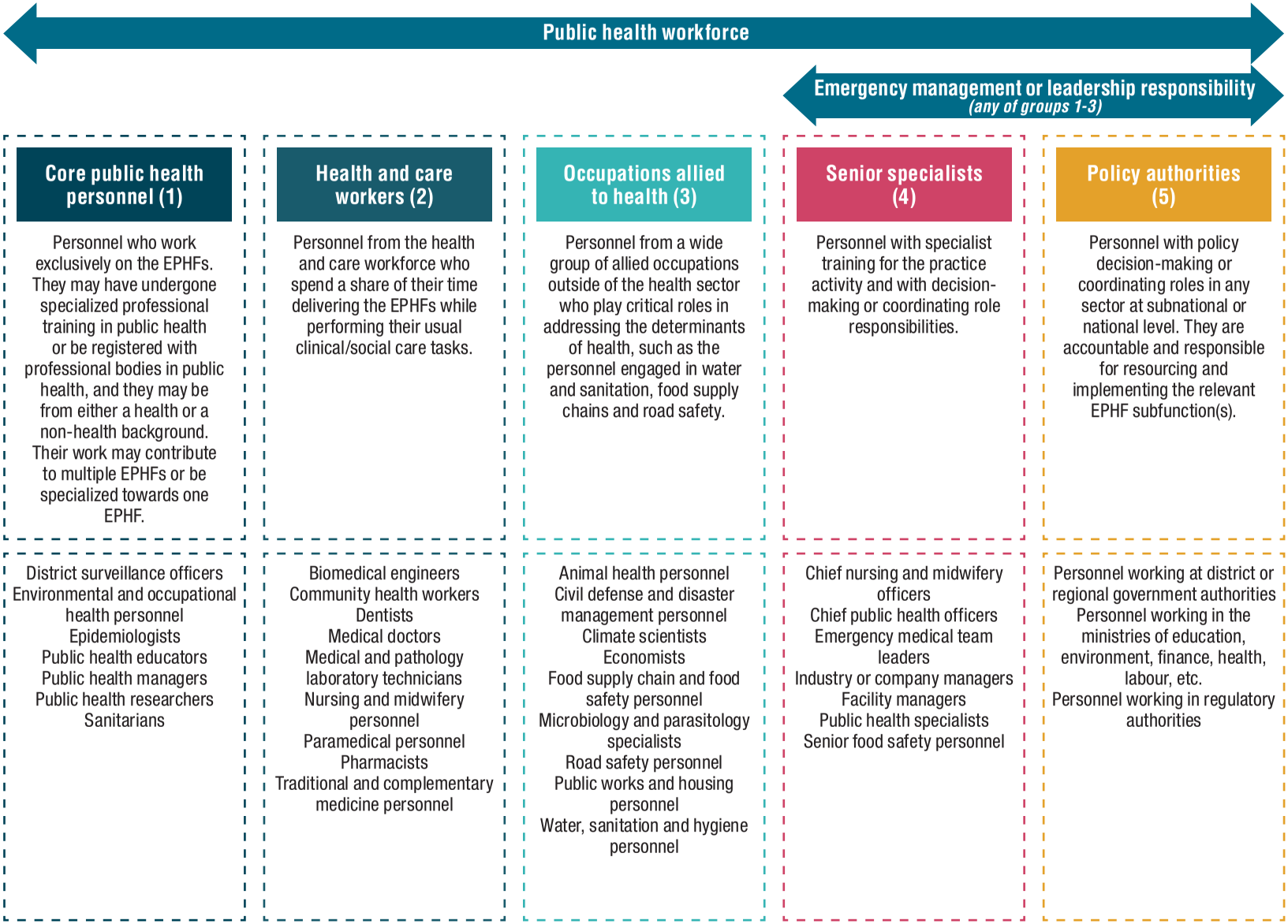
Table 4. Interrelationships between the EPHFs and their subfunctions, and practice activities, cont.

		EPHF 5			EPHF 6			EPHF 7				EPHF 8				
	Practice activities (PA)	5.1	5.2	5.3	6.1	6.2	6.3	7.1	7.2	7.3	7.4	8.1	8.2	8.3	8.4	8.5
Domain I	PA 1: Establishing and maintaining public health governance mechanisms	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 2: Establishing and maintaining mechanisms for community engagement and social participation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 3: Setting public health strategies				x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 4: Developing and operationalizing policy with public health impact	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 6: Optimizing resource allocations within multisectoral financing mechanisms	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 7: Optimizing the workforce for the delivery of the EPHFs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 8: Managing the supply chain			x	x			x								
Domain I	PA 9: Quality assurance of public health infrastructure	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 10: Establishing and updating public health information and informatics systems		x	x	x		x	x		x				x		
Domain I	PA 11: Establishing and updating public health intelligence systems		x	x	x		x	x		x				x		
Domain II	PA 12: Planning investigations for public health	x	x	x	x		x	x		x				x		
Domain II	PA 13: Designing and adapting instruments, tools and methods for data collection	x	x	x	x		x	x		x				x		
Domain II	PA 14: Gathering qualitative and quantitative data for investigations for public health	x	x	x	x		x	x		x				x		
Domain II	PA 15: Conducting risk assessments and emergency preparedness assessments		x													
Domain II	PA 16: Maintaining continuous data surveillance and monitoring mechanisms	x	x	x	x			x		x				x		
Domain II	PA 17: Conducting a rapid risk assessment		x				x									
Domain II	PA 18: Conducting a public health situation analysis		x	x												
Domain II	PA 19: Analysing and interpreting data, information and evidence	x	x	x	x		x	x		x				x		
Domain II	PA 20: Communicating intelligence to decision-makers	x	x	x	x		x	x		x				x		
Domain II	PA 21: Risk communication and community engagement	x	x	x	x		x	x		x	x		x	x	x	x
Domain III	PA 22: Planning public health programmes and services	x	x	x	x	x	x	x	x	x	x		x		x	x
Domain III	PA 23: Developing a stakeholder engagement strategy	x	x	x	x	x	x	x	x	x	x	x	x		x	x
Domain III	PA 24: Collaborating with stakeholders	x	x	x	x	x	x	x	x	x	x	x	x		x	x
Domain III	PA 25: Executing public health programmes and services	x	x	x	x	x	x	x	x		x				x	x
Domain III	PA 26: Advocacy for public health			x	x	x	x	x	x	x	x	x	x		x	x
Domain III	PA 27: Providing information and resources to improve community health and well-being		x	x	x	x	x	x	x	x	x		x		x	x
Domain III	PA 28: Developing and delivering public health campaigns		x	x	x	x	x	x	x		x		x		x	x
Domain III	PA 29: Monitoring, evaluation and reporting	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain III	PA 30: Continuous quality improvement of programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 31: Managing financial resources for public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 32: Managing physical resources for public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 33: Managing public health infrastructure	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 34: Managing personnel for the delivery of public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 35: Providing education and training programmes for the public health workforce	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain V	PA 36: Planning for risk management and emergency management actions		x	x	x	x		x	x	x			x		x	x
Domain V	PA 37: Implementing risk management and emergency preparedness actions		x	x	x	x		x	x				x		x	x
Domain V	PA 38: Coordinating emergency response		x	x	x	x									x	x
Domain V	PA 39: Providing health services as part of emergency response		x	x	x	x										x
Domain V	PA 40: Coordinating service continuity and equitable recovery		x	x								x	x		x	x

Table 4. Interrelationships between the EPHFs and their subfunctions, and practice activities, cont.

		EPHF 9			EPHF 10			EPHF 11				EPHF 12				
	Practice activities (PA)	**9.1**	**9.2**	**9.3**	**10.1**	**10.2**	**10.3**	**11.1**	**11.2**	**11.3**	**11.4**	**12.1**	**12.2**	**12.3**	**12.4**	**12.5**
Domain I	PA 1: Establishing and maintaining public health governance mechanisms	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 2: Establishing and maintaining mechanisms for community engagement and social participation	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 3: Setting public health strategies	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 4: Developing and operationalizing policy with public health impact	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 6: Optimizing resource allocations within multisectoral financing mechanisms	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 7: Optimizing the workforce for the delivery of the EPHFs	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 8: Managing the supply chain				x	x	x					x			x	x
Domain I	PA 9: Quality assurance of public health infrastructure	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain I	PA 10: Establishing and updating public health information and informatics systems	x	x		x	x	x	x	x		x				x	x
Domain I	PA 11: Establishing and updating public health intelligence systems	x	x		x	x	x	x	x		x				x	x
Domain II	PA 12: Planning investigations for public health	x	x		x	x			x	x	x			x	x	x
Domain II	PA 13: Designing and adapting instruments, tools and methods for data collection	x	x		x	x			x		x			x	x	x
Domain II	PA 14: Gathering qualitative and quantitative data for investigations for public health	x	x		x	x			x		x			x	x	x
Domain II	PA 15: Conducting risk assessments and emergency preparedness assessments	x							x		x					
Domain II	PA 16: Maintaining continuous data surveillance and monitoring mechanisms	x	x		x	x			x		x			x	x	x
Domain II	PA 17: Conducting a rapid risk assessment								x		x					
Domain II	PA 18: Conducting a public health situation analysis	x							x		x				x	
Domain II	PA 19: Analysing and interpreting data, information and evidence	x	x		x	x			x		x			x	x	x
Domain II	PA 20: Communicating intelligence to decision-makers	x	x		x	x			x		x			x	x	x
Domain II	PA 21: Risk communication and community engagement				x	x			x		x					
Domain III	PA 22: Planning public health programmes and services				x	x	x					x	x			
Domain III	PA 23: Developing a stakeholder engagement strategy	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain III	PA 24: Collaborating with stakeholders	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain III	PA 25: Executing public health programmes and services				x	x	x					x	x			
Domain III	PA 26: Advocacy for public health					x	x	x	x	x	x	x	x			
Domain III	PA 27: Providing information and resources to improve community health and well-being					x										
Domain III	PA 28: Developing and delivering public health campaigns					x										
Domain III	PA 29: Monitoring, evaluation and reporting	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain III	PA 30: Continuous quality improvement of programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 31: Managing financial resources for public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 32: Managing physical resources for public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 33: Managing public health infrastructure	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 34: Managing personnel for the delivery of public health programmes and services	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain IV	PA 35: Providing education and training programmes for the public health workforce	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Domain V	PA 36: Planning for risk management and emergency management actions	x	x		x	x	x								x	
Domain V	PA 37: Implementing risk management and emergency preparedness actions	x					x								x	
Domain V	PA 38: Coordinating emergency response						x								x	
Domain V	PA 39: Providing health services as part of emergency response						x								x	
Domain V	PA 40: Coordinating service continuity and equitable recovery				x	x	x								x	

Fig. 6. Illustrative profiles and examples of occupational groups, to guide the contextualization of practice activities



3.4 Practice activities to deliver the EPHFs: an overview

Practice activity domain I: Health system enablers for public health

1 Establishing and maintaining public health governance mechanisms

2 Establishing and maintaining mechanisms for community engagement and social participation

3 Setting public health strategies

4 Developing and operationalizing policy with public health impact

5 Developing and operationalizing legislative and regulatory frameworks with public health impact

6 Optimizing resource allocations within multisectoral financing mechanisms

7 Optimizing the workforce for the delivery of the EPHFs

8 Managing the supply chain

9 Quality assurance of public health infrastructure

10 Establishing and updating public health information and informatics systems

11 Establishing and updating public health intelligence systems

Practice activity domain II: Public health intelligence

12 Planning investigations for public health

13 Designing and adapting instruments, tools and methods for data collection

14 Gathering qualitative and quantitative data for investigations for public health

15 Conducting risk assessments and emergency preparedness assessments

16 Maintaining continuous data surveillance and monitoring mechanisms

17 Conducting a rapid risk assessment

18 Conducting a public health situation analysis

19 Analysing and interpreting data, information and evidence

20 Communicating intelligence to decision-makers

21 Risk communication and community engagement

Practice activity domain III: Public health programmes and services

22 Planning public health programmes and services

23 Developing a stakeholder engagement strategy

24 Collaborating with stakeholders

25 Executing public health programmes and services

26 Advocacy for public health

27 Providing information and resources to improve community health and well-being

28 Developing and delivering public health campaigns

29 Monitoring, evaluation and reporting

30 Continuous quality improvement of programmes and services

Practice activity domain IV: Management of resources for public health programmes and services

31 Managing financial resources for public health programmes and services

32 Managing physical resources for public health programmes and services

33 Managing public health infrastructure

34 Managing personnel for the delivery of public health programmes and services

35 Providing education and training programmes for the public health workforce

Practice activity domain V: Public health emergency management

36 Planning for risk management and emergency management actions

37 Implementing risk management and emergency preparedness actions

38 Coordinating emergency response

39 Providing health services as part of emergency response

40 Coordinating service continuity and equitable recovery

3.5 Practice activity domain I: Health system enablers for public health

Robust health systems, encompassing all organizations, individuals and actions dedicated to promoting, restoring or maintaining health *(39)*, are crucial for effective delivery of the EPHFs. Without strong health systems, the implementation and impact of the EPHFs in improving population health may be compromised. Delivery systems for public health programmes and services are situated within the broader contexts of national and local health systems *(40)*. Therefore, a well equipped and skilled health workforce is essential to ensure the robustness of health systems and periodically to revisit and refine the health system mechanisms and building blocks, so that evolving complex public health challenges can be addressed.

In this domain, the WHO building blocks for health systems *(41)* serve as an organizing framework (Table 5). These building blocks enable systematic identification of the practice activities required by different members of the workforce to strengthen the various components of a health system to effectively deliver the EPHFs. The practice activities correspond to: leadership and governance, service delivery, health system financing, health workforce, medical products and technologies, and health information systems. Each area necessitates specific training to develop the knowledge, skills and competencies required for operationalizing the EPHFs across different organizations, programmes and services at the community, subnational, national and international levels of the health system.

Table 5. Practice activities in domain 1: health system enablers for public health, organized according to the WHO building blocks for health systems

Leadership and governance	1 Establishing and maintaining public health governance mechanisms 2 Establishing and maintaining mechanisms for community engagement and social participation
Service delivery	3 Setting public health strategies 4 Developing and operationalizing policy with public health impact 5 Developing and operationalizing legislative and regulatory frameworks with public health impact
Health system financing	6 Optimizing resource allocations within multisectoral financing mechanisms
Health workforce	7 Optimizing the workforce for the delivery of the EPHFs
Medical products, vaccines and techonologies	8 Managing the supply chain 9 Quality assurance of public health infrastructure
Health information systems	10 Establishing and updating public health information and informatics systems 11 Establishing and updating public health intelligence systems

Practice activity 1: Establishing and maintaining public health governance mechanisms	
Public health governance encompasses the coordination, regulation and oversight of institutional decision-making and leadership to steward the public health agenda. It requires means, processes, actions and mechanisms to develop and maintain the institutional structures for planning, coordination, integration, delivery and evaluation of public health policies and strategies, and the public health programmes and services that operationalize them. Effective public health governance requires the establishment of clear roles, responsibilities and accountability mechanisms for multisectoral and intersectoral stakeholder collaboration towards the achievement of public health objectives.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Identifying key stakeholders for public health • Constructing coalitions, expert groups, networks and partnerships (governance mechanisms) • Defining roles, responsibilities and lines of accountability • Defining reporting scope, content, time periods and indicators • Defining reporting standards and communication channels • Defining policy and procedural needs to operationalize governance mechanisms • Identifying institutional requirements to support governance mechanisms • Facilitating governance mechanisms • Participating in governance mechanisms • Monitoring, evaluation and quality improvement of governance mechanisms
Illustrative profiles	
Public health personnel (1)	• Identifying governance needs • Participating in governance mechanisms • Contributing to all tasks through the governance mechanism
Health and care workers (2)	
Occupations allied to health (3)	
Senior specialists (4)	• Coordinating specialized functions of public health governance (e.g. reporting, monitoring and evaluation) • Coordinating the implementation of governance mechanisms (e.g. defining reporting metrics, preparing reports and monitoring compliance)
Policy authority (5)	• Convening intersectoral expert groups with overall regulatory and reporting responsibility • Ensuring compliance with legal and regulatory frameworks

Curricular guide	1	2	3	4	5
1. Principles, concepts, definitions and terminology relating to public health governance and decision-making, including effectiveness, efficiency, transparency, accountability, gender-responsiveness, participatory leadership and sustainability	√	√	√	√	√
2. The ethics and values of public health as they relate to public health governance, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
3. The role of governance in promoting public health and managing health risks	√	√	√	√	√
4. The functions of different organizations and entities within the health system	√	√	√	√	√
5. The range of stakeholders with an interest in or impact on public health, those with a vested interest in a programme or issue, those who can contribute insights from experience or expertise, and/or those affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	√
6. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections and differences between stakeholders; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	√
7. Strategies for stakeholder engagement, collaboration, social participation and good governance, including between sectors				√	√
8. Tools to define and document the roles and responsibilities of stakeholders in governance mechanisms	√	√	√	√	√
9. Tools and mechanisms to facilitate intersectoral collaboration	√	√	√	√	√
10. Different types of governance mechanisms for public health systems, programmes and services				√	√
11. Approaches to designing and implementing governance mechanisms				√	√
12. Establishing lines of accountability and decision-making processes	√	√	√	√	√
13. Institutional requirements, communication channels and resource needs to support governance mechanisms, including in times of emergencies	√	√	√	√	√
14. Governance structures and the roles and responsibilities of governance committee members, including specific arrangements in times of emergencies	√	√	√	√	√
15. The governance life cycle and its stages (planning, implementation, monitoring and evaluation, reporting and communication, review and renewal)	√	√	√	√	√
16. The contribution of public health governance towards the delivery of the EPHFs *(3)*	√	√	√	√	√
17. Tools for participatory decision-making and planning				√	√
18. The importance of risk assessment, management and compliance in public health governance	√	√	√	√	√
19. Principles of quality improvement	√	√	√	√	√
20. Monitoring and evaluation frameworks and mechanisms to track, report and act on progress (scope, time period, content and key performance indicators)	√	√	√	√	√
21. Reporting standards and procedures in relation to governance	√	√	√	√	√
22. Ethical considerations and best practices in public health governance	√	√	√	√	√
23. Legal, ethical and regulatory frameworks governing public health governance, including in times of emergencies	√	√	√	√	√

Practice activity 2: Establishing and maintaining mechanisms for community engagement and social participation

Community engagement and social participation relate to the regular and systematic involvement of communities, populations and civil society organizations in governance and decision-making mechanisms about issues that concern them, to inform, influence, motivate and provide voice, agency and empowerment for communities towards better health outcomes. Engaging communities in public health brings clear benefits: not least, bridging the gap between policy-maker perspectives and the experiences, needs and values of the community, fostering trust, and co-identifying sustainable, acceptable and feasible actions. There are different levels, depths and breadths of community engagement and social participation, which determine the type and degree of involvement. Establishing and maintaining mechanisms for community engagement and social participation require careful and systematic planning and implementation to craft a health system co-owned by the population, communities and civil societies.

EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Identifying situations and opportunities for community engagement and social participation in governance and decision-making • Identifying key stakeholders • Conducting a needs assessment to understand the specific requirements and priorities of the community • Identifying and mobilizing community assets • Defining goals metrics to track community engagement, progress and impact • Developing strategies and methods for community engagement, including establishing formal collaboration or governance mechanisms • Developing communication strategies to inform the community about the engagement process • Providing training and resources to community members to enable social participation • Facilitating community engagement and social participation activities • Fostering ongoing community relationships beyond formal engagement processes • Gathering data, analysis and intelligence about community engagement and social participation • Monitoring and evaluation of community engagement and social participation processes, mechanisms and impact • Communicating the findings and outcomes of the community engagement processes with key stakeholders • Reporting on community engagement, including through the International Health Regulations (2005) (IHR) State Party Self-Assessment Annual Reporting Tool *(42)*[8]

8 The IHR (2005) is an instrument of international law that is legally-binding in 196 countries, including the 194 WHO Member States. It provides an overarching legal framework that defines countries' rights and obligations in handling public health events and emergencies that have the potential to cross borders *(90)*.

Illustrative profiles	
Public health personnel (1)	• May take a leading or coordinating role in formal community engagement activities (e.g. co-identifying health hazards, vulnerabilities, and local and community capacities) • Evaluating the coping capacity of people, community organizations and community systems
Health and care workers (2) **Occupations allied to health (3)**	• May take a facilitating role: as agents for change within formal community engagement activities; in sustaining long-term relationships (e.g. mobilizing local and community support for health services, community surveillance, and public health and social measures); and in sharing information and resources to improve community engagement
Senior specialists (4)	• May take a leading or coordinating role in formal community engagement activities on intersectoral programmes, involving multiple communities and community voices
Policy authority (5)	• Ensuring community-centred approaches in public health decision-making processes and actions • Ensuring compliance with IHR (2005) *(42)*

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. Principles, concepts, definitions and terminology relating to community engagement and social participation, and their role in public health decision-making, health promotion, action and evaluation, and throughout the health emergency response cycle	√	√	√	√	√
2. Approaches to strengthen trust in government and policy decision-making through community engagement and social participation processes	√	√	√	√	√
3. The importance of participatory decision-making for a health system co-owned by the population, communities and civil societies	√	√	√	√	√
4. The contribution of community engagement and social participation in delivering the EPHFs *(3)*, and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
5. The ethics and values of public health as they relate to community engagement and social participation, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
6. Approaches to community engagement and social participation, including those that are community-oriented, community-based, community-managed and community-owned	√	√	√	√	√
7. Theoretical models of community engagement, community mobilization and participatory design	√	√	√	√	√
8. Approaches to building capacity for community engagement and social participation to ensure communities are partners in the creation and implementation of acceptable and workable public health actions and emergency response solutions for those who are affected	√	√	√	√	

Curricular guide	1	2	3	4	5
9. Community engagement principles: trust, accessibility, contextualization, equity, transparency and autonomy	√	√	√	√	√
10. Enabling factors for successful community engagement and social participation: governance, leadership, decision-making, communication, collaboration, partnership and resources	√	√	√	√	√
11. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
12. The range of stakeholders with an interest in or impact on public health, those who have a vested interest in a programme or issue, those who can contribute insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	√
13. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections and differences between stakeholders; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	√
14. Techniques to manage the potential impact of power dynamics on community participation, and approaches to ensure that all voices, including those of hard-to-reach populations, are heard	√	√	√	√	√
15. Potential challenges with community engagement, including community polarization, marginalization and distrust, and power imbalances, and tools and approaches to address these	√	√	√	√	√
16. Tools to map and identify different community groups and subgroups with an interest in or affected by public health issues, including nontraditional stakeholders, such as unstructured and structured networks and communities (e.g. unions, employer associations, professional associations and online communities of native health workers)	√	√	√	√	
17. Strategies for community engagement and social participation	√	√	√	√	
18. Methods and tools for conducting a comprehensive needs assessment	√			√	√

Curricular guide	1	2	3	4	5
19. Methods for assessing community assets, resources, risks and vulnerabilities	√			√	√
20. Different change agents in the community (e.g. health workers, teachers, community leaders and volunteers)[9]	√	√	√	√	√
21. Techniques and facilitation skills for effective community engagement activities	√	√	√	√	
22. Approaches to building and sustaining long-term community relationships beyond formal engagement mechanisms	√	√	√	√	
23. Institutional requirements, communication channels and resource needs to support community engagement and social participation	√	√	√	√	√
24. Specific governance mechanisms for public health systems, programmes and services, and opportunities for community engagement	√			√	√
25. Tools for participatory decision-making	√			√	√
26. Strategies for effectively communicating the findings and outcomes of community engagement and social participation processes with key stakeholders	√	√	√	√	√
27. Monitoring and evaluation frameworks, and methods for assessing the effectiveness of community engagement and social participation and the impact on public health outcomes	√			√	√
28. Monitoring and evaluation frameworks and mechanisms to track, report and act on the outputs and outcomes of community engagement and social participation (scope, time period, content and key performance indicators)	√			√	√
29. Reporting requirements on community engagement activities, including the use of tools such as the IHR (2005) State Party Self-Assessment Annual Reporting Tool *(42)*				√	√
30. Ethical considerations and best practices in community engagement and social participation for public health governance and decision-making	√	√	√	√	√
31. Legal, ethical and regulatory frameworks governing public health, including in times of emergencies	√	√	√	√	√

9 Change agents facilitate the development, application and advocacy for new practices. They transmit their commitment and enthusiasm to those who do the day-to-day work, resulting in the implementation and institutionalization of new practices. Change agents can be practitioners or management *(91)*.

Practice activity 3: Setting public health strategies	
Public health strategies set the framework for programmes, services and policies that operationalize the EPHFs to meet population health needs and improve health equity. Strategies may encompass a range of foci and approaches, such as disease surveillance, community campaigns, health education, service provision and policy development.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Identifying public health priorities • Framing the public health vision and mission • Identifying and engaging with key stakeholders • Identifying the strategic decisions to be made and their constraints and influences • Forecasting scenarios • Generating options to deliver on the strategic vision and mission in each of the different scenarios • Prioritizing options into a coherent strategy • Developing a strategy action plan, including identifying key performance indicators, and setting a timeframe • Mobilizing resources to operationalize the strategy • Initiating programmes, services and policy planning and implementation to operationalize the strategy • Monitoring progress of strategy implementation • Evolving the strategy based on incremental progress
Illustrative profiles	
Public health personnel (1)	• Drafting strategy action plans for subnational or community implementation, aligned with national strategies • Preparing detailed assessments of scenarios and strategic options
Health and care workers (2)	• Contributing perspectives to inform the strategy development, including identifying consequences of different scenarios and options
Occupations allied to health (3)	
Senior specialists (4)	• Coordinating public health strategy development at national level • Advising policy authorities regarding strategy development
Policy authority (5)	• Ensuring participatory approaches to informing the public health strategy • Framing and directing public health strategies, vision and mission • Recommending strategic implementation options

Curricular guide	1	2	3	4	5
1. The content and components of a public health strategy, including goals and objectives, principles, audiences, actions, timelines, tools, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	√
2. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
3. The role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
4. The contribution of public health strategies towards the delivery of the EPHFs *(3)*, and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
5. The range of stakeholders with an interest in or impact on public health, those who have a vested interest in a programme or issue, those who can contribute insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√			√	√
6. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections and differences between stakeholders; and how these can and should systematically inform public health governance and decision-making	√			√	√
7. The public health priorities for the population(s), as guided by public health intelligence, community engagement, and the local, national and international political, social, environmental and economic context	√			√	√
8. The best available scientific evidence, including primary and secondary data derived from research, assessments, intelligence, evaluations of previous emergencies, meteorological profile descriptions, and anthropological and social science research[10]	√	√	√	√	√
9. Key concepts and principles of community engagement and social participation, and their role in public health decision-making, health promotion, action and evaluation	√	√	√	√	√
10. The importance of aligning national strategies, policies and plans for public health with the intersectoral policy agenda as it relates to public health	√	√	√	√	√
11. Principles of epidemiology and disease control, including how to identify outbreaks and their causes, how to develop and implement control measures, and how to evaluate the effectiveness of interventions	√	√	√	√	√
12. Theories and practice of behaviour change, and policy interventions to promote healthy behaviours and reduce risk factors	√	√	√	√	√

10 Evidence can broadly be categorized into four groups: scientific (codified) evidence is produced through formal, rigorous research processes of defined methodological standards, making it explicit, systematic and replicable; tacit (colloquial) evidence, which includes opinions, expertise, lessons learned and organizational traditions of policy-makers, clinicians, patients and citizens; global evidence from around the world (e.g. through a systematic review or an established, evidence-informed guideline); and local evidence, which considers modifying factors in specific settings (e.g. through a primary study or programme monitoring data) *(37)*.

Curricular guide	1	2	3	4	5
13. Principles for setting strategic visions and missions over different timescales, and how to translate these into operational strategic directions	√			√	√
14. The role of participatory and intersectoral and intrasectoral collaborations in defining public health strategies, including mutual accountabilities and resourcing	√			√	√
15. Tools and mechanisms for participatory decision-making	√			√	√
16. Tools and mechanisms to facilitate intersectoral collaboration	√	√	√	√	√
17. Principles of data and evidence-informed decision-making	√	√	√	√	√
18. The availability, quality, reliability and timeliness of public health intelligence	√	√	√	√	√
19. Public health strategies to manage different public health hazards[11], including: communicable and noncommunicable diseases, environmental hazards, conflict-dislocated populations and health systems performance	√	√	√	√	√
20. Institutional requirements, communication channels and resource needs to support implementation of the different response strategies	√			√	√
21. Methods to identify the impact(s) of the proposed strategy on different population groups, including specific populations with increased vulnerability (e.g. due to poverty, gender, age, disability, underlying health conditions, migration or displacement)	√			√	
22. The principles, tools and techniques for project management and change management	√	√	√	√	√
23. Methods to develop logical, sequenced, sustainable and effective strategic implementation	√			√	
24. Approaches to align strategic resourcing requirements	√			√	√
25. Methods to manage and mitigate against risks	√	√	√	√	√
26. Tools to operationalize the implementation of strategy	√			√	
27. Frameworks for developing and evaluating policies, procedures and guidelines	√			√	√
28. Monitoring and evaluation frameworks, and methods for assessing the effectiveness of the strategy and its impact on public health outcomes	√			√	√
29. Timeframes for policy review, further development and feedback loops	√			√	√
30. Ethical considerations and best practices in public health	√	√	√	√	√
31. Legal, ethical and regulatory frameworks governing public health, including in times of emergencies	√	√	√	√	√

11 An all-hazards approach in public health acknowledges that while hazards vary in source (natural, technological, societal), they often challenge health systems in similar ways and demand a multisectoral response *(92)*.

Practice activity 4: Developing and operationalizing policy with public health impact	
Public health policy refers to decisions and guidelines adopted by government authorities to address population health issues and achieve specific goals. Operationalizing the EPHFs explicitly requires policies specific to public health (e.g. community engagement, financing, equitable access, and the inclusion of essential medicines and non-pharmacological interventions in clinical and public health practice). It also requires a health-in-all-policies approach (health protection) – for example, across the education, transport, housing, environmental and agricultural sectors – to promote overall health and equity (43). The tasks in this practice activity include policy development, facilitating intersectoral collaboration, consensus-building, and informed decision-making based on intelligence and impact assessments. These tasks must be rooted in the principles of evidence-informed decision-making, efficiency, equity-oriented policy decisions, community-participation, and transparency and accountability of decisions. Operationalizing public policy also involves further tasks, such as creating guides, guidelines and procedures at all levels of the health system.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Identifying key stakeholders in the policy development process • Identifying key stakeholders affected by or with an interest in the operationalization of the policy • Setting up the development or review team • Commissioning data collection and data studies • Conducting baseline assessment activities (e.g. logic models) • Analysis of policy • Analysis for policy • Identifying and framing policy problems • Coordinating policy consultations • Facilitating policy dialogue and consensus building • Proposing policy options • Facilitating consensus building • Conducting impact assessments (environmental, gender etc.) • Drafting a policy, procedure or guideline • Preparing a policy implementation strategy • Executing policy implementation and policy communications • Creating guides, guidelines and standard operating procedures to operationalize policy • Coordinating monitoring, evaluation and feedback procedures in relation to the design and execution of a policy option or package of policy options

Illustrative profiles	
Public health personnel (1)	• Interpreting intelligence about different public health priority issues to identify the root causes and the contributions of health and non-health policy impacting the public health issue • Leading a local policy review team (e.g. conducting a specific aspect of impact assessment at community level) • Contributing to policy dialogue and consensus building • Championing a health-in-all-policies approach to policy development
Health and care workers (2) **Occupations allied to health (3)**	• Contributing to policy dialogue and consensus building • Providing locally relevant insight into impact assessments • Translating public policy into local guidelines and standard operating procedures
Senior specialists (4)	• Interpreting intelligence about different public health priority issues to identify the root causes and the contributions of health and non-health policy impacting the public health issue • Supporting stakeholders to identify and frame policy options • Leading a policy review team, including at national level • Conducting specific aspects of policy development, including policy analysis and policy evaluation • Coordinating stakeholder engagement, policy dialogue and consensus building
Policy authority (5)	• Leading a coordinated approach to policy development to improve public health, including a health-in-all-policy lens • Leading stakeholder consultation and engagement • Facilitating high-level policy dialogue and consensus building • Ensuring the robustness of policy development and approval, including community engagement, impact assessments and sensitization to policy changes • Directing policy decision-making and implementation

Curricular guide	1	2	3	4	5
1. Principles, concepts, definitions and terminology relating to policy process	√	√	√	√	√
2. Theories of policy development, the policy cycle and the policy-making process, including problem identification, intelligence, stakeholder collaboration and decision-making	√	√	√	√	√
3. Methods and approaches to policy analysis and policy evaluation, including the analysis of impacts, feasibility, resourcing and unintended consequences	√			√	√
4. The content and components of a policy implementation strategy, including goals and objectives, principles, audiences, actions, timelines, tools, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	√

Curricular guide	1	2	3	4	5
5. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
6. The role of public health approaches (and health-in-all-policies) in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
7. The contribution of public health policy and a health-in-all-policies approach towards the delivery of the EPHFs *(3)* and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
8. The best available scientific evidence, including primary and secondary data derived from research, assessments, intelligence, evaluations of previous emergencies, meteorological profile descriptions, and anthropological and social science research	√	√	√	√	√
9. The range of stakeholders with an interest in or impact on public health, those who have a vested interest in a programme or issue, those who can contribute insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	√
10. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections and differences between stakeholders; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	√
11. Key concepts and principles of community engagement and social participation, and their role in public health decision-making, health promotion, action and evaluation	√	√	√	√	√
12. The health-in-all-policies approach to identifying the impacts and consequences, and secondary impacts and consequences, of economic, environmental, housing and other policies on health	√	√	√	√	√
13. The importance of aligning national strategies, policies and plans for public health with the intersectoral policy agenda as it relates to public health	√	√	√	√	√
14. The public health priorities for the population(s), as guided by public health intelligence, community engagement, and the local, national and international political, social, environmental and economic context	√			√	√
15. The goal or purpose of the public health policy (e.g. equitable access to medicines, promoting population equity and managing risks)	√	√	√	√	√
16. Existing policies in the space, and identification of the interactions and consequences (including unintended consequences) of policy change	√			√	√

Curricular guide	1	2	3	4	5
17. The importance of participatory decision-making for a health system co-owned by the population, communities and civil societies					
18. Tools and mechanisms for community engagement and social participation in policy decision-making, policy dialogue and consensus building	√			√	√
19. Principles of evidence-informed decision-making	√	√	√	√	√
20. Methods for interrogating the evidence base for the policy change and proposed policy options	√			√	√
21. Knowledge-translation approaches (push efforts, user-pull efforts, exchange efforts, integrated efforts) for evidence-informed decision-making and practice	√	√	√	√	√
22. Methods for appraising different types of evidence (global and local evidence, colloquial and scientific evidence) for (un)certainty, ambiguities, assumptions, limitations, quality, relevance and significance of data, information and evidence				√	√
23. Lessons and experiences from policy implementation in other countries or other contexts, and the insights from those experiences for the context	√			√	√
24. Methods for integrating multisectoral scientific evidence, expertise and experiences to make decisions about prioritization, risks and preparedness and response actions	√	√	√	√	√
25. Methods for identifying the impact(s) of the proposed policies, procedures and guidelines on different population groups, including specific populations with increased vulnerability (e.g. due to poverty, gender, age, disability, underlying health conditions, migration or displacement)	√	√	√	√	√
26. Principles of epidemiology and disease control, including how to identify outbreaks and their causes, how to develop and implement control measures, and how to evaluate the effectiveness of interventions	√			√	√
27. Approaches to integrating health promotion actions from the Ottawa Charter *(44)* into community engagement approaches	√	√	√	√	√
28. Theories and practice of behaviour change and behavioural sciences, and policy interventions to promote healthy behaviours and reduce risk factors	√	√	√	√	√
29. Policy design tools that leverage design thinking, co-creation, foresight and behavioural insights	√			√	√
30. The principles, tools and techniques for project management and change management	√	√	√	√	√

Curricular guide	1	2	3	4	5
31. The economic and fiscal policies that influence investment in public health policy, and the mutual benefit argument in making the investment case	√			√	√
32. The principles, tools and techniques for project management and change management	√			√	√
33. Tools for resource mobilization, and resources available for the process and policy implementation strategies relevant to the setting	√			√	√
34. Transitions from policy development to policy implementation, relevant to the policy in question (e.g. how to translate a policy around equitable access to essential medicines, through supply chain management, integration into clinical practice, and access to health services)	√	√	√	√	√
35. Monitoring and evaluation frameworks and methods for assessing the effectiveness and impact of policy development and operationalization on public health outcomes	√			√	√
36. Legal, ethical and regulatory frameworks governing public health, including in times of emergencies	√	√	√	√	√

Practice activity 5: Developing and operationalizing legislative and regulatory frameworks with public health impact	
Comprehensive and enforceable legislative and regulatory frameworks for public health governance, functions and services are essential for operationalizing policy decisions and addressing public health priorities, such as disease prevention and health promotion and protection.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Verifying the goals and intended outcomes of the legislative or regulatory frameworks • Formulating legislative proposals or amendments • Verifying the clarity, coherence and enforceability of regulations and legislation • Consulting with stakeholders and the public • Collaborating with stakeholders to ensure coordination and consistency of implementation • Conducting legal reviews of proposed legislation to ensure compliance with constitutional, human rights and other legal requirements • Conducting a public health impact assessment, considering factors such as health equity, accessibility and effectiveness • Securing adoption of legislation by relevant authorities • Planning for implementation of legislation (e.g. through regulatory frameworks), quality assurance mechanisms, enforcement mechanisms and monitoring • Collaborating with agencies, organizations and others to ensure compliance with and enforcement of the legislative and regulatory frameworks • Identifying and disseminating the implications of legislative and regulatory changes for different stakeholder groups, and initiating programmes to facilitate change • Conducting monitoring and evaluation of the effectiveness and impact of the legislative and regulatory frameworks over time • Updating legislative or enforcement approaches based on evaluation findings and evolving public health needs
Illustrative profiles	
Public health personnel (1)	• Supporting the drafting and researching of legislative or regulatory frameworks that affect public health • Running consultations or townhall events to gather community and stakeholder perspectives on proposed legislative and regulatory changes • Conducting public health impact assessments • Conducting monitoring and evaluation of legislative or regulatory changes

Health and care workers (2)	• Running consultations or townhall events to gather community and stakeholder perspectives on proposed legislative and regulatory changes • Supporting the implementation and enforcement of regulatory and legislative changes (e.g. monitoring the safety of health products, and detecting, preventing and responding to substandard and falsified medicines)
Occupations allied to health (3)	• Supporting the drafting and researching of legislative or regulatory frameworks that affect public health • Enforcing and operationalizing legal and regulatory frameworks
Senior specialists (4)	• Leading the research, drafting and consultation and securing approvals for legislation and regulation
Policy authority (5)	• Leading intersectoral and intrasectoral collaboration towards the adoption and enforcement of regulatory and other frameworks

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. Principles, concepts, definitions and terminology relating to public health legislation and regulation development, operationalization and monitoring and evaluation	√	√	√	√	√
2. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
3. The goals and intended impact on public health of the legislative and regulatory frameworks	√	√	√	√	√
4. The contribution of legislation and regulation with public health impact to the EPHFs *(3)*, and the effectiveness of public health programmes and services that operationalize them	√	√	√	√	√
5. Tools and approaches for legislative drafting	√			√	√
6. Theories, principles and processes for legislation adoption and enforcement, and legislative decision-making processes	√	√	√	√	√
7. Existing legislation and relevant case law				√	√
8. Methods and approaches for legal analysis for clarity, coherence and enforcement				√	√
9. Techniques for legal research and comparative analysis				√	√
10. Tools, techniques, metrics and requirements for impact assessment of legislative change in relation to the goals and intended outcomes, including unintended outcomes and impacts on different subgroups of the population, on markets, workflows, and other aspects of public health, including equity	√			√	√

Curricular guide	1	2	3	4	5
11. Approaches to stakeholder mapping, community engagement and social participation	√	√	√	√	√
12. Key concepts and principles of community engagement and social participation, and their role in public health decision-making, health promotion, action and evaluation	√	√	√	√	√
13. The range of stakeholders with an interest in or impact on public health, those who have a vested interest in a programme or issue, those who can contribute insights from experience or expertise, and/or who are affected by programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	√
14. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections and differences between stakeholders; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	√
15. Platforms, methods and channels for risk communication and community and stakeholder reporting, feedback and engagement	√	√	√	√	√
16. Legal, ethical and regulatory frameworks governing public health, including in times of emergencies	√	√	√	√	√
17. Approaches to enforcement and monitoring systems	√	√	√	√	√
18. The roles and responsibilities of different organizations and entities relating to legal and regulatory enforcement	√	√	√	√	√
19. Institutional requirements, communication channels and resources required for developing, drafting, consulting about, adopting and enforcing legislative and regulatory frameworks with public health impacts	√			√	√
20. Training needs and other implementation mechanisms	√			√	√
21. The principles, tools and techniques for project management and change management	√			√	√
22. Monitoring and evaluation frameworks, and methods for assessing the effectiveness of legislation and regulation, and their impacts on public health outcomes	√	√	√	√	√
23. Legal, ethical and regulatory frameworks governing legislation and regulation, including in times of emergencies	√	√	√	√	√

Practice activity 6: Optimizing resource allocations within multisectoral financing mechanisms	
The complex nature of a health-in-all-policies approach necessitates multisectoral financing mechanisms to ensure coordinated and sustainable funding across sectors involved in delivering or affecting the full scope of the EPHFs and their subfunctions. Tasks within this practice activity involve navigating intersectoral and intrasectoral collaborations across health, education, transport, agriculture and of course financing to ensure the alignment of health sector and system planning, and sustainable financing and management. This is crucial for the efficient operation of financing mechanisms, to avoid duplication of resources between sectors, and to prioritize resource allocation based on equity, public health priorities and capacity development that ensures maximal health gain within available resources.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Promoting sustainable and integrated financing for public health • Establishing intersectoral governance mechanisms to oversee prioritization decisions, with intersectoral accountability mechanisms • Interpreting information from a needs assessment to evaluate the magnitude, scope of problem, interactions and dependencies between the various actors requiring resources • Evaluating the allocation and utilization of public and pooled funds, gaps, efficiencies, overlaps or duplications, modes of resource allocation and capital flows • Conducting a landscape analysis of financial, physical and human resources, and resource availability across sectors, including domestic and international funding sources • Conducting analyses of data relating to health impact assessments and cost-effectiveness • Mobilizing resources • Developing strategies, frameworks and responsive resource allocation mechanisms, including in exceptional circumstances, such as emergency situations • Contributing to resource prioritization exercises • Facilitating capacity development initiatives to maximize resource allocations • Facilitating collaboration and coordination between sectors to ensure efficient resource allocation • Monitoring and evaluation of impacts of resource allocations, to inform efficiencies, reprioritization or revisions of allocation criteria
Illustrative profiles	
Public health personnel (1)	• Contributing to a landscape analysis of public health priorities • Providing data for evidence-informed decision-making relating to resource allocations
Health and care workers (2)	• Representing the health sector in coordinated multisectoral financing and coordination mechanisms
Occupations allied to health (3)	• Representing sectors allied to health in coordinated multisectoral financing and coordination mechanisms
Senior specialists (4)	• Mobilizing resources for coordinated multisectoral resource allocation mechanisms
Policy authority (5)	• Coordinating multisectoral financing mechanisms

Curricular guide	1	2	3	4	5
1. Principles, concepts, definitions, terminology, applications, protocols and processes for multisectoral financing mechanisms, public and pooled funds, including responsiveness in emergencies	√	√	√	√	√
2. Public health priorities for the population(s), as guided by public health intelligence, community engagement, and the local, national and international political, social, environmental and economic context	√	√	√	√	√
3. Sectors with interrelated interests in, having impacts on, and contributing to the achievement of public health and delivery of the EPHFs, including health, communities, agriculture, labour, transport, education, social care, security and border control	√			√	√
4. The contribution of multisectoral financing towards the delivery of the EPHFs *(3)*, and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
5. Key concepts and principles of community engagement and its role in public health decision-making, health promotion, action and evaluation	√	√	√	√	√
6. The need for intersectoral and intrasectoral collaboration and coordination to avoid duplication or fragmentation of efforts to improve public health, and to ensure efficient resource allocation	√	√	√	√	√
7. Mechanisms for intersectoral and intrasectoral collaboration and coordination for information sharing, joint planning and coordinated decision-making	√	√	√	√	√
8. Potential sources of resources, including domestic and international funding (e.g. the International Monetary Fund, grants, public-private partnerships and innovative financing mechanisms)				√	√
9. Tools and techniques for resource mobilization, including advocacy efforts, negotiating agreements and exploring new funding opportunities				√	√
10. Tools and mechanisms to facilitate intersectoral collaboration				√	√
11. Methods for economic evaluation in public health, including cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis, financial analysis and efficiency	√			√	√
12. Models for resource allocation within public health, and considerations for equitable resource distribution	√			√	√
13. Sources of financial and health data	√	√	√	√	√
14. The dynamics of capital flows	√			√	√
15. The sequencing of resource allocations	√			√	√
16. The use of macroeconomic policies, macroprudential measures and capital flow management tools	√			√	√
17. Approaches to prioritizing resource allocations using evidence-based approaches, health impact assessments, cost-effectiveness analysis and consideration of public health priorities	√	√	√	√	√
18. Potential interplay between political cycles, political values and resource prioritization	√	√	√	√	√

Curricular guide	1	2	3	4	5
19. The contents and application of resource allocation strategies, frameworks and mechanisms, such as performance-based financing and outcome-based funding	√	√	√	√	√
20. Approaches to establishing criteria for resource allocation based on need, equity, effectiveness and efficiency	√	√	√	√	√
21. Capacity development initiatives necessary to operationalize resource allocations, including training programmes, technical assistance and knowledge sharing	√	√	√	√	√
22. Monitoring and evaluation frameworks and mechanisms to track, report and act on the effectiveness and performance of resource allocations (scope, time period, content and key performance indicators)	√	√	√	√	√
23. Mechanisms and frameworks to inform adaptation and continuous quality improvement to resource allocation strategies, based on monitoring and evaluation data, emerging evidence and new public health priorities	√	√	√	√	√
24. Legal, ethical and regulatory frameworks governing multisectoral financing, including in times of emergencies	√	√	√	√	√

Practice activity 7: Optimizing the workforce for the delivery of the EPHFs	
The PHEWF roadmap (2022) *(4)* sets out strategies to strengthen the workforce in every country, delivering all the EPHFs, including emergency preparedness and response, for UHC, health security and improved health and well-being. Building an integrated, multidisciplinary and multisectoral workforce that can perform part or all of the EPHFs through health system strengthening produces a sound return on investment. This can help counter the challenges brought about by COVID-19, as well as better preparing the world to prevent future pandemics and other public health threats that could significantly affect economic and social development. Examples include climate-related events, zoonotic spillover, noncommunicable diseases and antimicrobial resistance. Tasks within this practice activity include workforce planning, forecasting and strategizing, and operationalizing policy options to strengthen the education, regulation and employment of the workforce.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Estimating the available public health workforce capacity to deliver the EPHFs • Forecasting public health workforce needs and demands to meet changing population health needs, including surge capacity for emergency preparedness, prevention, response and recovery • Conducting and/or interpreting the results of a health labour market analysis *(45)* • Identifying issues affecting public health workforce performance • Identifying strategies and policies for public health workforce planning, production, decent work and management • Proposing public health workforce policy options, strategy, management and implementation approaches • Evaluating public health workforce policy options with respect to production, absorption capacity, employment conditions, interactions with the private sector, distribution and density imbalances, skills mixes, performance, motivation and productivity • Making the business case for investment in strengthening the public health workforce • Coordinating the implementation of actions to improve public health workforce performance, including educational planning, risk-based regulation and curriculum reform • Developing a multisectoral sustainable public health workforce strategy • Coordinating the implementation of a multisectoral public health workforce strategy
Illustrative profiles	
Public health personnel (1)	
Health and care workers (2)	• Contributing expertise to workforce planning exercises • Contributing to specific elements of a health labour market analysis
Occupations allied to health (3)	
Senior specialists (4)	• Conducting a health labour market analysis for the public health workforce to identify root causes of workforce challenges • Proposing policy options to strengthen the public health workforce • Critiquing, designing and adapting workforce planning and management tools
Policy authority (5)	• Making policy decisions affecting the public health workforce, including on career pathways and safe and dignified working conditions

Curricular guide	1	2	3	4	5
1. The key concepts of the SDGs and UHC as they relate to public health and emergencies and to the public health workforce	√	√	√	√	√
2. The different components and functions of health systems and the role of public health workforce development in broader health system functioning and health sector reform				√	√
3. The influences and interactions of regulation with health workforce trends and challenges, in informing workforce planning, workforce supply, cost of education, geographic distribution, and facilitating mobility and cross-border service provision				√	√
4. Key concepts, terminology, frameworks, functions, systems and policies relating to the public health workforce	√	√	√	√	√
5. The contribution of the public health workforce to delivering the EPHFs *(3)*, and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
6. The workforce requirements to implement a national health emergency response operations plan[12]	√	√	√	√	√
7. The main areas and components of the public health workforce environment, including regulation (accreditation, licensing and market forces), decent employment, dimensions of policy and management and their role in complex health systems	√	√	√	√	√
8. The concepts, components and dynamics of the public health workforce labour markets, including interactions between supply and demand, and the main actors in the labour market and labour relations	√	√	√	√	√
9. The characteristics and dynamics of the public health workforce labour markets for different occupational groups, and different regulation and policy requirements				√	√
10. The scope, structures, powers, functions and governance for organizations and entities with regulatory authority in the jurisdiction				√	√
11. Dynamics between education, employment and migration within and between sectors, and their impact on the public health workforce labour market				√	√
12. The impact of education on workforce composition, including gender aspects, skills mix and role optimization				√	√
13. Tools for mapping and measuring the capacity, workload, need and demand (e.g. the Workload Indicators for Staffing Need *(8)*)	√	√	√	√	
14. The principles of evidence-informed decision-making	√	√	√	√	√
15. Information needs for the different components of a health labour market analysis: how to diagnose problems, identify priorities and guide interventions	√	√	√	√	√
16. Methodologies and timelines for conducting a health labour market analysis for the public health workforce, including planning, data collection, indicators and analysis				√	

12 A national health emergency response operations plan provides the health sector with guidance on how to take immediate actions across all systems and sectors, engage all key stakeholders including communities and establish a governance structure, with defined leadership *(93)*.

Curricular guide	1	2	3	4	5
17. Data sources about the public health workforce (e.g. human resources information systems and the National Health Workforce Accounts)[13], and their contribution to evidence-informed decision-making	√	√	√	√	
18. Political, environmental, legal and other influences on labour market production and absorption (e.g. salaries in other sectors and migration policies)				√	√
19. Production capacity of existing institutions and programmes in the country	√	√	√	√	√
20. The range of policy options to improve the effectiveness and efficiency of the workforce relevant for the context (e.g. accreditation, licensing, market forces, quotas or subsidies, curricula renewal and role optimization)	√	√	√	√	√
21. Approaches to evaluating the outputs, outcomes and impacts of different policy options, including unintended consequences, cost, cost effectiveness and acceptability				√	√
22. The cultures, processes, behaviours, technologies, environments and resources necessary for change	√	√	√	√	√
23. The contribution of decent work (high-quality jobs, social protection workers' rights and safeguards) aligns with international labour standards, the SDGs and the delivery of the EPHFs *(46)*	√	√	√	√	√
24. Methods and strategies for workforce planning in the short, medium and long term to improve both quality and quantity in public health workforce production and performance, education and training	√	√	√	√	√
25. The political, economic and social dimensions of the context and how it relates to the public health workforce, including gender, culture and equity, and the macro context, including broader labour market and economic considerations	√	√	√	√	√
26. The drivers of workforce mobility and its impact on health systems	√	√	√	√	√
27. International standards relating to international recruitment of health workers, including the WHO Global Code of Practice on the International Recruitment of Health Personnel *(47)*; WHO health workforce and safeguards list *(48)*; and standards referenced in the WHO Global Health and Care Worker Compact *(49)*	√	√	√	√	√
28. The legal, ethical and regulatory frameworks relating to the workforce, including in times of emergencies	√	√	√	√	√

13 The national health workforce accounts are a system by which countries progressively improve the availability, quality and use of data on health workforce through monitoring of a set of indicators to support the achievement of UHC, the SDGs and other health objectives *(94)*.

Practice activity 8: Managing the supply chain	
Supply chain management involves planning, managing and coordinating all activities relating to sourcing, procurement, warehousing, storing and transportation/distribution of the flow of medicines, health products, supplies, equipment and technologies, in both national and international contexts. It includes collaboration with various partners, such as manufacturers and suppliers, intermediaries, such as freight forwarders and service providers, and customers. In essence, supply chain management integrates supply and demand management within and across organizations *(50)*, with timely, adequate, prioritized, equitable and cost-effective distribution. It can be public or private sector-based, and encompasses cold supply chain and international/domestic stock management strategies, particularly in emergency situations. Typically, supply chain organizations will include structures in different locations (such as branches or hubs) to provide services closer to the population more cost-effectively and rapidly *(51)*. Supply chain management can also be the responsibility of emergency operations centres, coordinating supply, demand and logistics across international borders. The goal is to serve the public health system effectively, with the organization's structure and roles designed to support reliable and high-performing supply chains, and to promote equitable access to and utilization of health products, supplies, equipment and technologies.	
EPHF subfunctions	• Public health emergency management (2.2; 2.3; 2.4) • Public health stewardship (3.2) • Multisectoral planning, financing and management (4.1; 4.4; 4.5) • Health protection (5.3) • Disease prevention and early detection (6.1) • Health promotion (7.1) • Health service quality and equity (10.1; 10.2; 10.3) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.4; 12.5)
Tasks	• Conducting a landscape analysis of stakeholders, current stock, warehousing, transportation, distribution and timetabling • Planning for supply chain, including buffer stock, stock management, stockpiling, prepositioning, tolerances and mitigating actions in the event of disruption • Sourcing medicines and health products, supplies, equipment and technologies • Managing imports and exports • Managing donations • Managing waste and returns • Locating warehousing facilities • Managing warehousing and packing • Identifying transportation routes • Managing transportation means (own or contracted) • Selecting and establishing long-term agreements with vendors and customers • Negotiating contracts, tendering processes and supplier agreements • Coordinating actors involved in operationalizing supply chain • Coordinating supply chain, encompassing warehousing, transportation and distribution • Managing emergency supply chain • Pipeline analysis of risk and status of distribution • Assuring quality and compliance • Conducting quantification and stock management • Making improvements following monitoring and evaluation

Illustrative profiles	
Public health personnel (1)	• Conducting a national landscape analysis • Developing a procurement plan • Managing national supply chain • Coordinating with hub and spoke distribution • Ensuring quality assurance and compliance
Health and care workers (2)	• Managing supply chain for medicines and other equipment for a unit or facility
Occupations allied to health (3)	• Managing supply chain for products and equipment relating to non-health programmes and services (e.g. agriculture)
Senior specialists (4)	• Managing cross-border and international supply chain operations • Setting up supply chain operations (e.g. through emergency operation centres)
Policy authority (5)	• Overseeing and managing actions to address risks to supply chain • Determining the need for intervention in supply chain management in times of market failure • Making prioritization decisions about stock distribution

Curricular guide	1	2	3	4	5
1. Principles, concepts, definitions and terminology relating to supply chain management	√	√	√	√	√
2. The contribution of the supply chain to the EPHFs *(3)* and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
3. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
4. The role of laboratories, facilities and other physical infrastructure, transportation and other supply chain components	√	√	√	√	√
5. The components of supply chain operations relating to workflow	√	√	√	√	√
6. Components and approaches for a supply chain landscape analysis	√	√	√	√	√
7. Biological and nonbiological risks relating to equipment, supplies and hazardous materials	√	√	√	√	
8. The components of stock management, stockpiling and prepositioning, and inventory management	√	√	√	√	
9. Criteria for appropriate warehousing of products, supplies, equipment and technologies	√	√	√	√	
10. Transportation modes and management	√	√	√	√	
11. Distribution network design	√	√	√	√	
12. Methods and techniques for planning and forecasting demand, supply chain analytics and logistics	√	√	√	√	

Curricular guide	1	2	3	4	5
13. The skills, competencies and staffing requirements for supply chain management and operations	√	√	√	√	√
14. Training needs for supply chain management and operations	√	√	√	√	√
15. Approaches to collaboration and relationship management with vendors, suppliers and other actors in the supply chain	√	√	√	√	√
16. Principles, rules, regulations, good practices, essential elements for safety and biosafety, and common safety control measures and procedures, including packaging, labelling and documentation	√	√	√	√	√
17. The policies, processes and procedures relating to sample collection, handling, transportation, accessioning, processing, referral, storage, retention, and chain of custody and disposal, including cold chain	√	√	√	√	
18. Regulations and policies relating to trade, leases, contracts, safety and protocols	√	√	√	√	√
19. Consideration of ethics, sustainability and emergency contexts relating to the supply chain	√	√	√	√	√
20. Indicators of routine operations and non-conforming events, as well as effectiveness and risks of management, reporting and response	√	√	√	√	√
21. The sources of information, and realistic data ranges, for the inventory of specific operational needs for equipment and supplies	√	√	√	√	
22. Monitoring and evaluation frameworks and mechanisms to track, report and act on supply chain management (scope, time period, content and key performance indicators)	√	√	√	√	√
23. Tools for quality assurance and compliance	√	√	√	√	
24. Continuous quality improvement strategies	√	√	√	√	
25. Corrective action processes and procedures	√	√	√	√	
26. The environmental impact of different stages and actions in the supply chain	√	√	√	√	√
27. Methods to identify and manage risks	√	√	√	√	√
28. Resource availability and triggers in the event of market failure				√	√
29. Management of donations	√			√	
30. The components and processes involved in national supply chain, hub and spoke distribution, and the role of and partnerships with emergency operation centres in emergency situations	√			√	√
31. Tools to monitor supply chain processes and operations	√	√	√	√	
32. Principles of risk management and business continuity planning	√	√	√	√	√
33. Legal, ethical and regulatory frameworks governing the supply chain, including customs clearance, pharmaceuticals, medication storage and distribution	√	√	√	√	√

Practice activity 9: Quality assurance of public health infrastructure	
Public health infrastructure includes: buildings, such as health-care facilities, warehouses and administrative offices; water and sanitation installations, such as sewage and water management systems; engineering equipment, such as heating, ventilation, air conditioning and plumbing; laboratories; pharmacies; digital information technologies, including hardware, informatics systems and telemedicine tools; and emergency response infrastructure, such as emergency operation centres and transportation. It is essential to ensure the safety, effectiveness and quality of health products, supplies, equipment and technologies. Quality assurance at a systems level is important to ensure a proper standard of outputs or products of a process. It must be planned and systematic, to be effective, and operates on a dichotomous scale; the findings can inform quality improvement where a deficiency is identified. Tasks relating to quality assurance of public health infrastructure include those for internal and external processes, data gathering, identifying opportunities for improvement, and managing accreditation or licensing processes.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Setting standards and benchmarks for minimum quality criteria for physical infrastructure • Planning external quality assurance for physical infrastructure • Undertaking internal self-assessment and quality assurance for physical infrastructure • Gathering data relating to standards and performance for physical infrastructure • Analysing and evaluating data in relation to standards and performance • Identifying opportunities for improvement • Justifying recommendations and conclusions • Contributing to decision-making processes about accreditation or licensing decisions • Maintaining publicly available registries of accreditation and licensing decisions
Illustrative profiles	
Public health personnel (1) **Health and care workers (2)** **Occupations allied to health (3)**	• Contributing to quality assurance processes as a team member for site visits • Monitoring compliance with quality standards • Identifying opportunities for improvement at facility level
Senior specialists (4)	• Coordinating quality assurance processes, including observation, data gathering, evaluation and writing reports • Identifying opportunities for improvement, including at operational and national levels • Formulating recommendations for decision-making authorities
Policy authority (5)	• Receiving reports of quality assurance activities, outcomes and implications for quality, supply chain and provision of public health • Convening regulatory and decision-making mechanisms relating to quality assurance decisions

Curricular guide	1	2	3	4	5
1. The mandate(s), service(s), role(s), workflows and function(s) of the laboratories, facilities and other physical infrastructure, including in relation to emergency prevention and response	√	√	√	√	√
2. The role and contribution of quality assurance of public health infrastructure towards improving public health	√	√	√	√	√
3. The standards and practices required for quality monitoring, evaluation and auditing	√	√	√	√	√
4. The contribution of quality assurance of public health infrastructure towards the delivery of the EPHFs *(3)* and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
5. The principles, tools and techniques for project management and change management	√	√	√	√	√
6. The local standards and subnational, national, regional, multinational and international policies and legal frameworks that affect and govern systems operations	√	√	√	√	√
7. The requirements and standards for registration, licensure, certification, approval and accreditation of physical infrastructure; and the implications of the outcomes of quality assurance processes	√	√	√	√	√
8. Own role in quality management and quality assurance of physical infrastructure, including role in decision-making authorities	√	√	√	√	√
9. The organization of national, regional, multinational and international networks of laboratories, facilities and other physical infrastructure within the health system	√	√	√	√	√
10. The needs, expectations and quality assurance requirements of different types of products and infrastructure	√	√	√	√	√
11. The role of laboratories, facilities and other physical infrastructure relating to the EPHFs, including surveillance, outbreak investigation and response	√	√	√	√	
12. The components of operations relating to workflow	√	√	√	√	
13. Indicators of routine operations and non-conforming events, as well as effectiveness, and risks of management, reporting and response	√	√	√	√	
14. The equipment, consumables and biological and nonbiological materials required or produced for operations	√	√	√	√	
15. Principles, rules, regulations and essential elements for safety and biosafety, and common safety control measures and procedures, including packaging, labelling and documentation	√	√	√	√	
16. Biological and nonbiological risks relating to equipment, supplies and hazardous materials	√	√	√	√	

Curricular guide	1	2	3	4	5
17. Requirements to notify specific communicable diseases and chronic conditions	√	√	√	√	√
18. The policies, processes and procedures relating to sample collection, handling, transportation, accessioning, processing, referral, storage, retention, chain of custody and disposal	√	√	√	√	
19. The policies, processes and procedures relating to biobanking/ repositories	√	√	√	√	
20. Laboratory design and maintenance requirements	√	√	√	√	
21. The policies, processes and procedures relating to calibration, maintenance, servicing, troubleshooting, repair and decommissioning of equipment and instruments	√	√	√	√	
22. The essential components and functions of a waste management system, including specific requirements for hazardous waste	√	√	√	√	
23. The sources of information, and realistic data ranges, for the inventory of specific operational needs	√	√	√	√	
24. The use of data from and about laboratories, facilities and other physical infrastructure for decision- and policy-making	√	√	√	√	
25. Processes, procedures, requirements and ethical considerations necessary for accessing, recording and using relevant documentation, information management and records systems, and for sharing information across relevant sectors and disciplines	√	√	√	√	
26. The sectors and disciplines working within the human-animal-environment interface	√	√	√	√	
27. Mechanisms for collaboration with internal, and between internal and external, partners and stakeholders	√	√	√	√	√
28. The stages, purposes and goals of quality assurance within quality management cycles, and for public health	√	√	√	√	√
29. Tools for monitoring processes to ensure quality	√	√	√	√	
30. Different types and forms of quality indicators for laboratories, facilities and other physical infrastructure	√	√	√	√	
31. Monitoring and evaluation frameworks, and methods for assessing the effectiveness and impact of quality assurance	√	√	√	√	√
32. Continuous quality improvement strategies	√	√	√	√	√
33. Corrective action processes and procedures	√	√	√	√	
34. Legal, ethical and regulatory frameworks governing the management of public health infrastructure	√	√	√	√	√

Practice activity 10: Establishing and updating public health information and informatics systems	
Public health informatics is the systematic application of information, computer science and technology to public health practice, research and learning *(52)*. Systems for public health information and informatics encompass the systematic collection, storage, analysis and dissemination of information. This includes systems for managing electronic health records, health information exchanges, disease surveillance systems and other digital platforms used to gather, protect and share public health data. The tasks in this practice activity include establishing and managing updates to the infrastructure, data management and information flow, data security and confidentiality, and ensuring that systems are in place to keep abreast of the velocity and veracity of information.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.4; 4.5) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.4; 12.5)
Tasks	• Determining public health information and informatics needs and assets • Planning, designing and developing public health information and informatics systems • Overseeing routine operations of public health information and informatics systems • Overseeing the integration of public health information and informatics systems with other systems and technologies • Ensuring user training, support and guidance • Monitoring the use and applicability of public health information and informatics systems to meet the needs of public health organizations and systems • Monitoring compliance with policies for data verification, cleaning and storing, analysis and reporting • Monitoring compliance with ethical and regulatory requirements
Illustrative profiles	
Public health personnel (1)	• Contributing to evaluations of needs and assets and evaluating performance of public health information and informatics systems • Providing user training and guidance • Monitoring routine operations of public health information and informatics systems
Health and care workers (2)	
Occupations allied to health (3)	
Senior specialists (4)	• Leading the planning, design and development of specialist systems • Coordinating the integration and interoperability of multiple systems • Monitoring compliance and directing improvements to public health information and informatics systems
Policy authority (5)	• Commissioning public health information and informatics systems that are fit for purpose • Ensuring that systems are legally compliant

Curricular guide	1	2	3	4	5
1. Principles, concepts, definitions and terminology relating to public health information and informatics systems	√	√	√	√	√
2. The contribution of public health information and informatics towards delivering the EPHFs *(3)*, and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
3. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
4. The needs, demands, resource availability for and utilization of public health information and informatics systems	√	√	√	√	√
5. The role of health information and informatics systems in public health data management, information exchange, analytics and intelligence	√	√	√	√	√
6. The different health information systems, their types, functions and roles in public health	√	√	√	√	√
7. The different health information and informatics systems available to manage, analyse and disseminate information, including geographic information systems, and technologies for health information	√	√	√	√	√
8. Principles of data management concepts, including data modelling, data warehousing, data mining and data analytics, as they relate to information systems for public health	√	√	√	√	
9. The need for a multistakeholder, multisectoral governance structure for public health information and informatics systems, and approaches for collaboration				√	√
10. The relevant stakeholders for data sources, collection and use				√	√
11. The relationships between non-health information systems and health information systems (interoperability and relationships between different data sets)				√	√
12. Resource requirements for introducing new elements into, using and maintaining an information or informatics system				√	√
13. The implications of process requirements, regulation and legislation for appropriate data governance structure in implementing information systems				√	√
14. The range of data sources and data indicators for information and informatics systems	√	√	√	√	

Curricular guide	1	2	3	4	5
15. Modalities to collect, exchange, access, interrogate and store data, and compliance with relevant regulatory and other frameworks	√	√	√	√	
16. Methods and scope to improve data quality	√	√	√	√	
17. FAIR (findability, accessibility, interoperability and reuse of digital assets) principles in data management	√	√	√	√	
18. Approaches to integrating and applying information, communications and technologies in the information system	√	√	√	√	
19. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
20. Emerging tools and technologies in health informatics, including artificial intelligence, big data, machine learning and blockchain	√	√	√	√	√
21. The principles, tools and techniques for project management and change management				√	
22. Tools for, and approaches to, providing user information, guidance and training	√	√	√	√	
23. Monitoring and evaluation frameworks, and methods for assessing their effectiveness and impact	√	√	√	√	√
24. Legal, ethical and regulatory frameworks governing health information systems and health informatics, including in times of emergencies	√	√	√	√	√

Practice activity 11: Establishing and updating public health intelligence systems

Public health intelligence involves the identification, collection, connection, synthesis, analysis, assessment, interpretation and generation of a wide range of information for actionable insights, and disseminating these for informed and effective decision-making to protect and improve the health of the population *(53)*. Public health intelligence systems thus contribute significantly to the delivery of the EPHFs by harnessing the power of health data analysis and interpretation. Intelligence systems go beyond data management and focus on extracting valuable insights from information and evidence. By utilizing advanced analytics techniques, such as data mining, predictive modelling and visualization, public health intelligence systems identify patterns, trends and potential health risks. They integrate expertise in data analysis, epidemiology and public health research to transform raw data into actionable intelligence. This can then inform evidence-based interventions and policies and emergency management.

EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.2; 3.4) • Multisectoral planning, financing and management (4.4; 4.5) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.4; 12.5)
Tasks	• Determining public health intelligence needs and assets • Determining instruments, tools and methods needed within the public health intelligence system • Mapping the components and workflows of existing public health intelligence systems, and interlinkages across and outside of the health sector • Establishing mechanisms for monitoring, evaluation and continuous quality improvement for public health intelligence, including automation as far as possible • Determining resource needs for public health intelligence systems (physical infrastructure, financial and personnel) • Mobilizing resources for public health intelligence systems • Building teams for public health intelligence systems • Establishing data collection, validation, analysis, reporting, storage and reporting protocols to: – identify communities affected by potential or actual public health threats – identify the nature and scope of drivers of both public health threats and well-being – identify and monitor the distribution and wider determinants of health most significant in driving and amplifying health emergencies – identify and maintain reliable and accessible data sources through data warehouses (open, local, subnational and national) – analyse and interpret epidemiological and other surveillance datasets – assess data quality – use analysed data (results or findings) to prioritize and to recommend responses, on a spectrum from emergency response to maintaining effective programmes – use data and generate reports to communicate effectively with communities and other stakeholders • Identifying barriers to and facilitators of successful system implementation, and actions to address them • Establishing governance for the public health intelligence system

Illustrative profiles	
Public health personnel (1)	• Defining public health intelligence system and user needs • Coordinating maintenance and updates to public health intelligence systems at subnational and community levels • Extracting insights from public health intelligence systems
Health and care workers (2)	• Inputting data • Providing data-driven feedback and advice on strengthening public health intelligence systems and workflows
Occupations allied to health (3)	• Building and maintaining public health intelligence systems
Senior specialists (4)	• Managing resources for public health intelligence systems • Coordinating maintenance and updates to public health intelligence systems at national level, including interlinkages with cross-national systems and intelligence • Influencing policy change to ensure system is responsive to the changing needs of communities
Policy authority (5)	• Mobilizing resources for public health intelligence systems • Engaging with public health agencies and other sectoral government and governance mechanisms for intelligence sharing

Curricular guide	1	2	3	4	5
1. The principles, concepts, definitions and terminology of public health intelligence and its importance in identifying and acting to manage public health threats	√	√	√	√	√
2. The contribution of public health intelligence towards the delivery of the EPHFs *(3)* and the effectiveness of the public health programmes and services that operationalize them	√	√	√	√	√
3. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
4. Existing public health intelligence infrastructure, from local systems to international data warehouses; and issues, including interoperability, duplication, verticalization, workloads and data quality	√	√	√	√	√
5. Different types of data sources used in public health intelligence, including surveillance systems, health surveys, environmental (geography, pollution, weather, socio-economy) data sources and administrative data; as well as approaches to identify non-conventional or innovative data sources	√	√	√	√	√
6. Theories, concepts and methods for population health, biology, biostatistics, behavioural sciences, implementation science, One Health and social epidemiology	√	√	√	√	

Curricular guide	1	2	3	4	5
7. Basic public health and epidemiological theories and applications, research methods, and tools and instruments	√	√	√	√	√
8. Basic information technologies, including use of software, hardware, computers, mobile phones, cloud storage, spreadsheets, dashboards and computer networking	√	√	√	√	
9. The key components of a public health intelligence system, including data sources, data collection, analytical tools, interpretation of analysis, reporting and dissemination mechanisms and governance structures	√		√	√	√
10. The different roles and responsibilities in public health intelligence teams, including computer scientists, data managers and analysts, geographers, sociologists, biostatisticians, epidemiologists and public health experts	√		√	√	√
11. Passive and active surveillance systems, rumour surveillance and monitoring alerts	√		√	√	√
12. Systems approaches to aggregating and managing integrated variables	√		√	√	√
13. Indicators and thresholds that signal the emergence of public health emergencies and trigger response actions	√			√	√
14. Public health intelligence dissemination mechanisms: channels and tools for the communication purpose and stakeholders, including open forum meetings, radio, TV and print media, digital technologies, posters, and music and drama.	√			√	√
15. Surveillance system evaluation processes, reviewing, auditing and updating	√	√	√	√	
16. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
17. The importance of multisectoral governance in public health intelligence systems, including accountability, transparency and stakeholder engagement	√			√	√
18. Monitoring and evaluation frameworks, and methods for assessing the effectiveness of public health intelligence systems, using performance metrics, benchmarking and feedback mechanisms, and their impact on public health outcomes	√	√	√	√	√
19. Legal, ethical and regulatory frameworks governing public health intelligence, including in times of emergencies	√	√	√	√	√

3.6 Practice activity domain II: Public health intelligence

Public health intelligence is the identification, collection, connection, synthesis, analysis, assessment, interpretation and generation of a wide range of information about natural, human-induced and environmental health hazards, which may or not emerge as public health emergencies. It also includes information about population health status, equity, protection and risk factors, the wider determinants of health, health services and system utilization and performance, and the impact of population-based and individual-based health interventions. Public health intelligence is essential because it provides the evidence base for public health policies, services, interventions and activities towards local, national, regional and global health protection and security.

Public health intelligence can come from: epidemiological research; research on the wider determinants of health; health system and services research; research on sectoral and cross-sectoral influences on health and well-being; health technology assessment; health economics, including behavioural economics; behavioural and social science research and analysis; and monitoring and evaluation. A variety of established methods can be used to collect, analyse, interpret and disseminate quantitative (numerical) and qualitative (text, oral and visual) public health data to ensure timely, appropriate and effective responses and actions.

Public health intelligence is a cornerstone of the delivery of the EPHFs. The practice activities set out in Table 6 provide vital intelligence needed to inform actions in the following areas: public health programmes and services (Practice activity domain III); management of public health programmes and services (Practice activity domain IV); and health emergency preparedness, mitigation, response and recovery (Practice activity domain V).

Table 6. Practice activities in domain II: public health intelligence

Establish	**12** Planning investigations for public health **13** Designing instruments, tools and methods for data collection
Detect	**14** Gathering qualitative and quantitative data for investigations for public health **15** Conducting risk assessments and emergency preparedness assessments **16** Maintaining continuous data surveillance and monitoring mechanisms
Assess	**17** Conducting a rapid risk assessment **18** Conducting a public health situation analysis **19** Analysing and interpreting data, information and evidence
Alert	**20** Communicating intelligence to decision-makers **21** Risk communication and community engagement

Practice activity 12: Planning investigations for public health	
Investigations into public health events, or into issues, policies, technologies or products with an impact on public health, are necessary to obtain essential intelligence to inform the management of risks and uncertainties, and to guide evidence-informed decision-making, including in times of emergencies. Investigations include those relating to an acute public health event such as an outbreak; an investigation of health conditions (e.g. physical, social, mental), biomarkers or risk factors (physical, chemical, biological) and treatments; or other kinds of public health research (e.g. health technology assessments, One Health studies, evaluation of medicines, ongoing assessments of population health status, and monitoring and evaluation of service utilization). Careful planning is essential to ensure that the intelligence gathered by an investigation is accurate, comprehensive, reliable and timely.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.4; 2.5) • Public health stewardship (3.3) • Multisectoral planning, financing and management (4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2) • Public health research, evaluation and knowledge (11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.3; 12.4; 12.5)
Tasks	• Describing the context (social, political, economic) • Describing public health phenomena in terms of person, place and time • Identifying the urgency of the investigation and tailoring the approach to the investigation accordingly • Identifying existing sources of data and data indicators, and the need for new data • Assessing the impact of investigations on target populations (differential outcome analysis) • Defining the scope of investigations • Initiating public health investigations • Determining data requirements, including timelines, time periods, geographical considerations, analyses (e.g. medical, environmental) and populations • Identifying the need to adapt data collection tools, methods and databases • Designing investigation and project documents, including data collection forms, log frames, timelines, ethics and regulatory approvals, project records, reports and stakeholder communications • Developing strategies for managing missing data and other departures from compliance, with plans for data management and analysis • Developing investigations' objectives, questions, hypotheses, protocols and reference criteria • Securing necessary ethics and other appropriate approvals • Documenting strategies for data access, storage and back-up, usually as policies or standard operating procedures • Undertaking stakeholder engagement, resource mapping, and needs and assets analysis • Planning for and training field investigation team members in data collection and storage protocols • Planning for monitoring, evaluation and quality improvement cycles • Planning for feedback to key stakeholders and dissemination strategies following investigation

Illustrative profiles	
Public health personnel (1) **Health and care workers (2)** **Occupations allied to health (3)**	• Leading planning of investigations • Proposing investigations' objectives, questions, hypotheses, protocols and reference criteria • Liaising with external stakeholders to secure approvals and access to necessary resources • Training team members to collect and input data • Contributing insights as part of a multisectoral research team (e.g. data criteria, stakeholder engagement, resource mapping and needs and assets analyses)
Senior specialists (4)	• Initiating investigations of national significance, identifying the level of urgency, and tailoring the approach to the investigation • Setting overall strategic direction of the investigatio
Policy authority (5)	• Ensuring public health investigations are well implemented and contribute to the protection and promotion of public healt

Curricular guide	1	2	3	4	5
1. Importance of research in public health, and the role of intelligence from investigations in evidence-informed decision-making	√	√	√	√	√
2. Different types of public health research, including community-based participatory research, health systems research, policy analysis and evaluation, technology assessment, acute public health event investigation, vector surveillance, photographic sequence studies and translational research	√	√	√	√	√
3. Research methodologies, study designs and protocols appropriate for different types of investigation	√	√	√	√	
4. Investigation objectives, research questions, hypotheses, timelines, protocols and reference criteria	√	√	√	√	
5. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	
6. Existing sources and datasets, and methods to assess the availability, quality and reliability of existing data sources relevant to investigations	√			√	
7. Theories, concepts and methods concerning population health, biology, biostatistics, behavioural sciences, implementation science, One Health and social epidemiology	√			√	
8. Information triggers for investigations	√			√	
9. Data collection theories, assumptions, methods and tools	√	√	√	√	
10. Investigation documentation: timelines; ethical and regulatory approvals	√			√	√

Curricular guide	1	2	3	4	5
11. Descriptive and comparative data analyses and investigation reports	√			√	
12. Impact analysis of investigations and intelligence on target population(s)	√	√	√	√	
13. Institutional requirements, communication channels and resource needs for investigations	√	√	√	√	√
14. Tools and approaches for stakeholder engagement, resource mapping, and needs and assets analysis	√	√	√	√	
15. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles	√	√	√	√	√
16. FAIR (findability, accessibility, interoperability and reuse of digital assets) principles of data management and other good practice approaches, such as standardization	√	√	√	√	
17. The principles, tools and techniques for project management	√	√	√	√	
18. Ethical, legal and regulatory frameworks and requirements relevant to investigations	√	√	√	√	√
19. Public health ethics relevant to investigations, including pillars of ethics and communitarian ethics	√	√	√	√	√

Practice activity 13: Designing and adapting instruments, tools and methods for data collection	
Designing and adapting instruments, tools and methods for data collection for public health is a critical process that involves crafting systematic approaches to gathering, analysing and interpreting quantitative and qualitative data and information. This includes the creation of surveys, questionnaires and other data-gathering tools tailored to the context and the research question. This in turn enhances the insights and intelligence gathered from investigations for public health.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2) • Public health emergency management (2.1; 2.2; 2.4; 2.5) • Public health stewardship (3.3) • Multisectoral planning, financing and management (4.1; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2) • Public health research, evaluation and knowledge (11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.3; 12.4; 12.5)
Tasks	• Determining data requirements • Determining hardware and software informatics requirements • Selecting and tailoring appropriate instruments, tools and methods • Designing, validating and adapting valid instruments, tools and methods • Devising mechanisms to collect user feedback • Documenting user guidance, including training of field staff • Piloting instruments, tools, databases and methods • Maintaining documentation • Monitoring compliance with ethical and legal requirements for data collection and storage and public health datasets
Illustrative profiles	
Public health personnel (1)	• Selecting and tailoring instruments and tools to meet the specific requirements of an investigation • Designing new instruments and tools and validating existing ones • Assisting with pilot studies, revision of instruments based on feedback on the usability of instruments and tools. • Overseeing and monitoring data collection, data quality, data storage and analysis systems
Health and care workers (2) **Occupations allied to health (3)**	• Contributing insights into public health practice relevant to the field of practice, to identify relevant data requirements • Contributing to pilot use of data instruments, tools and methods
Senior specialists (4)	• Overseeing the development of instruments and tools across multiple investigations • Liaising with external stakeholders
Policy authority (5)	• Ensuring that instruments and tools used to inform decision-making are aligned with national and international standards and legislation

Curricular guide	1	2	3	4	5
1. Different types of public health research, including community-based participatory research, health systems research, policy analysis and evaluation, technology assessment, acute public health event investigation, vector surveillance, photographic sequence studies and translational research	√	√	√	√	√
2. Investigation objectives, research questions, hypotheses, timelines, protocols and reference criteria	√	√	√	√	√
3. The availability, quality, validity and reliability of existing instruments, tools and methods, including limitations, uncertainties and the role of mixed methods approaches	√			√	
4. Data requirements of the investigation	√			√	
5. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	
6. Theories, concepts and methods concerning population health, biology, biostatistics, behavioural sciences, implementation science, One Health and social epidemiology	√			√	
7. Quantitative and qualitative epidemiological study designs, including objectives, methodologies, uncertainties and outcomes	√			√	
8. Research methodologies, study designs and protocols relevant to the investigation, and the application of tools and instruments	√			√	
9. Quantitative data collection tools and methods, including questionnaire design theory, observational records (e.g. medical data or environmental analyses), data extraction sheets, high-quality management and meta data	√			√	
10. Qualitative data collection theories and practices, including interviews, focus group data, observational data, text analysis and image analysis	√			√	
11. Approaches to adapting data collection instruments, tools and methods to the specific needs of the study population, research question and surveillance objectives	√			√	
12. Role of pilot programmes for establishing data validity, reliability, consistency, errors, completeness and accuracy	√	√	√	√	

Curricular guide	1	2	3	4	5
13. Procedures and protocols for accessing and storing data and information	√	√	√	√	√
14. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
15. FAIR (findability, accessibility, interoperability and reuse of digital assets) principles of data management, and other good practice approaches, such as standardization	√			√	√
16. Documentation requirements, including project management guides, interim reports, data dictionaries, coding systems and decisions, analysis guides and log frame outputs[14]	√	√	√	√	
17. Ethical considerations and best practices in public health investigations	√	√	√	√	√
18. Ethical, legal and regulatory frameworks and requirements relevant to the investigation	√	√	√	√	√

14 A log frame is a tool for improving the planning, implementation, management, monitoring and evaluation of projects. It is a way of structuring the main elements in a project and highlighting the logical linkages between them *(95)*.

Practice activity 14: Gathering qualitative and quantitative data for investigations for public health

Public health investigations play a crucial role in informing decision-making about policies, services and programmes affecting public health, and actions in response to potential or current emergencies. Investigations may include those relating to an acute public health event, such as an outbreak, or other kinds of public health research (e.g. health technology assessments, evaluations of medicines, ongoing assessments of population health status, and monitoring and evaluation of service utilization). The purpose of an investigation is to gather qualitative and quantitative data and information that meet the investigation's objectives, and that inform intelligence. This may include observational studies, surveys, outbreak investigations, social network analysis, systematic reviews, multi-source data linkages, health impact assessments and community-based participatory research.

EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3) • Public health emergency management (2.1; 2.4; 2.5) • Public health stewardship (3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2) • Public health research, evaluation and knowledge (11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.3; 12.4; 12.5)
Tasks	• Verifying the objectives of planned public health investigations, including defining the purpose of data collection • Building multisectoral, multistakeholder investigation teams • Ensuring all project documents are in place, including log frames and timelines, and ethics and regulatory approvals obtained • Selecting data collection tools appropriate for the context and resources • Informing responders and end users about the intention to collect and use data • Supervising data collection and ensuring that data are regularly scanned for completeness and validity • Inputting primary data into data collection system • Retrieving and integrating secondary data from existing datasets and sources • Monitoring compliance with plans for data verification, cleaning and storing, analysis and reporting, including ethical and regulatory requirements • Managing missing data and other departures from compliance with plans for data management and analysis

Illustrative profiles	
Public health personnel (1)	• Verifying the objectives of the investigation and project documents, including log frames and timelines • Supervising data collection and storage: gathering primary data using data collection tools, and inputting primary data into the database • Conducting audits to ensure data verification, cleaning and storing, analysis and reporting • Monitoring ethical and regulatory compliance
Health and care workers (2) **Occupations allied to health (3)**	• Informing responders and end-users about the objectives of the investigation and following procedures for informed consent • Collecting data
Senior specialists (4)	• Developing strategies for managing missing data and other departures from compliance, with plans for data management and analysis • Implementing monitoring, evaluation and quality improvement actions to ensure that investigations lead to actionable recommendations
Policy authority (5)	• Overseeing data collection process for national and multisectoral or multi-partner investigations • Ensuring all stakeholders are informed of and involved in the investigation • Ensuring compliance with regulatory requirements

Curricular guide	1	2	3	4	5
1. Importance of research in public health, and the role of intelligence from investigations in evidence-informed decision-making	√	√	√	√	√
2. Different types of public health research, including community-based participatory research, health systems research, policy analysis and evaluation, technology assessment, acute public health event investigation, vector surveillance, photographic sequence studies and translational research	√	√	√	√	√
3. The content of the plan for the investigation, including investigation objectives, research questions, hypotheses, timelines, reference criteria, log frames, stakeholders and protocols	√	√	√	√	√
4. Theories, concepts and methods concerning population health, biology, biostatistics, behavioural sciences, implementation science, One Health and social epidemiology	√	√	√	√	

Curricular guide	1	2	3	4	5
5. Research methodologies, study designs and protocols appropriate for different types of investigation	√			√	
6. Existing sources and datasets, and methods to assess the availability, quality and reliability of existing data sources relevant to the investigation	√			√	
7. Tools, methods and instruments for collecting and analysing new data	√	√	√	√	
8. Procedures for informing responders and end-users about the intention to collect and use data	√	√	√	√	
9. Principles and components of informed consent, including guardianship consent	√	√	√	√	√
10. Appropriate, efficient and effective communication channels for communicating with team members, responders, stakeholders, end users and population groups	√	√	√	√	
11. Strategies for managing data quality (e.g. adherence to protocols, regular data checks for issues such as missing data and data entry errors, data verification, cleaning, storing, analysis and reporting, including ethical and regulatory requirements, use of codebooks, qualitative data cleaning and coding techniques)	√			√	
12. FAIR (findability, accessibility, interoperability and reuse of digital assets) principles of data management and other good practice approaches, such as standardization	√			√	
13. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
14. The procedures, protocols, and ethics and regulatory requirements for accessing and documenting information	√	√	√	√	
15. Institutional requirements, communication channels and resource needs for the investigation	√			√	√
16. Importance of multisector, multistakeholder teams in public health investigations	√	√	√	√	√
17. The principles, tools and techniques for project management	√	√	√	√	√
18. Ethical considerations, legal requirements and best practices relevant to investigations, including pillars of ethics and communitarian ethics	√	√	√	√	√

Practice activity 15: Conducting risk assessments and emergency preparedness assessments

An all-hazards approach to risk management emphasizes collaboration across sectors and involves the entire society in preparedness and response efforts. The outcomes of risk assessments (or risk profiling) and emergency preparedness assessments provide information and intelligence to guide actions and inform strategies, policies and capacities for health protection and emergency prevention, preparedness, response and recovery. Regular risk assessments facilitate early detection of changes to the probability or impact of the risk, and prompt action.

EPHF subfunctions	• Public health surveillance and monitoring (1.3) • Public health emergency management (2.1; 2.2; 2.4; 2.5) • Multisectoral planning, financing and management (4.5) • Health protection (5.2) • Public health workforce development (9.1) • Public health research, evaluation and knowledge (11.2; 11.4)
Tasks	• Convening assessment oversight group • Mapping hazards, threats and risks to health and security • Identifying lessons from previous events and emergencies, including in other settings, to inform assessment • Evaluating the likelihood of occurrence • Assessing the vulnerability and assets of systems, organizations and communities • Identifying vulnerable populations • Estimating the impact of the risk on health • Determining the estimated level of risk pertinent to public health and social measures • Evaluating the coping capacity of people, organizations and systems • Determining the different options for risk management (prevention and mitigation) for different scenarios • Determining the different options for emergency preparedness and response for different scenarios • Estimating the impact of response measures on health, health systems, economies and societies (secondary impact) • Undertaking a gap analysis of current and ideal levels of preparedness • Identifying priority actions based on the risk ranking, and those that minimize the health-related, social and economic impacts of health emergencies • Drafting key recommendations for preparedness actions • Developing risks profile at national, subnational or local levels • Reporting on risks and risk assessment, including through the IHR (2005) State Party Self-Assessment Annual Reporting Tool *(42)* and the Safety and Security Incident Recording System *(54)*
Illustrative profiles	
Public health personnel (1)	• Leading the process of community or subnational risk preparedness assessment
Health and care workers (2) **Occupations allied to health (3)**	• Contributing expertise and experience about health hazards, risks and impacts relating to their area of practice towards an intersectoral risk preparedness assessment
Senior specialists (4)	• Coordinating the integration of community or subnational risk preparedness assessments into national planning • Leading the process of national risk preparedness assessment
Policy authority (5)	• Ensuring compliance with IHR (2005) *(42)* • Receiving reports and recommendations from the preparedness assessment

Curricular guide	1	2	3	4	5
1. The stages of an emergency response cycle (prevention, mitigation, preparedness planning and readiness, health emergency response, recovery)	√	√	√	√	√
2. The different types of health hazards that may occur in the context	√	√	√	√	√
3. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	
4. Approaches to community engagement that ensure communities are partners in the creation and implementation of acceptable and workable emergency management approaches	√	√	√	√	√
5. The potential immediate consequences of hazards, including harm to human, animal and environmental health, forced displacements, damage to infrastructure, and ecosystem and environmental disruption or degradation	√	√	√	√	√
6. The potential secondary consequences of hazards, and cascading and compounding events, including economic losses, social or political tensions, disruption to health and other services, the effect on health workers, and the compound consequences for human, animal and environmental health and security	√	√	√	√	√
7. Approaches to describing and assessing negative health consequences of a hazard in terms of immediate and secondary consequences in the short, medium and long term	√	√	√	√	
8. Intersections between the immediate and secondary consequences of hazards with social risk factors, including gender, politics, socioeconomic status and disability, or those that act as multiplying factors for all vulnerable populations that may be affected by the hazard	√	√	√	√	√
9. The best available scientific evidence, including primary and secondary data derived from research, assessments, intelligence, evaluations of previous emergencies, meteorological profile descriptions, and anthropological and social science research	√			√	
10. Approaches to describing and assessing exposure to hazards in terms of affected geographical areas, potential impacts, population vulnerabilities and coping capacities	√			√	

Curricular guide	1	2	3	4	5
11. Methods to assess and describe the frequency, seasonality and likelihood of an identified hazard	√	√	√	√	
12. Elaboration of the different scenarios that would require a coordinated response	√	√	√	√	
13. Methods and tools for assessing vulnerability to and severity of risks and their impacts	√			√	
14. Methods and tools for assessing the coping capacity of people, organizations and systems, and the dimensions, including: governance; intelligence systems; functional capacity of health and emergency services; surge capacity workforce; information sharing mechanisms; community capacities; financial resources, including contingency funding; and mechanisms for emergency deployment	√			√	
15. The benefits of risk-based approaches to optimize resource use and prioritize actions that mitigate or reduce risks or their impacts, and responses to potential emergencies	√			√	
16. The availability of previously completed, comparable risk matrices and summaries, and their evidence and scientific basis	√			√	
17. Methods to identify and engage with key stakeholders for strategic risk assessments, including individuals, communities (and hard-to-reach and vulnerable groups), government, policy authorities, technical experts, academics, scientific associations, private sector, humanitarian and development partners within and beyond the health sector, professional associations and civil society groups	√			√	√
18. Participatory methods for exchanging knowledge and consolidating multisectoral lessons about national, subnational and community emergency management	√			√	
19. Methods for integrating multisectoral scientific evidence, expertise and experiences to reach decisions about prioritizations, risks, and preparedness and response actions	√			√	√
20. The range of possible actions in response to potential emergencies, to support the scale-up of preparedness and readiness to respond	√	√	√	√	
21. Institutional requirements, communication channels and resource needs to support the range of possible response options, including infrastructure, equipment and health workforce capacity-building, strategic stockpiling and coordination	√	√	√	√	
22. The components of a risk profile	√	√	√	√	√

Curricular guide	1	2	3	4	5
23. Approaches to using and adapting toolkits for the context, such as the Strategic Toolkit for Assessing Risks[15]	√			√	
24. The reporting requirements of the IHR (2005) *(42)*	√			√	√
25. Applying the outcomes of a risk preparedness assessment	√			√	√
26. Ethical considerations, legal requirements and best practices relating to risk and emergency management	√	√	√	√	√

15 The Strategic Toolkit for Assessing Risk is a methodology that provides a systematic, transparent and evidence-based approach to identify and classify priority risks, in order to inform preparedness activities. The method involves bringing together relevant experts from multiple sectors (e.g. human health, agriculture and animal health) to assess a range of possible risks. The final output is a spreadsheet that ranks the risks and specifies the types of preparedness activities to be undertaken for each risk *(65)*.

Practice activity 16: Maintaining continuous data surveillance and monitoring mechanisms

Maintaining continuous data surveillance and monitoring mechanisms is crucial for identifying changes in notification patterns of health and disease, which indicate possible outbreaks, epidemics and pandemics of all kinds of diseases. This allows for the prediction and anticipation of risks, forecasting planning, preparedness, and effective risk and emergency management, as well as setting public health priorities. Surveillance and monitoring encompass the systematic collection, analysis and interpretation of various types of data and information, including: health status; the wider determinants of health; systems performance; and One Health alerts (e.g. medical, veterinary, environmental). It involves ongoing tracking and assessment of a wide range of health threats and actions, such as communicable diseases, antimicrobial resistance, entry of substandard and falsified products on the market, safety of medicines, incidences of violence, and other health-related trends such as rumours, misinformation and disinformation. Intelligence derived from surveillance and continuous data monitoring can be used to proactively identify emerging threats, assess their impact and make informed decisions to mitigate risks and prioritize interventions. This data-driven approach plays an essential role in the delivery of the EPHFs, ensuring timely and evidence-based responses to protect and promote the health of populations.

EPHF subfunctions	• Public health surveillance and monitoring (1.2; 1.3) • Public health emergency management (2.1; 2.4; 2.5) • Public health stewardship (3.3) • Multisectoral planning, financing and management (4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2) • Public health research, evaluation and knowledge (11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.3; 12.4; 12.5)
Tasks	• Determining data requirements for surveillance and monitoring • Identifying data flow and actors within surveillance systems • Establishing processes for systematic and continuous monitoring of surveillance data, and data sharing • Standardizing thresholds for surveillance alert • Interpreting indicator-based surveillance to detect hazards, threats, emerging risks and outbreaks • Triaging incoming signals from surveillance activities • Identifying triggers for actions, including alerts, investigations and responses • Triggering a rapid risk assessment • Providing recommendations for decision-makers for priority actions, including risk communications • Conducting periodic evaluations of public health surveillance systems • Troubleshooting and maintaining the infrastructure • Revising surveillance systems based on monitoring, evaluation and quality improvement evaluation

Illustrative profiles	
Public health personnel (1)	• Determining local data requirements • Establishing processes for systematic and continuous monitoring of surveillance data • Modelling and standardizing thresholds for surveillance alert • Interpreting indicator-based surveillance • Monitoring media information about public health conditions, rumours and events • Identifying triggers for action, including alerts, investigations and responses • Periodic evaluation of public health surveillance systems • Revision of surveillance systems based on monitoring, evaluation and quality improvement evaluation
Health and care workers (2)	• Interpreting indicator-based surveillance (e.g. patient data, immunization programmes and environmental data)
Occupations allied to health (3)	
Senior specialists (4)	• Supervising data reporters, informants and community volunteers within different parts of the system • Ensuring overall functioning of surveillance systems to detect all hazards, threats, emerging risks and outbreaks • Overseeing the implementation of monitoring, evaluation and quality improvement actions to ensure that surveillance systems are effective and efficient
Policy authority (5)	• Ensuring compliance of the surveillance system with data protection regulations and ethical principles • Facilitating flow of information between decision-makers, supporting evidence-based decision-making, and effective and timely responses

Curricular guide	1	2	3	4	5
1. Objectives of public health surveillance and monitoring systems	√	√	√	√	√
2. Notifications, triggers and response systems	√	√	√	√	
3. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
4. Principles, practices and key actors in surveillance systems	√	√	√	√	√
5. Types of surveillance systems (sentinel, active and passive, syndromic, rumour, community-based), including special systems (such as injury, chronic disease, zoonoses, biological terrorist-related)	√			√	√
6. Theories, concepts and methods concerning population health, biology, biostatistics, behavioural sciences, implementation science, One Health, social epidemiology and predictive analytics	√	√	√	√	

Curricular guide	1	2	3	4	5
7. The relevant data indicators, research methods, applications, tools and instruments for surveillance and monitoring	√	√	√	√	
8. Emerging technologies and innovations for surveillance and data monitoring, such as artificial intelligence support, and natural language processing to interpret medical records	√	√	√	√	
9. Conventional surveillance system establishment methods, including automated data collection	√			√	
10. Reporting responsibilities: standardized reporting, and manual and verbal reporting based on health alerts and context	√	√	√	√	√
11. Established local data sources, indicators and frequencies of data collection, including environmental, veterinary and One Health data collections and news and social media	√	√	√	√	
12. Appropriate biostatistical and qualitative analysis methods to analyse and interpret surveillance data	√			√	
13. Procedures and protocols for accessing and storing data and information	√	√	√	√	
14. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√			√	
15. FAIR (findability, accessibility, interoperability and reuse of digital assets) principles of data management and other good practice approaches, such as standardization	√			√	
16. Local triggers (including community case definitions) for identifying possible outbreaks, emergencies or disasters, suspected or anticipated, whether natural, human-induced or environmental	√	√	√	√	
17. Triggers for health alerts	√	√	√	√	√
18. Documentation requirements, including project management guides, interim reports, data dictionaries, coding systems and decisions, analysis guides and log frame outputs	√	√	√	√	√
19. Principles of monitoring and evaluation of surveillance systems	√	√	√	√	√
20. Ethical considerations, legal requirements and best practices relevant to surveillance and monitoring	√	√	√	√	√

Practice activity 17: Conducting a rapid risk assessment

A rapid risk assessment is an assessment that is undertaken in response to acute public health risks from any type of hazard, defined by the WHO Emergency Response Framework *(55)* to be "any event that may have negative consequences for human health". It is typically conducted when information is urgently required about potential threats to public health or emergencies. This includes events that have not yet led to disease in humans but have the potential to cause human disease through exposure to infected or contaminated food, water, animals, manufactured products or environments *(56)*. A rapid risk assessment informs decision-making about: how to manage and reduce the negative consequences of specific hazards, such as acute public health events or chemical or food hazards; how to implement appropriate and timely control measures; and how to communicate information about risks effectively. Consistent documentation provides a historical record of the rationale for changes made over the course of an event or emergency, including the assessed level of risk, recommended control measures, and key decisions and actions.

EPHF subfunctions	• Public health surveillance and monitoring (1.3) • Public health emergency management (2.1; 2.2; 2.4; 2.5) • Health protection (5.2) • Disease prevention and early detection (6.3) • Public health research, evaluation and knowledge (11.2; 11.4)
Tasks	• Confirming the threat (not a false positive) • Assembling a risk assessment team • Formulating risk questions • Identifying appropriate data sources and markers of health needs • Collecting data to inform the assessment • Assessing primary data about the hazard, the exposure and the context • Interpreting secondary data and information • Measuring or estimating the present and potential impacts • Identifying the needs of vulnerable population groups and potential equity issues • Characterizing the likelihood and consequences of the risk, and the level of confidence in the risk assessment • Recommending control measures and other priority actions, including risk communication, based on the outcome of the risk assessment • Repeating the risk assessment in light of emerging data and information • Evaluating the risk assessment to inform future risk assessments and responses to events and hazards
Illustrative profiles	
Public health personnel (1)	• Establishing a risk assessment team • Conducting a rapid risk assessment • Collecting and analysing data about the risk • Advising on control measures and priority actions appropriate for the level of risk
Health and care workers (2) **Occupations allied to health (3)**	• Contributing to a rapid risk assessment team • Contributing to the collection and interpretation of data • Contributing to the formulation of recommendations
Senior specialists (4)	• Commissioning and validating rapid risk assessments during an emergency • Recommending and validating priority actions based on the rapid risk assessment
Policy authority (5)	• Commissioning a rapid health needs assessment • Receiving recommendations about control measures and priority actions

Curricular guide	1	2	3	4	5
1. The contribution of rapid risk assessments to rapid and defensible decision-making about responses to health hazards	√	√	√	√	√
2. Emergency response structures, policies, procedures and laws locally, nationally and internationally	√			√	√
3. The process and structures of emergency response, including incident command structure, resource allocation, multisectoral coordination and establishment of communication channels	√			√	√
4. Guidance for conducting rapid risk assessments, including hazard-specific risk assessment guidance	√	√	√	√	
5. The basis for characterizing threats (hazards)	√	√	√	√	
6. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
7. The potential immediate consequences of hazards, including harm to humans, animals and the environment, forced displacement, conflict, damage to infrastructure, and ecosystem and environmental disruption or degradation	√	√	√	√	√
8. The potential secondary consequences of hazards, including economic losses, social or political tensions, disruption to health and other services, the effect on health workers, and the compound consequences on human, animal and environmental health	√	√	√	√	√
9. The intersections between the immediate and secondary consequences of hazards and social risk factors, including gender, socioeconomic status and disability, or those that act as multiplying factors for the most vulnerable populations that may be affected by the threat	√	√	√	√	√
10. The range of consequences of an acute public health event and associated control measures with social, technical, scientific, economic, environmental, ethical, policy and political dimensions	√	√	√	√	√
11. The principles of conducting a rapid health needs assessment, including its importance and goals, and factors affecting the assessment[16]	√	√	√	√	√
12. Sources and types of information to be collected during assessments of hazard, exposure and context	√	√	√	√	

16 A health needs assessment is a systematic process of identifying and analysing the health needs of a population or community to inform the development of appropriate health policies, programmes and services. It involves gathering and analysing data on health status, wider determinants of health and inequity, and health service utilization to identify gaps and opportunities for improvement *(96)*.

Curricular guide	1	2	3	4	5
13. Methodologies and tools for undertaking risk assessments, including qualitative and quantitative data collection methods in the context of health emergencies	√	√	√	√	
14. The application of sampling techniques (random, cluster or stratified) in the context of health emergencies	√	√	√	√	
15. Data analysis techniques to describe, analyse and interpret data, such as descriptive and inferential statistics, content analysis and thematic analysis, and how to analyse data quickly for rapid health needs assessments	√			√	
16. The likelihood and nature of false positives (either events that cannot be confirmed as real or when alert thresholds of indicator-based surveillance systems are exceeded but no outbreak results)	√			√	
17. Methodologies and approaches for epidemiological investigations	√			√	
18. The importance of risk communication and community engagement	√	√	√	√	√
19. The vital contribution of surveillance and early warning systems in early detection and response to public health threats	√	√	√	√	√
20. Reporting results of rapid health needs assessments clearly and concisely, including data visualization techniques, and how to prioritize and present key findings to stakeholders	√			√	√
21. Challenges and opportunities associated with conducting rapid risk assessments in different settings, and approaches to adapt existing tools and methods for different contexts	√			√	√
22. The different disciplines that may be needed in risk assessment teams, including technical, local and communication expertise	√			√	√
23. Ethical considerations, legal requirements and best practices for rapid risk assessments and decision-making in crisis situations	√	√	√	√	√

Practice activity 18: Conducting a public health situation analysis	
A public health situation analysis is conducted after the onset of an emergency or crisis to determine the immediate needs of the affected population(s). It focuses specifically on: identifying the current health status; potential changes in the impact or probability of health threats; the functionality of the health system to respond to the crisis; and the humanitarian health response (57). It relies on reviewing the most up-to-date secondary data, and may incorporate primary data when available, and is used to inform the emergency response.	
EPHF subfunctions	• Public health surveillance and monitoring (1.3) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Health protection (5.2; 5.3) • Public health workforce development (9.1) • Public health research, evaluation and knowledge (11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.4)
Tasks	• Defining the scope of the situation analysis in terms of geography and population(s) • Identifying sources of secondary data about the current health status, potential health threats, the functionality of the health system, and the governance mechanisms in place for an emergency response • Analysing and interpreting data • Producing maps and writing assessments of the situation • Repeating the public health situation analysis when required • Reporting and distributing the findings of the initial public health situation analysis and any later analyses
Illustrative profiles	
Public health personnel (1)	• Leading the public health situation analysis for a defined context or geographical area
Health and care workers (2)	• Contributing to sourcing or interpreting data for a public health situation analysis
Occupations allied to health (3)	
Senior specialists (4)	• Leading and coordinating multiple public health situation analyses relating to the same public health issue or event • Managing the distribution of findings of the public health situation analysis for multisectoral decision-making
Policy authority (5)	• Commissioning and receiving a public health situation analysis • Ensuring that the public health situation analysis is used for multisectoral decision-making

Curricular guide	1	2	3	4	5
1. The role of evidence, including rapid assessments of data, in public health decision-making throughout the duration of the emergency	√	√	√	√	√
2. The timing, purpose, role and components of a short-form or initial public health situation analysis, and of repeated long-form or full public health situation analyses	√	√	√	√	√
3. The importance of defining the geographical scope and affected populations covered by the public health situation analysis	√			√	√
4. The importance of accounting for limitations in the evidence base, particularly the short-form or initial public health situation analysis, when used for decision-making	√	√	√	√	√
5. The data needed to assess the situation: health status, potential changes in the impact or probability of health threats, health system functionality, governance structure of a health response, and humanitarian health response	√	√	√	√	√
6. Sources of secondary data, including an existing matrix from a completed Strategy Tool for Assessing Risk profile, internet searches, WHO country office records and ministry websites	√	√	√	√	√
7. Tools and software for data analysis and geographical mapping	√			√	√
8. Methods and tools for data collection and analysis using selected approaches	√			√	√
9. Approaches to interpreting insights from subgroups or disaggregated data analysis, and options for providing subnational information	√			√	√
10. Approaches to presenting imprecise or conflicting data	√			√	√
11. Common epidemiological and statistical methods used to infer trends and for comparative purposes	√			√	√
12. Different measurement scales and implications for selecting statistical methodologies	√			√	√
13. Methods to evaluate the strengths and limitations of data	√			√	√
14. Risks and requirements relating to data accuracy, confidentiality and security	√			√	√
15. Descriptive methodologies, data visualization and reporting techniques	√			√	√
16. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√

Curricular guide	1	2	3	4	5
17. The main components of the financing, organization and delivery of health services, and the structures and functions of different health and social care facilities and units within the health system	√	√	√	√	√
18. The differences between availability, acceptability and accessibility of health services and how they may vary across populations or settings	√	√	√	√	√
19. The roles of the behavioural, commercial, cultural, economic, environmental, political and social determinants of health in both problem onset and solution creation	√	√	√	√	√
20. The principles, tools and techniques for project management	√			√	√
21. The protocols for the release or distribution of public health situation analyses, and any sensitivities to be managed prior to public distribution	√			√	√
22. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
23. Legal and ethical requirements and frameworks relating to conducting and distributing public health situation analyses	√	√	√	√	√

Practice activity 19: Analysing and interpreting data, information and evidence

Analysing and interpreting information and evidence for intelligence is a crucial aspect of evidence-informed decision-making and of programme and service planning. Intelligence requires a process of systematic analysis, interpretation, synthesis and evaluation of various sources of information, including scientific research, data, reports and expert insights. Information and evidence become intelligence when they are contextualized, analysed for patterns or trends, and transformed into actionable insights that can inform decision-makers. Intelligence helps to identify gaps in knowledge, determine the effectiveness of interventions, and understand the evolving public health landscape. This process enables the public health workforce to develop and implement policies, programmes and interventions that are grounded in sound evidence, ensuring the delivery of effective and impactful public health initiatives.

EPHF subfunctions	• Public health surveillance and monitoring (1.3) • Public health emergency management (2.1; 2.3; 2.4; 2.5) • Public health stewardship (3.3) • Multisectoral planning, financing and management (4.1; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2) • Public health research, evaluation and knowledge (11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.3; 12.4; 12.5)
Tasks	• Verifying the accuracy of the data • Validating data: type, range and constraints, completeness, internal consistency, cross-field consistency and external validation • Error identification, handling and reporting • Evaluating the quality, strengths and limitations of data • Processing data for analysis (e.g. data cleaning, coding and alignment using prepared codebooks, norms and data dictionaries) and checking compliance of data with required standards • Developing a plan for data analysis and synthesis • Selecting epidemiological, statistical and other relevant models for data analysis and synthesis • Conducting appropriate analysis and synthesis of data, information and evidence, including statistical modelling, data triangulation and theory-testing • Interpreting trends and insights from data in relation to public health issues (e.g. epidemiological analyses of prevalence, incidence and risk) • Synthesizing evidence from multiple sources and types, including assessment of the level of evidence and conducting meta-analyses • Evaluating intelligence about the risks, relationships between and potential consequences of threats, events, actions and inaction • Determining the specific or additional needs of high-risk and vulnerable populations • Preparing data and information reports and visualizations • Describing a health threat, and health and illness patterns, in a way that supports situational assessment, decision-making, response and monitoring • Identifying additional data needs

Illustrative profiles	
Public health personnel (1)	• Basic modelling of a wide range of public health-related data, including integrating data from multisectoral sources with different definitions • Synthesizing data, information and evidence from a wide range of sources and types • Providing data-driven visualizations, tailored for different types of epidemiological and intelligence data • Interpreting generated evidence and preparing reports and communications appropriate for a variety of stakeholders
Health and care workers (2)	• Assessing and guiding the interpretation of medicine- and health care-related data (e.g. adverse drug reactions, pharmacovigilance, antimicrobial resistance, health trends)
Occupations allied to health (3)	• Assessing and guiding the interpretation of data with an impact on health for example relating to the environment
Senior specialists (4)	• Conducting advanced data modelling • Interpreting data of limited quality or missing data • Providing guidance and advice on the use and interpretation of public health intelligence
Policy authority (5)	• Guiding the use of public health intelligence in policy decision-making • Identifying gaps in data and other sources of information needed for decision-making

Curricular guide	1	2	3	4	5
1. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
2. The availability, quality and reliability of data, information and evidence	√	√	√	√	
3. Theories, concepts and methods concerning population health, biology, biostatistics, behavioural sciences, implementation science, One Health and social epidemiology	√	√	√	√	
4. Conventions for reporting epidemiological data, including issues of privacy and anonymity	√	√	√	√	
5. Data analysis principles, tools and techniques, including demographic data, hypothesis testing, confounders, uncertainties, quality management procedures and assumptions	√	√	√	√	
6. Data analysis plans for both quantitative and qualitative data, based on project-specific data collection tools and data types	√	√	√	√	

Curricular guide	1	2	3	4	5
7. Software for epidemiological and public health data analyses, including statistics, visualization analysis and modelling	√			√	
8. Strategies for managing data quality (e.g. training, developing project specific protocols, data checks for issues such as missing data and data entry errors, data verification, cleaning, storing, analysis and reporting, including ethical and regulatory requirements, qualitative data cleaning and coding techniques)	√	√	√	√	
9. Appropriate tools and systems for data analysis, including open-source data analysis software, cloud storage and collaborations	√	√	√	√	
10. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
11. Assumptions, strengths and limitations of different epidemiological and statistical models and techniques (appropriate data and sample sizes for techniques being used)	√			√	
12. Methodologies and methods for integrating, merging and interpreting data from different sources, including common errors, mitigating strategies and quality management	√			√	
13. Methods for integrating multisectoral scientific evidence, expertise and experiences to make decisions about prioritization, risks and recommended actions	√	√	√	√	√
14. Components of biostatistical and qualitative data analysis: describe, compare, infer, explain and predict	√	√	√	√	
15. FAIR (findability, accessibility, interoperability and reuse of digital assets) principles of data management and other good practice approaches, such as standardization	√	√	√	√	
16. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√

Curricular guide	1	2	3	4	5
17. Means of accounting for population variability in study outcomes, including confounding and effect modification, hypothesis testing and testing assumptions	√			√	
18. Components of public health investigation and research reports	√			√	
19. Relationships between public health events or threats and other contributing social and environmental factors	√	√	√	√	√
20. The principles of evidence-informed decision-making	√	√	√	√	√
21. Ethical, legal and regulatory frameworks and requirements relevant to public health data, information and evidence	√	√	√	√	√

Practice activity 20: Communicating intelligence to decision-makers	
Evidence-informed decision-making in public health involves using public health intelligence and research findings to guide policy practice, and emergency response management. Communicating intelligence to decision-makers is the process of providing relevant and accurate information, insights and analysis to enable effective decision-making. It aims to present data in a clear and accessible manner. Effective communication enhances the implementation of evidence-based interventions. While similar to advocacy, communicating intelligence focuses on providing information and analysis, while advocacy seeks to influence decision-making for a specific cause or perspective.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3) • Community engagement and social participation (8.3) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2) • Public health research, evaluation and knowledge (11.2; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.3; 12.4; 12.5)
Tasks	• Identifying communication needs and assets • Summarizing data using descriptive and comparative statistics • Creating and sharing data visualizations, including maps and graphics • Creating a communications strategy • Identifying key messages supported by data, information and evidence • Determining the urgency of communications • Identifying target audiences, languages, cultural contexts, awareness and communication goals • Identifying and selecting appropriate tools or platforms and timelines for communication • Communicating public health messages using a variety of platforms and tools, including policy briefs, reports, peer-reviewed papers, open data, oral presentations, media, social networks, open public forums and community advocates • Identifying opportunities for public health advocacy • Defining strategies to respond to and counter rumours, misinformation and disinformation • Facilitating knowledge sharing (e.g. through a community-of-practice, workshops, news updates and articles) • Evaluating and redirecting communication activities in response to feedback

Illustrative profiles	
Public health personnel (1) **Health and care workers (2)** **Occupations allied to health (3)** **Senior specialists (4)**	• Determining communication needs, identifying key messages supported by data and information, summarizing data and creating basic data visualizations • Determining the urgency of communications, conducting stakeholder analyses, identifying opportunities for evidence and advocacy and responding to misinformation • Using appropriate tools, platforms and timelines for communication and knowledge sharing • Evaluating and redirecting communication activities in response to on feedback • Briefing a skilled multimedia communicator • Collaborating with stakeholders to determine and monitor the goals of communication activities and coordinating the work
Policy authority (5)	• Ensuring that intelligence is accurately communicated, up to date, and used to inform decision-making

Curricular guide	1	2	3	4	5
1. The theories, models and principles of implementation science in relation to policy communications and evidence-informed decision-making	√	√	√	√	√
2. The content and components of public health communications, including goals and objectives, principles, audiences, actions, timelines, tools, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	√
3. Best practices for tailoring communications content, methods and platforms to the needs of specific audiences, including policy decision-makers	√	√	√	√	√
4. Principles of risk communications, and the need for and level of urgency of different public health communications and decisions	√	√	√	√	√
5. Tools, software and approaches to creating data visualizations and impactful graphics and materials	√	√	√	√	
6. Appropriate uses of multimedia data and presentation methods	√	√	√	√	
7. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
8. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√

Curricular guide	1	2	3	4	5
9. Approaches to stakeholder mapping, community engagement and social participation	√	√	√	√	
10. Methods for identifying target audiences based on information about cultural, demographic and socioeconomic characteristics, and their communication needs (including literacy about the issue, and social media literacy)	√	√	√	√	√
11. Relevant and appropriate uses of a range of channels and tools for public health communication, including digital technologies, posters and open forum meetings	√	√	√	√	
12. Communication strategies for large and small organizations	√	√	√	√	
13. The values and agendas of the target audience, their governance, authority and resources, and opportunities to position the public health issue as an area of mutual benefit	√	√	√	√	
14. The range of stakeholders with an interest in or impact on public health: those who have a vested interest in a programme or issue; those who can contribute insights from experience or expertise; and/or those who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	
15. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections and differences between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	
16. The communication goals (e.g. dissemination of evidence-based information, confirming opening hours and contact information, countering myths, information gathering) and intended outcomes	√	√	√	√	
17. Methods to identify rumours, misinformation, disinformation and infodemics, associated risks and consequences of these, and strategies to counteract them (e.g. through community engagement)	√	√	√	√	
18. Methods to fact-check and verify the content to be communicated	√	√	√	√	
19. Methods to translate complex information into digestible formats and selection of appropriate communication methods	√	√	√	√	
20. The theory of change for the issue	√	√	√	√	

Curricular guide	1	2	3	4	5
21. Transitions from policy development to policy implementation, relevant to the policy in question (e.g. how to translate a policy for equitable access to essential medicines through the supply chain, integration into clinical practice and access to health services)	√	√	√	√	√
22. The cultural context affecting how different audiences interpret intelligence, and culturally appropriate practice, language and graphics	√	√	√	√	
23. The influences of social, organizational and individual factors on the use of information technology and access to different communication channels	√	√	√	√	
24. Principles of planning, tailoring and managing linear and non-linear communication with the participation of target audiences	√	√	√	√	
25. The impact of communication on comprehension, creating or dispelling myths, satisfaction and hope	√	√	√	√	
26. The role of public health infrastructure in collecting, processing, maintaining and disseminating information	√	√	√	√	√
27. Importance of feedback in designing effective communication strategies for decision-making	√	√	√	√	√
28. Monitoring and evaluation frameworks and methods for assessing the effectiveness and impact of communication	√	√	√	√	√
29. Monitoring and evaluation frameworks and mechanisms to track, report and act on feedback about policy communication (scope, time period, content and key performance indicators)	√	√	√	√	√
30. Ethical considerations, legal requirements and best practices relating to policy communication	√	√	√	√	√

Practice activity 21: Risk communication and community engagement

Community engagement is a process of developing relationships that enable stakeholders to work together to address health-related issues and promote well-being to achieve positive health impact and outcomes *(58)*. In conjunction with this, effective risk communication engages the community by using languages and channels that people trust and understand, empowering individuals and communities to make informed choices and take necessary actions to protect themselves, their families and communities from potential health hazards *(59)*. Risk communication and community engagement are essential to help prevent or mitigate negative health impacts of events or threats and evolving public health intelligence, and to enable changes in behaviour, environments, policies, programmes and practices within communities. It is crucial throughout the emergency management action cycle. It involves providing accurate and timely information about health risks and actions that individuals can take to safeguard their well-being and that of their communities. The IHR (2005) emphasize the significance of risk communication as a health intervention, requiring all WHO Member States to develop risk communication capacities as core capacities *(42)*. In summary, risk communication and community engagement are integral to public health, not only providing essential information but also empowering communities to instigate informed changes for a collective and effective response to health challenges.

EPHF subfunctions	• Public health surveillance and monitoring (1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Prevention and early detection (6.1; 6.3) • Health promotion (7.1; 7.3; 7.4) • Community engagement and social participation (8.2; 8.3; 8.4; 8.5) • Health service quality and equity (10.1; 10.2) • Public health research, evaluation and knowledge (11.2; 11.4)
Tasks	• Identifying the issue of concern and triggers for communication and engagement • Planning for risk communication and community engagement • Identifying the characteristics, goals and objectives of risk communication and community engagement • Identifying specific actions and intended outcomes for different stakeholder groups • Assessing information needs, community perceptions, beliefs, cultural considerations and communication preferences • Establishing local community engagement mechanisms and networks • Identifying communities, other stakeholders and constraints • Identifying the communication tools, mechanisms, trusted community members and resources needed • Developing a risk communication and community engagement strategy • Developing key messages and supporting information • Pre-testing messages for relevance, readability, comprehension and impact • Implementing the risk communications strategy • Monitoring the impact of risk communications and community engagement • Monitoring evolving community needs • Evaluating the effectiveness and impact of communication activities • Adapting the risk communication and community engagement strategy in response to feedback and changing circumstances • Documenting and sharing lessons learned and best practices • Reporting on IHR (2005) requirements *(42)*

Illustrative profiles	
Public health personnel (1)	• Eliciting stakeholder concerns • Tailoring risk communication and community engagement approaches to different issues, threats, communities and other needs • Coordinating engagement with networks of local stakeholders to guarantee the flow of information across sectors
Health and care workers (2) **Occupations allied to health (3)**	• Working with trusted community advocates to build community engagement and disseminate risk communications • Monitoring the impact of communication and engagement, and evolving community needs
Senior specialists (4)	• Coordinating risk communication and community engagement about specific emerging intelligence • Developing a risk communication strategy • Providing crisis communications
Policy authority (5)	• Ensuring that emergency risk communication is part of preparedness activities • Overseeing agency and organizational networks of risk communication and engagement across geographical, disciplinary and, where appropriate, national boundaries • Ensuring that communities are partners in decision-making that affects them

Curricular guide	1	2	3	4	5
1. The purpose and importance of risk communications and community engagement throughout health emergency management, including preparedness	√	√	√	√	√
2. The content and components of a risk communications and community engagement strategy, including goals and objectives, principles, audiences, actions, timelines, tools, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	√
3. The different types of health and security hazards that may occur	√	√	√	√	√
4. The concerns of, impact on, interests of, and actions for the different communities	√	√	√	√	√
5. The potential immediate consequences of hazards, including harm to human, animal and environmental health, forced displacement, conflict, damage to infrastructure, and ecosystem and environmental disruption or degradation	√	√	√	√	√
6. The potential secondary consequences of hazards, including economic losses, social or political tensions, disruption to health and other services, the effect on health workers, and the compound consequences on human, animal and environmental health	√	√	√	√	√

Curricular guide	1	2	3	4	5
7. The intersections between the immediate and secondary consequences of hazards and social risk factors, including gender, socioeconomic status and disability, or those that act as multiplying factors for the most vulnerable populations that may be affected by the threat	√	√	√	√	√
8. The best available scientific evidence, including primary and secondary data derived from research, assessments, intelligence, evaluations of previous emergencies, meteorological profile descriptions, and anthropological and social science research	√			√	√
9. Definitions of and approaches to community engagement that are community-oriented, community-based, community-managed and community-owned	√	√	√	√	√
10. Methods for identifying target audiences, based on information about cultural, demographic and socioeconomic characteristics, and their communication needs	√	√	√	√	√
11. Approaches to community engagement that ensure communities are partners in the creation and implementation of acceptable and workable public health actions and emergency response solutions for those affected	√	√	√	√	√
12. Community engagement principles: trust, accessibility, contextualization, equity, transparency and autonomy	√	√	√	√	√
13. Theoretical models of community engagement, community mobilization and participatory design	√	√	√	√	√
14. Enabling factors for successful risk communication and community engagement: governance, leadership, decision-making, communication, collaboration, partnership and resources	√	√	√	√	√
15. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
16. Tools to map and identify different community groups and subgroups with an interest in or affected by public health issues, including nontraditional stakeholders, such as unstructured and structured networks and communities (e.g. unions, employer associations, professional associations and online communities of native health workers)	√			√	√
17. Techniques and facilitation skills for effective formal and informal community engagement activities, including town hall meetings, workshops, consultations and other events	√	√	√	√	√
18. Strategies for effectively communicating the findings and outcomes of community engagement processes with key stakeholders	√			√	√

Curricular guide	1	2	3	4	5
19. Approaches to integrating community inputs and recommendations into decision-making processes	√	√	√	√	√
20. Institutional requirements, communication channels and resource needs to support risk communication and community engagement	√			√	√
21. Strategies for effective risk communication and community engagement	√			√	√
22. Strategies for addressing challenges to community engagement, including community polarization, marginalization and distrust	√			√	√
23. The importance of building trust with communities and stakeholders for effective communication networks	√	√	√	√	√
24. The principles, theories and good practices for risk communication, emergency risk communication and community engagement	√	√	√	√	√
25. The contents of risk communication, including explicit information about uncertainties associated with risks, events and interventions, and what is known and not known	√	√	√	√	√
26. Approaches to risk communication interventions that build trust, transparency, timeliness and accessibility	√	√	√	√	√
27. Participatory approaches to communication planning, including the involvement of at-risk communities and populations	√	√	√	√	√
28. Approaches to ensure clear, consistent, honest and reasoned risk communication messages	√	√	√	√	√
29. Methods to identify rumours, misinformation, disinformation and infodemics, the associated risks and consequences, and strategies to counteract them (e.g. through community engagement)	√	√	√	√	√
30. Messages that promote specific actions for protecting health	√	√	√	√	√
31. Approaches to tailoring messages for different populations and utilizing appropriate communication strategies and channels	√	√	√	√	√
32. Platforms, methods and channels for risk communication and community reporting, feedback and engagement	√	√	√	√	√
33. The role of social media in engaging the public and monitoring and responding to rumours and concerns	√	√	√	√	√
34. The inclusion of both social and traditional media in an integrated communication strategy	√			√	√
35. Crisis communication strategies, including responding to media inquiries				√	√
36. The importance of governance and leadership in risk communications and community engagement				√	√

Curricular guide	1	2	3	4	5
37. Methods and tools to monitor and assess the effectiveness of communications and adjust them where necessary	√			√	√
38. Monitoring and evaluation frameworks and methods for assessing the effectiveness of community engagement initiatives and the impact of risk communication	√			√	√
39. Monitoring and evaluation frameworks and mechanisms to track, report and act on the impacts of risk communication and community engagement (scope, time period, content and key performance indicators)	√	√	√	√	√
40. Reporting requirements on risk communication and community engagement activities, including the IHR (2005) State Party Self-Assessment Annual Reporting Tool *(42)*	√	√	√	√	√
41. Ethical considerations, legal requirements and best practices in risk communication and community engagement	√	√	√	√	√

3.7 Practice activity domain III: Public health programmes and services

Health and allied sector programme and service planning is essential for preventing disease and for promoting and protecting the health, well-being and security of communities and the public. "Programmes and services" is a broad term that includes initiatives, interventions and actions that may be implemented by governments, civil society groups, intra- or intersectoral partnerships, organizations or communities to improve the health and well-being of populations, on either an ongoing basis (services) or for a fixed duration (programmes). They aim to prevent disease and injury, promote healthy behaviours and address social and environmental factors that impact health outcomes. Programmes and services may include a range of health priorities or approaches, for example, immunization, water, sanitation and hygiene engineering, agricultural practice or urban planning.

To be effective, planning and service and programme development must be evidence-informed, and contextualized to suit: the needs of the communities or populations, the theory of change rooted in behavioural sciences, the available resources within and beyond the health sector, and potential barriers and opportunities. Public health programmes and services require careful planning, stakeholder collaboration, resourcing, communications (information and campaigns), execution, monitoring and evaluation, and ongoing quality improvement (Table 7). These tasks are essential to develop, implement and evaluate successful interventions that address the health needs of communities, promoting positive health outcomes and health equity towards the achievement of UHC and the SDGs.

Table 7. Practice activities in domain III: planning, delivering and assessing public health programmes and services

Planning	**22** Planning public health programmes and services **23** Developing a stakeholder engagement strategy
Delivery	**24** Collaborating with stakeholders **25** Executing public health programmes and services **26** Advocacy for public health **27** Providing information and resources to improve community health and well-being **28** Developing and delivering public health campaigns
Monitoring, evaluation and quality improvement	**29** Monitoring, evaluation and reporting **30** Continuous quality improvement of programmes and services

Practice activity 22: Planning public health programmes and services	
Programme and service planning plays a vital role in improving population health and health equity by ensuring the comprehensive, stakeholder-supported development and implementation of evidence-based programmes and services towards the delivery of the EPHFs as part of broader health system planning. Through careful understanding of community needs, theory of change, available resources and potential barriers, public health programmes can be co-designed with communities to effectively prevent disease, promote healthy behaviours and address determinants of health, and prevent or mitigate the impacts of health emergencies, with a view to improving health and health security.	
EPHF subfunctions	• Public health monitoring and evaluation (1.1; 1.4) • Public health emergency management (2.1; 2.2; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.2; 8.4; 8.5) • Health service quality and equity (10.1; 10.2; 10.3) • Health products, supplies, equipment and technologies (12.1; 12.2)
Tasks	• Confirming the needs and objectives of the programme or service • Building an oversight reference group • Identifying contextual barriers and enablers • Developing log frames and indicators for use in programme/service development, execution and monitoring and evaluation • Contextualizing interventions for local context and conditions • Securing or mobilizing resources for programme/service execution, including accompanying communications, collaboration and engagement, quality management and monitoring and evaluation • Assessing the feasibility and practicality of programme/service implementation • Securing approval for programme/service execution
Illustrative profiles	
Public health personnel (1)	• Planning for the delivery and implementation of subnational or community programmes or services
Health and care workers (2) **Occupations allied to health (3)**	• Providing feedback about feasibility of programme and service implementation, based on local conditions, to inform revisions to programme planning, implementation and stakeholder engagement • Planning and participating in programmes in community settings • Mobilizing for community participation (e.g. facilitating consultation events)
Senior specialists (4)	• Coordinating the planning of programmes and services at national level • Revising programme plans for formal evaluation, evolving intelligence and internal/external decision-making • Securing resources to execute the programme or service
Policy authority (5)	• Confirming the needs and objectives of programmes and services at all levels • Mobilizing resources for programmes and services • Acting to ensure continuity and sustainability of programmes and services

Curricular guide	1	2	3	4	5
1. The goals, purpose and objectives of the public health programme or services, including role within the health system, broader local or national improvement programme, to improve population health and health security	√	√	√	√	√
2. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
3. The drivers for change (behavioural, commercial, cultural, economic, environmental, political and social)	√	√	√	√	√
4. The public health priorities for the population(s), as guided by public health intelligence, community engagement and the local, national and international political, social, environmental and economic context	√	√	√	√	√
5. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
6. The importance of participatory decision-making for programmes and services co-owned by the population, communities and civil societies	√	√	√	√	√
7. Approaches to community engagement and social participation, including those that are community-oriented, community-based, community-managed and community-owned	√	√	√	√	√
8. Principles of co-creation, co-development and community and stakeholder engagement	√	√	√	√	√
9. The impact of economic, environmental, political and social determinants of health in both the onset of problems and the creation of solutions	√	√	√	√	√
10. Stages of programme planning: strategy selection, implementation, evaluation and sustainability of programmes	√	√	√	√	√
11. Specific considerations for programme/service execution in the event of emergencies, and contingency planning and resourcing	√	√	√	√	
12. Principles of design for multilevel public health interventions, including: awareness of current/best practice, theories and methods for user-rich experience, usability and interface design; social inoculation interventions; health/digital literacy education; community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√			√	√

Curricular guide	1	2	3	4	5
13. The organizational structure(s), partnerships and systems used to develop and deliver programmes and services, including accountability structures and governance mechanisms	√			√	√
14. Institutional requirements, communication channels and resource needs for programmes and services	√	√	√	√	√
15. The principles, tools and techniques for project management and change management, including log frames that clarify relationships between variables such as resources, timeframe, activities and desired results	√			√	√
16. Tools and approaches for planning and managing programme schedules, resources, budgets, cost, cost-effectiveness, cost-benefit, impact and scope	√	√	√	√	
17. The interrelationships between health systems influencing the health of communities, including One Health components	√	√	√	√	√
18. Setting-based approaches to community health, including those linked to the management of risks of emergencies	√	√	√	√	
19. Approaches to meeting the additional needs of vulnerable populations in accessing and engaging with health services	√	√	√	√	
20. Strategy planning approaches and identification of development partners to secure resources needed to implement programmes and services	√	√	√	√	
21. Principles of and approaches for risk communication and community engagement	√	√	√	√	√
22. Methods to identify, involve and empower stakeholder groups and potential partners in programme planning, implementation and monitoring	√	√	√	√	
23. The range of stakeholders with an interest in or impact on public health, those who have a vested interest in a programme or issue, those who can contribute insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	
24. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections and differences between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	
25. Methods to identify contextual needs, risks, barriers, solutions and impacts relevant to health programmes and services	√			√	
26. Different types of contextual barriers and enablers, including resources (financial, physical and human)	√			√	

Curricular guide	1	2	3	4	5
27. Methods to facilitate partnership working, such as shared goals, feedback and addressing barriers	√	√	√	√	
28. Approaches to stakeholder engagement and social participation for co-development and co-ownership of programmes and services	√	√	√	√	
29. Methods to facilitate behavioural or cultural changes	√	√	√	√	
30. Risk and safety measures and equipment to ensure safety for self, other members of the workforce and target populations	√	√	√	√	
31. Monitoring and evaluation frameworks, and methods for assessing the effectiveness of the programme/service and its impact on public health outcomes	√	√	√	√	
32. Quality management approaches during programme and service execution and monitoring and evaluation	√	√	√	√	
33. Approaches to ensuring sustainability of programmes and services, and responsiveness to evolving population health needs, including handover to community ownership	√			√	√
34. Local and national procedures and protocols	√	√	√	√	√
35. Ethical considerations, legal requirements and best practices in programme and service planning	√	√	√	√	√

Practice activity 23: Developing a stakeholder engagement strategy

Stakeholder engagement and community participation are crucial for the success of programmes and services towards the delivery of the EPHFs. A stakeholder engagement strategy specifies the direction, consistency and clarity needed for effective collaboration and co-ownership with diverse stakeholders, including communities, organizations and policy-makers. By engaging stakeholders in the planning, implementation and evaluation of public health programmes and services, the strategy ensures that the needs, perspectives and expertise of key stakeholders are incorporated, leading to more relevant, acceptable and impactful public health interventions.

EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Identifying the full range of key stakeholders with a vested interest in the programme or service, who can contribute relevant insights, and/or who are affected by its outcomes • Mapping the interests of, insights from, impacts for and influences of each stakeholder for different programme scenarios • Defining different approaches for stakeholder engagement according to whether the stakeholders should be collaborators in the programme, in the decision-making processes, and/or who need to be informed about the programme • Identifying the timing and goals for stakeholder engagement, including their information needs, the platform to be used and information to be sought or provided • Identifying internal and external facilitators and barriers to engagement, and strategies to overcome these • Documenting the different stakeholder engagement strategies • Consulting on the stakeholder engagement strategies • Revising the strategies throughout the programme in response to feedback and results
Illustrative profiles	
Public health personnel (1)	• Developing a stakeholder engagement strategy for a public health programme or service, that may encompass health and allied sectors, and communities
Health and care workers (2)	
Occupations allied to health (3)	
Senior specialists (4)	• Developing a stakeholder engagement strategy for a public health programme, that may encompass health and allied sectors and communities, including across international borders
Policy authority (5)	• Ensuring that subnational or community stakeholder engagement strategies are developed • Developing stakeholder engagement strategies for national- or systems-level interventions

Curricular guide	1	2	3	4	5
1. The goals, purpose and objectives of the public health programme or services, including role within the health system, broader local or national improvement programme, to improve population health and health security	√	√	√	√	√
2. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
3. The interactions between, and consequences of change on, different parts of the health system	√	√	√	√	√
4. The range of stakeholders with an interest in or impact on public health, those with a vested interest in a programme or issue, those who can contribute insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	√
5. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	√
6. The importance of stakeholder representation, equality of gender and ethnicity, and diversity of voices and perspectives, including historically marginalized or underrepresented voices	√	√	√	√	√
7. Tools to map and identify different community groups and subgroups with an interest in or affected by public health issues, including nontraditional stakeholders, such as unstructured and structured networks and communities (e.g. unions, employer associations, professional associations and online communities of native health workers)	√	√	√	√	√
8. The importance of stakeholder engagement and participatory approaches for managing expectations, building trust, reducing risks, improving decision-making, facilitating empowerment and promoting synergy across programmes as well as social participation	√	√	√	√	√
9. The importance of community engagement to ensure communities affected by public health problems are partners in the co-creation and co-implementation of programmes that affect them	√	√	√	√	√
10. The different types of stakeholders, including individuals, communities, health and care workers, the public, institutions, government agencies, industry representatives, regulatory organizations, public and private, official and unofficial; and the nature of relationships that unlock individual and collective action	√	√	√	√	√

Curricular guide	1	2	3	4	5
11. Techniques to manage dynamics between different stakeholders, with differing or conflicting interests, goals or levels of influence, in order to reach consensus	√	√	√	√	√
12. Theories, methods and tools for stakeholder engagement, community engagement and participatory design	√	√	√	√	√
13. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
14. Contents and components of a stakeholder engagement strategy	√	√	√	√	√
15. Target roles and responsibilities of different stakeholder groups, and desired outcomes of stakeholder involvement relevant to the programme	√	√	√	√	√
16. The needs of different stakeholders that shape their engagement throughout the programme (e.g. informed partnership, psychological support, training and resources); and the user experience of interactions	√	√	√	√	√
17. Methods to assess stakeholders' interests and level of influence on the programme, including potential areas of conflict, agreement and collaboration	√	√	√	√	√
18. Methods to identify internal and external facilitators and barriers to engagement, and strategies to overcome the latter	√	√	√	√	√
19. The media landscape and media consumption patterns of various target audiences	√	√	√	√	√
20. Monitoring and evaluation frameworks and mechanisms to track, report and act on stakeholder engagement, including community feedback mechanisms such as desired behavioural change, the information provided and received, and satisfaction with the progress of the programme (scope, time period, content and key performance indicators)	√	√	√	√	√
21. Institutional requirements, communication channels and resource needs to support stakeholder engagement, and the different tools, methods and approaches	√	√	√	√	√
22. Ethical considerations, legal requirements and best practices relating to stakeholder collaboration and engagement	√	√	√	√	√

Practice activity 24: Collaborating with stakeholders	
Collaborating with stakeholders in the planning, implementation and evaluation of public health programmes and services is crucial for their success. Collaborative approaches are founded on principles of co-ownership, and effective public health interventions require input and involvement from various key stakeholders, including government agencies, service organizations, community organizations and individuals themselves, leading where appropriate to citizen control. By engaging stakeholders at all levels, from programme design to evaluation, the needs, perspectives and expertise of each stakeholder can be incorporated into the development and execution of public health programmes and services. This collaborative process leads to more relevant and impactful interventions, as well as desired behavioural changes within communities. Moreover, stakeholder collaboration at the systems level helps to align resources, optimize coordination and promote sustainability of public health programmes, ultimately contributing to improved population health outcomes.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Confirming the contents of the stakeholder engagement strategy • Confirming the context and desired outcomes of engagement • Establishing contact with each stakeholder group identified in the engagement strategy • Conducting orientation and awareness meetings and outreach • Listening to stakeholders' ideas and concerns, and how they wish to be engaged • Facilitating engagement between individuals and organizations in a collaborative partnership • Establishing mechanisms in the programme plan for partnership and collaboration at different levels • Implementing the stakeholder engagement strategy • Facilitating capacity-building through study, planning, training, action and reflection • Advocating with and on behalf of the stakeholder groups • Identifying challenges and providing feedback to inform updates to both the programme or service implementation and the engagement strategy • Managing ongoing relationships with stakeholders • Monitoring the impacts of stakeholder engagement strategy against goals • Documenting and disseminating lessons

Illustrative profiles	
Public health personnel (1)	• Leading stakeholder collaborations for subnational or community programmes or services
Health and care workers (2)	• Supporting execution of overall stakeholder engagement approach • Leading collaborations with specific stakeholder groups within the overall approach • Developing and implementing actions to address facilitators and barriers to engagement and partnership
Occupations allied to health (3)	
Senior specialists (4)	• Leading stakeholder collaborations for national programmes or services
Policy authority (5)	• Leading stakeholder collaborations for systems enablers and formal governance mechanisms

Curricular guide	1	2	3	4	5
1. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
2. Contents and components of the planned stakeholder engagement strategy, including goals and objectives, principles, audiences, actions, timelines, tools, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	√
3. The goals, purpose and objectives of public health programmes or services	√	√	√	√	√
4. Key stakeholders within the health system relevant to the delivery of the public health programme or service, and the interactions between and consequences of change on different parts of the health system, including those outside of the health sector with an interest in or impact on health	√	√	√	√	√
5. The importance of stakeholder representation, equality of gender and ethnicity, and diversity of voices and perspectives	√	√	√	√	√
6. Tools to map and identify different community groups and subgroups with an interest in or affected by public health issues, including nontraditional stakeholders, such as unstructured and structured networks and communities (e.g. unions, employer associations, professional associations and online communities of native health workers)	√	√	√	√	√

Curricular guide	1	2	3	4	5
7. The importance of stakeholder engagement and participatory approaches for managing expectations, building trust, reducing risks, improving decision-making, facilitating empowerment and promoting synergy across programmes, as well as social participation	√	√	√	√	√
8. The importance of community engagement to ensure that communities affected by public health problems are partners in creating and implementing programmes that affect them	√	√	√	√	√
9. The different types of stakeholders, including individuals, communities, health and care workers, the public, institutions, government agencies, industry representatives, regulatory organizations, public and private, official and unofficial; and the nature of relationships that unlock individual and collective action	√	√	√	√	√
10. Theories, methods and tools for stakeholder engagement, community engagement and participatory design	√	√	√	√	√
11. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
12. Target roles and responsibilities of different stakeholder groups, and desired outcomes of stakeholder involvement relevant to the programme	√	√	√	√	√
13. The needs of different stakeholders that shape their engagement throughout the programme (e.g. informed partnership, psychological support, training and resources); and the user experience of interactions	√	√	√	√	√
14. Methods to assess stakeholders' interests and level of influence on the target audience, including potential for conflict, agreement and collaboration	√	√	√	√	√
15. Methods to identify internal and external facilitators and barriers to engagement, and strategies to overcome the latter	√	√	√	√	√
16. Strategies for local and intersectoral coordination and collaboration	√	√	√	√	√
17. Monitoring and evaluation frameworks and mechanisms to track, report and act on recommendations to improve stakeholder collaboration (scope, time period, content and key performance indicators)	√	√	√	√	√
18. Techniques to manage dynamics between different stakeholders, with differing or conflicting interests, goals or levels of influence, in order to reach consensus	√	√	√	√	√

Curricular guide	1	2	3	4	5
19. The media landscape and media consumption patterns of various target audiences	√	√	√	√	√
20. Monitoring and evaluation frameworks, and methods for assessing the effectiveness and impact of communication activities, including community feedback mechanisms (e.g. desired behavioural change, the information provided and received, and satisfaction with the progress of the programme)	√	√	√	√	√
21. Institutional requirements, communication channels and resource needs to support stakeholder engagement, and the different tools, methods and approaches; and access to additional resources if needed	√	√	√	√	√
22. Ethical considerations, legal requirements and best practices relating to stakeholder collaboration and engagement	√	√	√	√	√

Practice activity 25: Executing public health programmes and services	
Programme and service execution is at the heart of actions to improve population health and health equity. The nature of the programmes and services will vary according to the health priority or threat and context, but all will involve stakeholder collaboration efforts, resourcing, oversight and coordination, quality management, communications and advocacy, and monitoring and evaluation, creating a feedback loop to revise plans and share lessons with wider public health actors.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.4) • Community engagement and social participation (8.4; 8.5) • Health service quality and equity (10.1; 10.2; 10.3) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2)
Tasks	• Facilitating the implementation of the stakeholder engagement strategy (e.g. reporting or sharing information about risks, plans, progress and results) • Creating and supervising teams for programme implementation • Coordinating programme implementation, including providing training and capacity-building, operational delivery of services • Coordinating quality management, communications about and monitoring and evaluation of programme and service execution • Providing feedback about programme and service implementation to inform revisions to programme planning, implementation, stakeholder engagement and monitoring and evaluation • Revising programme plans and implementation in light of evolving intelligence and internal/external decisions • Acting to ensure continuity and sustainability of programmes (e.g. integrating programmes into existing services or systems or advocating for policy changes) • Monitoring and evaluation of programme implementation and impact • Disseminating lessons and insights
Illustrative profiles	
Public health personnel (1)	• Coordinating the delivery and implementation of subnational or community programmes or services • Leading specific aspects of programme delivery
Health and care workers (2) **Occupations allied to health (3)**	• Contributing to programme or service execution, and monitoring and evaluation. In health this may relate to providing health services or health education; in other sectors, this may range from providing street cleaning to engineering • Managing community involvement (e.g. facilitating consultation events and mobilizing community resources to support delivery of health programmes)
Senior specialists (4)	• Coordinating execution of programmes and services at national level • Revising and implementing programme plans, considering formal evaluation, evolving intelligence and internal/external decisions
Policy authority (5)	• Monitoring execution and impact of programmes and services on population health and health equity • Acting to ensure continuity and sustainability of programmes

Curricular guide	1	2	3	4	5
1. The goals, purpose and objectives of the public health programme or services, including role within the health system, broader local or national improvement programme, to improve population health and health security	√	√	√	√	√
2. The contents and components of the programme or service plan	√	√	√	√	√
3. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
4. Drivers for change (behavioural, commercial, cultural, economic, environmental, political and social)	√	√	√	√	√
5. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
6. Approaches to stakeholder engagement and social participation for co-development and co-ownership of programmes	√	√	√	√	√
7. The role of behavioural, commercial, cultural, economic, environmental, political and social determinants of health in both the onset of problems and the creation of solutions	√	√	√	√	√
8. The interrelationships between health systems influencing the health of communities, including One Health components	√	√	√	√	√
9. Specific considerations for programme implementation in emergencies, and contingency planning and resourcing	√	√	√	√	√
10. Principles of design for multilevel public health interventions, including awareness of current/best practice, theories and methods for user-rich experience, usability, and interface design; social inoculation interventions; health/digital literacy education; community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√

Curricular guide	1	2	3	4	5
11. The organizational structure(s), partnerships and systems used to develop and deliver programmes, including accountability structures and governance mechanisms	√			√	√
12. The principles, tools and techniques for project management and change management, including log frames that help consider relationships between variables such as resources, timeframe, activities and desired results	√			√	√
13. The importance of planning and managing programme schedules, resources, budgets, cost, cost-effectiveness, cost-benefit, impact and scope	√	√	√	√	√
14. The interrelationships between health systems influencing the health of communities, including One Health components	√	√	√	√	√
15. Setting-based approaches to community health, including those linked to the management of risks and emergencies	√	√	√	√	
16. Approaches to meeting the additional needs of vulnerable populations in accessing and engaging with health services	√	√	√	√	
17. Funding and resource availability, and accountability and reporting requirements	√	√	√	√	√
18. Principles and approaches for risk communication and community engagement	√	√	√	√	√
19. Methods to identify, involve and empower stakeholder groups and potential partners in programme planning, implementation and monitoring	√	√	√	√	√
20. The range of stakeholders with an interest in or impact on public health, those with a vested interest in a programme or issue, those with insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	
21. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	
22. Methods to identify contextual needs, risks, barriers, solutions and impacts relevant to the health programme	√			√	

Curricular guide	1	2	3	4	5
23. Different types of contextual barriers and enablers, including resources (financial, physical and human)	√			√	
24. Methods to facilitate partnership working, such as shared goals, feedback and addressing barriers	√	√	√	√	
25. Approaches to stakeholder engagement and social participation for co-development and co-ownership of the programme	√	√	√	√	
26. The principles, tools and techniques for project management and change management	√			√	√
27. Methods to facilitate behavioural or cultural change	√	√	√	√	
28. Risk and safety measures and equipment to ensure safety for self, other members of the workforce and target populations	√	√	√	√	
29. Quality management approaches during programme and service execution and monitoring and evaluation	√	√	√	√	√
30. Approaches to ensuring sustainability of the programme(s) and responsiveness to evolving population health needs, including handover to community ownership	√			√	√
31. Institutional requirements, communication channels and resource needs to support programme and service delivery	√	√	√	√	√
32. Local and national procedures and protocols	√	√	√	√	√
33. Ethical considerations, legal requirements and best practices for programme and service execution and monitoring and evaluation	√	√	√	√	√

Practice activity 26: Advocacy for public health

Advocacy is the combination of individual and social actions designed to gain political commitment, policy support, social acceptance and systems support for a particular health goal or programme. It encompasses education, organization and mobilization for change. It aims to transform public health expertise and values into practical calls for action, and may be practised at individual, community or systems levels. A key feature of advocacy is that it occurs in the face of opposition and resistance and therefore needs to harness or influence power in a process that is grounded in both social science theories of change and real-world experience *(60)*. Advocacy may have the goal of promoting the public health approach, equity, community engagement, specific health strategies, or the translation of research into practice; or the goal may be to work for and with individuals and communities for access to health services or resources to improve their health.

EPHF subfunctions	• Public health surveillance and monitoring (1.4) • Public health emergency management (2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1) • Multisectoral planning, financing and management (4.1; 4.2) • Health protection (5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.4; 8.5) • Health service quality and equity (10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2)
Tasks	• Identifying priority issues and opportunities to improve public, population or community health and health equity • Evaluating contexts, decision-making processes, key actors and their priorities, and opportunities to provide information and exercise influence • Developing an advocacy strategy, including goals, activities, timing, "windows of opportunity", intended audience, and communication channels • Creating key messages for different media and audiences, including reframing issues to benefit public health and discrediting opponents of public health objectives • Implementing advocacy activities • Advocating with or on behalf of others • Supporting others to advocate for themselves and for those they serve • Mobilizing the community and other actors with credibility and trust to support or facilitate advocacy activities • Evaluating the impact of and additional needs for the advocacy strategy • Updating the advocacy strategy

Illustrative profiles	
Public health personnel (1) **Health and care workers (2)** **Occupations allied to health (3)**	• Identifying opportunities for advocacy activities • Developing key messages for different media sources • Representing community views (e.g. through writing and reporting research) • Mobilizing the community and other actors with credibility and trust to support or facilitate the advocacy activities • Developing the advocacy strategy, including goals, activities, timing, "windows of opportunity", intended audience, and communication channels
Senior specialists (4)	• Developing the advocacy strategy • Building partnerships with stakeholders and other organizations to strengthen the advocacy effort • Providing resources and enabling the implementation of the advocacy strategy
Policy authority (5)	• Advocating for policy changes at all levels of the health system to inform and improve public, population and community health • Engaging with international organizations and partners to strengthen global advocacy efforts for public health

Curricular guide	1	2	3	4	5
1. The public health priorities for the population(s), as guided by public health intelligence, community engagement, and the local, national and international political, social, environmental and economic context	√	√	√	√	√
2. The evidence base for the issue, the desired change(s), and the theory of change	√	√	√	√	√
3. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
4. Principles, concepts, definitions and terminology relating to advocacy and the policy process	√	√	√	√	√
5. Theories of policy development, the policy cycle, and the policy-making process, including problem identification, intelligence, stakeholder collaboration and decision-making	√	√	√	√	√
6. The health-in-all-policies approach to identifying the impacts and consequences, and secondary impacts and consequences, of economic, environmental, housing and other policies affecting health	√	√	√	√	√

Curricular guide	1	2	3	4	5
7. Principles of evidence-informed decision-making	√	√	√	√	√
8. The theories, models and principles of implementation science in relation to developing advocacy approaches	√	√	√	√	√
9. Principles of co-creation and co-development, and of community and stakeholder engagement	√	√	√	√	√
10. Mechanisms to support others to articulate their needs	√	√	√	√	√
11. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
12. Approaches to stakeholder mapping, community engagement and social participation	√	√	√	√	√
13. The range of stakeholders with an interest in or impact on public health, those with a vested interest in a programme or issue, those with insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	√
14. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	√
15. The values and agendas of the target audience for the advocacy activities, their governance, authority and resources, and opportunities to position the public health issue as an area of mutual benefit	√	√	√	√	√
16. Advocacy tools, techniques and strategies to maximize impact	√	√	√	√	√
17. Policy communication approaches, language, styles and techniques	√	√	√	√	√
18. The content and components of an advocacy strategy, including goals and objectives, principles, audiences, actions, timelines, tools, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	

Curricular guide	1	2	3	4	5
19. Management of and responses to politically sensitive topics	√	√	√	√	√
20. Strengthening the cohesion of a community of practice by instilling trust, a sense of purpose, a sense of community and interaction between its members	√	√	√	√	√
21. Methods to identify rumours, misinformation, disinformation and infodemics, associated risks and consequences of these, and strategies to counteract them, or example through community engagement	√	√	√	√	√
22. The cultural context affecting how different audiences interpret intelligence, and culturally appropriate practice, language and graphics	√	√	√	√	√
23. Principles of planning, tailoring and managing linear and non-linear communication with the participation of target audiences	√	√	√	√	√
24. Methods to translate complex information into digestible formats and selection of appropriate communication methods	√	√	√	√	√
25. Institutional requirements, communication channels and resource needs to support implementation of the advocacy strategy	√	√	√	√	√
26. The principles, tools and techniques for project management and change management	√	√	√	√	√
27. Monitoring and evaluation frameworks and methods for assessing the effectiveness of and impact of advocacy activities	√	√	√	√	√
28. Ethical considerations, legal requirements and best practices relevant to public health advocacy	√	√	√	√	√

Practice activity 27: Providing information and resources to improve community health and well-being

Providing information and resources to improve community health and well-being is an essential aspect of public health programmes. By equipping individuals and communities with accurate, evidence-based information, as well as access to necessary resources, public health initiatives can empower people to make informed decisions about their health and take proactive measures to improve their overall well-being. Whether resources are targeted for specific communities or implemented on a larger scale, these efforts aim to bridge the information gap and improve health equity by ensuring that everyone has equal access to vital information and the resources to make changes. This may relate, for example, to changes in health-seeking behaviour or agricultural or industrial practices, and may involve intersectoral collaboration to support and enable consistent and sustainable changes to improve community health and well-being.

EPHF subfunctions	• Public health surveillance and monitoring (1.4) • Public health emergency management (2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.2; 8.4; 8.5) • Health service quality and equity (10.2)
Tasks	• Collaborating with individuals and communities, including subgroups and vulnerable populations, to identify their health needs • Identifying the logic model, theory of change and the anticipated pathway from inputs to outputs and a continuum of outcomes • Identifying information or resources to empower individuals and communities to manage their own health • Providing information about positive protective and harmful behaviours • Providing information to counteract misinformation • Providing training and support for peer-to-peer communication • Distributing equipment, such as bed-nets or pedometers • Initiating public health programmes to facilitate health and well-being (e.g. for alternative access to water and sanitation) • Adapting or updating service delivery, health guidance or aspects of the health system • Signposting to additional resources and services • Coordinating monitoring and evaluation of the programmes, and the impact of the programmes on behaviours, and community health and well-being

Illustrative profiles	
Public health personnel (1)	• Coordinating and monitoring the implementation of programmes to promote and empower community health and well-being at community and subnational levels • Leading community outreach activities to identify health needs and assets of individuals and communities • Collaborating with communities and subgroups to develop and implement education programmes or provide resources to improve health and well-being
Health and care workers (2)	• Collaborating with communities and subgroups to develop and implement health education programmes and counteract misinformation • Providing training and support for peer-to-peer communication to promote health behaviour changes
Occupations allied to health (3)	• Providing information and resources relating to the impacts of non-health actions on human health (e.g. farming and animal health) • Providing information and resources relating to the wider determinants of health
Senior specialists (4)	• Coordinating and monitoring the implementation of national programmes to promote and empower community health and well-being • Establishing partnerships with community organizations and leaders to identify health needs and resources
Policy authority (5)	• Developing policies and guidelines for community health education and promotion initiatives, and guiding the adaptation of service delivery and the initiation of other targeted programmes

Curricular guide	1	2	3	4	5
1. The goals, purpose and objectives of health communication and health promotion in improving population health and health security	√	√	√	√	√
2. Drivers that affect health and well-being negatively or positively, using an ecological systemic model	√	√	√	√	√
3. Principles, concepts, definitions and terminology relating to health communication and health promotion	√	√	√	√	√
4. Evidence-based approaches to health communication and health promotion, rooted in behavioural sciences and epidemiology theories	√	√	√	√	√
5. Methods to understand the health and well-being concerns of the community, how health and well-being are perceived in relation to their harmonious adaptation to the environment, self-assessment of health, perception of risk, and disconnects between individuals and communities	√	√	√	√	
6. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	

Curricular guide	1	2	3	4	5
7. Principles of co-creation and co-development, and community and stakeholder engagement	√	√	√	√	√
8. The principles, tools and techniques for project management and change management, including log frames which help consider relationships between variables such as resources, timeframe, activities and desired results	√	√	√	√	√
9. Contents and components of the log frame or project plan for the communications activities, including goals and objectives, principles, audiences, actions, timelines, tools, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	√
10. Information added to log frame for the programme or service, such as needs assessments, health-care services, other essential services, external assistance (e.g. humanitarian), access to resources, supply chain, security and timelines	√	√	√	√	√
11. The range of stakeholders with an interest in or impact on public health, those with a vested interest in a programme or issue, those with insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	
12. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	
13. Approaches to stakeholder engagement and social participation for co-development and co-ownership of the programme	√	√	√	√	
14. Strengths of the cohesion of a community of practice, achieved by instilling trust, a sense of purpose, a sense of community and members' interactions	√	√	√	√	
15. Methods and tools to identify, involve and empower stakeholder groups and potential partners to identify target groups for improving own health and well-being	√	√	√	√	
16. Methods to facilitate and empower individual and group change relating to improvement of health and well-being for targeted public health interventions	√	√	√	√	
17. Methods to identify contextual needs, risks, barriers, solutions and impacts relevant to the targeted health changes	√	√	√	√	
18. Evidence-informed principles of behavioural change management for enhancing health and well-being in a range of contexts	√	√	√	√	

Curricular guide	1	2	3	4	5
19. Evidence-based approaches to encourage positive protective behaviours and prevent harmful behaviours	√	√	√	√	
20. Methods to identify rumours, misinformation, disinformation and infodemics, associated risks and consequences of these, and strategies to counteract them (e.g. through community engagement)	√	√	√	√	
21. Management of and responses to politically sensitive topics	√	√	√	√	
22. Approaches to ensure that acceptable and accessible types of training and support are available for adults and children, including preparation for peer-to-peer support groups	√	√	√	√	
23. Resources and services to positively influence health and well-being (e.g. access to medications, devices such as bed nets, leaflets or pamphlets, community networks, alternative sources of fuels and tools for alternative methods of farming)	√	√	√	√	
24. Methods and tools to develop and tailor messages for different populations, including for child and adult age groups, utilizing appropriate communication strategies, communication media and channels	√	√	√	√	
25. Methods of encouraging and supporting peer or community support groups, including engagement with community leaders	√	√	√	√	
26. Approaches to integrating health promotion actions from the Ottawa Charter *(44)* into community engagement approaches	√	√	√	√	√
27. Institutional requirements, communication channels and resource needs to support behaviour change activities	√	√	√	√	√
28. Monitoring and evaluation frameworks and methods for assessing the effectiveness of behaviour change activities, and impact on health and well-being	√	√	√	√	
29. Ethical and legal considerations and best practices relating to behaviour change and community engagement	√	√	√	√	

Practice activity 28: Developing and delivering public health campaigns	
Public health campaigns play a vital role in the successful delivery of EPHFs by raising awareness, promoting behavioural changes, and mobilizing communities to improve health and well-being. These campaigns serve as a powerful tool to educate individuals and communities about various health issues, preventive measures and available resources. A campaign is just one example of a broader public health programme, which can either be targeted at specific communities or subregions with particular health priorities or implemented nationally. By effectively disseminating information, encouraging healthy behaviours and fostering community engagement, public health campaigns contribute significantly to improving overall population health and health equity.	
EPHF subfunctions	• Public health surveillance and monitoring (1.4) • Public health emergency management (2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.4) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.4) • Community engagement and social participation (8.2; 8.4; 8.5) • Health service quality and equity (10.2)
Tasks	• Confirming the need for a campaign (problem statement and scientific basis) • Defining a single overarching communications objective • Identifying the logic model, theory of change, the anticipated pathway from inputs to outputs and a continuum of outcomes • Defining a communication strategy • Developing a comprehensive log frame • Defining the objectives and metrics for monitoring and evaluation • Defining, mapping and profiling the audiences intended to be engaged and to benefit • Developing key messages that reinforce awareness and solutions, and moving towards solutions • Defining the appropriate media and channels for delivering the campaign • Mobilizing resources to support campaign actions • Selecting the relevant outward or two-way communication channels • Mediating with other stakeholders to implement actions towards solutions • Evaluating the impact of the campaign on the single overarching communications objective and the sustainability of the behaviours and outcomes of interest
Illustrative profiles	
Public health personnel (1)	• Guiding the development of key messages and communication channels • Leading the development of the single overarching communications objective and the theory of change • Mediating with other stakeholders to implement actions towards solutions

Health and care workers (2) **Occupations allied to health (3)**	• Informing the log frame, theory of change and understanding of community behaviours • Supporting information gathering for and dissemination of the campaign • Mediating with other stakeholders to implement actions towards solutions
Senior specialists (4)	• Developing the campaign strategy and project log frame • Providing strategic leadership and vision for the campaign • Ensuring alignment with organizational goals and objectives • Securing funding and resources for the campaign • Developing training programmes for individuals and groups involved in the campaign • Mediating with other stakeholders to implement actions towards solutions
Policy authority (5)	• Mobilizing resources for the campaign and for sustained impact beyond the duration of the campaign • Mediating with other stakeholders to implement actions towards solutions

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. The goals, purpose and objectives of the public health campaign in improving population health and health security	√	√	√	√	√
2. The theories, models and principles of implementation science relating to public health campaigns	√	√	√	√	√
3. The evidence base for the issue, the desired change(s) and the theory of change	√	√	√	√	√
4. Evidence-based approaches to public health campaigns, rooted in behavioural sciences and social epidemiology theories	√	√	√	√	
5. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
6. The content and components of a public health campaign, including: the single overarching communications objective[17], key messages, principles, audiences, actions, timelines, tools, tactics, communication channels, resources, risks and risk management, and monitoring and evaluation	√	√	√	√	√

17 A single overarching communications objectives is the change you want to see in your audience as a result of your communication *(97)*.

Curricular guide	1	2	3	4	5
7. Principles of co-creation and co-development and community and stakeholder engagement	√	√	√	√	
8. Approaches to stakeholder engagement and social participation for co-development and co-ownership of the activities and outcomes of the campaign	√	√	√	√	
9. The ethics and values of public health relating to public health campaigns, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	
10. The principles, tools and techniques for project management and change management, including log frames that help consider relationships between variables such as resources, timeframe, activities and desired results	√	√	√	√	
11. Information added to log frame within the campaign, such as rapid needs assessments, health-care services, other essential services, external assistance (e.g. humanitarian), access to resources, supply chain, security and timelines	√	√	√	√	
12. Techniques to ensure messages are comprehensible, actionable, accessible and equitably delivered	√	√	√	√	√
13. Methods for community education, awareness raising and community participation in the campaign	√	√	√	√	√
14. Methods to identify rumours, misinformation, disinformation and infodemics, associated risks and consequences of these, and strategies to counteract them (e.g. through community engagement)	√	√	√	√	√
15. Methods to translate complex information into digestible formats, culturally appropriate messages, and selection of appropriate communication methods	√	√	√	√	
16. Concepts and theories relating to branding, messaging and social media	√	√	√	√	
17. Design principles for creating attractive and effective content, including visuals	√	√	√	√	
18. The range of activities relating to the public health campaign	√	√	√	√	
19. Strategies to adapt the campaign during emergency situations, and the principles of crisis communication and risk communication	√	√	√	√	
20. Techniques for integrating advocacy components into public health campaigns	√	√	√	√	

Curricular guide	1	2	3	4	5
21. Institutional requirements, communication channels and resource needs to support the public health campaign	√	√	√	√	
22. Monitoring and evaluation frameworks and methods for assessing the effectiveness of and impact of the public health campaign	√	√	√	√	√
23. Ethical considerations, legal requirements and best practices relating to the use of mass media, marketing and campaigns	√	√	√	√	√

Practice activity 29: Monitoring, evaluation and reporting	
Monitoring, evaluation and reporting of public health programmes, services and systems play a vital role in achieving public health goals. This process enables progress to be tracked, areas of improvement to be identified, and evidence-informed decisions to be made about resource allocation, redirection and action. Reporting findings not only ensures transparency but also facilitates knowledge sharing and collaboration, enabling stakeholders to learn from successes and challenges, ultimately leading to better informed, more effective and better targeted public health actions.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Confirming the objectives, assumptions and context of the programme • Defining metrics and indicators of success and impact • Developing metrics to monitor, revise and evaluate programme assumptions and progress towards indicators • Defining the roles and responsibilities for monitoring and evaluation • Estimating the resource needs for monitoring and evaluation • Creating a monitoring and evaluation plan • Conducting a baseline study • Tracking key metrics • Coordinating ongoing reporting, reflection on and learning from the programme to inform programme implementation and stakeholder engagement • Conducting periodic evaluations or reviews of the programme • Conducting a final evaluation of the programme for effectiveness and impact against the pre-defined metrics • Generating recommendations for improvement, scale-up and sustainability of the programme • Disseminating lessons learned and recommendations

Illustrative profiles	
Public health personnel (1) **Health and care workers (2)** **Occupations allied to health (3)**	• Collecting and inputting data into tracking systems • Developing and refining metrics for tracking progress • Participating in periodic evaluations or reviews of the programme and using the results to inform revisions to programme implementation • Generating recommendations for improvement, scale-up and sustainability of the programme and coordinating the dissemination of lessons learned and recommendations to stakeholders
Senior specialists (4)	• Managing aggregated data concerning monitoring and evaluation activities • Ensuring that the monitoring and evaluation plan is aligned with the programme objectives and resources • Reviewing and approving recommendations and engaging with stakeholders to promote the use of evaluation findings to inform decision-making • Revising metrics or data collection processes
Policy authority (5)	• Allocating resources for monitoring and evaluation activities • Using evaluation results to inform policy decisions relating to the programme

Curricular guide	1	2	3	4	5
1. The goals, purpose and objectives of the public health programme or services, including role within the health system, broader local or national improvement programme, to improve population health and health security	√	√	√	√	√
2. The contents and components of the programme plan or log frame	√	√	√	√	√
3. The contribution made by quality improvement to improved health and equity for the population, and the role of programme monitoring and evaluation in continuous quality improvement	√	√	√	√	√
4. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
5. The potential for unintended consequences of programmes and services on health and health equity	√	√	√	√	√
6. The theories, models and principles of implementation science, behavioural sciences and human-centred design, and how they relate to the uptake and implementation of recommendations emerging through monitoring and evaluation	√	√	√	√	

Curricular guide	1	2	3	4	5
7. Monitoring and evaluation methods, techniques and strategies (setting objectives and metrics)	√	√	√	√	
8. Approaches to defining metrics and indicators of success, including process evaluation, cost-benefit and impact evaluation	√	√	√	√	
9. Data collection and data analysis theories, assumptions, methods and tools appropriate for the metrics for monitoring and evaluation, target population needs, risks, successes and barriers relating to the programme log frame	√	√	√	√	
10. The timing of any planned monitoring and evaluation activities according to the log frame or project plan	√	√	√	√	
11. The formulation of recommendations for programme or service improvements	√	√	√	√	√
12. Techniques using implementation science for reporting, collating and interpreting information/ feedback and for developing recommendations	√	√	√	√	
13. Approaches to stakeholder mapping, community engagement and social participation	√	√	√	√	
14. The range of stakeholders with an interest in or impact on public health, those with a vested interest in a programme or issue, those with insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	
15. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	
16. Approaches to community engagement that ensure communities act as partners in creating and implementing acceptable and workable public health actions and emergency response solutions for those affected	√	√	√	√	
17. Risks, requirements and mitigating strategies relating to information and data security, accuracy, confidentiality, cyber security, ethics and personal safety principles as they relate locally to public health data (individuals, populations and health systems)	√	√	√	√	√
18. The importance of implementing changes in response to outputs of monitoring and evaluation, and continuous feedback cycles to ensure the sustainability of the programme	√	√	√	√	√

Curricular guide	1	2	3	4	5
19. Local and national procedures, protocols and legal requirements, such as ethical requirements, confidentiality, and other legal and reporting requirements for the programme	√	√	√	√	√
20. Approaches to knowledge sharing, dissemination and reporting	√	√	√	√	√
21. The relevant communication channels and tools for reporting, including digital technologies, posters and open forum meetings	√	√	√	√	
22. Ethical considerations, legal requirements and best practices in monitoring, evaluation and reporting	√	√	√	√	√

Practice activity 30: Continuous quality improvement of programmes and services	
The goal of quality improvement in public health is to enhance population health and health equity. It involves examining existing processes and making measurable improvements to enhance outcomes. It can be implemented by personnel at all levels and positions within the public health workforce. Data and measurement play a crucial role in quantifying improvements. Quality improvement efforts can be targeted at specific units or localities, or they can span the entire system.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Engaging stakeholders • Implementing feedback mechanisms to identify areas for improvement • Framing the problem • Collecting baseline data • Interpreting the assessment data • Prioritizing areas for action • Exploring root causes of poor performance • Developing and implementing improvement plans • Implementing interventions • Establishing quality standards • Regularly monitoring and reporting progress • Analysing post-intervention data to measure improvements • Sharing lessons and insights from quality improvement initiatives to inform cross-team and cross-sector learning
Illustrative profiles	
Public health personnel (1)	• Leading quality improvement efforts relevant to area of work • Sharing lessons and insights to drive and guide quality improvement across multiple areas
Health and care workers (2)	
Occupations allied to health (3)	
Senior specialists (4)	• Leading whole-programme or organization-wide quality improvement efforts
Policy authority (5)	• Championing system-wide culture of quality improvement

Curricular guide	1	2	3	4	5
1. The goals, purpose and objectives of the public health programme or services, including role within the health system, broader local or national improvement programme, to improve population health and health security	√	√	√	√	√
2. The contents and components of the programme or service plan	√	√	√	√	√
3. Principles, concepts, definitions and terminology relating to quality management and quality improvement	√	√	√	√	√
4. The ethics and values of public health, encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
5. The contribution of quality improvement to improving population health and equity, and the role of programme monitoring and evaluation in continuous quality improvement	√	√	√	√	√
6. The application of well established quality improvement models, such as Six Sigma *(61)*, Lean *(62)*, Kaizen *(63)* and Plan-Do-Check-Act *(64)*	√	√	√	√	√
7. The theories, models and principles of implementation science, behavioural sciences and human-centred design, and how their relation to quality improvement	√	√	√	√	√
8. Flowcharts and process mapping to clarify complex processes	√	√	√	√	√
9. Importance of stakeholder engagement and partnership in quality improvement	√	√	√	√	√
10. The range of stakeholders with an interest in or impact on public health, those with a vested interest in a programme or issue, those with insights from experience or expertise, and/or who are affected by the programme outcomes, including individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and in health and allied sectors	√	√	√	√	√
11. The roles, interests, influences, views, experiences and needs of different stakeholders, and intersections between them; and how these can and should systematically inform public health governance and decision-making	√	√	√	√	√
12. Approaches to stakeholder mapping, community engagement and social participation	√	√	√	√	√

Curricular guide	1	2	3	4	5
13. Monitoring and evaluation frameworks and methods for assessing the effectiveness and impact of the programmes/services and quality improvement efforts	√	√	√	√	√
14. The availability, quality and reliability of monitoring and evaluation data and information	√	√	√	√	√
15. Root cause analysis approaches	√	√	√	√	√
16. The use of information, informatics, intelligence and technologies for quality improvement	√	√	√	√	√
17. Institutional requirements, communication channels and resource needs for quality improvement interventions	√	√	√	√	√
18. The importance of integrating monitoring, evaluation, reporting and continuous quality improvement into programme and service planning	√	√	√	√	√
19. The timing of any planned quality improvement processes according to the log frame	√	√	√	√	√
20. The principles, tools and techniques for project management and change management	√	√	√	√	√
21. Approaches to knowledge sharing and dissemination	√	√	√	√	√
22. The relevant channels and tools for communication purposes, including digital technologies, posters and open forum meetings	√	√	√	√	√
23. Policy and regulatory frameworks and legal requirements relevant to the programme or priority area	√	√	√	√	√
24. Ethical considerations and best practices in quality improvement	√	√	√	√	√

3.8 Practice activity domain IV: Management of resources for public health programmes and services

Effective management of financial, physical and human resources for programmes and services plays a crucial role in ensuring the successful delivery of the EPHFs, building from the sector level strategies defined in practice activity domain I. Table 8 provides details of the practice activities in domain IV. Within budget allocations, efficient financial management and the optimal use of physical resources, such as medical equipment, facilities and technology, ensures that public health programmes and services can be provided effectively and efficiently. Proper maintenance and allocation of these resources help enhance the quality and maximize their impact on population health outcomes. Lastly, the management of human resources – from managing functioning teams in employment, to training and preparing personnel for practice – is important to ensure that the workforce is competent, supported and supervised to deliver the EPHFs.

Table 8. Practice activities in domain IV: management of resources for public health programmes and services

Financial resources	**31** Managing financial resources for public health programmes and services
Physical resources	**32** Managing physical resources for public health programmes and services **33** Managing public health infrastructure
Human resources	**34** Managing personnel for the delivery of public health programmes and services **35** Providing education and training programmes for the public health workforce

Practice activity 31: Managing financial resources for public health programmes and services	
Good financial management of public health programmes and services is essential for delivering the EPHFs. Effective financial management requires planning budgets, preparing grant applications, processing payments and ensuring quality controls such as audits and compliance with standards. Public health programmes and services may be at any scale, from short-term projects to address a specific risk or issue to multi-year endeavours. They may have a single funding source or rely on funding from multiple sources, and may be managed by core public health personnel, health and care workers, and/or occupations allied to health, according to their role responsibilities.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Identifying the scope of work to be provided and the resources required, including: personnel; tools, technologies, equipment and facilities; medicines and health products; transport and storage; communications and engagement; and monitoring and evaluation • Planning a budget and preparing a budget justification • Preparing grant and programme budget applications • Identifying cost-reduction opportunities • Reprioritizing and updating budgets, allocations and deliverables in the event of budget cuts • Reviewing and approving individual/team budget requests • Allocating resources to different teams or objectives • Preparing tenders and contracts, and commissioning documents • Managing procurement, purchasing and payments • Monitoring cash flow • Coding and billing of activities • Processing payments • Keeping financial records • Ensuring internal financial controls and fraud prevention • Conducting internal and external financial audits • Preparing financial statements, business activity reports and forecasts • Monitoring compliance with legal requirements and regulations

Illustrative profiles	
Public health personnel (1)	• Preparing grant applications • Managing project budgets • Supporting good governance and compliance with legal requirements and regulations relevant to financial management
Health and care workers (2)	
Occupations allied to health (3)	
Senior specialists (4)	• Managing budget allocations to projects within a broader programme • Managing procurement at a programme level across multiple years or funding arrangements
Policy authority (5)	• Awarding resources according to tender, contract and commissioning processes • Monitoring budget accountability and spending • Developing financial contingency plans

Curricular guide	1	2	3	4	5
1. The goals, purpose and objectives of the public health programme or services	√	√	√	√	√
2. Financial resources as both a barrier and enabler of the goals, purpose and objectives of the public health programme or services	√	√	√	√	√
3. Institutional requirements and resource needs to support the planning, execution, monitoring and evaluation of the public health programme or service, including: personnel; financial resources; tools, technologies, equipment and facilities; medicines and health products; transport and storage; communications and engagement; and monitoring and evaluation	√	√	√	√	√
4. Principles of budget and resource management, including justification and prioritization	√	√	√	√	√
5. Contents of and good practices for preparing grants, bids, tenders and contracts, for funding and for commissioning documents	√	√	√	√	√
6. Eligibility for different sources of funding, including access to surge resources in emergencies	√	√	√	√	√
7. Requirements, organizational protocol and criteria for procurement and purchasing	√	√	√	√	√
8. Strategies to justify, communicate and influence resourcing decisions	√	√	√	√	√

Curricular guide	1	2	3	4	5
9. Strategies for developing and maintaining accurate, complete and compliant financial records	√	√	√	√	√
10. Methods for economic evaluation in public health, including cost-effectiveness analysis, cost-utility analysis, cost-benefit analysis, financial analysis and efficiency analysis				√	√
11. Models for resource allocation within public health, and considerations for equitable resource distribution				√	√
12. Specific considerations for programme/service execution in the event of emergencies, and contingency planning and resourcing	√	√	√	√	√
13. Practices that optimize use, efficiency, longevity and sustainability of financial resources	√	√	√	√	√
14. Methods for identifying, investigating and addressing fraudulent activities	√	√	√	√	√
15. Principles and methods of financial auditing				√	√
16. Principles of money handling and cash management	√	√	√	√	
17. Mechanisms of payment and cost recovery	√	√	√	√	√
18. Principles of delivering value for money and evidence-based decision making	√	√	√	√	√
19. Methods for managing resources and budgets, and accommodating changes within a robust process of change control	√	√	√	√	√
20. Monitoring and evaluation frameworks and mechanisms to track, report and act on information about budgets and resourcing (scope, time period, content and key performance indicators)	√	√	√	√	√
21. Financial reporting requirements (e.g. from development partners)	√	√	√	√	√
22. Systems for ongoing monitoring and evaluation of budgets, and for continuous quality improvement	√	√	√	√	√
23. Ethical considerations, legal requirements and best practices in managing financial resources	√	√	√	√	√

Practice activity 32: Managing physical resources for public health programmes and services	
Physical resources for public health programmes and services encompass medical products, health technologies, consumables (e.g. personal protective equipment), construction materials and facilities. Managing these resources involves tasks such as inventory management, maintenance, forecasting needs including for emergency preparedness, ensuring training on resource utilization and allocating resources to meet operational requirements. It is essential to efficiently manage physical resources efficiently and effectively, to support the delivery of EPHFs.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Managing inventories and stock control of physical resources • Forecasting physical resource needs, including stock management based on risk • Procuring and distributing physical resources • Managing the maintenance, cleaning, suspension, recall, repair, disposal and replacement of equipment, devices and assistive products • Ensuring personnel are trained and competent to use the physical resources • Developing standard operating procedures • Monitoring compliance with protocols • Monitoring, evaluation and introducing efficiencies and improvements
Illustrative profiles	
Public health personnel (1)	• Liaising with national supply chain stakeholders • Overseeing physical resource use for specified programmes or services (e.g. maintaining routine repair and maintenance programmes) • Sharing responsibility for completing training, maintaining inventories and monitoring repair needs for physical resources used by self • Reprioritizing resources in emergency situations
Health and care workers (2)	• Prescribing and dispensing of medications and health products • Sharing responsibility for completing training, maintaining inventories and monitoring repair needs • Maintaining medical devices

Occupations allied to health (3)	• Managing tasks relating to non-health programmes and services • Sharing responsibility for completing training, maintaining inventories and monitoring repair needs for physical resources used by self • Undertaking repairs and cleaning of physical resources
Senior specialists (4)	• Overseeing appropriate management of procurement and stock control for public health programmes and services • Predicting stock needs for programmes or facilities • Securing surge capacity of physical resources in emergency situations • Ensuring personnel are trained to use physical resources and monitors compliance with requirements
Policy authority (5)	• Ensuring compliance with requirements for personnel training and quality assurance requirements

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. The goals, purpose and objectives of the public health programme or services	√	√	√	√	√
2. Physical resources as both a barrier and enabler of the goals, purpose and objectives of the public health programme or services	√	√	√	√	√
3. Institutional requirements and resource needs to support the planning, execution, monitoring and evaluation of the public health programme or service	√	√	√	√	√
4. The importance of efficient and safe physical resource use, both for personnel and community protection, but also to optimize availability of resources to meet public health goals	√	√	√	√	√
5. The resourcing requirements for specific public health programmes and services, considering equity allocations and user needs (e.g. adjustments for users with disabilities) including implications for import/export	√			√	√
6. Specific considerations for programme/service execution in the event of emergencies, and approaches to contingency planning and resourcing	√	√	√	√	√
7. Practices that optimize use, efficiency, longevity and sustainability of physical resources	√	√	√	√	
8. The use of physical resources, including correct and incorrect methods of use and prevention of waste	√	√	√	√	
9. Methods for recording use of physical resources (for logging use and stock replenishments)	√	√	√	√	
10. Information needed for forecasting, including the frequency of use of equipment, facilities and supplies by the team(s) and other health personnel, for different scenarios including emergencies or exceptional circumstances	√	√	√	√	

Curricular guide	1	2	3	4	5
11. Information that users of equipment and facilities need to know, including safety measures and correct methods of use	√	√	√	√	√
12. Methods of stock management for medications, medical sundries and medical and non-medical equipment	√	√	√	√	√
13. Requirements for warehousing, including management of temperature and expiration date	√	√	√	√	
14. Methods and resources for cleaning and sterilizing physical resources between use	√	√	√	√	
15. The essential components and functions of a waste management system, including specific requirements for hazardous waste	√	√	√	√	
16. Methods and standards to prepare and check physical resources prior to their use	√	√	√	√	
17. Mechanisms and protocols for reporting faulty, out-of-date and damaged physical resources	√	√	√	√	
18. Methods and protocols for managing repairs, disposal and replacement of physical resources	√	√	√	√	
19. Methods and protocols for applying sustainability principles to water and sanitation, infection prevention and control, waste management and environmental cleaning	√	√	√	√	
20. Health and safety risks associated with insufficient decontamination, cleaning and maintenance	√	√	√	√	√
21. Requirements for personnel training and quality assurance	√	√	√	√	√
22. Legal and ethical frameworks and requirements regarding the use of physical resources for public health programme or services	√	√	√	√	√

Practice activity 33: Managing public health infrastructure	
Public health infrastructure includes: buildings such as health-care facilities, warehouses and administrative offices; water and sanitation such as sewage systems and water management systems; technical infrastructure such as heating, ventilation, air conditioning and plumbing; laboratories; pharmacies; information technologies, including hardware, informatics systems and telemedicine tools; and emergency response infrastructure such as emergency operations centres and transportation. The effective functioning and management of infrastructure for public health programmes and services is essential for the delivery of the EPHFs.	
EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Evaluating infrastructure needs for specific programmes and services (e.g. buildings, staffing, workflows, water, sanitation, laboratories and emergency operations) • Landscape analysis of people, buildings and technology usage, health commodity usage, and workflows and processes relating to public health infrastructure, including laboratories, libraries and other specialist services • Establishing and documenting processes to facilitate facility usage and workflows • Coordinating management groups and decision-making mechanisms • Conducting reviews and evaluations to identify opportunities to improve quality and efficiency • Managing risks and monitoring a safe environment of the facilities • Facilitating changes and efficiencies to service provision (including scale up, scale down, new technologies or new services), workflows and facility usage • Coordinating buildings inspections, cleaning, repairs and services • Managing budgets, leases, contracting and other legal requirements • Monitoring compliance with legal requirements and safety protocols
Illustrative profiles	
Public health personnel (1)	• Managing public health specific infrastructure (e.g. emergency operations centres) • Contributing to management oversight groups with overall accountability for facilities management

Health and care workers (2)	• Contributing to management oversight groups with overall accountability for facilities management
Occupations allied to health (3)	• Managing infrastructure outside of the health sector that affect the delivery of public health programmes and services (e.g. transportation) • Contributing to management oversight groups with overall accountability for facilities management
Senior specialists (4)	• Managing changes in infrastructure use or capacity to respond to changes in public health priorities, needs or resource availability
Policy authority (5)	• Retaining oversight of relevant legal requirements and safety protocols specific to the management and availability of infrastructure • Commissioning protocols and guidance • Developing strategies to deal with the issue through provision of public health services

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. The mandates, services, roles, workflows and functions of the laboratories, facilities and other physical infrastructure, including in relation to emergencies prevention and response	√	√	√	√	√
2. The role of the laboratories, facilities, emergency operations centres[18] and other physical infrastructure in relation to delivering the EPHFs, including surveillance, outbreak investigation and response	√	√	√	√	√
3. Techniques for assessing requirements relating to buildings, staffing, workflows, water and sanitation, laboratories and emergency operations infrastructure requirements	√	√	√	√	
4. Methods for conducting a comprehensive analysis of people, buildings and technology usage within public health infrastructure	√	√	√	√	
5. Techniques for analysing workflows, and establishing and documenting processes to facilitate the usage of facilities and workflows	√	√	√	√	
6. Governance structures, oversight management groups, decision-making groups and opportunities to involve communities in health decision-making	√	√	√	√	√
7. Mechanisms for collaboration within and between internal and external partners and stakeholders relevant to public health infrastructure management	√	√	√	√	
8. Roles, responsibilities and communication channels to ensure smooth coordination and effective decision-making	√	√	√	√	√

18 Emergency operation centres provide a physical location for the coordination of information and resources to support incident management activities. Such a centre may be a temporary facility or established in a permanent location *(98)*.

Curricular guide	1	2	3	4	5
9. Approaches and opportunities to ensure that infrastructure meets the needs of different user groups (e.g. accessibility, language and hours of operation) to ensure gender equity and social inclusion	√	√	√	√	√
10. Approaches to managing risks and ensuring a safe environment within public health facilities	√	√	√	√	√
11. Strategies for facilitating changes in service provision, workflows and building utilization, efficiency improvements, and the adoption of new technologies				√	√
12. Techniques for managing transitions, scaling up or down services, and optimizing resource allocation				√	√
13. Principles of facility management, including maintenance schedules, procurement processes and vendor management	√	√	√	√	√
14. The principles, tools and techniques for project management and change management	√	√	√	√	
15. Regulations and policies at national and local levels in relation to leases, contracts, safety and protocols	√	√	√	√	√
16. Principles, rules, regulations and essential elements for safety and biosafety, and common safety control measures and procedures, including packaging, labelling and documentation	√	√	√	√	√
17. Methods for conducting reviews and evaluations to identify opportunities for quality improvement, efficiency enhancement and operational effectiveness	√	√	√	√	
18. Tools to change practice and introduce efficiencies, including climate change-related efficiencies (e.g. water efficiency, switching to green energy supplies and waste management practices)	√	√	√	√	
19. Practices that optimize use, efficiency, longevity and sustainability of public health infrastructure	√	√	√	√	
20. Different types and forms of quality indicators relevant to monitoring the operations of laboratories, facilities and other physical infrastructure	√	√	√	√	√
21. The policies, processes and procedures relating to sample collection, handling, transportation, accessioning, processing, referral, storage, retention, chain of custody and disposal	√	√	√	√	√
22. The sources of information, and realistic data ranges, for the inventory of specific operational needs for monitoring resources, facilities, services and workflows	√	√	√	√	

Curricular guide	1	2	3	4	5
23. Monitoring and evaluation frameworks and mechanisms to track, report and act on public health infrastructure management (scope, time period, content and key performance indicators)	√	√	√	√	
24. The use of data from and about laboratories, health facilities and other physical infrastructure for decision- and policy-making	√	√	√	√	
25. Ethical considerations, legal requirements and best practices for the management of public health infrastructure	√	√	√	√	√

Practice activity 34: Managing personnel for the delivery of public health programmes and services

Effective management of personnel ensures that individuals are equipped with the necessary knowledge, skills and resources to carry out their roles in delivering the EPHFs. Tasks include: recruiting and hiring qualified staff; providing appropriate training and professional development opportunities; fostering a collaborative and supportive work environment; and promoting effective communication and teamwork. Managing people and teams also involves establishing clear roles, responsibilities and performance expectations, as well as providing ongoing supervision and feedback. By ensuring that individuals and teams are well managed, employers can enhance their capacity to respond to public health challenges, maintain operational efficiency and ultimately deliver the EPHFs in a timely and effective manner.

EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Identifying the intended outputs and/or outcomes of the teams delivering public health programmes and services • Conducting a staffing needs assessment: working conditions, workload, current capacity and additional staffing needs • Defining roles and responsibilities of teams and/or individual team members • Identifying opportunities for cross-team collaborations • Securing resources for capacity development • Managing recruitment, retention and orientation • Managing induction training • Providing coaching, mentoring, supervision and access to in-service training • Coordinating the work of the team (e.g. through scheduling and task prioritization) • Facilitating information sharing and collaborative practice and learning within teams • Deploying and redeploying teams, including emergency medical teams • Monitoring team productivity and performance • Motivating and recognizing workplace performance • Taking actions to improve team performance • Monitoring compliance with legal requirements and regulations

Illustrative profiles	
Public health personnel (1) **Health and care workers (2)** **Occupations allied to health (3)** **Senior specialists (4)**	• Managing recruitment, work coordination and performance management of personnel for the delivery of public health programmes and services • Providing coaching, mentoring, supervision and access to in-service training • Coordinating the work of the team (e.g. through scheduling and task prioritization)
Policy authority (5)	• Monitoring workforce performance enablers and barriers, such as workplace conditions and emergency protocols and guidelines

Curricular guide	1	2	3	4	5
1. The ethics and values of public health encompassing accountability, community participation, equity, evidence, inclusion, population focus, prevention, promotion and social justice; and the role of public health approaches in promoting health and preventing and managing health risks and health emergencies	√	√	√	√	√
2. Public health personnel as both a barrier and enabler of the goals, purposes and goals of public health and health security	√	√	√	√	√
3. The roles, scope of practice and expected performance standards of personnel, including any regulatory requirements	√	√	√	√	√
4. Professional registration, licensing, credentialing, insurance and indemnity requirements for the jurisdiction, including additional requirements in emergency situations	√	√	√	√	√
5. The influences of the organization and the wider context on team and individual performance, including role clarification, conflict and emergency situations, culture, economics, politics, feedback, mentoring, support, supervision, decent employment, the rights of individual workers, and the broader health system	√	√	√	√	√
6. Tools for estimating workforce resources (e.g. the Workload Indicators for Staffing Needs *(8)*)	√	√	√	√	√

Curricular guide	1	2	3	4	5
7. Processes and standards for recruitment, selection and orientation of new staff; and for the ongoing management and retention of personnel	√	√	√	√	√
8. Different approaches to performance management, supervision, delegation and accountability, and the grounds on which to intervene in the work of others	√	√	√	√	√
9. Contextual challenges associated with workforce planning and development at team and organizational levels	√	√	√	√	√
10. Methods and strategies for workforce planning in the short, medium and long term at team and organizational levels	√	√	√	√	√
11. Principles of different management and leadership styles, tools and approaches	√	√	√	√	√
12. Strategies to motivate, engage, remediate poor performance and acknowledge good performance	√	√	√	√	√
13. The range of training and development needs and opportunities	√	√	√	√	√
14. Methods for managing issues of workplace safety	√	√	√	√	√
15. Approaches to timetabling and coordinating scarce resources	√	√	√	√	√
16. Ethical considerations, legal requirements and best practices for the management of personnel	√	√	√	√	√

Practice activity 35: Providing education and training programmes for the public health workforce

Effective preparation for the operationalization of the EPHFs and the related practice activities requires some form of learning, often in formal university education programmes, or by vocational education and training programme providers. These programmes can be short courses as part of lifelong learning, in-service training or induction programmes, or comprehensive pre-service programmes leading to qualifications or licensing. Educators require specialized preparation in curriculum design, delivery, assessments and course evaluation. Additionally, all members of the public health workforce can contribute to education, supervision and mentoring through on-the-job learning, which also requires specific training.

EPHF subfunctions	• Public health surveillance and monitoring (1.1; 1.2; 1.3; 1.4) • Public health emergency management (2.1; 2.2; 2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.2; 3.3; 3.4) • Multisectoral planning, financing and management (4.1; 4.2; 4.3; 4.4; 4.5) • Health protection (5.1; 5.2; 5.3) • Disease prevention and early detection (6.1; 6.2; 6.3) • Health promotion (7.1; 7.2; 7.3; 7.4) • Community engagement and social participation (8.1; 8.2; 8.3; 8.4; 8.5) • Public health workforce development (9.1; 9.2; 9.3) • Health service quality and equity (10.1; 10.2; 10.3) • Public health research, evaluation and knowledge (11.1; 11.2; 11.3; 11.4) • Access to and utilization of health products, supplies, equipment and technologies (12.1; 12.2; 12.3; 12.4; 12.5)
Tasks	• Planning for educational programme design and delivery • Planning for administrative processes, such as setting up educational governance and operational processes for admissions, student and faculty support, and progression decisions • Planning for faculty development • Securing resources (recruitment of faculty, administrative and support personnel; physical resources; financial resources; and training opportunities) • Defining competency-based education outcomes • Conducting educational needs assessments • Contributing to curricula (re)development • Planning for curricula implementation, including identifying training sites and verifying faculty competence and staffing levels • Designing and delivering formal educational activities • Providing informal learning opportunities, including feedback on performance • Providing support and feedback towards individuals' learning progression • Providing mentoring, supervision and careers guidance • Designing and setting assessments of learning achievement • Evaluating and assessing learning achievement • Contributing to decisions about learners' progression • Evaluating curricula content, delivery methods and faculty effectiveness • Providing documentation for quality assurance and continuous quality improvement • Participating in training, quality assurance and peer review activities • Fostering the development of an educational community and a positive educational culture

Illustrative profiles	
Public health personnel (1)	• Contributing to intersectoral informal or formal learning opportunities and supervision • Providing support and feedback, mentoring or supervision
Health and care workers (2)	
Occupations allied to health (3)	
Senior specialists (4)	• Overseeing and contributing to education design and delivery, including convening curricular, teaching or assessment committees to define curricula outcomes, write and standard set assessments, evaluate curricula, and make collective decisions about learner performance on summative assessments and progression • Requires specialized training in education and may be from any of the public health workforce groups (1–3), according to the role responsibilities and/or content of the education programmes
Policy authority (5)	• Collaborating with and between different authorities (e.g. ministries of education, health, labour, agriculture and finance) to ensure education programmes meet intersectoral employment needs • Retaining oversight of educational delivery (e.g. learner numbers, and location and quality assurance of educational institutions) from the perspective of aligning education-to-employment pathways • Retaining oversight of workforce gaps in competence, needs for guiding policies, and funding needs for workforce training and development

Curricular guide	1	2	3	4	5
1. The mission and values of the education institution and the programme	√	√	√	√	
2. The role of education and training within the broader health system, the impact on public health and health security	√	√	√	√	√
3. The principles of social accountability, and approaches to ensuring social accountability throughout education design and delivery	√	√	√	√	√
4. Stakeholders and their role in educating the public health workforce across the lifelong learning continuum	√	√	√	√	√
5. The learner's stage of training, learning and supervision needs, scope of practice and role responsibilities for the area of practice	√	√	√	√	
6. Methodologies to assess workforce learning needs, individual learners' needs and training requirements	√	√	√	√	

Curricular guide	1	2	3	4	5
7. Own responsibilities as an educator, trainer or supervisor	√	√	√	√	
8. The implications of progression decisions for learners, the institution and the public	√	√	√	√	√
9. The standards and requirements of education institutions, educators and learners, as defined by relevant statutory bodies and the employing organization	√	√	√	√	
10. The government policies, services and employment contexts for the learner	√	√	√	√	√
11. Principles and theories of pedagogy, andragogy and lifelong learning, and their practical applications				√	
12. Principles of competency-based educational and programme design and behavioural sciences, including constructive alignment				√	
13. The range of available educational methods, technologies, and field or practice-based training opportunities				√	
14. Evidence-based techniques for facilitating learning, such as action learning, flipped classroom, supervision, mentoring and guidance	√	√	√	√	
15. Factors that hinder learner engagement and progression, including broader cultural contexts, and methods to adapt support to overcome these	√	√	√	√	
16. Gender inclusive and gender transformative education approaches, including those that consider intersectionality with equity and disability	√	√	√	√	
17. Resources for further learning and self-development	√	√	√	√	
18. Concepts in assessment, including utility, validity and reliability	√	√	√	√	
19. Methodologies and techniques for assessment standard setting				√	
20. Principles and methodologies of programmatic evaluation for education				√	
21. Requirements and approaches for evaluation of faculty competence	√	√	√	√	
22. Research methods and educational scholarship				√	
23. Approaches to balance the needs of learners with the needs of individuals and communities	√	√	√	√	√
24. Governance and administrative processes and systems as they relate to educational institutions and programmes	√	√	√	√	√

Curricular guide	1	2	3	4	5
25. Practices that optimize efficiency and sustainability in public health education	√	√	√	√	√
26. Criteria, approaches and decision-making mechanisms for admissions and progression decisions				√	
27. Tools, requirements, support and mechanisms to monitor, manage and enable fitness to practice of learners or faculty	√	√	√	√	
28. Principles of good governance, and the governance arrangements of the educational institution	√	√	√	√	
29. Ethical considerations, legal requirements and best practices for the provision of education and training	√	√	√	√	√

3.9 Practice activity domain V: Public health emergency management

The EPHFs play a crucial role in effectively managing health emergencies, as they form the foundation for predicting and anticipating risks, forecasting, planning and preparedness, prevention, control and mitigation, early identification, notification, reporting, response, the maintenance and restoration of essential health services, and recovery. The impacts of health emergencies extend beyond the immediate health consequences and have significant social and economic ramifications. Such repercussions can lead to widespread disruption, exacerbating existing health disparities and disproportionately affecting vulnerable populations.

The practice activities within this domain follow a comprehensive approach, encompassing emergency prevention, preparedness, response and recovery (Table 9). These practice activities build on the essential systems inputs governing emergency management at systems level (Practice activity domain I) and the intelligence systems (Practice activity domain II) that provide authoritative information about health threats and associated risks. The public health workforce acts to mitigate or minimize the impacts of health emergencies, and addresses the coordination and surge capacity required to respond effectively to emergencies when they occur, ensure service continuity and contribute to strengthening health systems.

Table 9. Practice activities in domain V: public health emergency management, organized around the prevention, preparedness, response and recovery framework

Prevention	**36** Planning for risk management and emergency management actions
Preparedness	**37** Implementing risk management and emergency preparedness actions
Response	**38** Coordinating emergency response **39** Providing health services as part of emergency response
Recovery	**40** Coordinating service continuity and equitable recovery

Practice activity 36: Planning for risk management and emergency management actions

Planning for risk management and emergency management actions is vital for effective emergency response and mitigation. Through proactive planning, health authorities, stakeholders and communities can enhance their preparedness, response and recovery capabilities, and guide the implementation of tailored strategies and interventions to address risks, protect public health and ensure the well-being of communities during health emergencies. Further, planning facilitates the intersectoral and stakeholder coordination and collaboration required in emergency management. It ensures that roles and responsibilities are clearly defined, communication channels established, and resources allocated efficiently.

EPHF subfunctions	• Public health emergency management (2.2; 2.4; 2.5) • Public health stewardship (3.1; 3.4) • Multisectoral planning, financing and management (4.1; 4.3; 4.4) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.2) • Health promotion (7.1; 7.2; 7.3) • Community engagement and social participation (8.2; 8.4; 8.5) • Public health workforce development (9.1; 9.2) • Health service quality and equity (10.1; 10.2; 10.3) • Access to and utilization of health products, supplies, equipment and technologies (12.4)
Tasks	• Interpreting intelligence about risks • Constructing risk and emergency management coalitions, expert groups, networks and partnerships, including community representation (governance mechanisms) • Constructing programme plans or logic models • Estimating the resource requirements to implement different actions for risk management and emergency preparedness and response • Preparing strategies for risk management, emergency preparedness and response, service continuity and recovery, including a health emergency response operations plan • Determining thresholds and triggers for different stages of emergency response • Assigning roles and responsibilities for individuals and teams involved in an emergency response • Assessing capacities for emergency management and emergency response • Developing frameworks for resource allocation in emergencies • Preparing guidelines for emergency management • Informing risk communications and community engagement mechanisms • Adapting plans in response to evolving intelligence, feedback, lessons and policy decisions
Illustrative profiles	
Public health personnel (1)	• Coordinating the development of risk management and emergency management strategic, and tactical strategies for local communities • Leading intersectoral groups to determine thresholds, triggers and response options, and mitigating strategies locally • Determining resource allocation

Health and care workers (2) **Occupations allied to health (3)**	• Contributing to emergency planning mechanisms affecting their communities and facilities, with a focus on operational response strategies (e.g. identifying existing structures, resources, population vulnerabilities and infrastructure) to inform the development of plans • Constructing programme plans or logic models relevant to area of practice
Senior specialists (4)	• Coordinating the development of risk management and emergency management strategies across multiple geographical areas, including across international borders, and liaising with UN bodies • Leading intersectoral groups to determine thresholds, triggers, response options and mitigating strategies • Determining resource allocations
Policy authority (5)	• Negotiating budgets to support risk management actions • Preparing a national health emergency response operations plan • Ensuring compliance with IHR (2005) *(42)*

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. Principles, concepts, definitions and terminology relating to emergency, disaster and risk management	√	√	√	√	√
2. The different phases of the emergency management: mitigation, preparedness, response and recovery	√	√	√	√	√
3. The contents and components of a national health emergency response operations plan	√	√	√	√	√
4. The role of major stakeholders in preparedness planning and actions for preparedness, risk mitigation, and to reduce the impacts of different risks in the event of emergencies; and methods to engage, support and enable them to fulfil their roles in preparedness	√	√	√	√	√
5. Approaches to stakeholder mapping, community engagement and social participation to ensure communities act as partners in creating and implementing acceptable and workable emergency response solutions for those affected	√	√	√	√	√
6. The principles of risk communication, crisis communication, public information management and community engagement throughout risk and emergency management actions	√	√	√	√	√
7. The availability of intelligence about risks, health hazards and potential impacts	√	√	√	√	√
8. Tools and frameworks for assessing risk, including a strategic tool for assessing risk *(65)*	√	√	√	√	

Curricular guide	1	2	3	4	5
9. The best available scientific evidence, including primary and secondary data derived from research, assessments, intelligence, evaluations of previous emergencies, meteorological profile descriptions, and anthropological and social science research	√			√	√
10. The different types of health hazards that may occur	√	√	√	√	√
11. Elaboration of different possible scenarios for health emergencies, their risks, and responses	√	√	√	√	√
12. The impact on health systems building blocks in risk and emergency planning, including governance, financing, workforce, services, information systems and countermeasures	√			√	√
13. The potential immediate consequences of hazards, including harm to human, animal and environmental health and security, forced displacement, damage to infrastructure or ecosystem and environmental disruption or degradation	√	√	√	√	√
14. The potential secondary consequences of hazards, cascading and compounding events, including economic losses, social and political tensions, disruption to health and other services, the effect on health workers, and the compound consequences on human, animal and environmental health and security	√	√	√	√	√
15. The intersections of the immediate and secondary consequences of hazards with social risk factors, including those due to gender, political or socioeconomic status, disability, pregnancy, refugee or migrant status, or those acting as multiplying factors for all vulnerable populations that may be affected by the hazard	√	√	√	√	√
16. The importance of community-level information, including about: the parameters of the community (definitions of population and geographical area); demographics; language, culture, religion, health status of populations and subgroups; community resources; wider determinants of health, including socioeconomic factors, climate, employment, housing, food, water, sanitation and hygiene; health facility availability and infrastructure; risks of potential emergencies; recent events, outbreaks or disasters; and local epidemiology	√	√	√	√	√
17. Methods for assessing the potential impacts on and subsequent needs of vulnerable populations during an emergency	√			√	√
18. Actions to mitigate the impacts of different risks on different population groups in the event of an emergency	√	√	√	√	√

Curricular guide	1	2	3	4	5
19. Service continuity planning principles and practices	√	√	√	√	√
20. The principles, tools and techniques for project management, including log frames, and change management	√			√	√
21. The necessary steps to carry out preparedness planning considering lessons learned from previous events: training, disaster exercises, education campaigns and stakeholder engagement	√			√	√
22. Contents, components and requirements of a health emergency response operations plan as it relates to own area of practice, and own roles and responsibility for implementation	√	√	√	√	√
23. Principles of risk communication and community engagement	√	√	√	√	√
24. The stages of developing and implementing a strategy and actions for risk management and emergency preparedness, response, service continuity and recovery	√			√	√
25. Approaches to prioritizing actions for risk management and impact mitigation	√			√	√
26. Institutional requirements, communication channels and resource needs for risk management and emergency management strategies, including financial, physical and human resources and surge capacity	√			√	√
27. Availability of, and access to, surge resources in the event of an emergency, including the use, components of and requirements for a surge capacity register	√			√	√
28. WHO's Emergency Medical Teams initiative and access to its global classified teams[19]	√			√	√
29. Existing thresholds or definitions of an emergency that trigger a response	√			√	√
30. Metrics and indicators of the different thresholds to trigger an emergency response	√	√	√	√	√

19 WHO Emergency Medical Teams initiative comprises groups of health workers, including doctors, nurses, paramedics, support workers and logisticians, who treat patients affected by an emergency or disaster. They can come from governments, charities/ nongovernmental organizations, the military, civil protection, international humanitarian networks (including the International Red Cross and Red Crescent Movement and Médecins sans Frontières), United Nations contracted teams and the private-for-profit sector. They work according to minimum standards agreed and deploy fully trained and self-sufficient personal in order not to burden an already stressed national system *(67)*.

Curricular guide	1	2	3	4	5
31. Emergency response structures, policies, procedures and laws at local, national and international levels	√	√	√	√	√
32. Structures for coordinating emergency response efforts, including incident command system and emergency operations centre, and their functions, organizational structure, roles and responsibilities, and coordination mechanisms	√	√	√	√	√
33. Intersectoral coordination and collaboration mechanisms	√			√	√
34. The psychological impact of emergencies and the importance of psychosocial support for affected individuals, communities and emergency response teams	√	√	√	√	√
35. International frameworks and agreements relating to risk management and emergency response, such as the Sendai Framework for Disaster Risk Reduction *(66)* and the reporting requirements of the IHR (2005) *(42)*	√	√	√	√	√
36. Emerging technologies and innovations for emergency management, such as remote sensing, geographic information systems, social media analysis and artificial intelligence, and their applications in risk assessment, early warning systems and response planning	√			√	√
37. Institutional requirements, communication channels and resource needs to support risk and emergency management actions	√			√	√
38. Monitoring and evaluation frameworks and methods for assessing the effectiveness and impact of risk management and emergency management actions	√	√	√	√	√
39. Methods to use intelligence gathered from the ongoing monitoring and evaluation process to facilitate better use of evidence in decision-making, and to adapt a plan in response	√			√	√
40. Ethical considerations, legal requirements and best practices in emergency management, such as resource allocation, prioritization of care, and equity considerations	√	√	√	√	√

Practice activity 37: Implementing risk management and emergency preparedness actions	
Implementing risk management and emergency preparedness actions is vital to ensure a swift and effective response to emergencies and to safeguard public health. By integrating risk reduction and preparedness measures into routine functioning, health systems can enhance their resilience and long-term sustainability. This approach enables health systems to withstand and recover from emergencies more effectively, thereby reducing the impact on essential health services. Tasks encompass the various aspects of preparedness, coordination, training and stakeholder collaboration. These collective efforts facilitate more efficient management of health emergencies, resulting in minimized harm and optimized well-being for individuals and communities in the event of emergencies.	
EPHF subfunctions	• Public health emergency management (2.2; 2.3; 2.5) • Public health stewardship (3.1; 3.4) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.2) • Health promotion (7.1; 7.2) • Community engagement and social participation (8.2; 8.4; 8.5) • Public health workforce development (9.1) • Health service quality and equity (10.3) • Access to and utilization of health products, supplies, equipment and technologies (12.4)
Tasks	• Contextualizing guidelines for emergency preparedness and risk management actions • Coordinating risk communications in relation to emergency preparedness • Coordinating the implementation of the full range of actions • Initiating risk management programmes • Developing a surge capacity register and contact lists, including volunteers and community representation • Delivering preparedness training activities, including drills and exercises, and training for health workers to operate in emergency contexts • Preparing and securing facilities, surge resources, equipment, emergency supply chains and health product stockpiles for emergency response • Conducting periodic assessments of preparedness • Providing feedback to inform adaptations of preparedness assessment and planning
Illustrative profiles	
Public health personnel (1)	• Coordinating risk management activities in local communities • Revising readiness assessment based on preparedness
Health and care workers (2)	• Conducting risk management activities for areas of work (e.g. in health facilities) • Specific actions as part of an emergency medical team • Populating a surge capacity register
Occupations allied to health (3)	• Conducting risk management activities for areas of work (e.g. in warehousing or production)
Senior specialists (4)	• Coordinating risk management activities at national or subnational levels • Contextualizing guidelines for preparedness and risk management actions • Securing resources for preparedness and response • Coordinating a range of emergency preparedness activities across national borders
Policy authority (5)	• Monitoring the implementation of risk management and emergency preparedness actions and the resulting risk profiles

Curricular guide	1	2	3	4	5
1. Principles, concepts, definitions and terminology relating to emergency, disaster and risk management	√	√	√	√	√
2. The stages of an emergency response cycle (prevention, preparedness planning and readiness, health emergency response, recovery)	√	√	√	√	√
3. The contents and components of a national health emergency response operations plan	√	√	√	√	√
4. The role of major stakeholders in preparedness planning and actions for preparedness, risk mitigation, and to reduce the impacts of different risks in the event of emergencies; and methods to engage, support and enable them to fulfil their roles in preparedness	√	√	√	√	√
5. Approaches to stakeholder mapping, community engagement and social participation to ensure communities act as partners in creating and implementing acceptable and workable emergency response solutions for those affected	√	√	√	√	√
6. The principles of risk communication, crisis communication and public information management and community engagement throughout risk and emergency management actions	√	√	√	√	√
7. The different types of health and security hazards that may occur	√	√	√	√	√
8. Elaborating the different possible scenarios for health emergencies and their risks, and responses	√	√	√	√	√
9. Contents, components and requirements of the health emergency response operations plan relating to own area of practice, and own roles and responsibility for implementation	√	√	√	√	√
10. Approaches to adapting toolkits for the context, such as the Strategic Toolkit for Assessing Risks *(65)*				√	√
11. The availability of resources and surge resources to enact the health emergency response operations plan	√			√	√
12. Emergency response structures, policies, procedures and laws, organizationally, locally, nationally and internationally	√			√	√
13. Processes involved in registering as an emergency medical team		√		√	√
14. Establishment and testing of standard operating procedures for emergency medical team coordination mechanisms		√		√	√
15. Models and channels of coordination of emergency medical teams		√		√	√
16. The use, components and requirements of a surge capacity register		√		√	√

Curricular guide	1	2	3	4	5
17. Emerging technologies and innovations for emergency management, such as remote sensing, geographic information systems, social media analysis and artificial intelligence, and their applications in risk assessment, early warning systems and response planning	√			√	√
18. Monitoring and evaluation frameworks and methods for assessing the effectiveness and impact of efforts for risk management and emergency preparedness	√	√	√	√	√
19. The principles of evaluation of and reporting mechanisms for preparedness activities	√			√	√
20. Methods for using intelligence gathered from the ongoing monitoring and evaluation process to facilitate better use of evidence in decision-making, and adapting plans as necessary	√	√	√	√	√
21. The resources required for risk management and emergency management strategies, including financial, physical and human resources and surge capacity	√	√	√	√	√
22. Metrics and indicators of the different thresholds to trigger an emergency response	√			√	√
23. Structures for coordinating emergency response efforts, including incident command system and emergency operations centre, and their functions, organizational structure, roles and responsibilities, and coordination mechanisms	√			√	√
24. Institutional requirements, communication channels and resource needs for risk and emergency management	√	√	√	√	√
25. Intersectoral coordination and collaboration mechanisms	√			√	√
26. The psychological consequences of emergencies and the importance of psychosocial support for affected individuals, communities and emergency response teams	√	√	√	√	√
27. International frameworks and agreements relating to risk management and emergency response, such as the Sendai Framework for Disaster Risk Reduction *(66)* and the reporting requirements of IHR (2005) *(42)*	√			√	√
28. Ethical considerations, legal requirements and best practices in emergency management, such as resource allocation, prioritization of care, and equity considerations	√	√	√	√	√

Practice activity 38: Coordinating an emergency response	
Emergencies can have immediate and severe consequences and secondary consequences for the health and well-being of communities, particularly impacting vulnerable populations. By implementing a coordinated response, which includes timely management of the situation, emergency response plays a vital role in containing and mitigating the further impacts of the emergency. Effective emergency response requires intersectoral coordination and tailored management responses based on the type of emergency.	
EPHF subfunctions	• Public health emergency management (2.3; 2.5) • Public health stewardship (3.1; 3.4) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.2) • Community engagement and social participation (8.4; 8.5) • Health service quality and equity (10.3) • Access to and utilization of health products, supplies, equipment and technologies (12.4)
Tasks	• Interpreting information from a rapid risk assessment • Confirming the event or indicator-based emergency according to pre-defined triggers or thresholds • Declaring an emergency • Triggering the emergency response plan • Alerting stakeholders and initiating risk communications • Mapping stakeholders for response at local, subnational and national levels • Convening an emergency response coordination group • Prioritizing the response options and intelligence requirements according to the risks, threats and greatest vulnerabilities • Mobilizing resources and surge capacity to support the emergency response • Coordinating support for essential response actions, including community early warning and detection, community surveillance, service delivery, public health and social measures, referrals, etc. • Coordinating the implementation of activities and measures within the health emergency response operations plan, including the integrating recovery approaches from the outset • Conducting after-action reviews as part of evaluation and preparedness for future emergencies • Monitoring for equity in outcomes and access to countermeasures • Initiating the coordination of service continuity and recovery • Adapting the response plan in light of evolving intelligence and policy decisions • Declaring the situation stable and no longer requiring exceptional capacities and emergency procedures
Illustrative profiles	
Public health personnel (1)	• Coordinating the public health response (e.g. relating to needs or impacts assessments) and intelligence gathering • Contributing to an intersectoral response coordination group

Health and care workers (2)	• Coordinating the clinical response as part of the emergency response • Contributing to ongoing surveillance and information sharing about the evolving impact of the emergency on health • Contributing to an intersectoral response coordination group
Occupations allied to health (3)	• Coordinating the response to structure • Providing civilian or military liaison for logistics or other support for the response • Providing surge capacity during a response • Contributing to an intersectoral response coordination group
Senior specialists (4)	• Triggering the emergency response • Leading incident management structures, data management and sharing, and promoting good interoperability between services responding to the emergency
Policy authority (5)	• Ensuring compliance with IHR (2005) *(42)*, and commissioning national guidance and protocols for emergency response

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. Principles, concepts, definitions and terminology relating to emergency, disaster and risk management	√	√	√	√	√
2. Principles of emergency management and the different phases: mitigation, preparedness, response and recovery	√	√	√	√	√
3. The contents and components of a national health emergency response operations plan	√	√	√	√	√
4. The potential immediate consequences of hazards, including the human, animal and environmental negative health consequences, forced displacements, conflict, damage to infrastructure, or ecosystem and environmental disruption or degradation	√	√	√	√	√
5. The potential secondary consequences of hazards, including economic losses, social or political tensions, disruption to health and other services, the effect on health workers, and the compound consequences on human, animal and environmental health	√	√	√	√	√
6. The intersections of the immediate and secondary consequences of hazards with social risk factors including gender, socioeconomic status, disability, or act as multiplying factors for the most vulnerable populations that may be affected by the threat	√	√	√	√	√
7. The range of stakeholders involved in or affected by the emergency, as well as those who can contribute insights from experience or expertise, and solutions. This includes individuals, communities, governments, associations, institutions and schools of public health, civil society groups, organizations and development partners, in the public and private sectors and health and allied sectors	√	√	√	√	√

Curricular guide	1	2	3	4	5
8. Approaches to community engagement to ensure communities are partners in the creation and implementation of acceptable and workable public health actions and emergency response solutions for those who are impacted	√	√	√	√	√
9. Contents, components and requirements of the health emergency response operations plan as it relates to own area of practice, and own roles and responsibility for implementation	√	√	√	√	√
10. The role of major stakeholders in the emergency response and chain of command	√	√	√	√	√
11. Intersectoral collaboration mechanisms, including an emergencies coordination group	√	√	√	√	√
12. Principles of risk communication and community engagement	√	√	√	√	√
13. Access to emergency and surge capacity resources	√	√	√	√	√
14. Typology of emergency medical teams according to mobility and level of care; and services that are typically provided by each type of team	√	√	√	√	√
15. The use of incident management systems	√	√	√	√	√
16. Emergency response structures, policies, procedures and laws locally, nationally and internationally	√	√	√	√	√
17. The local and national definition of an emergency to activate the response required	√	√	√	√	√
18. Methods and tools to prioritize or make decisions on resource utilization	√	√	√	√	√
19. Mechanisms to work within legal frameworks, such as licensing for clinical practitioners as part of the surge response team	√	√	√	√	√
20. Institutional requirements and availability, communication channels and resource needs for emergency management	√	√	√	√	√
21. Methods to use the intelligence gathered from the ongoing monitoring and evaluation process to facilitate a better use of evidence in decision making and adapt a plan as necessary	√			√	√
22. Methods and tools for emergency after-action evaluations and reviews	√	√	√	√	√
23. Ethical considerations, legal requirements and best practices for emergency management, including resource allocation, privacy and informed consent, and the reporting requirements of IHR (2005) *(42)*	√	√	√	√	√

Practice activity 39: Providing health services as part of an emergency response

Health services provided in an emergency should be safe, community-centred, timely, equitable, integrated and efficient *(67)*. Health services may be provided by emergency medical teams, deployed to respond to the emergency, or by clinical practitioners and broader health workforce teams already in place, adapting to the emergency context. Operating in complex emergency settings requires flexibility and adaptability to new ways of working to overcome challenges, including impacts on the health and well-being of health workers, higher caseloads, and disruption to facilities, systems and supply chains.

EPHF subfunctions	• Public health emergency management (2.3; 2.5) • Public health stewardship (3.1; 3.4) • Health protection (5.2; 5.3) • Disease prevention and early detection (6.1; 6.2) • Community engagement and social participation (8.5) • Health service quality and equity (10.3) • Access to and utilization of health products, supplies, equipment and technologies (12.4)
Tasks	• Mapping of health facilities and health workers, including a surge capacity register • Planning for service provision, including identifying surge capacity, additional training needs, and the critical processes and resources • Setting up dedicated physical and virtual spaces (such as command posts and file-sharing systems) as part of the response • Scheduling health services provision • Mobilizing resources and surge capacity to support the emergency response • Participating in enhanced training and adopting new ways of working • Delivering essential health services to individuals and communities • Providing physical and psychosocial support to individuals and health workers • Providing feedback about service needs, demands, use and resources to command posts to inform the evolving response
Illustrative profiles	
Public health personnel (1)	• Providing surge capacity and support for service provision (e.g. adapting to new ways of working) and administrative tasks • Providing feedback about service needs, demands, use and resources to command posts to inform the evolving response
Health and care workers (2)	• Providing clinical health services for the response and for service continuity • Participating in enhanced training and adopting new ways of working • Providing feedback about service needs, demands, use and resources to command posts to inform the evolving response
Occupations allied to health (3)	• Providing surge capacity and support for service provision (e.g. adapting to new ways of working) and administrative tasks • Providing feedback about service needs, demands, use and resources to command posts to inform the evolving response
Senior specialists (4)	• Coordinating issues relating to licensing for surge capacity team, including emergency medical teams • Ensuring all health personnel and volunteers have staff protection • Supervising emergency response activities to ensure sustained data sharing, and interoperability between stakeholders
Policy authority (5)	• Mobilizing resources and surge capacity to support the emergency response • Ensuring compliance with IHR (2005) *(42)*

Curricular guide	1	2	3	4	5
1. Principles, concepts, definitions and terminology relating to emergency, disaster and risk management	√	√	√	√	√
2. The contents and components of a national health emergency response operations plan	√	√	√	√	√
3. The range of stakeholders involved in or affected by the emergency	√	√	√	√	√
4. Approaches to community engagement to ensure communities act as partners in creating and implementing acceptable and workable public health actions and emergency response solutions for those affected	√	√	√	√	√
5. The potential immediate consequences of hazards, including harm to human, animal and environmental health, forced displacement, conflict, damage to infrastructure or ecosystem, and environmental disruption or degradation	√	√	√	√	√
6. The potential secondary consequences of hazards, including economic losses, social or political tensions, disruption to health and other services, effects on health workers, and the compound consequences for human, animal and environmental health	√	√	√	√	√
7. The intersections of the immediate and secondary consequences of hazards with social risk factors, including those due to gender, socioeconomic status and disability, or that act as multiplying factors for the most vulnerable populations that may be affected by the threat	√	√	√	√	√
8. The health impacts of the health emergency, likely caseloads, and availability of daily intelligence	√	√	√	√	
9. The contents and applications of WHO classification and minimum standards for emergency medical teams *(67)*				√	√
10. Triage systems for patient treatment priorities	√	√	√	√	
11. Medical emergency response, including cardiopulmonary resuscitation, haemostasis for massive trauma, general first aid and triage, to stabilize and treat patients	√	√	√	√	
12. The correct use of personal protective equipment to protect self and others	√	√	√	√	
13. Principles and practices for infection prevention and control and measures to mitigate the impact of the emergency	√	√	√	√	
14. Emergency response structures, policies, procedures and laws, local, national and international, that govern the provision of health services during an emergency (e.g. crisis standards of care)	√	√	√	√	√

Curricular guide	1	2	3	4	5
15. The phases of emergency management: prevention, preparedness, response and recovery	√	√	√	√	√
16. The physical and virtual spaces that can be used in the response, including care-giving settings and command centres	√	√	√	√	
17. Health workforce management, including salaries, support, protection, licensing, indemnification and own health care (including mental health care)	√	√		√	√
18. Potential workforce surge needs, including the roles of and interactions between agencies involved in health-care delivery	√	√		√	√
19. Health systems, structures, locations and institutions, local and national	√	√	√	√	√
20. Factors influencing the delivery and use of health services during emergencies	√	√	√	√	√
21. Social sciences and local practices and cultures (e.g. burials)	√	√		√	
22. Recognizing basic signs and symptoms of physical and psychological distress, to identify when self and colleagues need support	√	√	√	√	
23. The physical and psychological burdens on self and colleagues during emergency management	√	√	√	√	
24. Physical and psychological support mechanisms available during emergency management	√	√	√	√	
25. Professional registration, licensing, credentialing, insurance and indemnity requirements for the jurisdiction, including additional requirements for emergency medical teams	√	√		√	
26. Mechanisms for knowledge sharing, surveillance and communication between teams and for response management and coordination	√	√	√	√	√
27. Ethical considerations, legal requirements and best practices relating to the provision of clinical services for emergency management	√	√	√	√	√

Practice activity 40: Coordinating service continuity and equitable recovery

Service continuity, the maintenance of essential services beyond immediate emergency response, is crucial during public health emergencies. While emergencies focus primarily on acute care and response, it is important to restore or improve livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster affected community or society, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risk *(68)*. By prioritizing service continuity, public health systems can minimize the long-term secondary consequences of emergencies and safeguard the overall well-being of communities. Health system adaptation is imperative for rebuilding, restoring and improving the various components and core functions of the health system. This aligns with the principles of "building back better" and sustainable development. Adaptation may include upgrading infrastructure, enhancing health-care workforce capacity, improving surveillance and data systems, reinforcing emergency preparedness and optimizing resource allocation. By undertaking adaptation measures, public health systems can emerge stronger and more resilient, better equipped to respond to future emergencies and to provide effective and equitable health services and programmes.

EPHF subfunctions	• Public health emergency management (2.3; 2.4; 2.5) • Public health stewardship (3.1; 3.4) • Health protection (5.2; 5.3) • Community engagement and social participation (8.1; 8.2; 8.4; 8.5) • Health service quality and equity (10.1; 10.2; 10.3) • Access to and utilization of health products, supplies, equipment and technologies (12.4)
Tasks	• Convening stakeholders to coordinate service continuity and the recovery process • Interpreting the latest public health situation analysis to establish the current health status, potential health threats and functionality of the health system, and the disruption to public health services, programmes and infrastructure • Planning • Identifying evolving barriers to accessing/availability of services during the emergency • Prioritizing service provision according to the greatest risks, threats and vulnerabilities • Identifying the minimum provision of services to maintain service continuity • Identifying additional health services needed to respond to the impacts of the health emergency • Interpreting lessons to inform health system strengthening and adaptation • Identifying adaptations needed in service provision and health system operations for stronger and more resilient system recovery • Identifying the critical processes and resources needed • Creating a transition and recovery strategy • Mobilizing resources and surge capacity to support the emergency response • Coordinating the implementation of the recovery and transition strategy • Updating assumptions, stages and timelines in the transition and recovery strategy in light of evolving intelligence and policy decisions • Updating risk registers and informing preparedness activities • Participating in post-event debriefing and evaluation mechanisms • Delivering evaluation and reflection exercises • Providing feedback to inform future risk management and emergency preparedness and response • Developing policies and plans to address immediate and future needs

Illustrative profiles	
Public health personnel (1)	• Integrating recovery planning foundations throughout the emergency response • Convening partners and stakeholders to oversee local service continuity
Health and care workers (2)	• Contributing to multisectoral coordinating groups for continuity, service and recovery • Contributing insights and lessons to inform the process
Occupations allied to health (3)	
Senior specialists (4)	• Maintaining the service continuity and recovery strategy • Prioritizing services within the service continuity strategy according to the available resources
Policy authority (5)	• Coordinating a multisectoral coordination mechanism for health system recovery • Resource mobilization for long-term recovery in different parts of the health system

Curricular guide	**1**	**2**	**3**	**4**	**5**
1. Principles, concepts, definitions and terminology relating to emergency, disaster and risk management	√	√	√	√	√
2. The processes for reviewing and updating a national health emergency response operations plan, taking into account lessons learned					√
3. The phases of emergency management: prevention, preparedness, response and recovery	√	√	√	√	√
4. The goals and approaches for each step in the recovery cycle	√	√	√	√	√
5. Information in the public health situation analysis	√	√	√	√	√
6. The guiding principles of recovery: do no harm, respect humanitarian principles, effective development cooperation, integrate recovery from the outset, context-specificity, health system recovery aligned with sectoral, global and regional initiatives and national recovery plans, community participation, leave no one behind, gender equality, climate-sensitive thinking and holistic approach to health *(69)*	√	√	√	√	√
7. The differences between early recovery and transition and long-term recovery	√	√	√	√	√
8. The range of stakeholders involved in service continuity, transitions and recovery	√	√	√	√	√
9. Theoretical models of community engagement, community mobilization and participatory design	√	√	√	√	√
10. Approaches to community engagement to ensure communities act as partners in creating and implementing acceptable and workable public health actions and emergency response solutions for those affected	√	√	√	√	√

Curricular guide	1	2	3	4	5
11. Community engagement principles: trust, accessibility, contextualization, equity, transparency and autonomy	√	√	√	√	√
12. Enabling factors for successful community engagement: governance, leadership, decision-making, communication, collaboration, partnership and resources	√	√	√	√	√
13. The six WHO building blocks of health systems: service delivery, health workforce, health information systems, access to essential medicines, financing and leadership/governance *(70)*	√			√	√
14. Service continuity planning principles and practices	√	√	√	√	√
15. The functioning, workflows and dependencies of the health system, including facilities, service priority and resourcing, before the emergency and currently	√	√	√	√	√
16. The minimum services provision and priority health needs for service continuity, as well as enhanced services needed to respond to primary and secondary consequences of the emergency	√	√	√	√	√
17. The availability of personnel to provide health service continuity, alongside surge response, and managing the impacts of the emergency on them	√	√	√	√	√
18. Access to surge resources to support service continuity and recovery	√	√	√	√	√
19. Contents and components of a service continuity and recovery strategy	√	√	√	√	√
20. The stages of developing and implementing a strategy	√	√	√	√	√
21. The contribution of service continuity to preventing or mitigating the health impact of secondary consequences of the health emergency	√	√	√	√	√
22. The principles, tools and techniques for change management to facilitate shifts in organizational processes during times of crisis to enable service continuity	√			√	√
23. Monitoring and evaluation frameworks and methods for assessing the effectiveness and impact of interventions for service continuity	√			√	√
24. Relevant stakeholders to collaborate with in post-event evaluation	√	√	√	√	√
25. Methods and tools for reporting and feedback	√	√	√	√	√
26. The ethical considerations, legal requirements and best practices relating to service continuity and recovery, including those relating to resource allocation and equity	√	√	√	√	√

4. Contextualizing the framework to inform the design and delivery of competency-based education

Summary

- The high-level guidance in this chapter first outlines a process for contextualizing the practice activities in Chapter 3 relating to role responsibility, and for defining competency-based education outcomes aligned with practice standards, integrating the competencies and behaviours set out in Chapter 2.
- The second part of this chapter describes how to develop competency-based education programmes oriented to those competency-based education outcomes, rooted in the development of the foundational knowledge, skills, attitudes and values required for practice.
- The guidance incorporates an intentional approach to whole-of-programme design, encompassing the five core components of competency-based education: defined competency-based outcomes oriented to population health needs; progressive sequencing of learning; learning experiences tailored to competency-based outcomes; teaching tailored to competency-based outcomes; and programmatic assessment of the achievement of learning *(6)*.
- Competency-based outcomes provide a holistic approach to competence, focusing on both the practice activities within role responsibility (adapted from Chapter 3) and the competencies of the individual who performs them (from Chapter 2).
- This approach to educational design is relevant to both pre-service and in-service education programmes.
- Transitioning to a fully competency-based education programme may be incremental and requires resources, trained faculty and supervised practical experience, together with established pathways from formal education programmes to decent employment.

4.1 Introduction

This chapter provides guidance for contextualizing the framework, first to define the competency-based education outcomes required for specified roles and responsibilities for responding to priority public health challenges, and secondly to develop a competency-based curriculum to meet those outcomes.

It assumes that the tailoring of the EPHFs to public health programmes and services, and systems inputs, that meet population health needs has already been or can be defined, and that education and employment pathways are aligned to maximize the labour market absorption of learners with the relevant skills and competencies to undertake defined roles and responsibilities.

4.2 Defining competency-based education outcomes

The initial focus of contextualization is to select and specify the practice activities relevant to a learner's future scope of practice and role responsibilities upon course completion/in employment. Some education programmes are oriented to competence in a given area; others are oriented to achieving milestones on that learning journey, with later opportunities to develop competence through on-the-job learning when in employment, and further specialized training. This guidance outlines a five-step process for defining the outcomes of competency-based education programmes.

4.2.1 Stage 1: Planning

Competency-based education requires a whole-of-programme approach to learning and assessment that is oriented to the education outcomes. At the outset, it is important to plan for both the process of defining or updating education outcomes, and implementing curricular changes and absorption of learners into the labour market.

Implementing curricular changes may require increasing institutional capacity, including trained faculty, learning resources and environments, as well as financial, political and regulatory support. It is also an opportunity to align the delivery of education, and its contents, with population health needs, for example, by teaching about approaches to strengthening rural recruitment and retention (71). Information gathering and validation are key to understanding the context, and the problems the work is trying to solve, as well as identifying realistic options for change, and ensuring that sufficient resources and time are allowed to develop and implement that change.

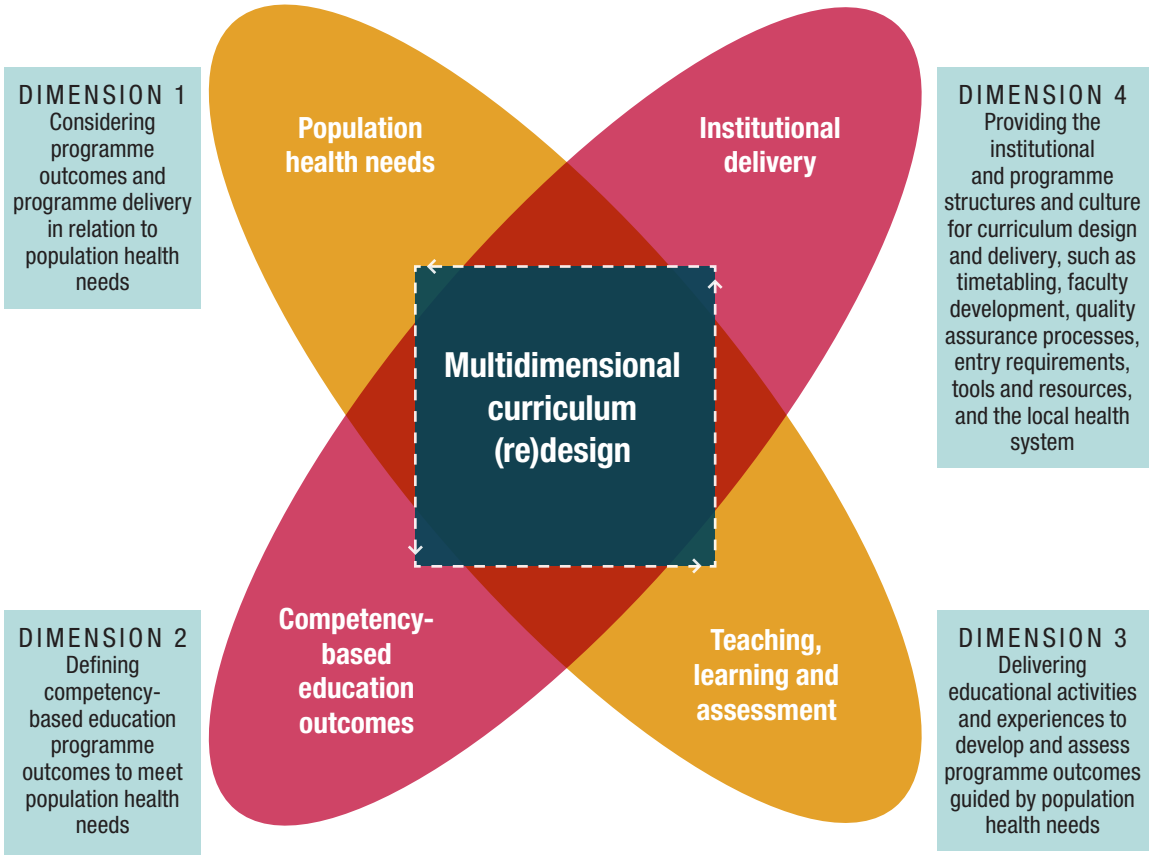
Fig. 7 presents the four dimensions of curriculum (re)development: population health needs, programme outcomes, educational approaches and institutional delivery.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) proposes the adoption of six principles of good practice in education (re)design, presented in Table 10.

Stakeholder analysis and engagement: Stakeholder analysis is a process of systematically gathering and analysing qualitative information to determine whose interests should be considered when developing and/or implementing a policy or programme. Stakeholder analysis is an important part of planning for the competency framework development process. WHO has published guidance on stakeholder analysis in health policy-making *(74)*.

Key stakeholders in competency framework development include: educationalists and faculty; training institutions and field- or practice-based placement providers; learners and prospective learners; employers (public and private sector); occupational and professional associations; regulatory bodies; community groups and population representatives; minority groups and marginalized populations, including indigenous peoples; service developers and managers; public health workers (from across the three groups); and subject matter experts. A participatory approach with active community involvement is recommended to ensure that the contextualization and implementation of the framework meet the priority health needs of the community.

Fig. 7. Four dimensions of competency-based curriculum development



Source: Adapted from Lee A, Steketee C, Rogers G & Moran M *(72).*

When (re)designing educational activities to enable the delivery of the EPHFs, the lens of social accountability should be applied throughout, so that public health workers are supported in acquiring and, through practice and lifelong learning, maintaining the knowledge, skills and attitudes needed to respond and adapt to public health needs *(75).*

Governance and responsibilities: It can be useful to assign specific roles and responsibilities to different stakeholders and key actors in the development process. This includes assigning responsibility to coordinate the work: who will have a decision-making or consultative role; who will have oversight; and who is authorized to approve the framework. It is also useful to establish terms of reference for the different roles.

Resources: Once the workplan has been confirmed, the human and financial resources for the work need to be secured and available for the designated stages in the workplan. Financial costs may include staff fees, working meetings, and the costs of producing and disseminating the framework, as well as implementing it (for example, the costs of teachers and facilities).

Table 10. Approaches to educational (re)design, incorporating UNESCO's six principles of good practice

Principle	Characteristics of good practice	Tools and considerations
Planned and systematic	• Sequenced activities in a realistic timeframe	• What is the timeline? • What is the workplan? • What are the financial costs for the process as well as for dissemination and uptake? • What resources are available (human, infrastructure, technology and material) for the (re)design process, and for implementation and uptake? • What are the tools for capturing and recording data? What are the decision-making mechanisms?
Inclusive	• Incorporates the expertise and perspectives of different stakeholders • Assigns leadership and coordination roles • Adopts a participatory approach to governance and decision-making	• Stakeholder analysis: Who is the target audience? Who will be affected by the change? • What are the political, legal and financial accountabilities? • How will stakeholders and communities be involved in information gathering, governance, decision-making and implementation? • What is the language and terminology?
Informed	• Makes use of evidence and information, including advice, about educational reform and the context	• Does the framework reflect current practice or is it aspirational (future-facing)? Should it show progression between different responsibilities? • Who is the framework for? What occupational groups are covered? • What are the problems and strengths of current educational approaches? • Why and why now implement (re)design? • What is the evidence for what works? • What are the considerations for implementing different policy options in this context?

Principle	Characteristics of good practice	Tools and considerations
Comprehensive	• Considers both the development of outcomes and the implementation of reform (four dimensions in Fig. 7) • Identifies and manages strengths and weaknesses through design • Builds in monitoring and evaluation of impact as routine	• What is the context? What are the individual and population-level health services to be provided? • What risks do the population and health workforce face? • How will the curriculum be implemented to ensure learners can achieve intended learning outcomes? • What level of detail is required to operationalize the framework or curriculum?
Targeted	• Realistic about what solutions the change can bring, using clearly articulated objectives	• What is the scope of the educational re(design), for example, just the framework or framework and curriculum and implementation? • At what stage in the pathway to employment and competence is the training? Is it targeted to a milestone towards competence, or does it aim to develop learner competence? • What is the level of granularity and detail required for usability? How often will this need to be updated?
Broadly supported	• Ensures stakeholders are aware, involved and can plan for the change • Achieves acceptance across the system by those affected	• What level of endorsement is needed and from whom/which organizations? • How will the final product be made available and used? • What is the institutional readiness and buy-in for change from stakeholders?

4.2.2 Stage 2: Information gathering

Stage 2 involves gathering information both to guide the planning stage (budget, human resources, time and stakeholders) and to inform the content and utility of the framework. The approach to gathering information should draw on both job analysis and task analysis methods *(76)* that focus, not only on the tasks to be done, but also on the people needed to perform those tasks. A range of methodologies can be used for information gathering, including workshops, surveys, case studies, desk reviews, scenario-based interviews, direct observation and work sampling, as well as methods for validation and to achieve consensus. The methods of information gathering will be tailored to: the scope of coverage, the amount of new information needed, and the timeline and resources available to develop the framework. Evaluation

will also need to reflect whether the gathered information is an unchangeable requirement or whether it is contextual and opinion-based.

The goal of information gathering and triangulation is to identify and validate the practice activities and specifications, and the range of situations and contexts in which the learner might need to perform those tasks. Guidance for information gathering is provided by the questions set out in Table 11.

Competency-based education can only train public health workers to improve population health and health equity if the intended education outcomes are determined by context-specific health issues *(23)*. Sources of information, as well as areas for information gathering, are suggested in Table 12.

4.2.3 Stage 3: Drafting competency-based outcomes, including milestones towards competence

This stage is about applying the information gathered to identify: the education programme outcomes; the range of contexts in which a learner may need to practice; whether course completion is intended to result in competence (proficiency meeting the standards required for practice); and what the learning journey to competence will involve.

By defining shared expectations and a common language, outcomes defined in terms of competence can facilitate transitions between education and employment. An individual's proficiency (level of performance) can increase with training and experience. Fig. 8 illustrates Dreyfus and Dreyfus's model of clinical competence, which tracks learning journeys towards the performance of tasks in practice, including in non-clinical areas of work. In reality, many learning journeys are not linear; they may involve peaks, troughs and loss of competence (for example, if not practising skills and competencies routinely) such that further learning is needed.

During this information gathering stage, different types of information may emerge that are not immediately identifiable as practice activities, tasks, competencies or behaviours. Such content may include values, knowledge, circumstances, motivations, outcomes and impacts. It is important to validate the content as relevant and appropriate to the scope of the framework, and to organize the content into a useable format. Stage 3 brings together the analytical approach to information gathering, involving a holistic lens that combines the discrete tasks, values and outcomes in the range of practice activities for which a person is or will be responsible.

Note that, in order to specify the outcomes, it is not necessary to define the knowledge and skills content (yet these are necessary and useful for defining curricular content and learning journeys, see section 4.3). However, it is good practice to document the knowledge, skills, attitudes and other information identified for use during curricular design and delivery, for use later in the process.

Although some of the information gathered may reflect less-than-ideal working practices, the framework should reflect best practice. Any gaps identified between the practice goals and real-life practice can be useful for identifying challenges elsewhere in the health system. At the same time, the framework can be useful to identify the kinds of situations and challenges that might confront an individual, and the range of responses and options available in that situation.

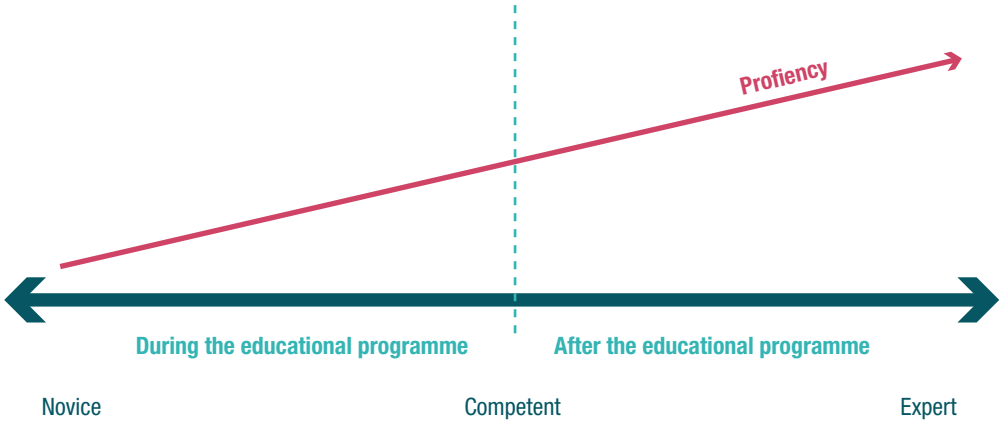
Table 11. Guiding questions for information gathering to define competency-based education outcomes

• What are the health threats and health needs, including the immediate and longer term priorities?
• To which practice activities will the learner contribute?
• To which EPHFs will the learner contribute?
• What are the tasks within role responsibilities for those practice activities?
• How does this differ in emergency or surge capacity situations?
• What might need to be done additionally/differently/in future?
• What are the relevant legal and ethical frameworks?
• What tools and techniques are used?
• What interactions occur with other people?
• What role do other people have in this task?
• Is the task part of a team effort or can it be performed alone?
• What is the level of supervision?
• What are the administrative tasks?
• What does good practice look like?
• What do effective and ineffective performance look like?
• Does effective performance look different in different contexts/situations/with different groups of people?
• What are the potential barriers and facilitators?
• How can barriers be mitigated, and facilitators enhanced?
• What ethical dilemmas might be encountered?
• In what situations might these dilemmas typically be encountered?
• What are the typical situations or contexts in which these tasks are performed?
• What are the outcomes of the tasks?
• How do these tasks contribute to an overall (or organizational) mission?
• What are the tasks within role responsibilities for those practice activities?
• What is the source of information? Is it recent and still applicable? What is the validity of and confidence in that source? Is it opinion, or factual, or a legal requirement?

Table 12. Key themes and sources of information to inform competency framework development

Themes of information	Sources of information
EPHFs (global and any regional variations) Legislation, policies, regulations and guidelines Occupational roles and responsibilities Public health intelligence, emergency risk assessments and health needs assessments	• Ministries of health, education and labour, and agencies responsible for the broader public health determinants (agriculture, animal health, climate change, water, sanitation and hygiene, road safety, food safety, communities, housing and urban affairs, and rural and community development) • Regulatory organizations • Existing competency frameworks and standards • Future-facing strategic documents • Delivery guidelines, standards and protocols • WHO and other global organizations • Professional or occupational associations • Quality requirements for the individual learner (regulation and licensing standards) • Quality requirements for the educational institution (accreditation) • Existing curricula, competency frameworks and outcomes • Existing job descriptions • Data on burden of disease and prevalence of health conditions; quality of care • The *Global competency and outcomes framework for the essential public health functions*, practice activities (Chapter 3)
Local culture and context: economic conditions, climate, language, access to payment for services, specific vulnerable populations, challenges in practice and education, etc. Practice settings: the health system, teams, facility- or community-based, etc. Examples of good practice and effective performance Health threats and other public health situations	• Subject matter experts (people who perform the work; those who manage, work with or mentor people performing the work; and community members) • All-hazards emergency risk assessments (risk profiles) • Gender-transformative education interventions *(19)* • Case studies • Records of events and never-events • Observation • The *Global competency and outcomes framework for the essential public health functions*, competencies and behaviours (Chapter 2)

Fig. 8. The learning continuum



Source: Adapted from Dreyfus HL, Dreyfus SE & Zadeh LA *(77).*

When interpreting information, it is important to consider whether the information is contextual and might inform learners' knowledge, skills or attitudes, or whether it is an observable, discrete action (tasks or practice activities) or a competency that enables multiple tasks or practice activities (behaviours or competencies). The definitions and characteristics of competencies, behaviours, practice activities and tasks are provided in Annex 7.

Using the information gathered in Stage 2, the practice activities outlined in Chapter 3 can be selected and specified as relevant. In any given context the same practice activity may be described differently from the wording in this framework: for example, specifying the name(s) of health programmes or priority health areas, or specific tasks concerning policy decision-making. It is important to consider the whole range of practice activities outlined in Chapter 3 when defining education outcomes, not just the domain within which one usually works: for example, public health workers involved primarily in policy development must be able to access and interpret public health intelligence (domain II) and conduct stakeholder mapping and engagement (domain III).

Chapter 2 sets out the 20 competencies needed to deliver the EPHFs, relevant across the whole range of practice activities and roles, and the additional behaviours for needed for leadership. Interpreting these competencies and behaviours within contextualized practice activities requires thorough understanding of both the performance of the relevant practice activities (and component tasks) and the settings or situations in which the individual may be practising. Where practice activities are rooted in job descriptions, reflections on effective behaviours are inherently judgement-based, and feedback and consensus from subject matter experts are essential.

Competency-based standards for performance are criterion referenced and reflect the required behaviours that demonstrate the competencies that determine performance of the practice activities. They must be measurable, realistic, safe and not dependent on the performance of others. These behavioural indicators provide the blueprint of competencies that learners should demonstrate in practice.

Through portfolios and reflective practice, they can amass the evidence that they have demonstrated these behaviours in practice, and hence demonstrate the required competencies.

Competency-based standards typically encompass four components.

- A single action verb: the behaviour or measurable performance (tip: avoid "ability to do x" because it is not the ability that needs to be assessed, but the action).
- Content: the subject matter and use of tools.
- Context: conditions under which the competency is to be demonstrated and the level of supervision required for given situations and audiences.
- Criterion-referenced performance standard: for example, frequency, accuracy and required documentation.

In a competency framework, the competencies and behaviours must be organized separately from the practice activities; however, when the framework is adapted to define the competency-based standards required for educational outcomes, they must be considered together.

4.2.4 Stage 4: Consultation, validation and finalization

The process of consulting about and validating the findings is continuous, and not a discrete stage in the development process. Through the process of contextualization, additional information needs may emerge, which may in turn inform how the practice activities and competency-based standards are organized and specified. Methods of seeking and recording stakeholder review and feedback include: Delphi surveys, nominal group technique, panel reviews (simultaneous), peer reviews (sequential), surveys and working groups (meetings or focus groups).

Consideration should be given to how and when the framework or standards will be distributed, received and evaluated. Every outcome should be validated individually, as well as the overall comprehensiveness. The roles of decision-making authorities for the process – which may include accrediting agencies or other regulatory authorities – guide the agreement of the final education outcomes. Table 13 presents a checklist that can be used to assess competency-based education outcomes.

4.2.5 Stage 5: Dissemination

It is important to maintain communications with stakeholders throughout the process of curriculum (re) design, and upon finalization. There are many ways of ensuring that the framework reaches its intended audience, and awareness among key stakeholders should have been built throughout the planning, consultation and development process.

Table 13. A checklist for competency-based education outcomes

Success factors	Success measures
Valid	☐ The education outcomes and their competency-based standards are clearly articulated ☐ Content is based on the population health needs and role responsibilities ☐ Expectations relating to competence, or milestones towards competence, are clearly defined and linked to the required level of proficiency ☐ Content and learning journey are appropriate for the learner and the learning pathway ☐ Content meets legal requirements ☐ Content is comprehensive ☐ Content is supported by evidence and guidelines ☐ Content is supported and validated by consensus
Acceptable	☐ The curriculum outcomes are acceptable to all stakeholders ☐ The curriculum outcomes achieve regulatory approval, where relevant
Useable	☐ The structure, layout and style of the document make it easy to use ☐ The competency-based education outcomes, including any supporting tools, are usable for all of its intended applications ☐ Complex ideas are conveyed in a simple manner ☐ Terms are unambiguous and used consistently ☐ The language, acronyms and terminology are appropriate for the intended use (including if using translation)

Further aids to dissemination include:

- providing the content in a range of formats;
- promoting publication and availability via social media;
- endorsement and dissemination by partner organizations; and
- delivering training sessions on implementation, tailored to specific audiences or user groups.

4.3 Curriculum planning, development, implementation, evaluation and quality improvement

This section concerns the development of curricula to help learners to achieve pre-defined competency-based outcomes. A curriculum encompasses the content of learning, the organization and sequencing of content, and the learning experiences, teaching methods and formats of assessment, as well as continuous quality improvement and programmatic evaluation *(6)*. This section offers guidance and key principles for each of these in turn.

4.3.1 Stage 1: Planning

Planning and information gathering are requisite foundations for curriculum (re)design and development, even if the competency-based outcomes have been externally defined. The planning, stakeholder analysis, assignment of governance and responsibilities, resourcing and information gathering needed to contextualize the framework in Stage 1 of defining education outcomes (section 4.2) should be undertaken at this stage, if not already done.

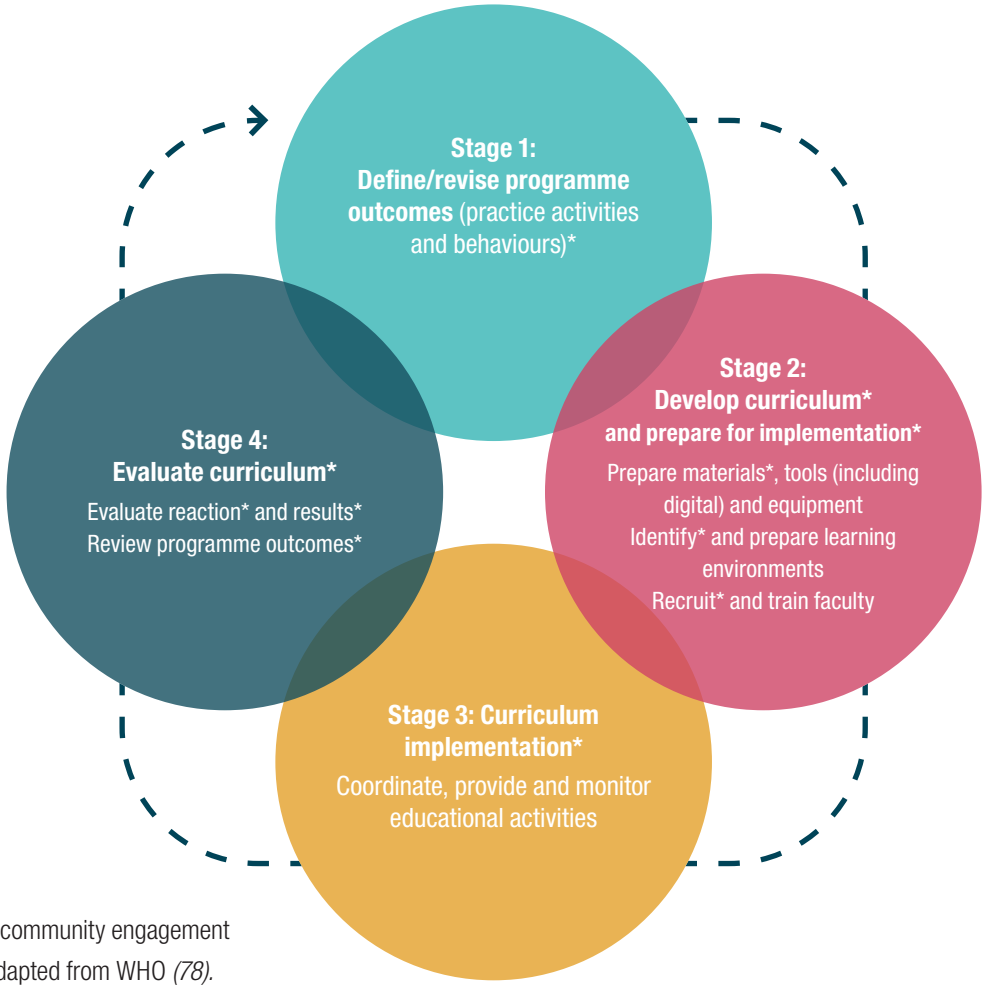
A well designed curriculum is essential for implementing competency-based education, and the design must be suitable for the context of institutional capacity, including faculty, learning resources (equipment, libraries and technologies), available learning environments (field, simulation and intersectoral collaboration) and supervision. The planning process must account for all components in the sequential process of implementing a new or revised curriculum (Fig. 9) for the new curriculum to be implemented as intended. Just as the principles of social accountability were integrated into the definition of the programme outcomes, so the principles of social accountability should be integral to the sequential process for strengthening and implementing new or revised curricula, including the integration of educational experiences across community health service provision, and the recruitment of students and faculty from the community.

4.3.2 Stage 2: Curriculum development: content of learning

Identifying the content of learning: This step requires translating each of the defined education outcomes into learning objectives that articulate the knowledge, skills and attitudes necessary for the competency-based education outcomes at the required proficiency.

Two taxonomies are commonly used to help to clarify different kinds of learning, and provide a basis for defining learning objectives. These are Bloom's taxonomy of knowledge (recall, understanding, application, analysis, evaluation and creation) (38) and Miller's pyramid of competence (knows, knows how, shows how and does) for the performance of practice activities (79). Before defining standards from a competency framework, it is important to define: the conditions under which the tasks should be performed, the specific tools that may be used, and the level of supervision or autonomy. Then the knowledge, skills, attitudes and behaviours can be identified that enable the individual to perform those tasks. When these parameters have been defined, learning objectives can be elicited from the knowledge, skills, attitudes and behaviours, using verbs that reflect the level of proficiency.

Fig. 9. Stages of strengthening education programmes through curriculum re(design)



* denotes community engagement

Source: Adapted from WHO *(78).*

Each of the practice activities set out in Chapter 3 is accompanied by a curriculum guide which can be used to inform the specification of learning objectives or units of learning. In addition, the questions concerning the competencies, outlined in Table 2 in Chapter 2, provide essential considerations.

During the information gathering phase, further knowledge, skills, attitudes and values may have been identified. It is important to identify the range of knowledge, skills, attitudes and values that underpin the learning outcomes, and in turn the learning objectives for each of these, as these inform the learning experiences and methods of assessment.

The theory of behavioural science focuses on education interventions designed to change practice behaviours. Practice behaviours are influenced by capability (or competence), opportunity and motivation. Competency-based education can influence and guide learners' capability and motivation for their public health practice, progressing them from the "shows how" to the "does" level of Miller's pyramid (Table 14).

Table 14. Prompts to develop curricular content for competency-based education outcomes

Curricular content	Prompts
Knowledge	• The concepts, theories, tools and technologies needed for the practice activity • The concepts and theories pertaining to each competency-based standard • The depth and breadth of knowledge needed • The level of proficiency needed for competence (or milestone) • The range of contexts, scenarios, teams and public health issues that may be encountered • The range of settings (e.g. facility, community and disaster response) • Contextual knowledge (e.g. relating to culture, language and customs) • The different groups of individuals or organizations that the learner may work with, and the nature of those interactions
Skills	• The tools and techniques to integrate behaviours into practice, appropriate for role and responsibility • Technical support needed for implementation (e.g. guidance and troubleshooting) • Procedural skills and use of tools and technologies • Learning to learn
Attitudes	• The importance of each behaviour • The motivation to perform each behaviour • The impact of attitudes on behaviours, and of behaviours on public health, the EPHFs and population health outcomes • Own biases, beliefs and cultural intelligence • The concepts and theories around behaviours • Examples of positive and negative behaviours in the context of the practice activities • The tools and techniques to integrate behaviours into practice • Reflections on experience and reflective practice
Values	• The values of public health from a systems or organizational perspective • How these affect attitudes and behaviours

Organizing and sequencing content: Curriculum sequencing involves guiding the learner to achieve learning outcomes through organizing meaningful patterns in the vast amount of content. When designing a curriculum, it is advisable to break complex outcomes into sets of knowledge and skills, so that the learner masters each set before their application of that knowledge and skill in the context of the practice activity is assessed. To maximize learning opportunities and reduce redundancies in a programme, it is also important to identify content shared by different outcomes.

Sequencing may involve moving from the simple to the complex; with more or less supervision; from general information or principles to more detailed consideration; or from theory to practical application. In some situations, the sequencing of modular units of learning may be influenced by logistics, for example, the availability of field- or practice-based learning. A prime consideration in sequencing are the prerequisites for different courses: the areas of knowledge, skills, attitudinal and value development and consolidation; and applying the learning in practice.

Learning experiences and teaching methods: Effective competency-based education is rooted in constructive alignment theory *(80)* whereby learning experiences and the assessment of learning are aligned with the defined outcomes. For the delivery of the EPHFs, this explicitly requires inter- and multiprofessional education towards intersectoral collaborative practice, problem-based learning *(81)* and situational experience, either simulated or (as far as possible) in field or practice settings.

Education and training can play a transformative part in gender equity and inclusion for both learners and faculty, in terms of both content and organization of delivery. When planning the delivery of education, consideration should be given to gender-transformative education interventions, such as flexible timetabling and enabling pregnant learners to continue their training *(19)*.

Different learning experiences suit different types and levels of knowledge and skill. Many different curricular approaches are compatible with competency-based curricula, including community-oriented/based, integrated, task-based, systems-based, modular, spiral, discipline-based and problem-based learning. Many different educational approaches and tools warrant consideration, including flipped classroom, problem-based learning, small-group learning, reflective practice and blended learning.

Learning materials should be up-to-date, evidence-based and relevant to the country and setting, and should include local case studies, and consideration of local norms, customs, languages and values.

An important part of operationalizing a curriculum is determining the time, the learning environments, the learning contexts and the materials for achieving the learning objectives. Scheduling, particularly where field experience is integral to the learning journey, presents some limitations. Competence is not a static trait, and learners develop and consolidate their learning as their field experience continues.

Competency-based assessment: Assessment is a fundamental feature of competency-based education: both in the focus on achievement and assessment of outcomes (summative assessment of learning) and in the integration of continuous formative assessments (assessment for learning) *(82)*. Three principles should guide assessment approaches: assessment should be transparent, with learners and faculty sharing a common understanding of what is being assessed and how; every competency should be assessed, not just those that are easy to assess; and assessment should be triangulated, so that each outcome is assessed in more than one way and more than once, to reflect adaptations to context.

Competence is defined as the performance of the required practice activities to the required standard for the context: it thus integrates all the required competencies. The criteria for assessment must therefore be clearly defined. Assessment of competence is essential for learners, tutors, teaching institutions, any accrediting body, employers and, ultimately, communities.

Learning outcomes cannot all be assessed in a single assessment format *(12)*. Just as the learning experience should match the learning objective, so too should the assessment format *(83)*. The

multiplicity of assessments is sometimes referred to as a system for this reason. Assessing the diversity of programme outcomes requires multiple assessment methods, and multiple trained assessors *(82).* Similarly, individuals do not perform every task consistently: competence is context-specific *(84)*. Therefore, the determination of a learner's competence should incorporate multiple measures in different settings and at different times.

Formative assessments enhance learning by providing ongoing feedback to the learner and tutor, targeting additional learning needs. They should motivate students and reveal progress made. Summative assessments can be used for a pass/fail decision, or occasionally, and depending on the design of the assessment, they can be used to rank learners in relation to each other. The purpose of the assessment, and how the result will be used, influence the selection of assessment formats, and the effort required to ensure that assessment decisions are defensible.

Many different assessment formats are used in competency-based education. Some involve multiple assessors, actors, groups of learners or simulated field environments, as well as performance-based, workplace-based assessment. Selecting which assessment formats are most appropriate for a learning outcome requires consideration of: who (learners and assessors); what (learning outcome, content); where (workplace-based assessment, simulation, exam hall); when (stage in the programme); why (purpose: formative or summative); and how (what format, standard or guideline determines the decision).

Factors involved in selecting the assessment instruments include: validity (does the assessment measure what it is intended to measure?), reliability (is the assessment reproducible and consistent?), educational impact, cost–effectiveness and feasibility *(85)*. Consideration must also be given to the assessment standards, which may require complex procedures to define the actual score or performance metric that qualifies a learner as competent *(12)*.

Strategies to manage these different factors include multiple assessors to increase inter-rater reliability, training faculty to ensure that the assessment is used as intended (validity), the length of testing time and the number of assessment items. These in turn affect the cost–effectiveness or feasibility of the assessment. In Table 15, utility considerations (reliability, cost–effectiveness, feasibility, validity and impact) are depicted in relation to assessment formats to assess the different types of learning objectives and programme outcomes.

Finally, programmatic assessment of the pass/fail decision should be decoupled from individual assessments, or made by a single assessor *(82)*. Indeed, such decisions should only be made when sufficient information is gathered and combined from the multiple summative assessments of each of the requisite practice activities to the defined standard.

4.3.3 Stage 3: Curriculum implementation

This stage involves translating the planned curriculum into the set of learning activities and assessments that facilitate learning. This involves communication and dissemination about the changes and the implications of changes, as well as providing ongoing training and support to faculty who will be responsible for delivering the new curriculum.

Table 15. Assessment formats and their relevance to competency-based learning objectives and programme outcomes

		Utility considerations			Learning objectives				Programme outcomes	
					(√) inferred, √ explicit					
Stage in Miller's pyramid *(79)*	**Example assessment formats**	**Reliability**	**Cost–effectiveness and feasibility**	**Validity and impact**	**Knowledge**	**Skills**	**Attitudes**	**Values**	**Behaviour**	**Practice activities**
Does	• Case-based discussion • Checklists • Work-based assessment • Multi-source feedback • Objective structured practical examination • Portfolio	Subjective	Close supervision Unpredictable	Authentic, positive impact on learning Narrow breadth	(√)	(√)	(√)	(√)	√	√
Shows how	• Objective structured long examination record • Oral case presentation • Skills lab • Simulation exercises • Virtual reality case management		Resource intensive to run Controlled situations Predictable		(√)	√	(√)	(√)	(√)	√
Knows how	• Chart-stimulated recall • Development of individual learning plan • Essay • Oral questioning with longer answers • Problem solving				√	(√)	(√)	(√)		
Knows	• Constructed response questions • Multiple choice questions • Short answer questions	Objective	Resource intensive to develop Predictable	Inauthentic Wide breadth	√					

4.3.4 Stage 4: Continuous quality improvement and programmatic evaluation

Curriculum evaluation is an integral part of curriculum development. Kirkpatrick's hierarchy of evaluation *(86)* incorporates evaluation of reaction (learner satisfaction), evaluation of learning (knowledge and skills acquired), evaluation of behaviour (transfer of learning to the workplace) and evaluation of results (impact on society). Table 16 suggests some approaches to curriculum evaluation at these levels.

Table 16. Examples of programmatic evaluation of curriculum design and implementation, using Kirkpatrick level of outcome

Kirkpatrick level of outcome *(86)*	Audience	Format	Example points of evaluation
Reaction	Learners	Course evaluation questionnaire	• Satisfaction • Engagement • Relevance of course content • Methods and burden of assessment • Learning materials • Learning experiences • Infrastructure/facilities
	Faculty, including field supervisors	Survey/interview	• Methods and burden of assessment • Learning materials • Learning experiences
Learning	Learners	Programme evaluation questionnaire	• Learner readiness • Changes in knowledge, skills, attitudes, values, competencies, confidence and commitment
Behaviour	Course graduates	Survey/interview	• % of learners employed • Perception of readiness for role responsibilities
	Employers	Survey/interview	• Learner/graduate general readiness for practice • Learner/graduate confidence • Learner/graduate values and attitudes
Results	Individuals and communities	Community feedback Service data Public health intelligence	• Acceptance of public health interventions by communities • Health outcomes • Health equity • Health threats • Emergency management evaluations • Country risk profiles

References

1. Thirteenth general programme of work, 2019–2023: promote health, keep the world safe, serve the vulnerable. Geneva: World Health Organization; 2019 (https://iris.who.int/handle/10665/324775, accessed 5 February 2024).
2. Health equity [website]. World Health Organization; 2023 (https://www.who.int/health-topics/health-equity, accessed 15 February 2024).
3. Defining essential public health functions and services to strengthen national workforce capacity. Geneva: World Health Organization; 2024 (https://iris.who.int/handle/10665/376579, accessed 8 February 2024).
4. National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response: roadmap for aligning WHO and partner contributions. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/354384, accessed 1 May 2024).
5. Working together for health: the world health report 2006: overview. Geneva: World Health Organization; 2006 (https://iris.who.int/handle/10665/69256, accessed 5 February 2024).
6. Van Melle E, Frank JR, Holmboe ES, Dagnone D, Stockley D, Sherbino J. A core components framework for evaluating implementation of competency-based medical education programs. Acad Med. 2019: 94(7):1002–1009. doi:10.1097/ACM.0000000000002743
7. Global competency and outcomes framework for universal health coverage. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/352711, accessed 6 February 2024).
8. Workload indicators of staffing need (WISN), Revised 2014. Geneva: World Health Organization; 2010 (https://iris.who.int/handle/10665/44414, accessed 10 February 2024).
9. International standard classification of occupations (ISCO-08) [website]. International Labour Organization; 2010 (https://isco-ilo.netlify.app/en/isco-08/, accessed 16 February 2024).
10. Frank JR, Mungroo R, Ahmad Y, Wang M, De Rossi S, Horsley T. Toward a definition of competency-based education in medicine: a systematic review of published definitions. Med Teach. 2010: 32(8):631–637. doi:10.3109/0142159X.2010.500898
11. Frank JR, Snell LS, Cate O Ten, Holmboe ES, Carraccio C, Swing SR, et al. Competency-based medical education: theory to practice. Med Teach. 2010: 32(8):638–645. doi:10.3109/0142159X.2010.501190
12. Gruppen L, Mangrulkar R, Kolars J. The promise of competency-based education in the health professions for improving global health. Hum Resour Health. 2012: 10(1):43. doi:10.1186/1478-4491-10-43
13. Thurman GK, Sanders MK. Competency-based education versus traditional education: a comparison of effectiveness. Radiol Technol. 1987: 59(2):164–169.
14. Long DM. Competency-based residency training: the next advance in graduate medical education. Acad Med. 2000: 75(12):1178–1183. doi:10.1097/00001888-200012000-00009

15. Stillman PL, Wang Y, Ouyang Q, Zhang S, Yang Y, Sawyer WD. Teaching and assessing clinical skills: a competency-based programme in China. Med Educ. 1997: 31(1):33–40. doi:10.1111/j.1365-2923.1997.tb00040.x

16. Hitzblech T, Maaz A, Rollinger T, Ludwig S, Dettmer S, Wurl W, et al. The modular curriculum of medicine at the Charité Berlin – a project report based on an across-semester student evaluation. GMS J Med Educ. 2019: 36(5):Doc54. doi:10.3205/zma001262

17. Dijkstra IS, Pols J, Remmelts P, Rietzschel EF, Cohen-Schotanus J, Brand PLP. How educational innovations and attention to competencies in postgraduate medical education relate to preparedness for practice: the key role of the learning environment. Perspect Med Educ. 2015: 4(6):300–307. doi:10.1007/s40037-015-0219-3

18. Parson L, Childs B, Elzie P. Using competency-based curriculum design to create a health professions education certificate program the meets the needs of students, administrators, faculty, and patients. Heal Prof Educ. 2018: 4(3):207–217. doi.org/10.1016/j.hpe.2018.03.008

19. Newman C, Ng C, Pacqué-Margolis S, Frymus D. Integration of gender-transformative interventions into health professional education reform for the 21st century: implications of an expert review. Hum Resour Health. 2016: 14(1):14. doi:10.1186/s12960-016-0109-8

20. Bloom BS, Krathwohl DR, Masia BB. Taxonomy of educational objectives: the classification of educational goals. Handbook II: affective domain (McKay D, ed.). New York: Longman, Green; 1964.

21. Anderson LW, Krathwohl DR. A taxonomy for learning, teaching, and assessing: a revision of Bloom's taxonomy of educational objectives. New York: Longman; 2001.

22. Hart J, Byrne-Davis L, Maltinsky W, Bull E. Training to change practice: behavioural science to develop effective health professional education. Chichester: Wiley Blackwell; 2023.

23. Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Lancet. 2010: 376(9756):1923–58. doi:10.1016/S0140-6736(10)61854-5

24. Frenk J, Chen LC, Chandran L, Groff EOH, King R, Meleis A, et al. Challenges and opportunities for educating health professionals after the COVID-19 pandemic. Lancet. 2022: 400(10362):1539–1556. doi:10.1016/S0140-6736(22)02092-X

25. Hare Bork R, Robins M, Schaffer K, Leider JP, Castrucci BC. Workplace perceptions and experiences related to COVID-19 response efforts among public health workers – public health workforce interests and needs survey, United States, September 2021-January 2022. MMWR Morb Mortal Wkly Rep. 2022: 71(29):920–924. doi:10.15585/mmwr.mm7129a3

26. Leider JP, Harper E, Bharthapudi K, Castrucci BC. Educational attainment of the public health workforce and its implications for workforce development. J Public Heal Manag Pract. 2015: 21 (Suppl 6):S56-68. doi:10.1097/PHH.0000000000000306

27. Frank MW, Weihofen A, Nocera S, Paccaud F. Public health workforce in Switzerland: a national census. Zurich: Foundation Swiss School of Public Healthplus; 2013 (https://ssphplus.ch/assets/downloads/publications/public-health-february-2013b.pdf, accessed 5 February 2024).

28. Treviño-Reyna G, Czabanowska K, Haque S, Plepys CM, Magaña L, Middleton J. Employment outcomes and job satisfaction of international public health professionals: what lessons for public

health and COVID-19 pandemic preparedness? Employment outcomes of public health graduates. Int J Health Plann Manage. 2021: 36(S1):124–150. doi:10.1002/hpm.3140

29. Roadmap to professionalizing the public health workforce in the european region. Copenhagen: WHO Regional Office for Europe; 2022 (https://www.aspher.org/download/1032/who-euro-2022-4808-44517-63144-eng.pdf, accessed 8 February 2024).
30. Gershuni O, Orr JM, Vogel A, Park K, Leider JP, Resnick BA, et al. A systematic review on professional regulation and credentialing of public health workforce. Int J Environ Res Public Health. 2023: 20(5: 4101):1–24. doi:10.3390/ijerph20054101
31. Essential public health functions: a guide to map and measure national workforce capacity. Geneva: World Health Organization; 2024 (https://iris.who.int/handle/10665/376578, accessed 1 May 2024).
32. European Observatory on Health Systems and Policies, Czabanowska K. Leadership in public health: reducing inequalities and improving health. Eurohealth (Lond). 2014: 20(3):28–31. (https://iris.who.int/handle/10665/332826, accessed 5 February 2024).
33. Fenton KA. Leadership in public health. In: Detels R et al., eds. Oxford Textbook of Global Public Health. Oxford University Press; 2021:0. doi:10.1093/med/9780198816805.003.0017
34. Nayar V. Three differences between managers and leaders. Harv Bus Rev. 2013. (https://hbr.org/2013/08/tests-of-a-leadership-transiti, accessed 8 February 2024).
35. Public Health England. Community-centred public health: taking a whole system approach. London; 2020 (https://assets.publishing.service.gov.uk/media/5e184c78e5274a06b1c3c5f9/WSA_Briefing.pdf, accessed 5 February 2024).
36. World Health Organization, R&DBlueprint. Community-centred approaches to health emergencies: progress, gaps and research priorities. WHO COVID-19 social science in outbreak response. Geneva: World Health Organization; 2021 (https://cdn.who.int/media/docs/default-source/blueprint/who-covid-19-social-science-in-outbreak-report_15.08.21.pdf, accessed 6 February 2024).
37. Evidence, policy, impact. WHO guide for evidence-informed decision-making. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/350994, accessed 7 February 2024).
38. Bloom BS, Krathwohl DR, Masia BB. Taxonomy of educational objectives: the classification of educational goals. Handbook I: cognitive domain (McKay D, ed.). New York: Longmans, Green; 1956.
39. The world health report 2000: health systems: improving performance. Geneva: World Health Organization; 2000 (https://iris.who.int/handle/10665/42281, accessed 6 February 2024).
40. Scutchfield FD, Ingram RC. Public health systems and services research: building the evidence base to improve public health practice. Public Health Rev. 2013: 35(1):8. doi:10.1007/BF03391693
41. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. Geneva: World Health Organization; 2010 (https://iris.who.int/handle/10665/258734, accessed 5 February 2024).
42. International Health Regulations (2005): state party self-assessment annual reporting tool, 2nd ed. Geneva: World Health Organization; 2005 (https://iris.who.int/handle/10665/350218, accessed 7 February 2024).

43. Health in all policies as part of the primary health care agenda on multisectoral action. Technical series on primary health care. Geneva: World Health Organization; 2018 (https://iris.who.int/handle/10665/326463, accessed 5 February 2024).

44. The Ottawa charter for health promotion. The 1st international conference on health promotion, Ottawa, 1986 [website]. World Health Organization; (https://www.who.int/teams/health-promotion/enhanced-wellbeing/first-global-conference, accessed 6 February 2024).

45. Health labour market analysis guidebook. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/348069, accessed 8 February 2024).

46. Decent work [website]. International Labour Organization; (https://www.ilo.org/topics/decent-work, accessed 6 February 2024).

47. User's guide to the WHO global code of practice on the international recruitment of health personnel. Geneva: World Health Organization; 2010 (https://iris.who.int/handle/10665/70525, accessed 6 February 2024).

48. WHO health workforce support and safeguards list 2023. Geneva: World Health Organization; 2023 (https://iris.who.int/handle/10665/366398, accessed 10 February 2023).

49. Global health and care workers compact: technical guidance compilation. Geneva: World Health Organization; 2023 (https://iris.who.int/handle/10665/373347, accessed 11 February 2024).

50. Definition of supply chain management [website]. Council of Supply Chain Management Professionals; (https://cscmp.org/CSCMP/Educate/SCM_Definitions_and_Glossary_of_Terms.aspx, accessed 5 February 2024).

51. Santos A dos, Santos R dos, McHenry B, Egharevba M, Brown A, Zwinkles D, et al. SCM professionalisation framework. People that Deliver; 2020 (https://peoplethatdeliver.org/sites/default/files/2023-10/SP1_01_Overview_professionalisation_framework.pdf, accessed 12 February 2024).

52. Yasnoff WA, O'Carroll PW, Koo D, Linkins RW, Kilbourne EM. Public health informatics: improving and transforming public health in the information age. J Public Heal Manag Pract. 2000: 6(6):67–75. doi:10.1097/00124784-200006060-00010

53. UN terms [website]. (https://unterm.un.org/unterm2/en/view/2b406931-845d-4e66-a6fe-b464ee3d6573, accessed 15 February 2024).

54. Safety and security incident recording system [website]. United Nations; (https://policy.un.org/policy-doc/30315, accessed 15 February 2024).

55. Emergency response framework (ERF), 2nd edition. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/258604, accessed 7 February 2024).

56. Rapid risk assessment of acute public health events. Geneva: World Health Organization; 2012 (https://iris.who.int/handle/10665/70810, accessed 5 February 2024).

57. Public health information service. Public health situation analysis (PHSA) standard operating procedures. Geneva: World Health Organization; 2018 (https://healthcluster.who.int/docs/librariesprovider16/meeting-reports/public-health-situation-analysis-sops.pdf?sfvrsn=6eae61ab_1&download=true, accessed 6 February 2024).

58. Community engagement: a health promotion guide for universal health coverage in the hands of the people. Geneva: World Health Organization; 2020 (https://iris.who.int/handle/10665/334379, accessed 5 February 2024).

59. Communicating risk in public health emergencies: a WHO guideline for emergency risk communication (ERC) policy and practice. Geneva: World Health Organization; 2017 (https://iris.who.int/handle/10665/259807, accessed 11 February 2024).

60. Klugman B. Effective social justice advocacy: a theory-of-change framework for assessing progress. Reprod Health Matters. 2011: 19(38):146–162. doi:10.1016/S0968-8080(11)38582-5

61. Harry MJ, Schroeder RR. Six sigma: the breakthrough management strategy revolutionizing the world's top corporations. Currency; 2000 (https://books.google.co.za/books?id=RY0rAAAAYAAJ, accessed 12 February 2024).

62. Cohen RI. Lean methodology in health care. Chest. 2018: 154(6):1448–1454. doi:10.1016/j.chest.2018.06.005

63. Abuzied Y. A practical guide to the kaizen approach as a quality improvement tool. Glob J Qual Saf Healthc. 2022: 5(3):79–81. doi:10.36401/JQSH-22-11

64. NHS England, NHS Improvement. Quality, service improvement and redesign tools: plan, do, study, act (PDSA) cycles and the model for improvement. NHS England; 2022 (https://www.eurotest.org/media/4quetedu/plan_do_study_act-1.pdf, accessed 12 February 2024).

65. Strategic toolkit for assessing risks: a comprehensive toolkit for all hazards health emergency risk assessment. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/348763, accessed 6 February 2024).

66. Sendai framework for disaster risk reduction 2015-2030. United Nations; 2015 (https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030, accessed 5 February 2024).

67. Classification and minimum standards for emergency medical teams. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/341857, accessed 6 February 2024).

68. Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction. Note by the Secretary-General. New York: United Nations General Assembly; 2016 (https://digitallibrary.un.org/record/852089#record-files-collapse-header, accessed 5 February 2024).

69. Implementation guide for health systems recovery in emergencies: transforming challenges into opportunities. Cairo: WHO Regional Office for the Eastern Mediterranean; 2020 (https://applications.emro.who.int/docs/9789290223351-eng.pdf, accessed 7 February 2024).

70. The world report on knowledge for better health: strengthening health systems. Geneva: World Health Organization; 2004 (https://iris.who.int/handle/10665/43058, accessed 15 February 2024).

71. WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/341139, accessed 9 February 2024).

72. Lee A, Steketee C, Rogers G, Moran M. Towards a theoretical framework for curriculum development in health professional education. Focus Heal Prof Educ A Multi-Professional J. 2013:

14(3):70–83. (https://search.informit.org/doi/10.3316/informit.562904617725098, accessed 5 February 2024).

73. Training tools for curriculum development: developing and implementing curriculum frameworks. Geneva: International Bureau of Education UNESCO; 2017 (https://neqmap.bangkok.unesco.org/wp-content/uploads/2019/06/Developing-and-Implementing-Curriculum-Frameworks-1.pdf, accessed 9 February 2024).
74. Schmeer K. Stakeholder analysis guidelines. Global Health Workforce Alliance; 1999 (https://cnxus.org/wp-content/uploads/2022/04/Stakeholders_analysis_guidelines.pdf, accessed 8 February 2024).
75. Building the primary health care workforce of the 21st century. Geneva: World Health Organization; 2018 (https://iris.who.int/handle/10665/328072, accessed 7 February 2024).
76. Hart LJ, Carr C, Fullerton JT. Task analysis as a resource for strengthening health systems. J Midwifery Womens Health. 2016: 61(2):257–262. doi:10.1111/jmwh.12410
77. Dreyfus HL, Dreyfus SE, Zadeh LA. Mind over machine: the power of human intuition and expertise in the era of the computer. IEEE Expert. 1987: 2:110–111. doi:10.1109/mex.1987.4307079
78. Integrated management of childhood illness (IMCI): planning, implementing and evaluating pre-service training. Geneva: World Health Organization; 2001 (https://cdn.who.int/media/docs/default-source/mca-documents/child/imci-integrated-management-of-childhood-illness/imci_planning_implementing_evaluating_pre-service-training.pdf?sfvrsn=cfed526d_5&download=true, accessed 6 February 2024).
79. Miller GE. The assessment of clinical skills/competence/performance. Acad Med. 1990: 65(9 (suppl)):s63-67. doi:10.1097/00001888-199009000-00045
80. Biggs J. Constructive alignment in university teaching. HERDSA Rev High Educ. 2014: 1:5–22. (https://www.tru.ca/__shared/assets/Constructive_Alignment36087.pdf, accessed 6 February 2024).
81. Guilbert J-J, World Health Organization. Educational handbook for health personnel. 6th ed. rev. and updated 1998. Geneva: World Health Organization; 1998 (https://iris.who.int/handle/10665/42118, accessed 7 February 2024).
82. Lockyer J, Carraccio C, Chan M-K, Hart D, Smee S, Touchie C, et al. Core principles of assessment in competency-based medical education. Med Teach. 2017: 39(6):609–616. doi:10.1080/0142159X.2017.1315082
83. Wass V, Van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. Lancet. 2001: 357(9260):945–949. doi:10.1016/S0140-6736(00)04221-5
84. Van der Vleuten C, Sluijsmans D, Joosten-ten Brinke D. Competence assessment as learner support in education. In: Mulder M, ed. Competence-based vocational and professional education bridging the worlds of work and education. Cham: Springer International Publishing; 2017:607–630. doi:10.1007/978-3-319-41713-4_28
85. Van der Vleuten CP. The assessment of professional competence: developments, research and practical implications. Adv Heal Sci Educ theory Pract. 1996: 1(1):41–67. doi:10.1007/BF00596229

86. Kirkpatrick DL. Evaluation of training. In: Craig RL, Bittel LR, eds. Training and development handbook. New York: McGraw Hill; 1967:87–112.

87. A conceptual framework for action on the social determinants of health. Social determinants of health discussion paper 2 (policy and practice). Geneva: World Health Organization; 2010 (https://iris.who.int/handle/10665/44489, accessed 5 February 2024).

88. Boelen C, Heck J, World Health Organization. Defining and measuring the social accountability of medical schools. Geneva: World Health Organization; 1995 (https://iris.who.int/handle/10665/59441, accessed 7 February 2024).

89. Boelen C, Woollard B. Social accountability and accreditation: a new frontier for educational institutions. Med Educ. 2009: 43(9):887–894. doi:10.1111/j.1365-2923.2009.03413.x

90. International health regulations [website]. World Health Organization; (https://www.who.int/health-topics/international-health-regulations#tab=tab_1, accessed 6 February 2024).

91. World Health Organization, United States Agency for International Development. Guide to fostering change to scale up effective health services. World Health Organization; 2013 (https://iris.who.int/handle/10665/96611, accessed 8 February 2024).

92. WHO Regional Office for Europe. Key approaches to strengthening emergency preparedness and response [website]. (https://www.who.int/europe/emergencies/our-work-in-emergencies/key-approaches, accessed 9 February 2024).

93. WHO guidance on preparing for national response to health emergencies and disaster. Geneva: World Health Organization; 2021 (https://iris.who.int/handle/10665/350838, accessed 10 February 2024).

94. National health workforce accounts data portal [website]. World Health Organization; 2023 (https://apps.who.int/nhwaportal/, accessed 15 February 2024).

95. UN Office on Drugs and Crime. Tool 10.3 logical framework. In: Toolkit to combat trafficking in persons. United Nations; 2008:1–562. (https://www.unodc.org/documents/human-trafficking/HT-toolkit-en.pdf, accessed 9 February 2024).

96. Population health needs assessment: a guide for 0 to 19 health visiting and school nursing services [website]. Public Health England; 2021 (https://www.gov.uk/government/publications/commissioning-of-public-health-services-for-children/population-health-needs-assessment-a-guide-for-0-to-19-health-visiting-and-school-nursing-services#, accessed 9 February 2024).

97. Effective communications: participant handbook: communications training programme for WHO staff. Geneva: World Health Organization; 2015 (https://iris.who.int/handle/10665/249241, accessed 6 February 2024).

98. Framework for a public health emergency operations centre. Geneva: World Health Organization; 2015 (https://iris.who.int/handle/10665/196135, accessed 5 February 2024).

Annex 1. PHEWF Steering Committee

PHEWF Steering Committee membership as of July 2023 included the following organizations.

- Association of Schools of Public Health of Africa, Kenya
- Association of Schools of Public Health in the European Region, Belgium
- Ata Health Strategies LLC, United States
- Bill & Melinda Gates Foundation, China Office
- Chinese Center for Disease Control and Prevention
- College of Public Health Medicine of South Africa
- Eastern Mediterranean Public Health Network, Jordan
- Faculty of Public Health, United Kingdom of Great Britain and Northern Ireland
- Food and Agriculture Organization of the United Nations, Italy
- Global Network for Academic Public Health, United States
- Imperial College London, WHO Collaborating Centre for Public Health Education and Training, United Kingdom of Great Britain and Northern Ireland
- Institut de santé publique, d'épidémiologie et de développement, France
- Institut national de la santé et de la recherche médicale, France
- International Association of National Public Health Institutes, France
- Italian National Institute of Health
- Maastricht University, Public Health Leadership and Workforce Development, Department of International Health, Netherlands (Kingdom of the)
- National Board of Public Health Examiners, United States
- National Health Service, United Kingdom of Great Britain and Northern Ireland
- National Institute of Public Health, Japan
- Office of Global Affairs, United States Department of Health and Human Services
- Portuguese Association of Public Health Doctors
- Qatar University, College of Health Sciences
- SD Gupta School of Public Health, IIHMR University, India
- Seed Global Health, United States
- Sunway University, School of Public Health and Policy, Malaysia
- Vanke School of Public Health, Tsinghua University, China
- Union of European Medical Specialists, Public Health Medicine Section, Belgium
- United States Centers for Disease Control and Prevention
- UK Health Security Agency, Global Operations
- University of Bordeaux, France
- University of California, Irvine & One Health Workforce, United States
- University of Sydney, School of Public Health, Australia
- World Federation of Public Health Associations, Switzerland
- Young Professionals Working Group, World Federation of Public Health Associations, Switzerland
- Zhejiang University, School of Public Health, China

Annex 2. Membership of the Technical Advisory Group

Name, country	Brief biography
Hanan F. Abdul Rahim, Qatar	Hanan F. Abdul Rahim is an associate professor and dean of the College of Health Sciences at Qatar University, Doha, and has over 20 years of experience in academia and academic administration. Hanan is the founding coordinator of the Bachelor of Science in Public Health at Qatar University and a founding member of Qatar's first Master of Public Health programme. Hanan has consulted for several international health and development agencies, including the United Nations Population Fund and the WHO Regional Office for the Eastern Mediterranean. Her research interests are at the intersection of social science and public health, with a special interest in the social determinants of noncommunicable diseases and the health and well-being of women.
Palitha Abeykoon, Sri Lanka	Palitha Abeykoon is a senior adviser at the Sri Lankan Ministry of Health and formerly a WHO Special Envoy for COVID-19 Preparedness and Response. He is a member of the WHO/World Bank Global Preparedness Monitoring Board and the WHO Academy Quality Committee. Palitha previously held roles with WHO as health workforce advisor in Nepal and Indonesia, as well as regional roles including director of health systems development. He is currently a member of National Medicines Authority of Sri Lanka. Past roles included chair of the Sri Lankan National Authority on Tobacco and Alcohol. He is the recipient of the Dr Fred Katz Award of the Australia and New Zealand Association of Medical Education and the Lifetime Achievement Award for contribution to public health from the Asia Pacific Academic Consortium for Public Health.
Ruba Al-Souri, Jordan	Ruba Al-Souri is a public health specialist working as a senior technical officer at the Workforce Capacity Unit in Global Health Development, Eastern Mediterranean Public Health Network. Ruba contributed to the customization, implementation and evaluation of the Field Epidemiology Training Programme in the WHO Eastern Mediterranean Region, in addition to the emergency response curriculum development process led by Training Programs in Epidemiology and Public Health Interventions Network. She participated in meetings of the Global Outbreak Alert and Response Network in relation to capacity-building and training partners. She has almost 10 years of extensive experience in the medical field, including project management and health quality, and is the founder of a voluntary organization that provides health awareness for vulnerable populations in Jordan. Ruba holds a Master's in Public Health and a bachelor's degree in pharmacy (which in Jordan is called a Doctor of Pharmacy), and has authored several articles on pharmacy and public health.

Name, country	Brief biography
Geneviève Chêne, France	Geneviève Chêne is a professor of public health at the University of Bordeaux and the Bordeaux Teaching Hospital. She also served as the director general of Santé publique France during the COVID-19 pandemic. She is a member of the executive board of the International Association of National Public Health Institutes and contributed to the preparation of the 2013–2017 national health strategy as a member of the "comité des sages". Geneviève has been teaching clinical epidemiology and public health for three decades. She established an international distance-learning programme with over 6000 students since 2001 and served as the director of the Bordeaux School of Public Health (ISPED, 2017–2019). Her research has focused on the long-term effects of antiretroviral therapy for HIV infection and methodological innovations. She led an esteemed French National Institute of Health and Medical Research (Inserm) team until 2015 and established the European Centralised Infrastructure for Supervisory Data (EUCLID) platform for international clinical trials, particularly in the area of vaccine trials for Ebola virus disease, malaria and pneumococcus.
Leanne Coombe, Australia	Leanne Coombe is a co-chair of the World Federation of the Public Health Professionals' Education and Training Working Group, part of the World Federation of Public Health Associations. She has published the results of several curriculum mapping projects benchmarked against the Global Charter for the Public's Health and Sustainable Development Goals. She has also been a consultant for the Council of Academic Public Health Institutions of Australasia, undertaking a review of the Australian and New Zealand competency frameworks for public health. She is currently policy and advocacy manager at the Public Health Association of Australia and is an honorary associate professor at the University of Queensland. Her team received two awards: a Business and Higher Education Roundtable Award for Outstanding Collaboration in Higher Education and Training, and an Australian Award for University Teaching – Award for Programs that Enhance Learning. Leanne has a deep background as a health practitioner, executive manager in both the Australian government and Aboriginal Community Controlled Health Services, and as an international public health consultant.
Katarzyna Czabanowska, Netherlands (Kingdom of the)	Katarzyna Czabanowska is a full professor and chair of Public Leadership and Workforce Development at the International Health Department, Care and Public Health Research Institute, Maastricht University, Netherlands (Kingdom of the). She is an honorary member of the Faculty of Public Health in the United Kingdom. Kasia is one of the editors-in-chief of the journal *Public Health Reviews* and has published around 200 scientific articles in peer-reviewed journals. She specializes in transformational change, especially leading change for policy advancement, transformational leadership and public health employment outcomes. She is a past president of the Association of the Schools of Public Health in the European Region (ASPHER), a lead author of the WHO–ASPHER Competency Framework and the Roadmap to Professionalizing the Public Health Workforce in the European Region.

Name, country	Brief biography
Abiodun Egwuenu, Nigeria	Abiodun Egwuenu is an epidemiologist working with the Nigeria Centre for Disease Control and Prevention. At the inception of Nigeria's antimicrobial response (AMR) journey, she co-coordinated the AMR situation analysis and National Action Plan. She set up the AMR technical working group, which reviews data to drive public health policy aimed at limiting drug-resistant infections in Nigeria, which contributes to 50% of the population in West Africa and further afield. Abiodun is the AMR surveillance fellow trained under the Fleming Fund Fellowship for Nigeria. Abiodun has trained and mentored several Nigerian field epidemiology residents (in workshops led by a group of One Health professionals) on outbreak investigation, surveillance systems evaluation and data analysis for infectious and non-infectious diseases. She coordinates the national AMR programme and Community of Practice focused on improving awareness of rational antibiotic use, AMR surveillance and innovations to limit the emergence of AMR in Nigeria.
Allison Foster, United States	Allison Foster is the president of the National Board of Public Health Examiners (NBPHE) based in Washington, DC. The primary activity of the NBPHE is to administer the Certified in Public Health exam. She leads functions related to governance and operations, exam development marketing and recertification. Allison is active in the non-profit community in the greater Washington, DC area and serves on two non-profit boards. She is also the executive secretary of Delta Omega, the public health honorary society.
Erica Frank, Canada	Erica Frank is a professor in the Faculty of Medicine at the University of British Columbia, Vancouver, Canada. Her intervention research has sought to globally democratize education. In 2001, she founded NextGenU.org, which gives free education to learners in every country in health sciences, from first grade science, technology, engineering and maths training up to a freely available Master's in Public Health, postgraduate medical education, and a PhD in Global Health. She is the principal investigator of the Healthy Doc = Healthy Patient initiative, demonstrating and building on the strong and consistent relationships between physicians' personal and clinical practices. Erica is the past president of Physicians for Social Responsibility, and the former editor of the journal *Preventive Medicine*.
Vinod Kumar, India	Vinod Kumar is a public health specialist and currently serves as a professor and dean in-charge of the SD Gupta School of Public Health at IIHMR University, Jaipur, India. He has worked in Jaipur with organizations including the Indian Railways, Mahatma Gandhi Medical College and Hospital, the Indian Army and Jhpiego. He led the programme interventions in the state of Rajasthan, India in the capacity of state team leader at Jhpiego. This included improving the quality of maternal health interventions in Rajasthan and strengthening pre-service nursing education. Vinod has a long association with IIHMR University, and in his previous tenure at the University, he led several research and evaluation projects as a faculty member, and was also associate dean and controller of examinations. He has contributed to many research publications and is also a reviewer for peer-reviewed journals. His areas of interest include infectious disease epidemiology, international and global health, logistics and supply chain management, maternal health and innovations in health education.

Name, country	Brief biography
Samia Latif, United Kingdom of Great Britain and Northern Ireland	Samia Latif is the assistant academic registrar for the Faculty of Public Health (FPH) in the United Kingdom. She has a board member role within the Faculty, supporting the academic registrar in the provision of strategic leadership for FPH examinations, training and continuing education in public health. Samia is also part of the UK Public Health curriculum review working group and a member of the FPH Education Committee. Samia is an experienced consultant in communicable disease control and has gone through the UK Public Health training programme.
Laura Magaña (Co-Chair), United States and Mexico	Laura Magaña is president and Chief Executive Officer of the Association of Schools and Programs of Public Health (ASPPH). She is also the founding president of the Global Network for Academic Public Health, an alliance of seven regional associations representing schools and programmes of public health worldwide. Under her leadership, ASPPH has continued to advance academic public health by mobilizing the collective power of its members to drive excellence and innovation in education, research and practice. During her tenure, ASPPH has strengthened academic public health research through its Data Center, launched the academic public health leadership institute, and enhanced the voice of academic public health through advocacy. Laura expanded the ASPPH's global reach and is leading five strategic initiatives to address critical issues in public health as part of ASPPH's Vision 2030: Dismantling Racism in Academic Public Health, Climate Change and Health, Framing the Future 2030, Gun Violence Prevention and the ASPPH Workforce Development Center.
Thanes Marthammuthu, Malaysia	Thanes Marthammuthu is a public health medicine specialist in the Ministry of Health, Malaysia. He is currently the district epidemiological officer for the Lembah Pantai District Health Office and leads the Kuala Lumpur State Level Technical Working Group for Dengue Communication for Behavioural Impact Programme. He is an alumnus of Harvard Medical School, Boston, and completed the Harvard Medical School Southeast Asia Healthcare Leadership Post Graduate Certificate. He is a scholar in the Association of Pacific Rim Universities climate change simulation programme. He has vast experience in many sectors of public health, including his role as head of the Disease Control Unit at Kuala Lumpur International Airport, and as an occupational health physician. He is an active researcher in public health and has been actively publishing on disease control and healthy ageing topics in high-ranked journals.

Name, country	Brief biography
Sonoe Masahino, Japan	Sonoe Mashino serves as professor and executive director at the Research Institute of Nursing Care for People and Community, University of Hyogo, Japan. She is the head of the WHO Collaborating Centre for Disaster Risk Management for Health. For over 20 years, Sonoe has taught nursing leadership and management at the undergraduate and graduate levels. She also has contributed on the development of a curriculum for disaster nursing in Japan. Her research interests include transformation of the nursing care system and nursing education, human resource management in nursing, capacity-building of healthcare workers in disaster risk management, and psychosocial care of disaster survivors and responders. In recent years, she has worked with the WHO Centre for Health Development on activities relating to strengthening health systems and capacity-building for health emergency and disaster risk management.
Alfonso Mazzaccara, Italy	Alfonso Mazzaccara is a medical doctor, with postgraduate specialization in public health and a PhD in Science of Public Health and Microbiology. He is the coordinator of the Training Office at the Istituto Superiore di Sanità. He is a member of the G20 Health Working Group, as part of the Italian government's presidency of the G20. Alfonso oversees research projects in public health, working in collaboration with national and international institutions dedicated to training and capacity-building. He is responsible for managing classrooms and platforms for remote training and dissemination activities, including monitoring activities relating to the ISO 9001-certified Quality Management System ("Analysis, design, delivery and evaluation of continuing education in public health").
Atiya Mosam, South Africa	Atiya Mosam is a public health medical specialist with over 15 years of experience in health system strengthening initiatives from national policy development to health management and implementation of interventions. She is interested in health-care financing, health promotion and prevention for noncommunicable diseases, human resources for health and public health teaching. Atiya has served on various executive committees, including as the secretary of the Public Health Association of South Africa. She is an InterAgency Partnership Young Physician Leaders alumnus as well as the chair of the Young Physician Leaders Alumni Committee and currently serves on the career-path committee at the College of Public Health Medicine of South Africa.
Leah C. Neubauer, United States	Leah C. Neubauer is an associate professor of preventive medicine in the Feinberg School of Medicine at Northwestern University, Chicago, Illinois. She is an internationally recognized expert in curriculum development, teaching, training, accreditation and assessment in academic public health and the global health-related professions. She is a multiple award-winning educator and evaluator who fosters theory-driven approaches to facilitate learning, capacity-development and systems-strengthening among individuals and organizations. Leah serves as associate director in the Program for Public Health and director of Educational Advancement and Accreditation. Leah is affiliated faculty with the Institute for Global Health, the Program of African Studies and The Graduate School.

Name, country	Brief biography
Oladele A. Ogunseitan, United States	Oladele A. Ogunseitan holds the University of California Presidential Chair at Irvine, where he is a professor and established the Department of Population Health and Disease Prevention. He is a visiting professor at the Center for Innovation in Global Health, Stanford University, California. Dele leads the training and empowerment objective for the United States Agency for International Development's One Health Workforce Next Generation project in more than 100 universities in 17 countries across Africa and south-east Asia. He is co-director of the World Institute for Sustainable Development of Materials. In 2016, Dele received the Jefferson Science Fellowship from the United States National Academies of Sciences, Engineering and Medicine, and in 2018, he received a meritorious honour award from the United States Department of State for exceptional teamwork and contributions to the successful achievement of United States goals at the third United Nations Environment Assembly. He is an elected fellow of the American Academy of Microbiology and a designated expert for the United Nations Educational, Scientific and Cultural Organization's Inclusive Policy Lab.
Abraham Opare, South Africa and Ghana	Abraham Opare is a public health professional and researcher at the School of Public Health at the University of Cape Town, South Africa. With a background in optometry and a Master's in Public Health (MPH), he is currently pursuing his PhD in Public Health at the University of Cape Town. His PhD focuses on core competencies needed by MPH graduates in Africa to address the continent's population health and health system needs. Through his PhD and other research, Abraham has gained extensive experience in approaches to developing competency frameworks for public health training programmes.
Senthil Kumar Rajasekaran, United Arab Emirates	Senthil Kumar Rajasekaran is interim dean at Khalifa University College of Medicine and Health Sciences, Abu Dhabi, United Arab Emirates, following roles at medical schools in the United States, Europe and the Caribbean. He has a prominent international profile, including representing the World Federation for Medical Education in its liaisons with WHO. He contributed to the WHO Global Competency Framework for Universal Health Coverage as a member of its nine-strong global education advisory group. He is a member of The Global Forum on Innovation in Health Professional Education at the National Academy of Medicine in the United States. He served as an editor of the handbook *Transitions in medical education* published by the American Medical Association. Senthil has been recognized by honorary fellowships from the American College of Clinical Pharmacology and the Academy of Medical Educators.

Name, country	Brief biography
Priscilla Robinson (Co-Chair), United Kingdom of Great Britain and Northern Ireland	Priscilla Robinson is co-chair of the World Federation of Public Health Associations' working group on public health education and training and is a director for International Health and Epidemiology for the Guidelines and Economists Network. Her work in public health practice, teaching and research spans five decades with work in Australia, Papua New Guinea and the United Kingdom. Her research and teaching interests cover many areas of public health with a focus on international health, infectious and communicable diseases, water and sanitation, and public health competencies. Priscilla holds various non-executive Board memberships, including for an Australian nongovernmental organization, the *Journal of Peace and Security* and a small hospital. Until recently she was a general editor for the *Australian and New Zealand Journal of Public Health*.
Karol Rojas, Costa Rica	Karol Rojas is an independent consultant, professor and researcher at three schools within the University of Costa Rica (Public Health, Nursing and Health Care Research Center). She is a qualified sociologist, nurse and political scientist. She has experience in the areas of health systems and services research, social protection systems, health and migration, public health policies, management and evaluation of health policies and programmes, and global health. She is currently a board member of the Lancet Migration Latin American Regional Hub, of the Latin American Alliance for Global Health (ALASAG), and of the Network of the Americas for Health Equity (HENA).
Jiming Zhu, China	Jiming Zhu is an associate professor and a founding faculty member of Tsinghua University's newly established Vanke School of Public Health in Beijing. He is an academic committee member of Tsinghua's Institute for Hospital Management in Shenzhen. As an independent principal investigator at Tsinghua, he has established a multidisciplinary team (dry lab) and mobilized more than 10 research grants totalling around ¥ 8.1 million (US$ 1.14 million). His major research interests consist of human resources for health (including nursing and medical education), health economics, health systems, health policy and management. Jiming is the inaugural course director of the Vanke School of Public Health full-time Master's in Public Health programme.

Annex 3. Methodology and governance

Timeline

The competency and outcomes framework presented in this report was developed between November 2022 and June 2023 (Table A3.1), with many tasks happening concurrently. The first phase of the project (November–March) prioritized orientation and selection of external advisers and the research team, content analysis of existing frameworks, preliminary drafting and conceptualization. The second phase of the project (April–June) comprised expert peer review, consultation and validation. The development was guided by the Technical Advisory Group for Competency-based Education Towards the Roadmap for Strengthening the Public Health and Emergency Workforce, hereafter the "Technical Advisory Group".

Table A3.1 Timeline for the development of this framework (2022–2023)

Task	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Orientation of Technical Advisory Group and research team								
Technical Advisory Group meeting								
Technical Advisory Group review								
Principal peer review								
Expert peer review								
Identification of existing frameworks								
Content analysis								
Content validation								
Drafting of content of framework								
Drafting of accompanying guidance								

Participatory approaches: governance and consultation

Roadmap Steering Committee. The Roadmap Steering Committee is the principal coordination mechanism for the *National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response: roadmap for aligning WHO and partner contribution*, launched in May 2022 *(1)*, and its action plan, launched in October 2022 *(2)*. The Committee's purpose is to provide strategic guidance. Its members represent the multistakeholder coalition of partner organizations that developed the Roadmap: governments, funders, technical partners, academic institutions including schools of public health, national public health institutes and civil society groups. Meetings provide a forum for technical co-operation on topics relevant to the Roadmap. For example, the February 2023 Roadmap Steering Committee meeting provided advice on the progress towards the development of this framework; at the July 2023 meeting, members endorsed the final draft and recommended the framework for country piloting and benchmarking. Membership evolved during this period, as further partners endorsed the Roadmap; the membership as of June 2023 is listed in Annex 1.

Technical Advisory Group. A Technical Advisory Group was established to advise on the strategic and methodological approach, to provide feedback and advice on the drafting and development, and to recommend best practice approaches to strengthen the utility of the framework. Twenty-three members (see Annex 2) were appointed in an individual capacity following a call for nominations via the Roadmap Steering Committee in November 2022, with regional, professional and gender balance. Members are from all six WHO regions: African Region *(3)*, Eastern Mediterranean Region *(3)*, European Region *(5)*, Region of the Americas *(6)*, South-East Asia Region *(2)* and Western Pacific Region *(4)*. Two members were appointed by the Roadmap Steering Committee to be Co-Chairs (Region of the Americas and European Region). WHO headquarters provided the Secretariat.

Decision-making meetings met the quorum of 70%, held virtually and with timing to accommodate the range of time zones of Technical Advisory Group members. In between these meetings, dialogue was conducted by email – with individual members alternately providing comments on the iterative drafts (December, February and April) and advising on the action plan to integrate reviewer advice (January, March, May and June). On one occasion additional information was requested in support of the documentation, which was provided and accepted as satisfactory by Technical Advisory Group members. In addition, several members provided focused review and advice on emerging drafts to incorporate Technical Advisory Group decisions, prior to the next stage of consultation.

Principal peer reviewers. Ten experts identified through the process of nomination for the Technical Advisory Group were invited to be principal peer reviewers. They provided an additional review of an early outline of the framework and advised both on the content and the conceptualization of the framework. This feedback and advice were considered by the Technical Advisory Group and research team in updating and advancing the framework.

Additional expert peer reviewers. A further 110 subject matter experts were identified through an open call circulated to Roadmap Steering Committee partner organizations and the Global Health Workforce Network Education Hub and through technical departments, country and regional offices of WHO. Active outreach identified reviewers from occupations allied to health, whose perspective was underrepresented in the Technical Advisory Group and among principal peer reviewers. Feedback and

advice were considered by the Technical Advisory Group and research team in updating and advancing the framework.

Confidentiality and declaration of interests. All external advisers involved in the drafting, development and review of the framework signed a confidentiality agreement and a declaration of interests. A total of 16 positive declarations were made (four Technical Advisory Group members, three principal peer reviewers and five expert peer reviewers). None were deemed to present a conflict of interest for the work.

Research team. The research team comprised staff members nominated by Roadmap Steering Committee partner organizations: WHO; NHS England, a WHO Collaborating Centre for Human Resources for Health; and Imperial College London, a WHO Collaborating Centre for Public Health Education and Training. Staff time was gifted in-kind to the project. The research team collectively contributed expertise in competency framework development, health professions education, public health intelligence, emergencies, public health programmes and policy. The research team was accountable to the Technical Advisory Group, taking forward the decisions and recommendations of the Technical Advisory Group, and synthesizing issues arising requiring Technical Advisory Group decisions at each stage of research, drafting and consultation.

All research team members completed a half day orientation session provided by the WHO Secretariat at the outset of the project, or upon joining the research team later in the process. Members from each of the three partner organizations and one of the co-chairs met weekly. These meetings served as a platform for responsive work planning based on inputs and feedback at various stages of consultation, as well as for addressing emerging queries and ambiguities, and discussing solutions related to research, drafting, content analysis and validation. One in-person meeting with members from the three partner organizations and the co-chairs also took place in London in December 2022.

An iterative and integrative approach to development

Identification of existing competency frameworks and curricula

A scoping review was undertaken in November–December 2022, informed by the Roadmap Steering Committee's priorities and a preliminary mapping of practice activities for the delivery of the EPHFs: risk management/risk reduction; programme planning and evaluation; emergencies; epidemiology; data; and policy. The scoping review involved several steps. First, the scope of the review was clearly defined. A comprehensive search was conducted across various databases, including PubMed, Scopus, Cochrane, WHO and Kings Fund, using appropriate keywords and Medical Subject Heading terms. Results obtained were screened using predetermined inclusion and exclusion criteria. The summary of the search findings is presented in the Preferred Reporting Items for Systematic Review (PRISMA) flow diagram in Fig. A3.1. The search terms and results, and inclusion/exclusion criteria, are available in Annex 4.

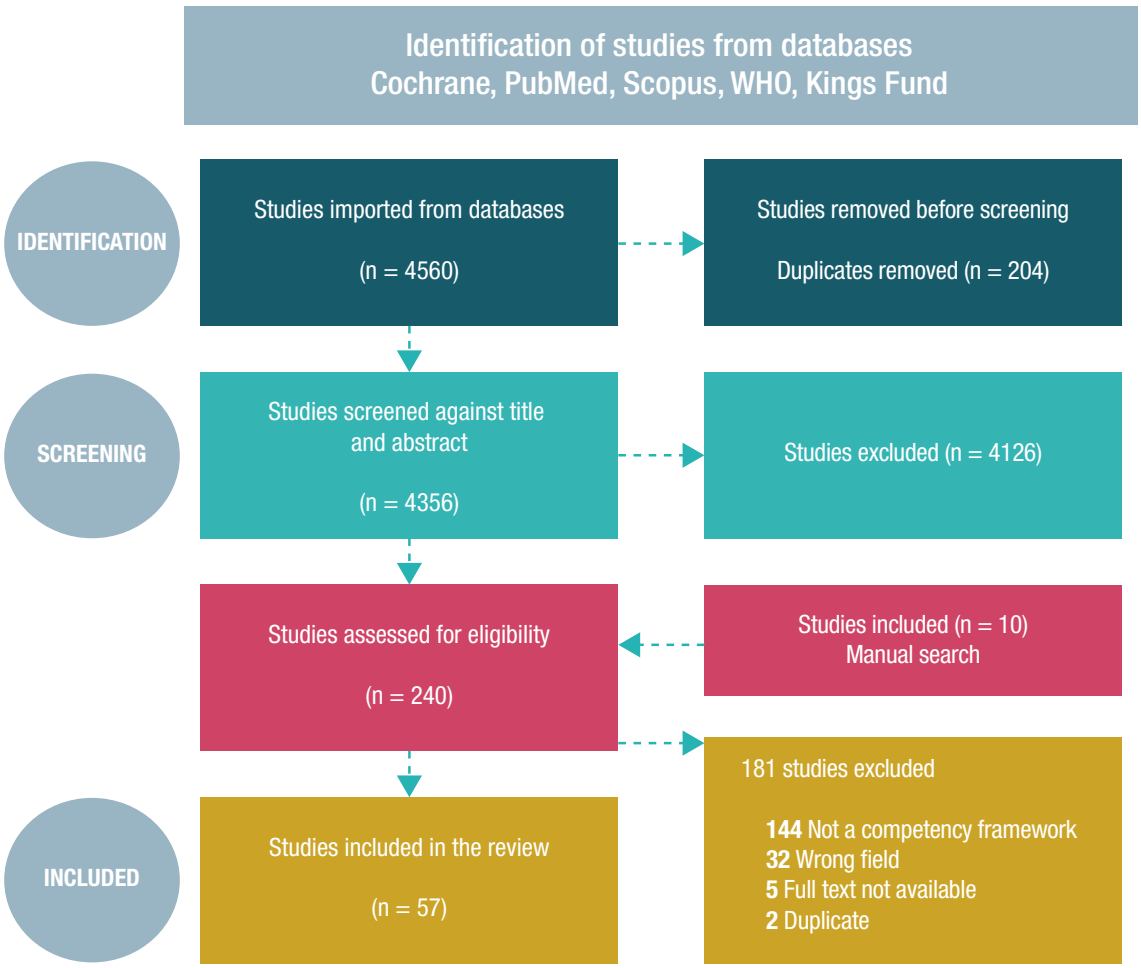
While this literature is often the most accessible, it is important to note that many operational- and practice-specific documents, such as staff training and development requirements or emergency plans, may not be readily available. As a result, there may be gaps in the review that do not fully capture certain

perspectives. To address this limitation and to ensure a more comprehensive and unbiased review, the scoping review was supplemented with searches of grey literature, including reports, guidelines and organizational websites.

In addition to the 57 frameworks identified by the scoping review, a further 69 frameworks were identified through targeted web searches or shared by the Roadmap Steering Committee, Technical Advisory Group or reviewers, all of whom were invited to review and supplement the library of frameworks.

As at June 2023, a total of 126 frameworks were identified through a combination of the scoping review, web searches and the expert network. Relevant data, including the type of framework, domains and components, were extracted from the frameworks. The 126 frameworks were published mostly between 2012 and 2022 (81%). Out of the 126 frameworks identified, more than half (67, 53.2%) were global frameworks, 19 (15.1%) were relevant to a single region and 39 (31.7%) were developed for the context of a single country. Notably, 86.4% of the 59 frameworks with a regional or country scope were relevant to the WHO Region of the Americas, European Region and Western Pacific Region. Further descriptive statistics and the current library of frameworks can be found in Annex 5.

Fig. A3.1. PRISMA flow diagram of systematic research evidence



Content analysis and content validation

Existing competency frameworks were used to inform the development and drafting of the competency framework through a process of content analysis and content validation. A preliminary task analysis informed by review of 70 frameworks and curricula identified through targeted web searches in reference to the 12 EPHFs was shared with the Roadmap Steering Committee in October 2022 for their prioritization and direction around the scope. Following this meeting, the process to develop the competency and outcomes framework was initiated.

A process of deconstructing the detailed content was followed, for the purpose of grouping of content to identify common themes, synergies across the existing competency frameworks, and missing content areas using the 12 EPHFs as a framing. Given the variance in scope, content, audiences and competency models used in other frameworks, and the breadth of this framework's three workforce groups and 12 EPHFs, content analysis was found to provide better insight than a cross-walk of contents. Indeed, there was no expectation for this framework to present an "average" of other frameworks, but rather to identify, synthesize and organize the content using the lens of the competency model, oriented to the 12 EPHFs.

Preliminary content analysis used the lens of the competency model (Fig. 3 in Chapter 1) to deconstruct statements according to their characteristics: functional (tasks, practice activities); behavioural (competencies, behaviours); knowledge; and other content (attitudes, values, impact statements, goals). In the first instance, content statements were grouped and tagged according to draft competency domains and practice activity domains, noting their source documents and domains and any other observations. The competency domains from the WHO (2022) *Global competency and outcomes framework for universal health coverage (3)* were used as a starting point, recognizing that these were informed by analysis of more than 300 competency frameworks relating to health and care workers, inclusive of population health practice activities. These competency domains were: people-centredness, communication, collaboration, decision-making, evidence and personal conduct. Preliminary practice activity domains were: risk management/reduction, programme planning and evaluation, emergencies, epidemiology, data and policy. The domain names, scope and groups of practice activities and competencies evolved through the process of iterative drafting, thematic analysis of content from existing competency frameworks, and with the advice and guidance from the Technical Advisory Group.

In phase one (November 2022–March 2023), the content of 31 frameworks were analysed in full, prioritized according to those frameworks that were published by partner organizations of the Roadmap Steering Committee, as well as those recommended to the research team as key or common references by educators in different countries. A standardized template was used with dropdown selection options to allow tagging to multiple practice activities and to multiple competencies. The content analysis of each framework was reviewed by one research team member, with specific queries agreed in consultation with at least one other team member. As the drafting evolved, the number of practice activities expanded from 19 to 36, and finally to 40. In March 2023, data cleaning and quality assurance was undertaken by a subset of the research team. This resulted in a total of 718 data entries being retagged, and 263 statements initially tagged as "Other/ambiguous" being tagged to one of the new practice activities.

A master spreadsheet containing 3405 unique rows of data from 31 frameworks was used by the research team to inform the iterative drafting of the framework. This spreadsheet was also shared with the Technical Advisory Group members, principal peer reviewers and expert peer reviewers for their

review and validation of the framework, following quality assurance and refinement, and in parallel with the expert review of the full draft framework that took place in April 2023.

Content analysis of the remaining frameworks was completed by the research team in April to June 2023, in parallel with the wider consultation on content. Essentially, this phase acted as an additional peer review of the first draft of the framework, from the perspective of each of the remaining frameworks. Owing to time constraints, the detailed tagging of content was not completed. Queries and missing content, emphasis or language were annotated to the first draft of the framework by individual members of the research team, for team agreement around how and whether to incorporate it into a revised draft of the framework. As the judgement required insight into the nuances of the competency model and the detailed content of the framework, only those team members involved in content analysis, data cleaning of the content analysis sheet and drafting contributed to this data validation.

Drafting and consultation

Drafting of the framework was iterative, integrating insights from the content analysis of existing frameworks, and feedback from each stage of review and consultation. The Technical Advisory Group advised on the methodology and conceptual approach and guided the drafting and incremental elaboration of the framework chapters. Drafting began with advice on the practice activities (domains, practice activities and tasks) to set the scope of the framework; the subsequent consultation validated the integrated updates to the practice activities and focused on a zero draft of the competencies (domains, competencies and behaviours) and two example practice activities (each with task lists, illustrative profiles and curricular guides). This latter draft was also shared with the 10 principal peer reviewers for their feedback and advice on the overall conceptualization.

The first full draft of the framework, subject to wider expert peer review in April 2023, included the zero draft curricular guides, accompanying the revised practice activities. The Technical Advisory Group and principal peer reviewers were also invited to review the guidance for contextualizing the framework (Chapter 4). A second full draft was then provided to the full review group (Technical Advisory Group, principal peer reviewers and expert peer reviewers) for their validation of the updates made, considering their feedback. A total of 140 individual experts provided comments and guidance in the development of the framework, collectively representing 64 unique country perspectives (Table A3.2). Further details of their geographical perspective, gender distribution, occupational perspective and years of experience are provided in Tables A3.3–A3.6.

At each stage of drafting and consultation, an accompanying report of the feedback received, and the changes made or not made and the rationale, was provided, as well as tracked changes or a mapping of high-level changes, to highlight the progression and enable reviewers to target their reviews. In advance of the consultation of the first full draft of the framework, all members of the Technical Advisory Group, principal peer reviewers and expert peer reviewers were asked to self-nominate for specific domains for prioritized review according to their areas of expertise or practice experience. Notice was given of the consultation dates, and emails were targeted to highlight the requests, drawing attention to changes made, new content for review, any specific questions and the timeline. These steps led to an effective and insightful review process, with more than 8500 individual comments and suggestions offered throughout the framework's development.

Table A3.2 Participation in reviews of the evolving drafts of the framework

Month 2022/2023	Subject of review/consultation	Participation	Response rate
December	Methodology and high-level approach	Technical Advisory Group	22/23 (96%)
December/ January	Zero draft practice activities	Technical Advisory Group	16/23 (70%)
January	Updated practice activities Actions/decisions required following review	Technical Advisory Group	10/23 (43%)[a]
February	Updated practice activities Zero draft competencies Proof of concept curricula guides	Technical Advisory Group Principal peer reviewers	16/23 (70%) 10/10 (100%)
March	Actions/decisions required following review	Technical Advisory Group	19/23 (83%)
April	First draft full framework Chapters 1–4 Chapters 1–3	Technical Advisory Group Principal peer reviewers Expert peer reviewers	21/23 (92%) 9/10 (90%) 110/110 (100%)
May	Actions/decisions required following review	Technical Advisory Group	20/23 (87%)
June	Second draft full framework Report of changes made following feedback	Technical Advisory Group Principal peer reviewers Expert peer reviewers	21/23 (92%) 5/10 (50%) 30/110 (27%)
June	Third draft full framework finalized	Technical Advisory Group	21/23 (92%)
July	Third draft full framework approved	Roadmap Steering Committee	

[a] Quorum of 70% for the Technical Advisory Group, as defined in the Terms of Reference, was not achieved for one review; however, in combination, 21/23 members (92%) either provided comments on the zero draft, or provided comments on the actions to integrate feedback received on the zero draft. One week was provided for review of this second input, a contributing factor to the low response rate. Given that decisions were not final – they were reflected in all subsequent drafts on which Technical Advisory Group members had the opportunity to comment and revise – the research team acted on the reviewer feedback from the 10 members.

Table A3.3 Geographical perspectives of the Technical Advisory Group, principal peer reviewers and expert peer reviewers

	African Region	Eastern Mediterranean Region	European Region	Region of the Americas	South-East Asia Region	Western Pacific Region	Not provided	Total
Technical Advisory Group	6	2	10	6	4	5	4	37
Principal peer reviewers	0	0	4	2	1	6	1	14
Expert peer reviewers	25	7	62	27	16	31	23	191
Total	**31**	**9**	**76**	**35**	**21**	**42**	**28**	**242**

Practice experience and perspectives spanned a minimum of 64 countries, listed below and organized by WHO region. Of these, 10 advisors noted experience in multiple countries without naming those countries. A further 25 advisors did not provide this information.

African Region: 31 advisors reported practice experience and perspectives for the following countries: Algeria; Burkina Faso; Democratic Republic of the Congo; Ethiopia; Gambia; Ghana; Guinea; Kenya; Liberia; Mali; Mozambique; Nigeria; Rwanda; Sao Tome and Principe; Senegal; Sierra Leone; South Africa; South Sudan; Uganda; and Zambia.

Region of the Americas: 35 advisors reported practice experience and perspectives for the following countries: Brazil; Canada; Haiti; Mexico; Peru; and United States of America.

South-East Asia Region: 21 advisors reported practice experience and perspectives for the following countries: Bangladesh; India; Indonesia; Nepal; Sri Lanka; and Thailand.

European Region: 76 advisors reported practice experience and perspectives for the following countries: Belgium; Finland; France; Germany; Greece; Ireland; Italy; Luxembourg; Moldova; Netherlands (Kingdom of the); Norway; Poland; Portugal; Russian Federation; Slovenia; Switzerland; and United Kingdom of Great Britain and Northern Ireland.

Eastern Mediterranean Region: 9 advisors reported practice experience and perspectives for the following countries : Egypt; Jordan; Pakistan; Qatar; Saudi Arabia; Somalia; and Sudan.

Western Pacific Region: 42 advisors reported practice experience and perspectives for the following countries: Australia; Cambodia; China; Japan; Malaysia; New Zealand; Solomon Islands; and Viet Nam.

Table A3.4 Gender distribution of the Technical Advisory Group, principal peer reviewers and expert peer reviewers

	Male	Female	Not provided	Total
Technical Advisory Group	7	12	4	23
Principal peer reviewers	6	4	0	10
Expert peer reviewers	47	44	19	110
Total	**60**	**60**	**23**	**143**

Table A3.5 Occupational perspectives of the Technical Advisory Group, principal peer reviewers and expert peer reviewers, organized by the three public health workforce groups

	Core public health personnel	Health and care workers	Occupations allied to health	Not provided	Total
Technical Advisory Group	14	2	4	4	23
Principal peer reviewers	7	3	4	1	10
Expert peer reviewers	47	17	34	18	110
Total	**68**	**21**	**41**	**23**	**164**

Note: 13 advisors indicated reported perspectives from more than group, so the total number of perspectives is higher than the total number of individuals.

Table A3.6 Number of years of public health experience of the Technical Advisory Group, principal peer reviewers and expert peer reviewers

	<5 years	6–10 years	11–15 years	16–20 years	21–30 years	30+ years	Not provided	Total
Technical Advisory Group	2	2	3	2	7	3	4	23
Principal peer reviewers	0	0	2	2	3	2	1	10
Expert peer reviewers	10	15	17	18	22	5	23	110
Total	**12**	**17**	**22**	**22**	**32**	**10**	**28**	**143**

References

1. National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response: roadmap for aligning WHO and partner contributions. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/354384, accessed 4 February 2024).
2. National workforce capacity to implement the essential public health functions including a focus on emergency preparedness and response: action plan (2022–2024) for aligning WHO and partner contributions. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/363519, accessed 4 February 2024).
3. Global competency and outcomes framework for universal health coverage. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/352711, accessed 4 February 2024).

Annex 4. Scoping review search strategy

Table A4.1 Inclusion and exclusion criteria for the scoping strategy

Inclusion criteria	Exclusion criteria
1. Language: the competency frameworks must be in English.	1. Non-English language: exclude competency frameworks in languages other than English.
2. Publication type: only include published materials like journal articles, reports, theses and conference proceedings.	2. Irrelevant topics: exclude frameworks unrelated to public health or research question.
3. Relevance: the competency frameworks should relate to the field of public health.	3. Duplicates: exclude redundant publications or multiple versions of the same framework.
4. Scope: include frameworks covering broad public health domains or sub-domains (risk management/ risk reduction, programme planning and evaluation, emergencies, epidemiology, data, policy).	4. Non-peer-reviewed sources: exclude frameworks from non-peer-reviewed sources like blogs or social media, unless officially endorsed by reputable institutions.
5. Accessibility: include frameworks that can be obtained through institutional subscriptions or open access platforms.	5. Outdated frameworks: exclude frameworks that have been superseded by a revised or updated version.
	6. Inaccessible resources: exclude frameworks behind paywalls or requiring a purchase.

Table A4.2 Search terms for the scoping strategy

Domains	Practice activities (November 2022 draft)	Search strategy/ keywords: Cochrane	Results	Search strategy/ keywords: PubMed	Results	Search strategy/ keywords: WHO	Results	Search strategy/ keywords: Kings Fund	Results	Search strategy/ keywords: Scopus	Results
Risk management/ risk reduction	1. Health promotion with individuals 2. Surveillance	(((public health) AND (competenc* framework)) AND ((risk manage*) OR (risk reduc*)))	28 – 27 trials	(((public health) AND (competenc* framework)) AND ((risk manage*) OR (risk reduc*)))	171	"Public health competency framework"	726	public health competenc* framework	10	ALL((“public health” AND “competenc* framework”) AND (“risk manage*” OR “risk reduc*”))	119
Programme planning and evaluation	3. Needs assessments 4. Programme planning 5. Programme monitoring and evaluation	(((public health) AND (competenc* framework)) AND ((program* plan*) OR (program* evaluation) OR (Curriculum plan*) OR (education plan*)))	42 – 41 trials	(((public health) AND (competenc* framework)) AND ((program* plan*) OR (program* evaluation) OR (Curriculum plan*) OR (education plan*)))	1276 – last 10 years: 852	(((public health) AND (competenc* framework)) AND ((program* plan*) OR (program* evaluation) OR (Curriculum plan*) OR (education plan*)))	726	public health competenc* framework	10	ALL((“public health” AND “competenc* framework”) AND (“program* plan*” OR “program* evaluation” OR “curriculum plan*” OR “education AND plan*”))	177 – 159 last 10 years
Emergencies	6. Risk assessments 7. Emergency preparedness 8. Emergency response 9. Recovery and coordination	(((public health) AND (competenc* framework)) AND ((emergenc* prepar*) OR (emergenc* resp*)))	8 trials	(((public health) AND (competenc* framework)) AND ((emergenc* prepar*) OR (emergenc* resp*)))	144 results	(((public health) AND (competenc* framework)) AND ((emergenc* prepar*) OR (emergenc* resp*)))	Same as above	Same as above	10	ALL((“public health” AND “competenc* framework”) AND (“emergenc* prep*” OR “emergenc* resp*”))	48

Domains	Practice activities (November 2022 draft)	Search strategy/ keywords: Cochrane	Results	Search strategy/ keywords: PubMed	Results	Search strategy/ keywords: WHO	Results	Search strategy/ keywords: Kings Fund	Results	Search strategy/ keywords: Scopus	Results
Epidemiology	10. Epidemiology case finding	(((public health) AND (competenc* framework)) AND ((epidemiolog*) OR (field epi*) OR (epi* respons*)))	22 trials	(((public health) AND (competenc* framework)) AND ((epidemiolog*) OR (field epi*) OR (epi* respons*)))	304 results	(((public health) AND (competenc* framework)) AND ((epidemiolog*) OR (field epi*) OR (epi* respons*)))	Same as above	epidemiology and (public health and competency framework)	0	(((public health) AND (competenc* framework)) AND ((epidemiolog*) OR (field epi*) OR (epi* respons*)))	32
	11. Epidemiology investigation										
	12. Field epidemiology										
	13. Epidemiology – response management										
Data / intelligence	14. Data analysis	"public health" in Title Abstract Keyword AND competenc* framework in Title Abstract Keyword AND "data analyses" in Title Abstract Keyword OR "data system" in Title Abstract Keyword OR "data communication"	1 trial	(((public health) AND (competenc* framework)) AND (((data communicat*) OR (data system*)) OR (data analys*))) AND (("2012/01/01"[Date - Publication] : "3000"[Date - Publication]))	1186	public health AND ((data communicat*) OR (data system*) OR (data analys*)) AND (("2012/01/01"[Date - Publication]: "3000"[Date - Publication]))	No results	Data analysis and (public health and competency framework)	0	(public AND health AND competenc* AND framework) AND (data AND analys* OR data AND system* OR data AND communicat*)	124
	15. Data systems							data system and (public health and competency framework)	0		
	16. Data communication							data communication and (public health and competency framework)	0		
Policy	17. Advocacy	(((public health) AND (competenc* framework)) AND ((policy) OR (advocacy) OR (policy communication*)))	20 trials	(((public health) AND (competenc* framework)) AND ((policy) OR (advocacy) OR (policy communication*)))	78	(((public health) AND (competenc* framework)) AND ((policy) OR (advocacy) OR (policy communication*)))	No results	advocacy and (public health and competency framework)	0	(((public health) AND (competenc* framework)) AND ((policy) OR (advocacy) OR (policy communication*)))	50
	18. Policy dialogue							policy dialogue and (public health and competency framework)	0		
	19. Policy development							policy development and (public health and competency framework)	0		
	20. Policy communications							policy communications and (public health and competency framework)	**0**		

Annex 5. Library of competency frameworks

Table A5.1 Descriptive statistics about the library of competency frameworks identified up to June 2023

Category	Count	%
Frameworks	74	58.7%
Standards	14	11.1%
Curricula	19	15.1%
Other academic documents	19	15.1%

Geographical scope	Count	%
Global	67	53.2%
Regional	19	15.1%
Country	40	31.7%

WHO region (n=59)	Count	%
African Region	1	1.7%
Region of the Americas	23	39.0%
South-East Asia Region	4	6.7%
European Region	17	28.8%
Eastern Mediterranean Region	3	5.1%
Western Pacific Region	11	18.6%

Occupational groups	Count	%
Core public health personnel	33	26.2%
Health and care workers	54	42.9%
Occupations allied to health	13	10.3%
Multiple occupational groups	26	20.6%

Table A5.1 Descriptive statistics about the library of competency frameworks identified up to June 2023

Focus	Count	%
Antimicrobial resistance	3	2.4%
Practice focused	20	15.9%
Environment/climate	7	5.6%
Emergencies plus additional occupation or practice focus	16	12.7%
Epidemiology	6	4.8%
Global health	3	2.4%
Health promotion	6	4.8%
Information and communication technologies, and informatics	6	4.8%
One Health	7	5.6%
Management	2	1.6%
Public health (e.g. Master of Public Health)	5	4.0%
Public health leadership	22	17.5%
Other	4	3.2%

Year	Count
<2005	3
2006	1
2007	1
2008	4
2009	3
2010	5
2011	4
2012	7
2013	4
2014	7
2015	5
2016	8
2017	6
2018	11
2019	16
2020	8
2021	13
2022	15
2023	2
Forthcoming	2
No date	1

Table A5.2 List of frameworks identified and used for validation and content analysis

	Title	Author(s)	Year of publication	Weblink	Method of identification
1	Improving global health education: development of a global health competency model	Ablah E, Biberman DA, Weist EM, Buekens P, Bentley ME, Burke D, Finnegan JR Jr, Flahault A, Frenk J, Gotsch AR, Klag MJ, Rodriguez Lopez MH, Nasca P, Shortell S, Spencer HC	2014	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3945704/	Scoping review
2	New competencies for the 21st century dental public health specialist	Altman D, Mascarenhas AK	2016	https://pubmed.ncbi.nlm.nih.gov/27990679/	Scoping review
3	Competencies for diabetes educators and diabetes paraprofessionals	American Association of Diabetes Educators	2016	https://www.diabeteseducator.org/docs/default-source/practice/practice-resources/comp003.pdf	Web searches/ snowball/ identified within network
4	APIC competency model future-oriented competency domains: self-assessment activity tool	Association for Professionals in Infection Control and Epidemiology (APIC)	2019	https://apic.org/professional-practice/infection-preventionist-ip-competency-model/	Web searches/ snowball/ identified within network
5	MPH global health concentration competencies toolkit	Association of Schools and Programs of Public Health	2018	https://s3.amazonaws.com/ASPPH_Media_Files/Docs/GH-competencies-Toolkit.pdf	Web searches/ snowball/ identified within network
6	Climate change and health: a public health education toolkit	Association of Schools and Programs of Public Health	2022	https://aspph.org/aspph-gcche-climate-change-and-health-for-public-health-education-toolkit/	Web searches/ snowball/ identified within network
7	Public health preparedness and response core competency model	Association of Schools and Programs of Public Health with United States Centers for Disease Control and Preventions	2010	https://aspph-prod-web-assets.s3.amazonaws.com/Public+Health+Preparedness+%26+Response+Model.pdf	Web searches/ snowball/ identified within network
8	ASPHER's European list of core competences for the public health professional, 5th ed.	Association of Schools of Public Health in the European Region (ASPHER)	2018	https://www.aphea.be/docs/aspher_core_competences.pdf	Scoping review
9	ASPHER climate and health competencies for public health professionals in Europe	Association of Schools of Public Health in the European Region (ASPHER)	2021	https://www.aspher.org/download/882/25-10-2021-final_aspher-climate-and-health-competencies-for-public-health-professionals-in-europe.pdf	Web searches/ snowball/ identified within network

	Title	Author(s)	Year of publication	Weblink	Method of identification
10	Primary palliative care competency framework for primary care and family physicians in India: collaborative work by Indian Association of Palliative Care and Academy of Family Physicians of India	Atreya S, Jeba J, Pease N, Thyle A, Murray S, Barnard A, Munday D, Mathews L, Leng M, Palat G, Ganesh A, Chakraborty S, Anbarasi S, Kumar R, Muckaden M, Grant E	2019	https://dx.doi.org/10.4103/jfmpc.jfmpc_451_19	Web searches/ snowball/ identified within network
11	Master health service management competency framework	Australasian College of Health Service Management	2020	https://www.achsm.org.au/competency-framework/	Web searches/ snowball/ identified within network
12	Core competencies for health promotion practitioners	Australian Health Promotion Association	2009	http://healthpromotionscholarshipswa.org.au/wp-content/uploads/2014/05/core-competencies-for-hp-practitioners.pdf	Scoping review
13	The CompHP Project Handbooks. Developing competencies and professional standards for health promotion capacity building in Europe	Barry MM, Battel-Kirk B, Davison H, Dempsey C, Parish R, Schipperen M, Speller V, Zanden van der G and Zilnyk A, on behalf of the CompHP Project Partners	2012	https://www.iuhpe.org/images/PROJECTS/ACCREDITATION/CompHP_Project_Handbooks.pdf	Web searches/ snowball/ identified within network
14	Core competencies required by health care workers in armed conflicts	Baucom C	2017	https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/40806/Baucom_washington_02500_18011.pdf?sequence=1	Web searches/ snowball/ identified within network
15	A clinical nurse leader competency framework: concept mapping competencies across policy documents	Bender M, L'Ecuyer K, Williams M	2019	https://dx.doi.org/10.1016/j.profnurs.2019.05.002	Web searches/ snowball/ identified within network
16	A competency matrix for global oral health	Benzian H, Greenspan JS, Barrow J, Hutter JW, Loomer PM, Stauf N, Perry DA	2014	https://pubmed.ncbi.nlm.nih.gov/25838005/	Scoping review
17	Good governance competencies in public health to train public health physicians	Bertoncello C, Buja A, Silenzi A, Specchia ML, Franchino G, Lazzari A, Baldo V, Ricciardi W, Damiani G	2015	https://dx.doi.org/10.1007/s00038-015-0702-y	Web searches/ snowball/ identified within network
18	ASPHER's European public health core competences programme: European core competences for MPH education	Birt C, Foldspang A	2011	https://www.aphea.be/docs/research/ECCMPHE1.pdf	Web searches/ snowball/ identified within network

	Title	Author(s)	Year of publication	Weblink	Method of identification
19	An eHealth capabilities framework for graduates and health professionals: mixed-methods study	Brunner M, McGregor D, Keep M, Janssen A, Spallek H, Quinn D, Jones A, Tseris E, Yeung W, Togher L, Solman A, Shaw T	2018	https://pubmed.ncbi.nlm.nih.gov/29764794/	Scoping review
20	A national interprofessional competency framework	Canadian Interprofessional Health Collaborative	2010	https://www.cihc-cpis.com/publications1.html	Web searches/ snowball/ identified within network
21	Infection prevention and control competencies for hospital-based health care personnel	Carrico RM, Rebmann T, English JF, Mackey J, Cronin SN	2008	https://pubmed.ncbi.nlm.nih.gov/19084164/	Scoping review
22	Global and public health core competencies for nursing education: a systematic review of essential competencies	Clark M, Raffray M, Hendricks K, Gagnon AJ	2016	https://pubmed.ncbi.nlm.nih.gov/27125169/	Web searches/ snowball/ identified within network
23	Climate & health core concepts for health professionals	Columbia Mailman School of Public Health Global Consortium on Climate and Health Education	2023	https://www.publichealth.columbia.edu/file/11492/download?token=bBURLrFC	Web searches/ snowball/ identified within network
24	Core humanitarian competency framework	Consortium of British Humanitarian Agencies (now the Start Network), Core Humanitarian Standard Alliance	2017	https://www.chsalliance.org/get-support/resource/core-humanitarian-competency-framework/	Scoping review
25	Core humanitarian competencies guide	Consortium of British Humanitarian Agencies	2011	https://start-network.app.box.com/s/uzr563nqgvv1dv8na94q0bu4i6frul5h	Scoping review
26	Foundation competencies for public health graduates in Australia (2nd ed)	Council of Academic Public Health Institutions Australasia	2016	https://caphia.com.au/wp-content/uploads/2016/07/CAPHIA_document_DIGITAL_nov_22.pdf	Web searches/ snowball/ identified within network
27	Universal competencies for the professional MPH Degree	Council on Education for Public Health	2018	https://www.phf.org/resourcestools/Documents/Core_Competencies_for_Public_Health_Professionals_20210ctober.pdf	Scoping review
28	Core competencies and a workforce framework for community health workers: a model for advancing the profession	Covert H, Sherman M, Miner K, Lichtveld M	2019	https://ajph.aphapublications.org/doi/10.2105/AJPH.2018.304737	Scoping review

	Title	Author(s)	Year of publication	Weblink	Method of identification
29	The need for a systematic approach to disaster psychosocial response: a suggested competency framework	Cox RS, Danford T	2014	https://dx.doi.org/10.1017/S1049023X14000259	Web searches/ snowball/ identified within network
30	Development and validation of a competency evaluation model for hospital infection prevention and control practitioners in the post-pandemic era: a mixed methods study	Cui L	2021	https://doi.org/10.1111/j.1552-6909.2010.01157.x	Web searches/ snowball/ identified within network
31	Public health competences through the lens of the COVID-19 pandemic: what matters for health workforce preparedness for global health emergencies	Czabanowska K, Kulmann E	2021	https://pubmed.ncbi.nlm.nih.gov/33598987/	Scoping review
32	In search for a public health leadership competency framework to support leadership curriculum–a consensus study	Czabanowska K, Smith T, Könings KD, Sumskas L, Otok R, Bjegovic-Mikanovic V, Brand H	2014	https://dx.doi.org/10.1093/eurpub/ckt158	Web searches/ snowball/ identified within network
33	Creation of a core competency framework for clinical informatics: From genesis to maintaining relevance	Davies A, Hassey A, Williams J, Moulton G	2022	https://doi.org/10.1016/j.ijmedinf.2022.104905	Scoping review
34	European Society of Clinical Microbiology and Infectious Diseases (ESCMID) generic competencies in antimicrobial prescribing and stewardship: towards a European consensus	Dyar OJ, Beovic B, Pulcini C, Tacconelli E, Hulscher M, Cookson B	2018	https://doi.org/10.1016/j.cmi.2018.09.022	Web searches/ snowball/ identified within network
35	Operational guidance on breastfeeding counselling in emergencies	Emergency Nutrition Network (ENN), Infant and Young Child Feeding in Emergencies (IFE) Core Group	2021	https://www.globalbreastfeedingcollective.org/reports/operational-guidance-breastfeeding-counselling-emergencies	Web searches/ snowball/ identified within network
36	Core competencies for EU public health epidemiologists in communicable disease surveillance and response	European Centre for Disease Prevention and Control (ECDC)	2010	https://www.ecdc.europa.eu/sites/default/files/documents/public-health-emergency-preparedness-core-competencies-eu-member-states.pdf	Scoping review
37	Public health emergency preparedness: Core competencies for EU Member States	European Centre for Disease Prevention and Control (ECDC)	2017	https://www.ecdc.europa.eu/en/publications-data/core-competencies-applied-infectious-disease-epidemiology-europe	Web searches/ snowball/ identified within network

	Title	Author(s)	Year of publication	Weblink	Method of identification
38	Core competencies in applied infectious disease epidemiology in Europe	European Centre for Disease Prevention and Control (ECDC)	2022	https://www.ecdc.europa.eu/en/publications-data/core-competencies-applied-infectious-disease-epidemiology-europe	Web searches/ snowball/ identified within network
39	Competence frameworks for policymakers and researchers	European Commission	2022	https://knowledge4policy.ec.europa.eu/projects-activities/competence-frameworks-policymakers-researchers_en	Web searches/ snowball/ identified within network
40	EMA competency framework	European Medicines Agency (EMA)	2022	https://www.ema.europa.eu/en/documents/recruitment/ema-competency-framework_en.pdf	Web searches/ snowball/ identified within network
41	Professional competency framework for facilities managers	Facilities Management Association of New Zealand (FMANZ)	2020	https://www.fmanz.org/professional-development/competency-framework/	Web searches/ snowball/ identified within network
42	Public health specialty training curriculum 2022	Faculty of Public Health, United Kingdom of Great Britain and Northern Ireland	2022	https://www.fph.org.uk/media/3450/public-health-curriculum-v13.pdf	Scoping review
43	Who will keep the public healthy? Educating public health professionals for the 21st century	Gebbie K, Rosenstock L, Hernandez LM	2003	http://www.nap.edu/catalog/10542.html	Web searches/ snowball/ identified within network
44	Competency framework for nutrition in humanitarian contexts	Global Nutrition Cluster Technical Alliance	2021	https://ta.nutritioncluster.net/sites/gtamcluster.com/files/2021-01/Competency%20Framework%20Jan%2021%20v4.pdf	Web searches/ snowball/ identified within network
45	One Health core competency domains, subdomains and competency examples	Global OHCC [One Health Core Competency] Working Group, USAID Respond Initiative	2013	https://dl.tufts.edu/pdfviewer/6682xh01r/9p290n711	Scoping review
46	Artificial Intelligence (AI) and digital healthcare technologies capabilities framework	Health Education England	2023	https://digital-transformation.hee.nhs.uk/building-a-digital-workforce/dart-ed/horizon-scanning/ai-and-digital-healthcare-technologies	Web searches/ snowball/ identified within network
47	Health information technology competencies	Health Information Technology Competencies (HitCOMP)	2019	http://hitcomp.org/competencies/?wdt_column_filter%5bareaofcompetency%5d=Coding%20and%20Terminologies	Web searches/ snowball/ identified within network
48	Health promotion competencies for Aotearoa, New Zealand	Health Promotion Forum of New Zealand	2012	https://hpfnz.org.nz/assets/Health-Promotion-Competencies-Final.pdf	Scoping review

	Title	Author(s)	Year of publication	Weblink	Method of identification
49	Healthcare worker competencies for disaster training	Hsu EB, Thomas TL, Bass EB, Whyne D, Kelen GD, Green GB	2006	https://doi.org/10.1186/1472-6920-6-19	Scoping review
50	Towards the TIGER [Technology Informatics Guiding Education Reform] international framework for recommendations of core competencies in health informatics 2.0: extending the scope and the roles	Hübner U, Thye J, Shaw T, Elias B, Egbert N, Saranto K, Babitsch B, Procter P, Ball MJ	2019	https://pubmed.ncbi.nlm.nih.gov/31438119/	Web searches/ snowball/ identified within network
51	Environmental health competency framework for public health in Quebec	Institut National de Santé Publique de Québec	2012	https://www.inspq.qc.ca/sites/default/files/publications/1675_environhealthcompetframeworkpublichealthqc.pdf	Scoping review
52	Core competencies in disaster nursing, version 2.0	International Council of Nurses and World Health Organization	2019	https://www.icn.ch/sites/default/files/inline-files/ICN_Disaster-Comp-Report_WEB.pdf	Scoping review
53	Core Competency Framework for Surge Personnel. Surge Optimisation	International Federation of Red Cross and Red Crescent Societies	2019	https://www.ifrc.org/sites/default/files/2021-07/SURGE%20CORE%20COMPETENCY%20FRAMEWORK-A4-Final-20191210.pdf	Scoping review
54	Core competencies for interprofessional collaborative practice: 2016 update	Interprofessional Education Collaborative	2016	https://ipec.memberclicks.net/assets/2016-Update.pdf	Web searches/ snowball/ identified within network
55	Professional standards framework	The Institute of Workplace & Facilities Management	2022	https://www.iwfm.org.uk/about/the-professional-standards.html	Scoping review
56	Core competencies for health workers to deal with climate and environmental change	Jagals P, Ebi K	2021	https://doi.org/10.3390/ijerph18083849	Web searches/ snowball/ identified within network
57	Identifying interprofessional global health competencies for 21st-century health professionals	Jogerst K, Callender B, Adams V, Evert J, Fields E, Hall T, Olsen J, Rowthorn V, Rudy S, Shen J, Simon L, Torres H, Velji A, Wilson LL	2015	https://pubmed.ncbi.nlm.nih.gov/26088089/	Scoping review
58	Core competencies for public health professionals in Uttar Pradesh, India	Johns Hopkins Bloomberg School of Public Health	2019	https://publichealth.jhu.edu/departments/international-health/programs/program-areas/health-systems/implementation-science-and-health-systems-research/uttar-pradesh-health-systems-strengthening-project	Scoping review

	Title	Author(s)	Year of publication	Weblink	Method of identification
59	Emergency preparedness and disaster response core competency set for perinatal and neonatal nurses	Jorgensen AM, Mendoza GJ, Henderson JL	2010	https://pubmed.ncbi.nlm.nih.gov/20629933/	Scoping review
60	One Health workforce competency framework and evaluation toolkit	Kassa G, Raether C, Rabkin M, Tsiouris F, Michaels-Strasser S	2022	https://onehealthworkforceacademies.org/about-one-health/	Web searches/ snowball/ identified within network
61	Identification of the role of oral health educators in elementary schools during COVID-19 pandemic: a competency framework	Khiami A, Dashash M	2022	https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-021-05887-z	Scoping review
62	Developing a competency framework for pharmacy technicians: perspectives from the field	Koehler TC, Bok H, Westerman M, Jaarsma D	2019	https://dx.doi.org/10.1016/j.sapharm.2018.06.017	Web searches/ snowball/ identified within network
63	The Global Public Health Curriculum: revised shortlist of specific global health competencies	Laaser U on behalf of ASPHER working group	2018	https://seejph.com/index.php/seejph/article/view/121/102	Web searches/ snowball/ identified within network
64	Development and validation of health service management competencies	Liang Z, Howard PF, Leggat S, Bartram T	2018	https://dx.doi.org/10.1108/JHOM-06-2017-0120	Web searches/ snowball/ identified within network
65	Identifying essential infection control competencies for newly graduated nurses: a three-phase study in Australia and Taiwan	Liu LM, Curtis J, Crookes PA	2014	https://doi.org/10.1016/j.jhin.2013.08.009	Scoping review
66	Correction to: an interprofessional framework for telebehavioral health competencies	Maheu MM, Drude KP, Hertlein KM, Lipschutz R, Wall K, Hilty DM	2018	https://link.springer.com/article/10.1007/s41347-018-0046-6	Scoping review
67	Hospital nurses' competencies in disaster situations: a qualitative study in the south of Brazil	Marin SM, Witt RR	2015	https://pubmed.ncbi.nlm.nih.gov/26487086/	Web searches/ snowball/ identified within network
68	Preparing health professions students for terrorism, disaster and public health emergencies: core competencies	Markensen D, DiMaggio C, Redlener I	2005	https://doi.org/10.1097/00001888-200506000-00002	Web searches/ snowball/ identified within network

	Title	Author(s)	Year of publication	Weblink	Method of identification
69	An evidence-based framework: competencies and skills for managers in Australian health services	Martins J, Isouard G	2015	https://researchers.mq.edu.au/en/publications/an-evidence-based-framework-competencies-and-skills-for-managers-	Scoping review
70	Development of a competency framework for the nutrition in emergencies sector	Meeker J, Perry A, Dolan C, Emary C, Golden K, Abla C, Walsh A, Maclaine A, Seal A	2013	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10282296/	Web searches/ snowball/ identified within network
71	Public health interventions: applications for public health nursing practice. 2nd edition	Minnesota Department of Health	2019	https://www.health.state.mn.us/communities/practice/research/phncouncil/docs/PHInterventions.pdf	Scoping review
72	The development of national entrustable professional activities to inform the training and assessment of public health and preventative medicine residents	Moloughney B, Moore K, Dagone D, Strong D	2017	https://pubmed.ncbi.nlm.nih.gov/29098049/	Web searches/ snowball/ identified within network
73	Public health job task analysis: August 2022 survey	National Board of Public Health Examiners	2022		Web searches/ snowball/ identified within network
74	Areas of responsibility, competencies and sub-competencies for health education specialist practice analysis II 2020	National Commission for Health Education Credentialling	2020	https://assets.speakcdn.com/assets/2251/hespa_competencies_and_sub-competencies_052020.pdf	Web searches/ snowball/ identified within network
75	Developing core competencies for monitoring and evaluation tracks in South Asian MPH programs	Negandhi H, Negandhi P, Tiwari R, Sharma A, Zodpey S, Kulatilaka H, Tikyani S	2015	https://dx.doi.org/10.1186/s12909-015-0403-5	Scoping review
76	Masters-level program in public health: program overview and rationale	NextGenU.org, University of British Columbia, Canada	no date	https://drive.google.com/file/d/1XKpmyQSWUfhP5KS3Y5Bnjtot6BK_agDc/view	Scoping review
77	Competencies for improving diagnosis: an interprofessional framework for education and training in health care	Olson A, Rencic J, Cosby K, Rusz D, Papa F, Croskerry P, Zierler B, Harkless G, Giuliano MA, Schoenbaum S, Colford C, Cahill M, Gerstner L, Grice GR, Graber ML	2019	https://doi.org/10.1515/dx-2018-0107	Web searches/ snowball/ identified within network
78	What should the African health workforce know about disasters? Proposed competencies for strengthening public health disaster risk management education in Africa	Olu O, Usman A, Kalambay K, Anyangwe S, Voyi K, Garimoi Orach C, Azazh A, Ali Mapatano M, Nsenga N, Manga L, Woldetsadik S, Nguessan F, Benson A	2017	https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-018-1163-9#citeas	Scoping review

	Title	Author(s)	Year of publication	Weblink	Method of identification
79	Humanitarian competency framework: public health engineer/ water sanitation engineer	Oxfam	2012	https://www.oxfamwash.org/running-programmes/wash-teams/Ref%20A.1%20%20OI%20PHE%20Competency%20Framework,%202012.pdf	Scoping review
80	Social determinants of health-related competencies for the health workforce: technical brief	Pálsdóttir B, Middleton L, Greene K	2022	https://www.lhssproject.org/sites/default/files/resource/2022-11/LHSS%20Core%20Activity%2017_SDOH%20Competencies%20Brief_Y3_Final_Approved.pdf	Web searches/ snowball/ identified within network
81	Strategies for the development of primary health care teams	Pan American Health Organization/ World Health Organization Regional Office for the Americas	2009	https://iris.paho.org/handle/10665.2/31221	Web searches/ snowball/ identified within network
82	Core competencies for public health: a regional framework for the Americas	Pan American Health Organization/ World Health Organization Regional Office for the Americas	2013	https://www.campusvirtualsp.org/sites/default/files/noticias/competencies-en.pdf	Web searches/ snowball/ identified within network
83	SCM professionalisation framework: implementation approach for supply chains	People That Deliver	2020	https://www.peoplethatdeliver.org/sites/default/files/2021-12/SP1_02_SCM_Professionalisation_Framework%2027%20Sept.pdf	Scoping review
84	A national, palliative care competency framework for undergraduate medical curricula	Pieters J, Dolmans DHJM, van den Beuken-van Everdingen MHJ, Warmenhoven FC, Westen JH	2020	https://dx.doi.org/10.3390/ijerph17072396	Web searches/ snowball/ identified within network
85	Core competencies for public health in Canada	Public Health Agency of Canada	2008	https://www.canada.ca/en/public-health/services/public-health-practice/skills-online/core-competencies-public-health-canada.html	Web searches/ snowball/ identified within network
86	Generic competencies for public health in Aotearoa New Zealand	Public Health Association of New Zealand	2007	https://app.box.com/s/vpwqpz8yyus8d8umucjzbtdi1m111p5u	Scoping review
87	Foundational public health services framework	Public Health National Center for Innovations, Public Health Accreditation Board	2022	https://phaboard.org/center-for-innovation/public-health-frameworks/the-foundational-public-health-services/	Scoping review
88	Antimicrobial prescribing and stewardship competencies	Public Health England	2013	https://www.gov.uk/government/publications/antimicrobial-prescribing-and-stewardship-competencies	Scoping review

	Title	Author(s)	Year of publication	Weblink	Method of identification
89	Public health skills and knowledge framework 2016	Public Health England	2016	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584408/public_health_skills_and_knowledge_framework.pdf	Scoping review
90	Competency assessment. Tier 1 public health professionals. Tool to accompany the core competencies for public health professionals	Public Health Foundation	2014	https://www.phf.org/resourcestools/Documents/Competency_Assessment_Tier1_2014.pdf	Scoping review
91	Competencies for population health professionals	Public Health Foundation	2019	http://www.phf.org/resourcestools/Documents/Population_Health_Competencies_2019Mar.pdf	Scoping review
92	Applied public health informatics competency model	Public Health Informatics Institute	2016	https://phii.org/wp-content/uploads/2021/06/Applied-Public-Health-Informatics-Competency-Model.pdf	Scoping review
93	Developing a curriculum framework for global health in family medicine: emerging principles, competencies and educational approaches	Redwood-Campbell L, Pakes B, Rouleau K, Macdonald CJ, Arya N, Purkey E, Schultz K, Dhatt R, Wilson B, Hadi A, Pottie K	2011	https://doi.org/10.1186/1472-6920-11-46	Web searches/ snowball/ identified within network
94	Leadership competencies for knowledge translation in public health: a consensus study	Rodríguez-Feria P, Hernández Flórez LJ, Czabanowska K	2021	https://academic.oup.com/jpubhealth/article/44/4/926/6328830	Scoping review
95	Physician readiness for expert practice (PREP) training program: public health medicine advanced training curriculum	Royal Australasian College of Physicians	2014	https://www.racp.edu.au/docs/default-source/trainees/advanced-training/public-health-medicine/public-health-medicine-advanced-training-curriculum.pdf?sfvrsn=77252c1a_6	Scoping review
96	Entrustable professional activities for the RCVS Veterinary Graduate Development Programme	Royal College of Veterinary Surgeons (RCVS)	2021	https://www.rcvs.org.uk/lifelong-learning/vetgdp/entrustable-professional-activities/	Web searches/ snowball/ identified within network
97	Developing core competencies for pharmacy graduates: the Lebanese experience	Sacre H, Hallit S, Hajj A, Zeenny RM, Akel M, Raad E, Salameh P	2022	https://dx.doi.org/10.1177/0897190020966195	Scoping review
98	Competences for implementation science: what trainees need to learn and where they learn it	Schultes MT, Aijaz M, Klug J, Fixsen DL	2021	https://dx.doi.org/10.1007/s10459-020-09969-8	Scoping review

	Title	Author(s)	Year of publication	Weblink	Method of identification
99	Development of national standardized all-hazard disaster core competencies for acute care physicians, nurses and EMS [Emergency medical services] professionals	Schultz CH, Koenig KL, Whiteside M, Murray R	2012	https://doi.org/10.1016/j.annemergmed.2011.09.003	Scoping review
100	Researcher readiness for participating in community-engaged dissemination and implementation research: a conceptual framework of core competencies	Shea CM, Young TL, Powell BJ, Rohweder C, Enga ZK, Scott JE, Carter-Edwards L, Corbie-Smith G	2017	https://pubmed.ncbi.nlm.nih.gov/28341897/	Scoping review
101	Constructing a general competency model for Chinese public health physicians: a qualitative and quantitative study	Shi L, Fan L, Xiao H, Chen Z, Tong X, Liu M, Cao D	2019	https://academic.oup.com/eurpub/article/29/6/1184/5427126	Web searches/ snowball/ identified within network
102	A school nurse competency framework for continuing education	Shin EM, Roh YS	2020	https://dx.doi.org/10.3390/healthcare8030246	Web searches/ snowball/ identified within network
103	Public health leadership: competencies to guide practice	Strudsholm T, Robinson Vollman A	2021	https://pubmed.ncbi.nlm.nih.gov/34601957/	Web searches/ snowball/ identified within network
104	A consensus-based educational framework and competency set for the discipline of disaster medicine and public health preparedness	Subbaro I, Lyznicki J, Hsu EB, Gebbie KM, Markenson D, Barzansky B, Armstrong JH, Cassimatis EG, Coule PL, Dallas CE, King RV, Rubinson L, Sattin R, Swienton RE, Lillibridge S, Burkle FM, Schwartz RB and James JJ	2013	https://doi.org/10.1097/dmp.0b013e31816564af	Web searches/ snowball/ identified within network
105	A leadership and managerial competency framework for public hospital managers in Viet Nam	Van Tuong P, Thanh ND	2017	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5690464/	Scoping review
106	Using the TDR global competency framework for clinical research: a set of tools to help develop clinical researchers	The Global Health Network, World Health Organization and TDR, the Special Programme for Research and Training in Tropical Diseases	2016	https://apps.who.int/iris/bitstream/handle/10665/250673/9789241511551-eng.pdf?sequence=1&isAllowed=y	Web searches/ snowball/ identified within network
107	Noncommunicable diseases field epidemiology training package	United States Centers for Disease Control and Prevention	2011	https://www.cdc.gov/globalhealth/healthprotection/fetp/ncd_modules.htm	Web searches/ snowball/ identified within network

	Title	Author(s)	Year of publication	Weblink	Method of identification
108	Competencies for public health informaticians	United States Centers for Disease Control and Prevention and Center for Public Health Informatics, University of Washington	2009	https://cphi.washington.edu/resources/PHICompetencies.pdf	Scoping review
109	Professionalizing the humanitarian sector: a scoping study	Walker P, Russ C	2010	https://www.elrha.org/wp-content/uploads/2015/01/Professionalising_the_humanitarian_sector.pdf	Scoping review
110	Core competencies for disaster medicine and public health	Walsh L, Subbarao I, Gebbie K, Schor K, Lyznicki J, Strauss-Riggs K, Cooper A, Hsu EB, King RV, Mitas II JA, Hick J, Zubowski R, Altmann BA, Steinbrecher RA, James J	2012	https://www.cambridge.org/core/journals/disaster-medicine-and-public-health-preparedness/article/core-competencies-for-disaster-medicine-and-public-health/E94F1EA71343FC9B9D93F46C13997827	Web searches/ snowball/ identified within network
111	Competency verification toolkit: ensuring competency of direct care providers to implement the Baby-Friendly Hospital Initiative	World Health Organization	2020	https://iris.who.int/handle/10665/333691	Web searches/ snowball/ identified within network
112	Refugee and migrant health: global competency standards for health workers	World Health Organization	2021	https://iris.who.int/handle/10665/350533	Web searches/ snowball/ identified within network
113	WHO competency framework for health workers' education and training on antimicrobial resistance	World Health Organization	2018	https://iris.who.int/handle/10665/272766	Scoping review
114	WHO health emergencies programme learning strategy	World Health Organization	2018	https://www.who.int/docs/default-source/documents/publications/whe-learning-strategy.pdf	Web searches/ snowball/ identified within network
115	Standard competencies framework for the immunization workforce	World Health Organization	2018	https://www.who.int/publications/m/item/full-competency-framework-document	Scoping review
116	Global climate change and child health: training for health care providers, 2nd ed.	World Health Organization	2019	https://iris.who.int/handle/10665/331753	Web searches/ snowball/ identified within network
117	WHO competency framework: building a response workforce to manage infodemics	World Health Organization	2021	https://iris.who.int/handle/10665/345207	Scoping review

	Title	Author(s)	Year of publication	Weblink	Method of identification
118	Eye care competency framework	World Health Organization	2022	https://iris.who.int/handle/10665/354241	Scoping review
119	Global competency and outcomes framework for universal health coverage	World Health Organization	2022	https://iris.who.int/handle/10665/352711	Web searches/ snowball/ identified within network
120	Tripartite One Health field epidemiology competency framework version 3.1	World Health Organization	Forthcoming		Web searches/ snowball/ identified within network
121	Laboratory leadership competency framework	World Health Organization	2019	https://iris.who.int/handle/10665/311445	Web searches/ snowball/ identified within network
122	Health education: theoretical concepts, effective strategies and core competencies	World Health Organization Regional Office for the Eastern Mediterranean	2012	https://iris.who.int/handle/10665/119953	Web searches/ snowball/ identified within network
123	From frameworks to practice: workforce competencies to support the delivery of the Essential Public Health Functions for the Eastern Mediterranean Region	World Health Organization Regional Office for the Eastern Mediterranean	Forthcoming		Web searches/ snowball/ identified within network
124	WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region	World Health Organization Regional Office for Europe and the Association of Schools of Public Health in the European Region (ASPHER)	2020	https://iris.who.int/handle/10665/347866	Web searches/ snowball/ identified within network
125	Developing health promotion competencies and standards for countries in WHO South-East Asia Region	World Health Organization Regional Office for South-East Asia	2008	https://iris.who.int/handle/10665/204957	Web searches/ snowball/ identified within network
126	Competency development in public health leadership	Wright K, Rowitz L, Merkle A, Reid WM, Robinson G, Herzog B, Weber D, Carmichael D, Balderson TR, Baker E	2000	https://pubmed.ncbi.nlm.nih.gov/10936996/	Web searches/ snowball/ identified within network

Annex 6. Mapping the 12 EPHFs, their subfunctions and the practice activities to operationalize them

This framework identifies the practice activities necessary to operationalize the EPHFs. Given the interlinkages within and between the EPHFs as well as within and between practice activities, the mapping is inherently judgement based. The following approach was adopted for consistency: a link is identified where the practice activity directly operationalizes the EPHF or where the EPHF is dependent on the practice activity, but not the inverse. For example, all of the practice activities within the Management Domain IV directly operationalize each of the EPHF subfunctions; yet a reverse mapping would reach a different result – the EPHFs do not directly operationalize the practice activities. The mapping was conducted independently by the research team that prepared this framework, and comments were received from Technical Advisory Group members, principal peer reviewers and peer reviewers during the refinement of the framework, including the refinement of the parameters of each practice activity. Once the content of the practice activities was final and stable, the mapping was reviewed by the research team for the framework, and independently mapped by the research team that prepared the EPHFs guidance *(1)*, with a concurrence on 1262 of the 1315 links. A meeting was held to discuss the 53 links with different decisions, in order to reach consensus between the two teams. The information contained within this annex is the same as the mapping provided for each of the practice activities in Chapter 3.

EPHFs	Subfunctions	Practice activities (PA)
EPHF 1: Public health surveillance and monitoring Monitoring and surveillance of population health status, risks, protective and promotive factors, threats to health, and health system performance and service utilization	Subfunction 1.1: Planning for public health monitoring and surveillance	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 20: Communicating intelligence to decision-makers PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 1: Public health surveillance and monitoring Monitoring and surveillance of population health status, risks, protective and promotive factors, threats to health, and health system performance and service utilization, cont.	Subfunction 1.2: Routine and systematic collection of public health data	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 1: Public health surveillance and monitoring Monitoring and surveillance of population health status, risks, protective and promotive factors, threats to health, and health system performance and service utilization, cont.	Subfunction 1.3: Analysing and interpreting available public health data	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 1: Public health surveillance and monitoring Monitoring and surveillance of population health status, risks, protective and promotive factors, threats to health, and health system performance and service utilization, cont.	Subfunction 1.4: Communicating public health data, information and evidence with key stakeholders, including communities	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 2: Public health emergency management Managing public health emergencies for international and national health security	Subfunction 2.1: Monitoring and analysing available public health information to identify and anticipate potential and priority public health risks, including public health emergency scenarios	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 2: Public health emergency management Managing public health emergencies for international and national health security, cont.	Subfunction 2.2: Planning and developing capacity for public health emergency preparedness and response as part of routine health system functioning in collaboration with other sectors, including development of a national health emergency response operations plan	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 15: Conducting risk assessments and emergency preparedness assessments PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 2: Public health emergency management Managing public health emergencies for international and national health security, cont.	Subfunction 2.3: Carrying out and coordinating effective and timely public health emergency response activities while supporting the continuity of essential functions and services	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 18: Conducting a public health situation analysis PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 2: Public health emergency management Managing public health emergencies for international and national health security, cont.	Subfunction 2.4: Planning and implementing recovery from public health emergencies with an integrated health system strengthening approach	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 2: Public health emergency management Managing public health emergencies for international and national health security, cont.	Subfunction 2.5: Engaging with affected communities and stakeholders in the public and private sectors and health and allied sectors as part of whole-of-government and whole-of-society approaches to public health emergency management	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 3: Public health stewardship Establishing effective public health institutional structures, leadership, coordination, accountability, regulations and laws	Subfunction 3.1: Advocating public health-oriented planning, policies and strategies	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 3: Public health stewardship Establishing effective public health institutional structures, leadership, coordination, accountability, regulations and laws, cont.	Subfunction 3.2: Strengthening institutional public health structures for the coordination, integration and delivery of public health functions and services in the health and other sectors	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 3: Public health stewardship Establishing effective public health institutional structures, leadership, coordination, accountability, regulations and laws, cont.	Subfunction 3.3: Developing, monitoring and evaluating public health regulations and laws that act as formal, regulatory, institutional frameworks for public health governance, functions and services	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 3: Public health stewardship Establishing effective public health institutional structures, leadership, coordination, accountability, regulations and laws, cont.	Subfunction 3.4: Maintaining and applying public health ethics and values in governance	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 14: Gathering qualitative and quantitative data for investigations for public health PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 4: Multisectoral planning, financing and management for public health Supporting effective and efficient health systems and multisectoral planning, financing and management for public health	Subfunction 4.1: Conducting evidenced-based health system planning and prioritization for managing population health needs, including alignment of national strategies, policies and plans for public health	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 4: Multisectoral planning, financing and management for public health Supporting effective and efficient health systems and multisectoral planning, financing and management for public health, cont.	Subfunction 4.2: Promoting integrated cross-sectoral prioritization and planning for public health with intersectoral accountability mechanisms and WHO's Health in All Policies approach to manage population health needs	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 4: Multisectoral planning, financing and management for public health Supporting effective and efficient health systems and multisectoral planning, financing and management for public health, cont.	Subfunction 4.3: Promoting sustainable and integrated financing for public health by improving the generation, allocation and utilization of public and pooled funds to strengthen health system foundational capacities in all contexts	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 4: Multisectoral planning, financing and management for public health Supporting effective and efficient health systems and multisectoral planning, financing and management for public health, cont.	Subfunction 4.4: Planning and developing appropriate infrastructure for meeting population health needs, including key services in health facilities (e.g. water, sanitation, waste and energy)	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 4: Multisectoral planning, financing and management for public health Supporting effective and efficient health systems and multisectoral planning, financing and management for public health, cont.	Subfunction 4.5: Monitoring and assessment of policies and plans, financing of health systems, and multisectoral efforts for health that improve public health, promote equity and inclusion, and strengthen resilience	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 5: Health protection Protecting populations against health threats, for example, environmental and occupational hazards, communicable and noncommunicable diseases, including mental health conditions, food insecurity, and chemical and radiation hazards	Subfunction 5.1: Developing, implementing, monitoring and evaluating regulatory and enforcement frameworks, including compliance with international legislation, and mechanisms for the protection of specified populations (e.g. workers, patients and consumers) and the general public from health hazards	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 5: Health protection Protecting populations against health threats, for example, environmental and occupational hazards, communicable and noncommunicable diseases, including mental health conditions, food insecurity, and chemical and radiation hazards, cont.	Subfunction 5.2: Conducting risk assessments, risk communication and other risk management actions needed for all manner of health hazards	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 5: Health protection Protecting populations against health threats, for example, environmental and occupational hazards, communicable and noncommunicable diseases, including mental health conditions, food insecurity, and chemical and radiation hazards, cont.	Subfunction 5.3: Monitoring, preventing, mitigating and controlling confirmed and potential health hazards	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: ßCoordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 6: Disease prevention and early detection Prevention and early detection of communicable and noncommunicable diseases, including mental health conditions, and prevention of injuries	Subfunction 6.1: Designing, implementing, monitoring and evaluating interventions, programmes, services and platforms for primary, secondary and tertiary prevention, including consideration of equity	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response

EPHFs	Subfunctions	Practice activities (PA)
EPHF 6: Disease prevention and early detection Prevention and early detection of communicable and noncommunicable diseases, including mental health conditions, and prevention of injuries, cont.	Subfunction 6.2: Integrating consideration of prevention and early detection into service delivery platform design or redesign	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response

EPHFs	Subfunctions	Practice activities (PA)
EPHF 6: Disease prevention and early detection Prevention and early detection of communicable and noncommunicable diseases, including mental health conditions, and prevention of injuries, cont.	Subfunction 6.3: Working with partners to support the development, implementation and monitoring of legislative, policies and programme activities aimed at reducing exposure to risk factors and promoting factors that prevent disease	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 17: Conducting a rapid risk assessment PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 7: Health promotion Promoting health and well-being as well as actions to address the wider determinants of health and inequity	Subfunction 7.1: Designing, implementing and evaluating specific interventions or programmes to promote health, including changes in behaviours, lifestyle, practices, and the environmental and social conditions that promote health and reduce health inequities	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 7: Health promotion Promoting health and well-being as well as actions to address the wider determinants of health and inequity, cont.	Subfunction 7.2: Taking and supporting action, with partners, to address wider determinants of both communicable and noncommunicable diseases through a whole-of-government, whole-of-society approach, including increasing individual and community participation in health-impacting decisions	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 7: Health promotion Promoting health and well-being as well as actions to address the wider determinants of health and inequity, cont.	Subfunction 7.3: Advocating, developing and monitoring legislation and policies aimed at promoting health and healthy behaviours and reducing inequities	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 7: Health promotion Promoting health and well-being as well as actions to address the wider determinants of health and inequity, cont.	Subfunction 7.4: Undertaking evidence-based advocacy and health communication to promote healthy behaviours and socioecological environments and build community trust	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 8: Community engagement and social participation Strengthening community engagement, participation and social mobilization for health and well-being	Subfunction 8.1: Promoting participatory decision-making and planning for health and the promotion of societal changes that enhance, promote and protect health and well-being	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 8: Community engagement and social participation Strengthening community engagement, participation and social mobilization for health and well-being, cont.	Subfunction 8.2: Building community capacity for participating in public health planning, interventions, services, and preparedness and response measures	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 8: Community engagement and social participation Strengthening community engagement, participation and social mobilization for health and well-being, cont.	Subfunction 8.3: Monitoring and evaluation of community engagement in public health planning, interventions, services, and preparedness and response measures to promote equity and inclusion	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 8: Community engagement and social participation Strengthening community engagement, participation and social mobilization for health and well-being, cont.	Subfunction 8.4: Mobilizing and collaborating with communities and civil society groups in health services, interventions and programmes as part of a whole-of-society approach	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 8: Community engagement and social participation Strengthening community engagement, participation and social mobilization for health and well-being, cont.	Subfunction 8.5: Engaging communities in health preparedness, readiness, response and recovery	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 9: Public health workforce development Developing and maintaining an adequate and competent public health workforce	Subfunction 9.1: Undertaking planning and regular monitoring and evaluation of the public health workforce in relation to density, distribution and skills mix required to meet population health needs	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 9: Public health workforce development Developing and maintaining an adequate and competent public health workforce, cont.	Subfunction 9.2: Assessing and developing the education and training of the public health workforce, encompassing the full spectrum of public health competencies (e.g. technical, strategic and leadership skills), including development of essential competencies for intersectoral work for health and for emergency response	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions

EPHFs	Subfunctions	Practice activities (PA)
EPHF 9: Public health workforce development Developing and maintaining an adequate and competent public health workforce, cont.	Subfunction 9.3: Promoting the sustainability of the public health workforce by developing appropriate career pathways and assessing and creating safe and dignified working conditions	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 10: Health service quality and equity Improving appropriateness, quality and equity in provision of and access to health services	Subfunction 10.1: Assessing and improving the quality and appropriateness of health services and social care services as delivered to meet population health needs	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 10: Health service quality and equity Improving appropriateness, quality and equity in provision of and access to health services, cont.	Subfunction 10.2: Assessing and promoting equity in the provision of and access to health and social care services	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 27: Providing information and resources to improve community health and well-being PA 28: Developing and delivering public health campaigns PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services

EPHFs	Subfunctions	Practice activities (PA)
EPHF 10: Health service quality and equity Improving appropriateness, quality and equity in provision of and access to health services, cont.	Subfunction 10.3: Aligning the planning and delivery of health services and social care services with population health needs and priority risks	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 11: Public health research, evaluation and knowledge Advancing public health research and knowledge development	Subfunction 11.1: Strengthening and broadening the capacity to conduct and promote research in order to enhance the knowledge base and inform evidence-based policy, planning, legislation, financing and service delivery at all levels and in all contexts	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 11: Public health research, evaluation and knowledge Advancing public health research and knowledge development, cont.	Subfunction 11.2: Supporting knowledge development and implementation, including the translation of public health research into decision-making based on the best available evidence and practices for addressing population health needs	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 11: Public health research, evaluation and knowledge Advancing public health research and knowledge development, cont.	Subfunction 11.3: Promoting the inclusion and prioritization of public health operational research within broader research agendas	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 12: Planning investigations for public health PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 11: Public health research, evaluation and knowledge Advancing public health research and knowledge development, cont.	Subfunction 11.4: Promoting and maintaining ethical standards in public health research that promote a human rights-based approach to health	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 15: Conducting risk assessments and emergency preparedness assessments PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 17: Conducting a rapid risk assessment PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 21: Risk communication and community engagement PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 12: Access to and utilization of health products, supplies, equipment and technologies Promoting equitable access to and rational use of safe, effective and quality-assured health products, supplies, equipment and technologies	Subfunction 12.1: Developing and implementing policies, laws, regulations and interventions that promote the development of and equitable access to essential medicines and other medical products and health technologies in both national and international contexts	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 12: Access to and utilization of health products, supplies, equipment and technologies Promoting equitable access to and rational use of safe, effective and quality-assured health products, supplies, equipment and technologies, cont.	Subfunction 12.2: Developing and implementing evidence-based standards, laws, regulations, policies and interventions that ensure the safety, affordability and efficacy of essential medicines and other medical products and health technologies	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 22: Planning public health programmes and services PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 25: Executing public health programmes and services PA 26: Advocacy for public health PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 12: Access to and utilization of health products, supplies, equipment and technologies Promoting equitable access to and rational use of safe, effective and quality-assured health products, supplies, equipment and technologies, cont.	Subfunction 12.3: Working with partners to manage the inclusion of evidence-based essential medicines and other medical products, health technologies and non-pharmacological interventions into clinical and public health practices	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 9: Quality assurance of public health infrastructure PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

EPHFs	Subfunctions	Practice activities (PA)
EPHF 12: Access to and utilization of health products, supplies, equipment and technologies Promoting equitable access to and rational use of safe, effective and quality-assured health products, supplies, equipment and technologies, cont.	Subfunction 12.4: Managing supply chains for essential medicines and other medical products and health technologies in support of their rational use and equitable access in both national and international contexts, including stockpiling and prepositioning essential medicines, equipment and supplies	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 18: Conducting a public health situation analysis PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce PA 36: Planning for risk management and emergency management actions PA 37: Implementing risk management and emergency preparedness actions PA 38: Coordinating emergency response PA 39: Providing health services as part of emergency response PA 40: Coordinating service continuity and equitable recovery

EPHFs	Subfunctions	Practice activities (PA)
EPHF 12: Access to and utilization of health products, supplies, equipment and technologies Promoting equitable access to and rational use of safe, effective and quality-assured health products, supplies, equipment and technologies, cont.	Subfunction 12.5: Monitoring and assessing the safety, effectiveness, efficacy and utilization of, and access to, essential medicines and other medical and surgical products, health technologies and non-pharmacological interventions, in clinical and public health settings	PA 1: Establishing and maintaining public health governance mechanisms PA 2: Establishing and maintaining mechanisms for community engagement and social participation PA 3: Setting public health strategies PA 4: Developing and operationalizing policy with public health impact PA 5: Developing and operationalizing legislative and regulatory frameworks with public health impact PA 6: Optimizing resource allocations within multisectoral financing mechanisms PA 7: Optimizing the workforce for the delivery of the EPHFs PA 8: Managing the supply chain PA 9: Quality assurance of public health infrastructure PA 10: Establishing and updating public health information and informatics systems PA 11: Establishing and updating public health intelligence systems PA 12: Planning investigations for public health PA 13: Designing and adapting instruments, tools and methods for data collection PA 14: Gathering qualitative and quantitative data for investigations for public health PA 16: Maintaining continuous data surveillance and monitoring mechanisms PA 19: Analysing and interpreting data, information and evidence PA 20: Communicating intelligence to decision-makers PA 23: Developing a stakeholder engagement strategy PA 24: Collaborating with stakeholders PA 29: Monitoring, evaluation and reporting PA 30: Continuous quality improvement of programmes and services PA 31: Managing financial resources for public health programmes and services PA 32: Managing physical resources for public health programmes and services PA 33: Managing public health infrastructure PA 34: Managing personnel for the delivery of public health programmes and services PA 35: Providing education and training programmes for the public health workforce

Reference

1. World Health Organization, International Association of National Public Health Institutes. Application of the essential public health functions: an integrated and comprehensive approach to public health. Geneva: World Health Organization; 2024 (https://iris.who.int/handle/10665/375864, accessed 6 February 2024).

Annex 7. Writing principles for the components of a competency and outcomes framework: competencies, behaviours, practice activities and tasks

Competencies	
Definition	The abilities of a person to integrate knowledge, skills and attitudes in their performance of tasks in a given context. Competencies are durable, trainable and, through the expression of behaviours, measurable.
Characteristics	• Continuous, ongoing abilities, akin to habits • May develop or erode with time • Enables performance of multiple practice activities • A person can possess a competency, but not achieve it – it is not finite, but developed on a spectrum • Requires the integration of knowledge, skills and attitudes • A competency is demonstrated in the context of performance • A competency is multifaceted (demonstrated through multiple behaviours) • The behaviour demonstrating the competency defines the standard for performance • Behaviours are the measurable expression of a competency
Writing principles	1. Single action verb: third person singular 2. Lists are in alphabetical order 3. The focus is on the role of the individual, rather than why or what the end result might be; does not assign attitudes, beliefs, goals or motivations 4. No statements of what not to do 5. No relative or evaluative adverbs (for example quickly, slowly) or adjectives (for example good, effective, appropriate); these are more appropriate for standards 6. Each competency appears once in the framework; some competencies may have an overlapping focus if additional detail is provided, for example, communicates effectively with patients, colleagues and intersectoral teams, in which case judgement is required whether to organize as part of “communication” or “collaboration”

Behaviour	
Definition	Observable conduct towards other people or tasks that expresses a competency. Behaviours are measurable in the performance of tasks.
Characteristics	• May develop or erode with time • Enables performance of multiple practice activities • Requires the integration of knowledge, skills and attitudes • Defines the standard for performance • Multiple behaviours demonstrate a single competency • Measurable as a judgement on a scale of frequency (never, sometimes, always)
Writing principles	1. Action verb: third person singular 2. A single, measurable verb only 3. Lists are in alphabetical order 4. Does not assign attitudes, beliefs, goals or motivations; the focus is on the role of the individual, rather than why or what the end result might be 5. The expression of behaviour is within the power or control of the health worker; a health worker controls their actions or response to a situation, but they cannot control the outcome 6. No statements of what not to do 7. No relative or evaluative adverbs (for example quickly, slowly) or adjectives (for example good, effective, appropriate); these are more appropriate for standards 8. Each behaviour appears once in the framework
Practice activity	
Definition	A core function of health practice comprising a group of related tasks. Practice activities are time limited, trainable and, through the performance of tasks, measurable. Individuals may be certified to perform practice activities.
Characteristics	• Describes the common goal of a group of tasks • Time-limited, discrete actions, observable from start to finish • Requires the application of knowledge, skills and attitudes • A person can perform a practice activity or task, but they cannot possess it • The unit of assessment, certification or regulation
Writing principles	1. Single action verb: present tense, continuous 2. The “size” of a practice activity is not reflective of the curricular time; it is acceptable that these are variable 3. Each practice activity appears once in the framework

Task	
Definition	An observable unit of work within a practice activity that draws on knowledge, skills and attitudes. Tasks are time limited, trainable and measurable.
Characteristics	• Time-limited, discrete actions, observable from start to finish • Requires the application of knowledge, skills and attitudes • A person can perform a practice activity or task, but they cannot possess it • The unit of assessment, certification or regulation • A smaller, measurable unit within a practice activity • Does not achieve a goal in itself; is abstract unless considered in the context of the wider practice activity • Performance is measurable on a dichotomous scale (yes or no)
Writing principles	1. Single action verb: present tense, continuous 2. Does not represent a guideline or sequential performance 3. Represents good practice 4. Applicable across roles, settings, situations or tasks, without specifying them 5. Does not incorporate occupational standards, such as the frequency, the circumstances in which to execute the task, or interpretations of what is appropriate or relevant 6. No relative or evaluative adverbs (for example quickly, slowly) or adjectives (for example good, effective, appropriate); these are more appropriate for standards 7. Appears once within a practice activity; may appear in multiple practice activities

Source: Extract from *(1).*

Reference

1. Global competency and outcomes framework for universal health coverage. Geneva: World Health Organization; 2022 (https://iris.who.int/handle/10665/352711).

Health Workforce Department
World Health Organization
20 Avenue Appia
CH 1211 Geneva 27
Switzerland
https://www.who.int/teams/health-workforce