21st-century health challenges – can the essential public health functions make a difference?

Discussion Paper
21st century health challenges: can the essential public health functions make a difference?

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Acronyms

AMR       antimicrobial resistance
COVID-19  coronavirus disease
EPHF      essential public health function
EPHO      essential public health operation
EPHS      essential public health service
FCV       fragile, conflict-affected and vulnerable
GPW 13    WHO’s Thirteenth General Programme of Work, 2019–2023
IANPHI    International Association of National Public Health Institutes
M&E       monitoring and evaluation
NPHI      national public health institute
PHC       Primary Health Care
SDG       Sustainable Development Goal
UHC       universal health coverage
WFPHA     World Federation of Public Health Associations
WHO       World Health Organization
Glossary

The use of terms in this paper follows the description defined in this section. It is acknowledged that there are usually no widely agreed definitions of these terms and no unified way of applying them in the public health remit. The descriptions below are adapted from various sources, which are listed following each term. The definition of other terms can be found in the WHO publication Essential public health functions, health systems and health security – developing conceptual clarity and a WHO roadmap for action (1).

Clinical care

Clinical care refers to efforts to examine, maintain and restore patients’ physical and mental well-being. Clinical care usually involves, among other elements, examination, medical treatment and palliative care. Clinical care is usually provided in health facilities by professionals.

Community health worker

Community health workers are persons who provide health and medical care for members of their local community, often in partnership with health professionals; alternatively known as village health worker, community health aide or promoter, health educator, lay health adviser, expert patient, community volunteer or some other term (2).

Essential public health functions

Essential public health functions are usually seen as a list of minimum requirements for countries to ensure public health.

Health

Health refers to the state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (3).

Health inequities

Health inequities refer to systematic and avoidable differences in health outcomes between population groups.

Health services

Health services refer to activities – any service (i.e. not limited to medical or clinical services) aimed at contributing to improved health or to the diagnosis, treatment and rehabilitation of sick people (4).

Health system

The health system comprises all the organizations, institutions, people, resources and actions whose primary purpose is to improve, restore or maintain health. The goals of a health system are improving health and health equity in ways that are responsive, financially fair and make the best or most efficient use of available resources. Six health system building blocks together constitute a complete health system – health service delivery; health workforce; health information; medical technologies; health financing; leadership and governance (5, 6, 7, 8).
Health systems strengthening

Health systems strengthening refers to (i) the process of identifying and implementing the changes in policy and practice in a country’s health system, so that the country can respond better to its health and health system challenges; and (ii) any array of initiatives and strategies that improves one or more of the functions of the health system and that leads to better health through improvements in access, coverage, quality or efficiency. Health systems strengthening interventions refer to the activities improving six health system building blocks and managing their interactions in ways that achieve more equitable and sustained improvements across health services and health outcomes (4, 8).

Health workforce

Health workforce refers to all people engaged in actions whose primary intent is to enhance health. Health workforce includes those front-line health professionals who provide health services (such as doctors, nurses, physicians, midwives, pharmacists, lay health workers and community health workers) and those who support the health services (such as hospital managers, ambulance drivers and allied health professionals) (9, 10, 11).

Integrated health services

Integrated health services refer to the management and delivery of health services so that people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care services through the different functions, activities and sites of care within the health system (2).

Personal health services/Individual-based health services

Personal health services refer to health services targeted at the individual. These include, among others, promotion of individual health, timely disease prevention, diagnosis and treatment, rehabilitation, palliative care, acute care and long-term care services (4).

Population health

Population health refers to health outcomes distributed within a defined group of individuals.

Population health services/population-based health services

Population health services refer to health services targeted at the population as a whole with the aim to improve health and well-being on a large scale (2).

Public health

Public health refers to all organized efforts (whether public or private) to prevent disease, promote health and prolong life among the population as a whole (1). Public health focuses on the entire spectrum of health and well-being from health promotion and prevention of disease to early identification and management to rehabilitation and end of life care, or promotion, protection and prevention. Public health usually includes three broad domains of practice: health protection, health service improvement and health improvement, with these being underpinned by health intelligence.
Public health services

Public health services refer to health services that promote and protect the health of a defined population. These include, among others, health situation analysis, health surveillance, health promotion, prevention services, infectious disease control, environmental protection and sanitation, disaster preparedness and response and occupational health. Public health services also include the provision of personal services to individual persons, such as vaccinations, behavioural counselling or health advice (4, 12).

Public health system

Public health system refers to the constellation of all public, private and voluntary entities that contribute to the delivery of public health services within a jurisdiction. The systems are a network of entities with defined roles, relationships and interactions (13, 14).

Public health workforce

Public health workforce refers to a diverse health workforce whose prime responsibility is the provision of core public health activities, and those who are indirectly involved in public health activities but whose work can contribute to improving population health, irrespective of their organization base. The broader public health workforce can be divided into three groups, including (1) public health specialists; (2) people indirectly involved in public health activities through their work; and (3) people who should be aware of public health implications in their professional life (15).

References


Executive summary

Background
Countries worldwide are facing complex and diverse health challenges in 21st century, and usually there is one national health system for individual and population health outcomes. The COVID-19 pandemic and other emerging health challenges have exposed gaps and fragmentation in health systems with limited public health capacities and governance. In this context, “essential public health functions” (EPHFs) have been revitalized to support an integrated approach to sustainable health systems strengthening, complementary to primary health care, various programme-specific and health security approaches. Resolution WHA69.1 identified “public health functions as the most cost-effective, comprehensive and sustainable way to enhance the health of populations and individuals and to reduce the burden of disease”; operational framework for primary health care highlighted EPHFs as a key consideration to provide public health services; and WHO’s position paper on building health systems resilience towards universal health coverage (UHC) and health security recommended investing in EPHFs as a key mean for countries’ health systems recovery and transformation during COVID-19 and beyond.

Despite gaps in public health capacities and calls from countries to strengthen EPHFs, there remain no clear examples of where and how EPHFs have been comprehensively applied in health systems strengthening. This paper builds on earlier WHO work and synthesizes an updated knowledge base and experiences in EPHFs. The purpose is to further promote understanding of EPHFs in reference to recent complementary concepts and approaches; to ascertain its value for health systems strengthening for UHC, health security, promotion of healthier populations; and to present options for policy considerations at global and national levels in addressing the 21st-century health challenges in countries of various contexts.

Concept of the essential public health functions
Public health refers to the science and art of preventing disease, prolonging life and promoting, protecting and improving health through organized efforts of society. The EPHFs are generally regarded as a fundamental and indispensable set of collective actions under the responsibility of the State which are needed to meet public health goals, including the attainment and maintenance of the highest level of population health possible within given resources. The list of and the way of operationalizing EPHFs are dependent on societal and health contexts in a country or region and the EPHFs are interconnected and interdependent. A list of common and fundamental public health functions was developed through a crosswalk and analysis of different authoritative lists of EPHFs (Box ES.1). This consolidated list is presented to facilitate further global discussion on the application of EPHFs, rather than as an agreed global framework.

While this list of functions is clearly wide-ranging and has implications across and beyond the health system, EPHFs are not an overarching or competing health systems framework; rather they are essential to health systems strengthening, which aims to reorient action to improve public health capacities. In the context of current discussions on health system resilience focusing on health care and public health emergencies, the EPHFs can provide an opportunity to highlight and advocate how strengthening public health builds health system resilience. The EPHFs are also supportive of and complementary to primary health care, common goods for health, the International Health Regulations (IHR) (2005), and disease-specific and life-course-specific programmes; all of these together contribute to UHC, health security and other Sustainable Development Goals (SDGs) beyond health.
Box ES.1. A list of public health functions identified as common and fundamental based on a crosswalk analysis of essential public health functions lists

1. Monitoring and evaluating the population’s health status, health service utilization and surveillance of risk factors and threats to health
2. Public health emergency management
3. Assuring effective public health governance, regulation and legislation
4. Supporting efficient and effective health systems and multisectoral planning, financing and management for population health
5. Protecting populations against health threats, including environment and occupational hazards, communicable disease threats, food safety, chemical and radiation hazards
6. Promoting prevention and early detection of diseases, including noncommunicable and communicable diseases
7. Promoting health and well-being and actions to address the wider determinants of health and inequity
8. Ensuring community engagement, participation and social mobilization for health and well-being
9. Ensuring adequate quantity and quality of public health workforce
10. Assuring quality of and access to health services
11. Advancing public health research
12. Ensuring equitable access to and rational use of essential medicines and other health technologies

Essential public health functions in health systems strengthening?

Investment in EPHFs is cost-efficient in improving health systems functioning and yielding sustained health, social and economic gains. Apply EPHFs can ensure public health services and complements both health care and emergency response. It enhances consideration of the population’s health needs, prevention, health promotion, and equity, and provides an imperative to act on the wider determinants of health. The proposed approach to applying EPHFs in health systems strengthening consists of two parts: (1) an **EPHF lens**, which applies a public health perspective to existing health systems, encompassing health protection and with a focus on ways that public health/EPHFs can be better considered and integrated into any health sector and multisectoral policy and planning process; and (2) **enablers for EPHFs**, which reflect existing evidence on and experience of specific actions that can be flexibly applied within a given national context to enable the operationalization of EPHFs.

There is evidence and experience showing that health systems strengthening through an EPHF lens can bring values in terms of:

- prioritization of public health in national health sector policies, strategies and plans;
- recognition of public health efforts within health systems and allied sectors supporting alignment of agendas and interventions for enhancing population health;
- improvement in multisectoral collaboration;
- recognition of public health services in service delivery, including by utilizing primary health care;
- recognition of public health workforce.

Key enablers to operationalize EPHFs involve:

- political commitment to public health agendas
- institutional arrangements to lead and coordinate EPHFs
- population needs assessment and risk profiling
- multisectoral accountability for public health goals
- assessment of the provision of EPHFs
- workforce for delivering EPHFs
For stakeholders’ participation in advancing the essential public health functions agenda

Countries bear the primary responsibility for addressing health challenges and meeting population health needs. As priority actions to advance the EPHF agenda, national governments may consider the following actions:

- utilize political leadership to strengthen the health authorities by entrusting them with the stewardship role over public health functions;
- develop a national list of EPHFs in accordance with population health needs, existing gaps and nationally determined priorities;
- integrate the EPHFs into national health sector strategies and allied sector policies and plans to enhance multisectoral coordination for the promotion of population health.

Global actors often have strengths in facilitating international cooperation, mobilizing international and national resources for health, streamlining funding, building partnerships and providing technical support. As priority actions to advance the EPHF agenda, global actors should:

- continuously build knowledge and contribute to the evidence base for advocating for country investment in EPHFs;
- explore paradigms of operationalizing EPHFs in specific national contexts, working together with individual countries;
- gather and share best practices for global learning and international cooperation for the EPHFs;
- develop and disseminate technical guidance on strengthening institutional, operational and technical capacities for public health.

Conclusion

The world is still grappling with the COVID-19 pandemic, which continues to have profound health, societal and economic impacts. This presents a brief opportunity for governments and other stakeholders to rethink public health in the “post” COVID-19 health systems recovery and reconstruction.

There is no one-size-fits-all solution to developing health systems with strong public health capacities; regions and countries must reflect on their respective needs, priorities and other context. As the initial step zero, there should be continuing participatory dialogue and gathering of learning on the conceptual and operational aspects of EPHFs in reference to existing public health infrastructure and services, with the collective efforts of all key actors at the global, regional and national levels. WHO and partners must also stand ready to meet its commitment to support countries in their application of EPHFs.
1. Background

The landscape of health has been rapidly changing in the 21st century, with the increasing burden of noncommunicable diseases and mental health, the emergence and re-emergence of communicable diseases, the growing threat of antimicrobial resistance (AMR), increasing demands from an ageing population and displaced populations, and rising health inequities (1, 2, 3, 4), all threatening health security as well as the general health and well-being of populations. These diverse and complex health challenges are faced by all countries, from those with well developed and stable health systems to those in fragile, conflict-affected, and vulnerable (FCV) settings. The ability of health systems to cope with these increasing challenges is further compromised by persistent fragmentation in planning and programming, investment, operations and assessment, which limit the impact and legacy of investment in critical health systems foundations. This is exacerbated by the low priority given to cross-cutting public health functions that aim to protect and promote the health of populations through action on the determinants of health.

The COVID-19 pandemic has further revealed weaknesses in social and health systems stemming from weak public health capacities in most countries (5). Inadequate efforts to tackle the root causes of inequity and other factors hindering access to health and social services have led to the pandemic’s disproportionate impact on marginalized populations, people of low socioeconomic status and people with underlying health conditions. The unprecedented attention and investment resulting from the pandemic provide a short window of opportunity for countries to leverage response and recovery efforts to strengthen fundamental health systems inputs and build strong public health capacities.

The global community requires integrated actions for health systems strengthening embedded with strong public health capacities to achieve the objectives of UHC and health security (6, 7). The EPHFs represent the fundamental and indispensable set of capacities required to meet health goals, including the attainment and maintenance of the highest level of population health possible with given resources. By their nature and in their operation, EPHFs present an integrated public health approach that is both holistic and complementary to various other approaches, as well as being key to health systems recovery and transformation, as highlighted in WHO’s Position paper on building health systems resilience during COVID-19 and beyond (8). The EPHFs are acknowledged as a key component of primary health care and a core aspect of integrated health services (9). Resolution WHA69.1 (see Box 1) and other resolutions (see Annex 1) provide WHO with a strong mandate to support Member States in strengthening EPHFs as the most cost-effective, comprehensive and sustainable way to reach key health goals which are central to achieving UHC and SDGs (10). This is further recognized in the draft WHO Programme budget 2022–2023 as the need to “build resilience by strengthening primary-health-care-oriented health systems, essential public health functions and the health security nexus” (see Fig. 1) (11).

Despite the importance and urgency, there are no explicit cases of systematic application of the EPHFs in countries to address health challenges and population health needs. Given the renewed emphasis and experience gained with the ongoing pandemic, there is a need for a common understanding of the EPHFs and their consideration within primary-healthcare-oriented health systems strengthening for strong public health capacities, to meet the objectives of UHC, health security and other SDGs beyond health.
1.1. Objectives

The purpose of this paper, building on earlier work on the conceptual clarity relating to EPHFs within a health systems framework and IHR (2005) core capacities and drawing on the experience and knowledge of stakeholders with EPHFs, is to promote and further the understanding of the EPHFs in relation to recent complementary concepts and approaches; to ascertain its value for health systems strengthening to meet the objectives of UHC and health security; and to present actions for stakeholders in the application of EPHFs at country level.

Given the emphasis on EPHFs in the WHO position paper on building health system resilience towards UHC and health security during COVID-19 and beyond (8), and WHO’s Thirteenth General Programme of Work, 2019–2023 (GPW 13) and Proposed programme budget 2022–2023 (11), as well as discussions with partners and networks (the International Association of National Public Health Institutes (IANPHI), World Federation of Public Health Associations (WFPHA), national health authorities and public health institutes (NPHIs)), this paper represents a timely guide that will support countries in taking concerted action to build strong public health institutions and capacities focusing on public health services.

1.2. Target audience

This paper is intended mainly for leaders and policy-makers at national and subnational level, including ministries of health, NPHIs, civil society, private (both for-profit and not-for-profit) sector, parliamentarians, emergency managers, humanitarian and development partners and the United Nations community, in addition to those working in other ministries and sectors that support health.

It could also be used by global actors that support countries in strengthening health systems and public health capacities, including networks of public health institutes and professionals, foreign aid agencies, international donor organizations, etc.
2. The concept of essential public health functions

The importance of EPHFs emerged in the context of countries experiencing rapid changes in health and social circumstances, with resulting negative health impacts (12). At WHO, EPHFs were first regarded as an integral component of implementation of the health-for-all policy in the 21st century and necessary for sustainable health systems (12). A set of activities within a public health remit was identified as essential to ensure an optimal response to emerging and priority population health needs. More recently, EPHFs have been explicitly recognized within the primary health care operational framework as essential elements of integrated health services; they have been further reinforced in the GPW 13 in 2022–2023. Multiple independent lists of EPHFs have been developed by global health actors, including the WHO regional offices, the World Bank, the European Commission and the United States Centers for Disease Control and Prevention (13). At the national level, EPHFs and similar concepts have been used in nearly 100 countries (14).

2.1 Public health and the essential public health functions

Defining the scope of public health and its operational limits has been challenging. Public health is “the science and art of preventing disease, prolonging life and promoting health through organized efforts of society” (15), and is usually underpinned by health intelligence, or the systematic collection and analysis of data on health, health systems, health threats and the wider determinants of health. The EPHFs are a list of minimum requirements that countries need to assure the effectiveness of public health in their own context. While in some contexts terms like “public health systems/services/workforce” are used to describe the public sector characteristics of health systems/services/workforce, this paper uses these terms to describe systems/services/workforce for public health (see Box 2, which defines “public health services”, and the Glossary).

Box 2. Health care and public health services – operational definitions

“Health care” is used in this paper with reference to efforts to maintain and restore the physical or mental health and well-being of an individual; these may include examination, investigation, diagnosis, treatment, rehabilitation and palliative care. These services are traditionally disease-focused, but increasingly include health-promoting interventions for individual health and well-being. Health care is generally delivered by trained health care professionals across a variety of sites, from health facilities and primary care centres to community sites and even the individual’s home.

“Public health services” in this paper refers to services designed with the primary purpose of protecting and promoting the health and well-being of a defined population as a whole, rather than an individual. They can be delivered at population level (e.g. mass vaccination programmes, evaluation of a health service) or at individual level (e.g. post-exposure prophylaxis). Public health services can also be understood as the legislative, regulatory, administrative, technical and behaviour-modifying interventions that impact on determinants of health (16), for example, road safety legislation, drinking-water regulations, evaluation of a health service, national physical activity policy and incorporation of smoking cessation advice into clinical interactions.

More on health care and public health services can be found in Annex 2.

1As well as “essential public health functions (EPHF)s”, the terms “essential public health operation (EPHO)” and “essential public health service (EPCS)” are also used. The WHO European Region has used EPHO to draw a clear distinction between the public health functions and the health system framework functions. The United States Centers for Disease Control and Prevention and the National Health Commission of the People’s Republic of China use EPHS (essential public health services).
2.2 Fundamental understandings of the essential public health functions

The EPHFs are traditionally regarded as a list of minimum requirements for countries to ensure effective public health action; they are not envisaged as a competing health systems framework. EPHFs typically have a tiered format – a list of general functions followed by a detailed description of the specific public health competencies or capacities required to achieve that function. EPHF lists vary in the types, numbers, combination/selection and ways of articulating functions (e.g. the understanding of these functions as “actions”, “services” or “capacities”), often indicating how public health is understood in that context.

While these differences represent a challenge to developing a consensus on positioning and operationalizing EPHFs in health systems and wider societies, some fundamental commonalities (see Box 3) are apparent in different EPHF narratives.

Box 3. Fundamental understandings of the EPHFs

- EPHFs bring a holistic public health perspective to building health systems and improving society in order to tackle different types of challenges to health in a coordinated manner
- The list of EPHFs is influenced by the societal and health context
- EPHFs are interconnected and interdependent in a given context, and should not be viewed in isolation
- Strengthening EPHFs is the responsibility of the State, which requires strong national and subnational stewardship for public health and effective collaboration across sectors
- EPHFs require and build on long-term multisectoral commitment to public health efforts

Box 4. EPHFs, health systems and health security: developing conceptual clarity and a WHO roadmap for action (2018)

This publication (13) identified three potential courses of action to move the EPHF agenda forward globally:

- The first option is to relaunch the consensus process based on common elements of the WHO lists as a starting point to develop a consensus list of meta-functions, which regions and countries could then adapt.
- A second option is to encourage regions and Member States to develop their own frameworks as the first step in locally based reform processes.
- The third option is to develop a list of EPHF-related targets (either a single list directed at the most vulnerable Member States or a tiered list of functions that help map health systems development). This option avoids semantic debates about the definition of public health and focuses energy instead on achieving common goals in the pursuit of better population health.

2.3 A common list of essential public health functions

A crosswalk analysis was conducted of EPHF lists from WHO, the European Commission, the World Bank and countries, building on the results and recommendations from a WHO publication Essential public health functions, health systems and health security: developing conceptual clarity and a WHO roadmap for action (13) (see Box 4). Common elements covered by EPHF lists include monitoring and surveillance, emergency management, governance and legislation, health protection, health promotion, social participation, health workforce and research. While each list phrases or arranges the functions differently, most of them put monitoring and surveillance and emergency management at the top, suggesting that there is a consensus on the fundamental nature of both functions in public health. Other elements presented in most EPHF lists, but not explicitly articulated, include management (of interventions or health systems or services), financing, disease prevention and infrastructure. Fig. 2 shows part of the crosswalk analysis results from EPHF lists prepared by the WHO regional offices; the colour coding roughly illustrates the common elements and differences in selecting, articulating and organizing these functions. More details about the analysis can be found in Annex 3.
A list of common functions derived from the crosswalk analysis of different authoritative lists is presented in Box 5 (for a more detailed breakdown of each function, see Annex 4), underpinning the consideration of health systems components and pressing health challenges. Some functions, though not commonly represented in many lists, are increasingly present in more recent lists (e.g. addressing the wider determinants of health, ensuring equitable access to and rational use of essential medicines and other health technologies), which could indicate that these public health functions are gaining more recognition in the current global and national contexts. An example of public health functions in a specific country context is presented in Box 6.

Fig. 2. Commonalities and differences in EPHF lists across WHO regions

<table>
<thead>
<tr>
<th>REGION FOR THE AMERICAS</th>
<th>EUROPEAN REGION</th>
<th>EASTERN MEDITERRANEAN REGION</th>
<th>WESTERN PACIFIC REGION</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Promotion and management of health research and knowledge</td>
<td>3. Health protection including environmental occupational, food safety and others</td>
<td>3. Health protection, including management of environmental, food, toxicological and occupational safety</td>
<td>3. Development of policies and planning in public health</td>
</tr>
<tr>
<td>4. Development and implementation of health policies and promotion of legislation that protects the health of the population</td>
<td>4. Health promotion including action to address social determinants and health inequity</td>
<td>4. Health promotion and disease prevention through population and personalized interventions, including action to address social determinants and health inequity</td>
<td>4. Strategic management of health systems and services for population health gain</td>
</tr>
<tr>
<td>5. Social participation and social mobilization, inclusion of strategic factors, and transparency</td>
<td>5. Disease prevention, including early detection of illness</td>
<td>5. Assuring effective health governance, public health legislation, financing and institutional structures (stewardship function)</td>
<td>5. Regulation and enforcement to protect public health</td>
</tr>
<tr>
<td>6. Development of human resources for health</td>
<td>6. Health promotion including action to address social determinants and health inequity</td>
<td>6. Assuring governance for health and well-being</td>
<td>6. Human resources development and planning in public health</td>
</tr>
<tr>
<td>7. Ensuring access to and rational use of quality, safe, and effective essential medicines and other health technologies</td>
<td>7. Communication and social mobilization for health</td>
<td>7. Assuring a sufficient and competent public health workforce</td>
<td>8. Ensuring the quality of personal and population-based health services</td>
</tr>
<tr>
<td>8. Efficient and equitable health financing</td>
<td>8. Effective and equitable health financing</td>
<td>8. Health promotion, social participation and empowerment</td>
<td>8. Research, development and implementation of innovative public health solutions</td>
</tr>
<tr>
<td>9. Equitable access to interventions that seek to promote health, reduce risk factors, and promote healthy behaviors</td>
<td>9. Advancing public health research to inform policy and practice</td>
<td>9. Advocacy communication and social mobilization for health</td>
<td></td>
</tr>
<tr>
<td>10. Management and promotion of interventions on the social determinants of health</td>
<td>10. Disease prevention, including early detection of illness</td>
<td>10. Health promotion and disease prevention through population and personalized interventions, including action to address social determinants and health inequity</td>
<td></td>
</tr>
</tbody>
</table>

Source: (2, 13, 17, 18, 19). Numbers refer to the ranking given by the respective regional office.
Box 5. A list of common and important public health functions emerging from a crosswalk analysis of different authoritative lists

1. Monitoring and evaluating population health status, health service utilization and surveillance of risk factors and threats to health
2. Public health emergency management
3. Assuring effective public health governance, regulation and legislation
4. Supporting efficient and effective health systems and multisectoral planning, financing and management for population health
5. Protecting populations against health threats, including environment and occupational hazards, food safety, chemical and radiation hazards
6. Promoting prevention and early detection of diseases (communicable and noncommunicable)
7. Promoting health and well-being and actions to address the wider determinants of health and inequity
8. Ensuring community engagement, participation and social mobilization for health and well-being
9. Ensuring adequate quantity and quality of public health workforce
10. Assuring quality of and access to health services
11. Advancing public health research
12. Ensuring equitable access to and rational use of essential medicines and other health technologies

This amalgamated list (Box 5) can be seen as a starting point, enabling global discussions around operationalization of EPHFs in the national context, especially in those countries and regions where there are no EPHFs readily available or their lists of EPHFs and strengthening tools need revision. Moreover, this list could cover the public health functions that are fundamental for a country to carry out to evaluate its current capacity and ensure effective public health action. To determine whether this set of functions (or a subset) can be considered as a reference for countries, further validation and contextualization will be required, using proper methodology (e.g. an international Delphi study; international comparison studies to provide baseline public health capacities; or workshops and consultations with WHO regional offices, ministries of health, NPHIs and other global health actors) and taking account of the possible need for additional functions to reflect emerging health system needs and challenges.

Box 6. National Public Health Institute of Liberia: an example of capacity-building for public health functions

The devastating health and social consequences of the outbreak of Ebola virus disease in Liberia in 2014–15 focused political attention on the need to better coordinate, integrate and strengthen the capacity to deliver public health functions and enhance health system resilience (20). The National Public Health Institute of Liberia (NPHIL), with the support of WHO and partners such as IANPHI, Africa Centres for Disease Control and Prevention, United States Centers for Disease Control and Prevention and United States Agency for International Development, has been increasing its capacity to deliver the public health functions. The NPHIL is underpinned by national legislation (EPHF 3) and its mission, with the Ministry of Health, is to prevent and control public health threats by promoting population health and serving as a source of knowledge and expertise (EPHF 2 and 11). The NPHIL’s stated goals include contributing to the development and sustainability of the public health workforce (EPHF 2 and 11). The NPHIL’s stated goals include contributing to the development and sustainability of the public health workforce (EPHF 2 and 11). The NPHIL’s stated goals include contributing to the development and sustainability of the public health workforce (EPHF 2 and 11). The NPHIL’s stated goals include contributing to the development and sustainability of the public health workforce (EPHF 2 and 11). The NPHIL’s stated goals include contributing to the development and sustainability of the public health workforce (EPHF 2 and 11). Many of the lessons learned and public health capacities strengthened during the crisis of Ebola virus disease have been institutionalized in Liberia and utilized during the ongoing COVID-19 pandemic, including the early activation of the Incident Management System under NPHIL and Ministry of Health leadership, adopting a multisectoral approach and establishing coordinating mechanisms for the maintenance of essential health services. NPHIL’s involvement and delivery across a range of EPHFs, despite being in its relative infancy as an organization, can serve as an example for strengthening public health capacity in low-resource settings, including the challenges it faced during its inception, and now as it progresses towards delivering EPHFs.

2.4 The essential public health functions and primary health care

Primary health care is at the heart of efforts to attain UHC (21, 22, 23). The primary health care approach encompasses integrated health services with an emphasis on primary care and EPHFs, along with multisectoral policy and action and empowering people and communities (9). Specifically, EPHFs are a means to plan, prioritize and provide key public health interventions for population health. EPHFs are highlighted as a key consideration within primary health care, as a recognition of the need to look beyond clinical, curative services if primary health care is to realize its full potential in improving population health. Further, operationalization of EPHFs relies upon optimization of the role of primary care in providing public health services (e.g. community-based health promotion through education and counselling (24, 25), clinical decision-making supported by population-based information (25), disease screening and monitoring supported information technology (24, 25, 26), mass and selective vaccination programmes (24, 25) and health outreach to increase the marginalized population’s access to care (27) at all service-delivery and administration levels. Recognition of EPHFs within the conceptual framing of primary health care creates an important opportunity to open up a policy dialogue on EPHFs as countries pursue primary health care reforms (see Box 7, which describes the importance of the EPHFs and primary health care for building health system resilience).

Box 7. Building health system resilience with EPHFs

The understanding and evidence-base of resilience and its application in health systems have been growing in recent years. Operational definitions of health system resilience refer to the ability of a health system to mitigate, absorb, adapt to and transform in the face of potential or actual disruptive events with public health implications, while maintaining its essential functions and services, and improving based on these experiences (28, 29). This is not only relevant to acute shock events (e.g. infectious disease outbreak, earthquake, flooding), it also applies to building capacity for addressing a wider range of everyday health system challenges and population health needs (e.g. a growing aging population, increasing threat of climate change on health). The current focus of investments, research and discussions on health system resilience to public health threats have expanded the scope to emphasize and showcase how strengthening public health makes health systems resilient and vice versa (2).

Resilient health systems are often characterised by having a series of indispensable, interdependent attributes (e.g. awareness, mobilisation, transformation, self-regulation, diversity, adaptability, integration) (28, 30). The demonstration of these attributes entails public health capacity strengthened through the EPHFs. For example, developing the integrated surveillance and monitoring and evaluation component of EPHF supports the health system resilience attribute of “awareness”, that is, knowing its own strengths, risks and vulnerabilities; health protection and focusing on wider determinants of health enables health systems to develop resilience capacity of addressing a wide range of health problems through its services (i.e. “diversity”); the evaluation and policy analyses functions support the resilience attribute of learning from experiences and transforming as necessary; the public health emergency management and services quality assurance functions support the development of the resilience capacity of maintaining core health system functions while effectively responding to shock events, etc. Therefore, systematic strengthening of the EPHFs inherently builds resilience in health systems while resilient health systems in turn ensure that EPHFs are holistically implemented in an effective, efficient and sustainable manner.

The strong interconnection between public health capacity (e.g., public health interventions decision-making, surveillance, health communication, wide-scale testing) and health systems resilience has been further highlighted by the ongoing COVID-19 pandemic experience in various contexts cutting across countries in all income groups. This recognition has led to the identification of EPHFs as a key strategy to building health system resilience as seen in recent public health reviews, commitments and reform efforts by countries, regions and globally (2, 8, 11, 29, 31). The heightened national and global impetus and recognition of the need to further integrate public health functions in strengthening health systems towards resilience present opportunities that, if adequately leveraged, can result in health systems better equipped to tackle 21st-century public health challenges.
2.5 Linkages between the essential public health functions and other key relevant global health concepts

WHO’s Position paper on building health system resilience towards UHC and health security during COVID-19 pandemic and beyond (8) has highlighted the need for EPHFs to build resilience and promote integration between UHC and health security, while working in a complementary manner with other approaches. Yet there is a lack of consensus or clarity on this complementarity. EPHFs do not sit naturally above or under other global frameworks for health systems and health security, and are not a competing approach; strengthening EPHFs is both a valuable goal in its own right and an obvious contributor to global aspirations, including the SDGs, UHC, primary-health-care-oriented health systems strengthening, IHR (2005) for health security, and common goods for health. Given the cross-cutting nature of EPHFs, they could be seen as an approach which links other frameworks from a public health perspective, adding a recognition of the massive impact of wider society on health and well-being (see Annex 5). This section provides a starting point for the discussion of how EPHFs are complementary to different agendas, including UHC and health security, but to some degree, this can only be fully understood in each national context, as policy-makers seek a coherent approach to transforming their health systems to meet population needs, drawing on a range of relevant frameworks and agendas.

2.5.1 The essential public health functions and the Sustainable Development Goals

The EPHFs are strongly aligned with the SDGs through their shared goals to promote more healthy, equitable societies, with inclusive community engagement and intersectoral action on the wider determinants of health, including poverty, poor access to education, gender inequity and environmental hazards of all kinds. Indeed, resolution WHA69.1 firmly states that actions on EPHFs are a key contribution to the health-related SDGs. The SDGs focus global attention on development issues: rallying the global development community around the public health targets could send a powerful signal to countries on the intersectoral nature of population health and other development issues.

2.5.2 The essential public health functions and health security agendas

The health security objectives of many countries are underpinned by IHR (2005), the Global Health Security Agenda, the Sendai Framework for Disaster Risk Reduction, global action plan on antimicrobial resistance and allied global initiatives. Health security is closely linked to health protection during acute public health or humanitarian events, which can be regarded as a key aspect of public health practice (32). The EPHFs support viewing health security objectives and activities as an integral objective of health systems (2) and allied sectors through dedicated functions (for example, surveillance of health risks, emergency preparedness and response), while also raising the focus of other public health priorities (e.g. addressing social determinants of public health, promoting health equity and health literacy) as overarching health system goals. In this way, the application of the EPHFs can be useful as a means to operationalize the critical linkage between health security and health systems strengthening efforts, through a public health perspective that recognizes specific capacities for safeguarding health security aligning within a broader set of interrelated functions to meet population health needs, including protection.
2.5.3 The essential public health functions and typical health systems strengthening interventions

Health systems strengthening interventions are often considered in relation to the health system building blocks (governance and leadership; health financing; health workforce; health information; medicines and technologies; and health service delivery), as well as infrastructures and communities and their interactions (33). There are clear linkages between the EPHFs and each interrelated building block. Rather than replacing or duplicating their counterpart health system foundations, the relevant EPHFs promote application of a public health perspective within health system planning (e.g. emphasizing consideration of specific public health needs) as well as identifying where public health capacities can support broader health system goals (e.g. public health assessments of medicines and health technologies). The EPHFs support health systems strengthening by also putting public health at the heart of strengthening or reform for improving effectiveness and efficiency. This supports an integrated approach to strengthening and the reorientation of the health system to population needs while focusing on prevention and promotion, which can reduce health system and service strain. Moreover, the scope of EPHFs is not limited to the health system – they emphasize the development of public health capacities within the health system and also within society at large; for example, defining and building capacities of all actors within society to execute their public health roles and responsibilities, building intersectoral public health infrastructure and facilitating progress on multisectoral policies and reviews for population health.

2.5.4 The essential public health functions and common goods for health

Financing common goods for health is recognized as fundamental for health and the foundation of UHC and health security (34, 35, 36). Common goods for health are population-based interventions that are public goods requiring collective financing because their provision or preservation is subject to specific market failures (37). The EPHFs and common goods for health share similarities, involving predominantly population-based and cross-cutting functions that do not sit within a single intervention area or within the health sector. It is generally agreed that common goods for health and EPHFs are practically aligned, with significant alignment in the components of each; while the common goods for health agenda supports addressing these components in terms of the need for collective financing from an economic point of view, the EPHFs are focused on bringing a public health perspective to health policy and planning (38). EPHFs and common goods for health are complementary; since EPHFs are likely to suffer from underinvestment without government intervention, common goods for health provide the basis for budgetary dialogue with finance authorities and further economic justification to operationalize EPHFs (39).

2.5.5 The essential public health functions and disease-specific and life-course-specific programmes

Disease and life-course-specific programmes remain the focus of health planning and operations in many countries; these programmes are often closely linked with public health functions, such as disease prevention, health promotion, monitoring and addressing wider determinants of health. Investment in EPHFs can promote a shift towards dynamic health systems that systematically monitor and address the emerging health needs of all; this can support effective operation of commonly funded priority disease and life-course areas while encouraging a focus on promotion and prevention and strengthening the health system for other local and national health priorities with effectiveness, efficiency and sustainability. The large investment in disease- and life course-specific programmes can also be leveraged to strengthen the EPHFs.
3. Essential public health functions in health systems strengthening?

Given the multiple stressors on health systems, complex population health needs and siloed approaches to service delivery, it is imperative to consolidate and coordinate efforts. Strengthening EPHFs for strong public health capacities, in complement to primary health care, enables health systems, in alignment with allied sectors, to cost-effectively achieve the objectives of healthier populations, UHC and health security. This section describes how health systems strengthening with the EPHFs could look like, the values an EPHF lens could contribute to drive improvement in health systems strengthening in response to current challenges, and potential enablers to accelerate progress towards implementation of the EPHFs.

3.1 Overview of essential public health functions in health systems strengthening

The EPHFs are recognized as a central element of integrated health services within primary health care, although their development has lagged behind developments in health care. EPHFs in health systems strengthening can redress this imbalance by ensuring a holistic focus on the needs of populations, in tandem with individuals, and incorporating prevention and promotion of health and well-being, equity, and action on the wider determinants of health (see Box 8). The public health approach is collaborative and requires multidisciplinary and intersectoral working (e.g. involving sectors like human health, animal health, veterinary, environment, agriculture, transport, planning, etc.).

A “lens and enablers” concept can be used to understand what EPHFs in health systems strengthening could look like in broad terms, recognizing that actions in each setting will vary depending on population needs, national priorities and health systems context (see Fig. 3). This framing also clarifies that EPHFs do not mean a new or competing framework for organizing health systems; rather, applying EPHFs in health systems strengthening facilitates integration and elevation of the public health agenda in health systems and wider society to improve population health outcomes. The EPHF lens and enablers will be articulated in the next sections.

Fig. 3. Health systems strengthening with EPHFs – EPHF lens and enablers

Source: original – made by health services resilience team, WHO
3.2 What is an essential public health functions lens?

The EPHF lens is important in health systems strengthening as it brings a public health perspective to health systems with a focus on how public health with context specific EPHFs can be better considered and integrated in relevant health sector and multisectoral policy and planning process, including those focused on health protection (Fig. 3). The COVID-19 pandemic has further reinforced the existing evidence that investments in EPHFs for population health bring long-term returns, while raising the alarm that underinvestment in these functions leads to large-scale social and economic setbacks while facing acute or protracted emergencies (40). Applying the EPHF lens in health systems strengthening involves action in each health system component, for example, formalizing a responsible entity with a stewardship role for public health in legislation and policies; examining policies to determine whether they meet population needs and account for the EPHFs needed to support the desired outcomes; aligning and integrating public health agendas in policy and planning; improving workforce policies by considering measures to build the public health specialist workforce, orientation of health workers with public health, and defining roles for workers involved in public health functions; recognizing the existing capacity related to community engagement and participation in health security plans; building intersectoral and cross-sectoral infrastructure supporting population health information and public health interventions; establishing financing mechanisms and leveraging existing assets to provide resources for the EPHFs; etc. (see Fig. 4). In principle, by enabling health system inputs and processes, resilient, high-quality, equitable and accessible health services oriented to population needs can be developed.

Fig. 4. Applying an essential public health functions lens in health systems strengthening

Source: original – made by health services resilience team, WHO
3.3 Value of the essential public health functions lens in health systems strengthening

This section describes some of the types of added value created by applying the EPHF lens to health systems strengthening, drawing on evidence and experience with EPHFs.

3.3.1 Advocacy for prioritizing public health

The development of public health is often accorded lower priority than clinical care, partially because the benefits of investing in EPHFs tend to be less visible in the short term, as well as harder to measure (41). However, the benefits are potentially greater than, and will reinforce the outcomes of, investment in programmes like disease treatment, rehabilitation and palliative care. There is also a political need in many countries to produce measurable results within a single budgetary and political cycle. The EPHF lens highlights specific public health services of health systems alongside clinical care. Advocacy for prioritizing public health is important, as systematic investment in public health is cost-effective in improving health systems functioning leading to sustained health, social and economic gains (34, 42, 43).

3.3.2 Recognition of public health in a holistic and integrated view

It is acknowledged that most, if not all, EPHFs are being implemented to a certain degree in countries. However, current ways of distributed set up and responsibility could create artificial separations between EPHFs and other aspects of health systems, which means that they are planned and operated in silos. Some EPHFs are often prioritized over others, for example, response over preparedness. This is also seen in the prescribed functions of NPHIs in many countries, where the role of many NPHIs (e.g. centres for disease control) still focuses on emergency management in preference to addressing wider determinants of health (44). The EPHF lens promotes an appropriate recognition of individual public health functions in health systems strengthening – highlighting, for example, proactive measures alongside reactive ones, fundamental health systems inputs alongside hazard surveillance and disease prevention, and equity alongside health promotion. The EPHF lens supports the orientation of investment towards the whole spectrum of necessary public health, rather than focusing on a subset of the wider public health remit.

3.3.3 Alignment of agendas and interventions for public health goals

The uncoordinated pursuit of multiple health goals and agendas has been recognized as creating fragmentation within health systems, perpetuating critical gaps in health system inputs as well as duplication of efforts (8, 9, 45). This is unsustainable when addressing population health needs and responding to acute public health emergencies (46, 47). The EPHFs cut across various health systems components and objectives for ensuring population health. The EPHF lens supports alignment and integration in health systems and health protection policy, planning, budgeting and implementation. Evidence has suggested that countries with policies that better align health security and UHC, integrating IHR core capacities within primary health care services, have been more effective at mitigating the impacts of the COVID-19 pandemic and are likely to be better equipped to recover (29, 45). The EPHF lens promotes synergies between these interlinked and interdependent functions, which could support integration between different programming areas in the health sector (e.g. UHC, primary health care, health security, disease-specific programmes) to plan, invest, operate and assess.
3.3.4 Improvement in multisectoral collaboration

The responsibility for many domains of health services and protection lies with allied sectors, as well as with ministries of health and NPHIs. However, fragmentation of agendas and efforts to ensure population health between and within different sectors impedes a systems approach to health systems strengthening, while countries continue to struggle with allocating limited resources to programmes specific to emergencies, disease, risk and the life course. The EPHFs cut across sectors; the EPHF lens supports consideration of joint public health action by health authorities and allied sectors. Experiences from WHO regional offices and country counterparts have indicated that the traditional EPHF assessment process facilitates intra- and intersectoral dialogue by bringing relevant actors together to discuss and rethink public health, although great challenges in timely and effectively translating assessment results to multisectoral operations were presented (48).

3.3.5 Recognition of public health services in service delivery

Public health and primary care share the common goal of a healthy population, and the primary care level can and often delivers many public health services. However, during the COVID-19 pandemic, while the primary care level has continued to function as the first contact point for most of the population, it has been bypassed or underutilized in the delivery of some public health services, such as specimen collection, early alerts, surveillance and community engagement (9, 49, 50). The EPHF lens promotes integrating public health services into primary care, for example, vaccination, rapid and broad population testing, disease screening, contact tracing, disease surveillance, health monitoring, advocating for healthy lifestyles, health communication, quarantine of potentially infected people, and redirecting patient flow (47, 51), including in the context of public health threats (52). This is seen in some countries; in the United States, the Essential Public Health Services (EPHS) framework is critical to encourage primary care facilities to make the transition to delivering population-level services to address the social determinants of health, alongside clinical service provision (53); in China, the EPHS framework defines a set of general welfare public health interventions led by the Government and provided by primary care facilities for all the residents of a precinct (54), which has increased UHC and health equity (55).

3.3.6 Recognition of public health workforce

The International Labour Organization’s International Standard Classification of Occupations does not identify any specific occupations as “public health workforce”; yet many occupations have important roles in delivering public health services, which need to be properly defined to better build public health capacities in health systems. The EPHF lens recognizes the need for generalist and specialist professionals, and also supports recognition of certain professionals who fulfil multiple purposes in public health, including contributing to population health, as part of a public health workforce. This is seen in some countries, where EPHFs help to identify workers throughout the system whose activities fall within the remit of public health services (56, 57), define the roles and competencies required (58, 59), and identify any gaps in the workforce when ensuring public health services in countries (60).

3.4 Key enablers for operationalizing the essential public health functions

Enablers for EPHFs presented in this section reflect existing evidence and experience of specific actions that can be flexibly adapted to national contexts to enable the operationalization of EPHFs.
3.4.1 Political commitment to public health agendas
Public health is inherently political. It is critical for countries to make long-term political commitments to strengthening EPHFs as a national health sector priority to promote, protect and maintain population health. This could involve developing or updating health legislation and policies to specify EPHFs in the national context and supporting focused investment so that each EPHF is recognized and strengthened to a sufficient degree. Political commitment for prioritizing public health by strengthening EPHFs is essential for all other enablers.

3.4.2 Institutional arrangements to lead and coordinate the essential public health functions
One way to show or engage political leadership and formalize political commitment is by establishing institutional arrangements to lead and coordinate the EPHFs. Countries should enhance national and subnational governance structures for stewardship of the EPHFs and ensure adequate and effective financing for institutional and operational capacities (e.g. empowering and resourcing ministries of health, NPHIs, regional and local public health authorities or allied public health structures) (44, 61, 62). One approach to enhancing the stewardship of public health taken by several ministries of health has involved strengthening and reorganizing their NPHIs to lead, coordinate, oversee and support the delivery of the EPHFs (63). IANPHI has developed a list of core NPHI functions and attributes based on the EPHFs to support countries in setting up their NPHIs, which include disease surveillance; disaster risk reduction; outbreak investigation and control; workforce development; health promotion; laboratory science; research; and health information analysis to inform policy.

3.4.3 Population needs assessment and risk profiling
National and regional particularities are an essential part of action that responds to local goals. The EPHFs are dependent on the context in which they are applied, such as national priorities and health system organization paradigms. Effective operationalization of the EPHFs should be underpinned by population health needs assessments and risk profiling, which support countries in contextualizing their list of EPHFs and orienting the health and social systems to meet population health needs efficiently. Population health needs assessment involves the systematic review of the health situation of a population, including health conditions, risk factors, demography and the identification of vulnerable populations, leading to the identification of priorities for multisectoral action and service delivery. Risk profiling involves the assessment and quantification of likely threats to a given population in the face of natural, deliberate and environmental hazards.

3.4.4 Multisectoral accountability for public health goals
The EPHFs are typically provided through joint and coordinated efforts by a range of actions, across the health sector and its allied sectors, in order to influence the wider determinants of health. Countries can establish a multisectoral accountability mechanism to accelerate progress towards the EPHFs, in which health authorities fulfil their stewardship role through their leadership in creating the environment (political, legislative, social, cultural, economic, etc.) to ensure population health (2), while other actors are also held accountable for assuming their assigned and agreed roles and fulfilling their responsibilities for public health goals. Lessons emerging from the COVID-19 pandemic show that the countries performing well initially to protect population health were those engaging the whole of society, holding the trust of the community, and having the agility to pull in resources from wider sectors (64, 65, 66). Enhancing multisectoral accountability can be achieved through synergies between policies, operations and assessments across sectors, as well as intersectoral and cross-sectoral infrastructure for public health (e.g. integrated surveillance systems), among other measures.
3.4.5 Assessment of provision of the essential public health functions

EPHF assessment is important for understanding gaps or overlaps in EPHF provision in a national context. Experiences from EPHF assessments led by WHO regional offices and country counterparts followed a similar process: key stakeholders in a country are engaged to apply an EPHF assessment tool in their own context; the findings of the assessment generate further recommendations and policy options for public health reforms that countries can consider. EPHF assessment can take different forms, such as integrating EPHF assessment with other health sector monitoring and evaluation processes or multisectoral reviews (e.g. monitoring and evaluation (M&E) for the primary health care operational framework, IHR (2005) M&E, and M&E for the national health sector).

3.4.6 Workforce to deliver the essential public health functions

The skills and competencies required to deliver the EPHFs are distributed across various health and non-core health service delivery occupations. While some core skills and capacities remain with public health specialists and practitioners, the delivery of the EPHFs requires inputs across multiple groups of specialists, including epidemiologists, statisticians, global health specialists, health policy-makers, occupational health specialists, community health workers, primary care physicians and social and behavioural scientists. It is critical to invest in the education, recruitment and retention of a fit-for-purpose, responsive and competent workforce (e.g. resourcing public health schools, integrating public health competencies in the training and supervision of all health workers, and professionalizing a specialized public health workforce). The forthcoming WHO Global competency and outcomes framework for UHC (67) is one example to guide countries in development of competency-based curricula for training health workers, with a pre-service training pathway that emphasizes their public health roles alongside clinical practice.
4. Stakeholders participation in advancing the EPHF agenda

The use of the EPHFs has a long history in developing national capacities for public health; however, there is no complete story that can be extrapolated for wider systematic application. Nevertheless, to utilize the full impact of the EPHFs in addressing diverse and complex 21st-century health challenges, there is a need for stakeholders to take strategic action in a coordinated manner and move from conceptualization to systematic operationalization. Based on existing knowledge and experiences, this section outlines key stakeholders and priority action.

4.1 National governments

Countries bear the prime responsibility for strengthening EPHFs and health systems foundations to promote individual and population health. As priority actions to strengthen EPHFs, national governments may consider the following actions:

- utilize their political leadership to strengthen the health authorities with the stewardship role over public health functions, using clear governance structures and the institutional set-up and defined roles of the health sector and allied sectors, in order to lead and coordinate intra-sectoral and cross-sectoral public health planning and integrated strategies;
- develop a national list of EPHFs in accordance with population health needs, existing gaps and nationally determined priorities;
- integrate the EPHFs into national health sector strategies and multisectoral strategies as a means to enhance multisectoral coordination for the promotion of population health; and
- review existing health sector policies, strategies and plans regarding their alignment with, duplication of and/or neglect of the EPHFs, in order better to understand the current situation of EPHF provision.

4.2 Global actors

Global actors for advancing EPHF work include agencies supporting countries in public health systems strengthening and capacity-building, for example, the three levels of WHO (see Box 9), IANPHI, WFPHA, development agencies and international donors. Global actors often have their own strengths in facilitating international cooperation, mobilizing international and national resources for health, streamlining funding, building partnerships and providing technical support. In the current state of experiences, global actors should:

- continuously build the evidence base and knowledge in support of advocating country investment in the EPHFs in health systems strengthening;
- explore paradigms of operationalizing EPHFs in specific national contexts, working together with individual countries;
- gather and share best practices for global learning and international cooperation; and
- develop and disseminate technical guidance on strengthening national and subnational institutional, operational and technical capacities for public health.
Box 9. WHO in advancing the EPHF agenda (WHA69.1)

As resolution WHA69.1 specifies, WHO needs to take a more central leading role in advancing the EPHF agenda, in support of countries and in collaboration with other global actors. Complex and varied health challenges have highlighted the need for WHO to support the strengthening of public health capacities of all Member States, with due regard to the maturity of their health systems. Responsibilities could include advocating strengthening the EPHFs as a cost-effective way to achieve health goals; facilitating international cooperation in research on the EPHFs; developing technical guidance and recommendations on application of the EPHFs; and fostering partnerships and mobilizing resources to strengthen the EPHFs in countries, at their request.

The WHO regional offices have recently taken concrete action to advance the EPHF agenda. In December 2020, the Pan American Health Organization renewed its EPHF framework for resilience, UHC and health security. The proposed EPHF conceptual model is expected to be integrated into the policy process for sustainable strengthening and transformation of health systems to improve public health and build resilient health systems to achieve UHC (68). The WHO Regional Office for the Eastern Mediterranean is in the process of updating its EPHF framework, making it more fit for purpose and more responsive to the current public health landscape in the Region and globally. The Regional Office also calls for investment in the EPHFs and common goods for health as the initial zero step to advance towards UHC, health security and health promotion in health system recovery from COVID-19 (69). WHO and the United States Agency for International Development share a joint vision of the need for an integrated approach to health systems strengthening, bringing EPHFs together with health security, health systems, primary health care, to enable health systems to adapt better to challenges and shocks; WHO and global partners together will need to help countries create the political commitment required to introduce an integrated approach incorporating the EPHFs (29).

5. Conclusion

Public health is not understood in the same way throughout the world. Advancing the agenda of operationalizing the EPHFs within primary-health-care-oriented health systems strengthening must be responsive to population needs and overall health and social contexts in whatever setting they are being applied (e.g. a subnational area, a country, a region, a country with an FCV context). It is critical to restate that the aim of this paper is to promote a common understanding of and facilitate discussion on what the EPHFs are, what applying the EPHFs in health systems strengthening could look like, and what changes the EPHFs can potentially bring to health systems strengthening, rather than pursuing a common global agenda in operationalizing the same set of public health functions in every country. There is no one-size-fits-all solution to addressing health systems challenges and meeting population health needs. As the initial step zero, there should be a continuing participatory dialogue on the conceptual and operational clarity of the EPHFs, built on exploratory practices, with the collective efforts of all key actors.

On the other hand, the world is grappling with the COVID-19 pandemic, which continues to have a profound health, social and economic impact. While countries are responding to and recovering from this pandemic, there is a brief opportunity for countries and non-State actors to rethink public health and public health functions. Fully exercised public health capacities that are aligned across all levels of the health and social system can be the strongest defence against the next public health threat and the guardian of health for all. While COVID-19 is the focus worldwide now, all the 21st-century public health issues (e.g. climate crisis, AMR, infectious disease outbreaks, noncommunicable diseases) that have been challenging health systems will continue to exist after this pandemic and continue to require strong public health governance, workforce, infrastructure, services and operational capacities to tackle problems and build resilience for healthier populations, UHC and health security.
References


21st-century health challenges – can the essential public health functions make a difference?


### Annex 1. WHO resolutions on the essential public health functions

<table>
<thead>
<tr>
<th>Year</th>
<th>Resolution</th>
<th>Urges Member States to</th>
<th>Requests the Director-General/Regional Director to</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Pan American Health Organization/World Health Organization CD42.R14 Essential public health functions (1)</td>
<td>• participate in a regional exercise, sponsored by the Pan American Health Organization, to measure performance with regard to the essential public health functions to permit an analysis of the state of public health in the Americas; • use performance measurement with regard to the essential public health functions to improve public health practice, develop the necessary infrastructure for this purpose, and strengthen the steering role of the health authority at all levels of the State.</td>
<td>• disseminate widely in the countries of the Region the conceptual and methodological documentation on the definition and measurement of the essential public health functions; • carry out, in close coordination with the national authorities of each country, an exercise in performance measurement with respect to the essential public health functions; • conduct a regional analysis of the state of public health in the Americas, based on a performance measurement exercise targeting the essential public health functions in each country; • promote the reorientation of public health education in the Region in line with the development of the essential public health functions; • incorporate the line of work on the essential public health functions into cooperation activities linked with sectoral reform and the strengthening of the steering role of the health authority.</td>
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<tr>
<td>2003</td>
<td>WHO Regional Office for the Western Pacific WPR/RC53.R7 Essential public health functions (2)</td>
<td>• evaluate and monitor the delivery of all essential public health functions; • strengthen their public health infrastructure wherever gaps and weaknesses are identified; • incorporate work on essential public health functions into sectoral reform; • monitor and evaluate the impact of policies of other sectors on public health and to respond in an appropriate and timely manner in order to ensure protection of public health.</td>
<td>• pursue further consultation and discussions with Member States and other relevant parties on the proposed essential public health functions; • develop guidelines, tools and indicators based on essential public health functions that will assist Member States to evaluate, monitor, and strengthen their public health infrastructures and responsibilities; • promote the reorientation of health professionals, managers, policy-makers and government institutions in the Region towards public health, in line with the development of essential public health functions, and the strengthening of the central role of the ministry of health;</td>
</tr>
<tr>
<td>2011</td>
<td>WHO Regional Committee for Europe EUR/RC61/R2 Strengthening public health capacities and services in Europe: a framework for action (3)</td>
<td>• collaborate in the development of a European action plan, led by the WHO Regional Office for Europe, for strengthening of public health capacities and services.</td>
<td>• assess public health services and capacities and gaps in Member States with the WHO web-based assessment tool and to report back to them and the Regional Committee with conclusions and recommendations; • based on the outcomes of the above-mentioned assessments, develop a European action plan for strengthening public health capacities and services in Europe, as part of the approach of strengthening health systems, through a participatory process involving Member States and partners;</td>
</tr>
</tbody>
</table>
2016 World Health Assembly
WHA69.1 Strengthening essential public health functions in support of the achievement of UHC (4)

- enhance institutional and operational capacity and infrastructure for public health; including scientific and operational competence of public health institutions, as appropriate to national circumstances, as well as a cross-sectoral infrastructure for delivering essential public health functions, including the capacity to tackle existing and emerging health threats and risks;
- invest in the education, recruitment and retention of a fit-for-purpose and responsive public health workforce that is effectively and equitably deployed to contribute to effective and efficient delivery of essential public health functions, based on population needs;
- ensure coordination, collaboration, communication and synergies across sectors, programmes and, as appropriate, other relevant stakeholders, with a view to improving health, protecting people from the financial risk of ill health, and promoting a comprehensive approach to public health in support of the achievement of UHC throughout the life cycle;
- foster approaches that systematically tackle social, environmental and economic determinants of health and health inequity, taking into account gender impacts;
- monitor, evaluate, analyse and improve health outcomes – including through the establishment of comprehensive and effective civil registration and vital statistics systems and effective delivery of essential public health functions, and equitable access to quality health care services – and the level of financial risk protection.
- develop and disseminate technical guidance on the application of essential public health functions, taking into account WHO regional definitions, in the strengthening of health systems and for the achievement of UHC;
- facilitate international cooperation and to continue and enhance support to Member States, upon request, in their efforts to build the necessary institutional, administrative and scientific capacity, providing technical support in relation to essential public health functions, for health systems strengthening, including to prevent, detect, assess and respond to public health events, and for integrated and multisectoral approaches towards UHC; and to develop facilitating tools in this regard;
- take the leading role, facilitate international cooperation and foster coordination in global health at all levels, particularly in relation to health systems strengthening, including essential public health functions, supportive of the achievement of the health-related Sustainable Development Goals and targets;

References
Annex 2. Health care and public health services

Health care is often individual based, while public health services are often population based. Individual health care refers to efforts to maintain and restore the health and wellbeing of individuals. Population health services refer to efforts with the purpose of preventing disease and protecting and promoting health and wellbeing of a defined population as a whole. Population health services and individual health care must work in tandem; they complement each other. There needs to be proportionate attention and investments in both.

Population health services (e.g., prevention, promotion, protection) reduce burden and dependency on hospital care and alleviate the pressure on a health system, e.g. in the context of a limited health workforce. Population health services not only protect a population, but also individuals, e.g. high vaccination coverage reduces disease transmission and the likelihood of individuals getting infected. Many population health services rely on actions at the individual level and medical/care measures, e.g. mass vaccination programmes require individuals to get vaccination in a healthcare setting; health education needs health care workers to communicate with individuals for health promotive behaviours; use of pre-exposure prophylaxis to control HIV transmission in a certain population. Investment in population health services can be more cost-effective yet it should not compromise investment in health care.
Annex 3. Commonalities and differences in lists of essential public health functions by different authorities

The existing EPHF lists of WHO regions, United States Centers for Disease Control and Prevention, World Bank, European Commission and countries have some common elements and some major differences that reflect their respective understanding of public health and national priorities. This annex has been further developed based on the WHO publication Essential public health functions, health systems and health security: developing conceptual clarity and a WHO roadmap for action.

The elements of the EPHFs can be generally divided into two categories: cross-cutting functions, based roughly on the health systems building blocks approach, including health governance, health systems financing, human resources, research, social participation and health communication, and health information systems; and service-based functions, comprising the traditional public health services provided by modern health systems (health protection, health promotion, disease prevention, etc.). EPHF lists usually contain a mix of cross-cutting and service-based functions.

Table A3.1 provides a summary of common and different functions in EPHF lists. Further action can be taken (e.g. consultation with public health experts from different countries; international comparison studies) to explore or verify which of these functions could constitute minimum requirements for countries to adopt or adapt in order to promote, protect and restore population health.

Table A3.1. A summary of functions that are common in EPHF lists and those that appear only in a minority of lists

<table>
<thead>
<tr>
<th>Common functions in most of the EPHF lists (Green list)</th>
<th>Functions that appear only in a minority of EPHF lists (“Yellow List”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Health monitoring and analysis</td>
<td>- Ensuring access to and rational use of quality, safe and effective essential medicines and other health technologies</td>
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<tr>
<td>- Surveillance</td>
<td>- Addressing social determinants of health</td>
</tr>
<tr>
<td>- Emergency preparedness and response</td>
<td>- Health education</td>
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<tr>
<td>- Social participation</td>
<td>- Health governance</td>
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<tr>
<td>- Policy development and planning</td>
<td>- Health information</td>
</tr>
<tr>
<td>- Public health regulations and legislation</td>
<td>- Establishment of health records</td>
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<tr>
<td>- Health protection</td>
<td>- Policy analysis/evaluation</td>
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<tr>
<td>- Financing</td>
<td>- Reduction of the impact of emergencies and disasters on health</td>
</tr>
<tr>
<td>- Human resources</td>
<td>- Health services/systems management</td>
</tr>
<tr>
<td>- Health services (quality, accessibility, equity)</td>
<td>- Coordination of the regionalization and decentralization process in health</td>
</tr>
<tr>
<td>- Research</td>
<td>- Linking people to personal health services</td>
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<tr>
<td>- Health promotion</td>
<td>- Protection of vulnerable populations</td>
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<tr>
<td>- Disease prevention</td>
<td>- Building partnership</td>
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<td></td>
<td>- Occupational health</td>
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<td></td>
<td>- Environmental health</td>
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<tr>
<td></td>
<td>- Injury</td>
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<td></td>
<td>- Disability</td>
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<td></td>
<td>- Communication</td>
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<tr>
<td></td>
<td>- Empowerment</td>
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<tr>
<td></td>
<td>- Vaccination</td>
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<tr>
<td></td>
<td>- Life-course-specific programmes</td>
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<tr>
<td></td>
<td>- Disease-specific programmes (e.g. hypertension, mental health, tuberculosis)</td>
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<td></td>
<td>- Nutrition</td>
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<td></td>
<td>- Prevention and management of narcotics and substance abuse</td>
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<td></td>
<td>- Referral and supporting services</td>
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<tr>
<td></td>
<td>- Managing traditional medicine</td>
</tr>
</tbody>
</table>
Common functions covered by most of the EPHF lists include policy and planning, emergency preparedness, health protection/legislation, health promotion, social participation, health workforce and research. For WHO’s regional lists, all regional offices all put monitoring of health situation as the first function and surveillance/preparedness for emergencies as the second function, which suggests consensus on these two functions being fundamental. Nevertheless, the way each EPHF list articulates or sorts these functions often differs. For example, at the Regional Office for the Western Pacific, EPHFs, health promotion and social participation are organized into one function “Health promotion, social participation and empowerment”, while some other EPHF lists put health promotion and social participation separately in two or more functions; the Regional Office for the Eastern Mediterranean links policies and research closely and formulates one function “Advancing public health research to inform and influence policy and practice”, while other lists include research and policy in different functions; regarding public health emergencies, the Pan American Health Organization/WHO Regional Office for the Americas and the Regional Office for the Western Pacific framed their approach around “surveillance“, the Regional Office for the Eastern Mediterranean framed around “preparedness“ and “response“, and the Regional Office for Europe framed around “monitoring“ and “response“. Other functions widely presented but not explicitly framed in various EPHF lists include ensuring health services, financing, disease prevention and health equity.

Another important observation is that a wide variety of specific-service-based functions are presented in different lists, especially in EPHF lists prepared by countries. For example, China’s list includes managing traditional Chinese medicine as a function; Indonesia’s list includes preventing and managing narcotics and substance abuse; and Australia’s list includes improving the health of Aboriginal and Torres Strait Islanders. Including these functions in country lists of EPHFs reflects the fact that the EPHFs are highly dependent on, and should be adapted to, national purposes and priorities.

For WHO regional office EPHF lists, the differences could be attributable to regional health priorities, views of the positioning of public health functions and health systems, the methods and conceptual frameworks used to develop the list, and the stewardship of EPHF-related work in the office’s organizational arrangements and structure.
### Annex 4. A comprehensive list of public health functions and description of the functions

<table>
<thead>
<tr>
<th>Essential public health function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring and evaluating population health status, health service utilization and surveillance of risk factors and threats to health</td>
<td>This function refers to the routine, systematic or ad hoc collection of data on health and well-being, diseases, risk factors, health threats and health service access and utilization. This function can involve various monitoring and surveillance activities and supporting systems, e.g. health information systems, surveillance systems, environmental monitoring, monitoring of the human-animal interface. This function also includes population health needs assessment and threat/risk profiling.</td>
</tr>
<tr>
<td>Public health emergency management</td>
<td>This function refers to the activities intended for the prevention of, preparation for, early identification of, rapid response to and recovery from public health emergencies of various origins. Prevention and preparatory action to promote effective response is key. This function can involve various emergency management activities, e.g. threat/risk profiling, control of infectious diseases (including outbreak response), contact tracing, case management.</td>
</tr>
<tr>
<td>Assuring effective public health governance, regulation and legislation</td>
<td>This function refers to building and maintaining a strong operational infrastructure for public health that includes effective health governance, regulation and public health legislation. This can involve evidence-based policy development; political commitment to principles of equity, accountability and participation; institutional capacity development to formulate legislation and regulations; etc.</td>
</tr>
<tr>
<td>Supporting efficient and effective health systems and multisectoral planning, financing and management for population health</td>
<td>This function involves planning, financing, assessing and managing health systems. This can involve the development, financing, implementation and evaluation of people-centred models of interventions that focus on prevention and equitable access to and rationale use of health services; etc.</td>
</tr>
<tr>
<td>Protecting populations against health threats, including environment and occupational hazards, food safety hazards, chemical and radiation hazards</td>
<td>This function involves health protection from various natural, human-induced and environmental hazards, which may or may not evolve as public health emergencies. It can involve the monitoring and control of health threats including environmental threats (including those from climate variability and change), occupational hazards, food safety and other threats. This function also involves legislation and regulations for the protection of workers, patients, consumers and the environment, as well as capacity-building for regulation and enforcement. This function crosses sectoral boundaries to include environmental health, occupational health, food safety, road traffic safety, etc.</td>
</tr>
<tr>
<td>Promoting prevention and early detection of diseases including noncommunicable and communicable diseases</td>
<td>This function covers disease prevention. It can involve disease prevention activities, such as vaccination and screening; it also includes legislation and policies that reduce exposure to risk factors or promote factors that prevent diseases.</td>
</tr>
<tr>
<td>Promoting health and well-being and action to address the wider determinants of health and inequity</td>
<td>This function refers to efforts intended to address the wider determinants of health and health inequities. This can involve legislation and regulations that promote health-enabling settings such as schools, workplaces and health services; involves legislation and regulations that promote healthy behaviours including healthy eating legislation and regulation, etc.; includes multisectoral collaboration including housing, planning, education, health care, social inclusion/protection, etc.; and often involves collaboration with private (not-for-profit) organizations that provide support services for specific vulnerable populations, including people subject to domestic violence and vulnerable migrants.</td>
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<tr>
<td>Function</td>
<td>Description</td>
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<tr>
<td>Ensuring adequate quantity and quality of the public health workforce</td>
<td>This function refers to efforts to ensure a competent public health workforce in adequate numbers for promoting and protecting population health. This can involve human resource mapping to identify the number and skill mix of professionals required to deliver public health services, improved education and training of workers for public health, ensuring the sustainability of public health through appropriate financing and assurance of a sufficient and competent workforce, etc.</td>
</tr>
<tr>
<td>Ensuring community engagement, participation and social mobilization for health and well-being</td>
<td>This function covers health communication for public health, community participation and social mobilization. This can involve the development and promotion of mechanisms that create and enhance health communication and community involvement in health systems generally, in relation to individual decision-making for health and the promotion of societal change that enhances and promotes health and well-being. This promotes the inclusion of the whole of society as equal partners in health system development in order to promote people-centred services and care and enable collective ownership of and responsibility for health systems.</td>
</tr>
<tr>
<td>Assuring quality of and access to health services</td>
<td>This function refers to the development and application of regulatory mechanisms and other interventions to ensure access to and the quality of health services delivered.</td>
</tr>
<tr>
<td>Advancing public health research</td>
<td>This function refers to advancing practice and translation of public health research to promote innovation for protection and promotion of population health.</td>
</tr>
<tr>
<td>Ensuring equitable access to and rational use of essential medicines and other health technologies</td>
<td>This function refers to action to ensure equitable access to and rational use of quality, safe and effective essential medicines and other health technologies (e.g. vaccines, medical equipment, artificial intelligence in health). This involves monitoring of health service use and implementation of strategies to promote equitable access to and rational use of health and social services, including medicine and other technologies; monitoring of the safety and efficacy of health technologies and their introduction into clinical practice; and monitoring the use of medicine and technologies and the development and implementation of policies to promote rational and equitable use.</td>
</tr>
</tbody>
</table>
Annex 5. Overlapping areas between the common list of essential public health functions and other key global health concepts

This annex lists the common features identified between the common list of public health functions and other key concepts – the health systems building blocks, the levers of primary health care operational framework, the core capacities required under IHR (2005), and categories in the common goods for health.

<table>
<thead>
<tr>
<th>Health systems building blocks</th>
<th>Amalgamated list of common and important public health functions</th>
<th>PHC operational framework levers</th>
<th>Core capacities for IHR (2005) implementation</th>
<th>Common goods for health categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership and governance</td>
<td>Assuring effective public health governance, regulation, and legislation</td>
<td>Political commitment and leadership</td>
<td>Coordination and national focal point communications</td>
<td>Policy and coordination</td>
</tr>
<tr>
<td>Health system financing</td>
<td>Supporting efficient and effective health systems and multisectoral planning, financing, and management for population health</td>
<td>Governance and policy framework</td>
<td>Linking public health and security authorities</td>
<td>Regulations and legislation</td>
</tr>
<tr>
<td>Health workforce</td>
<td>Ensuring adequate quantity and quality of public health workforce</td>
<td>Adequate funding and equitable allocation of resources</td>
<td>Legislation and financing</td>
<td></td>
</tr>
<tr>
<td>Health information system</td>
<td>Monitoring and evaluating population health status, health service utilization and surveillance of risk factors and threats to health</td>
<td>Primary health care workforce</td>
<td>Human resources</td>
<td></td>
</tr>
<tr>
<td>Health services delivery</td>
<td>Public health emergency management</td>
<td>Monitoring and evaluation</td>
<td>Laboratory</td>
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<tr>
<td>Access to essential medical products and technologies</td>
<td>Protecting populations against health threats, including environmental and occupational hazards, food safety hazards, chemical and radiation hazards</td>
<td>Digital technologies</td>
<td>Risk communication</td>
<td>Taxes and subsidies</td>
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<tr>
<td></td>
<td>Ensuring community engagement, participation and social mobilization for health and well-being</td>
<td>Engagement of community and other stakeholders to jointly define problems and solutions and prioritize actions</td>
<td>Points of entry</td>
<td>Information, analysis and communication</td>
</tr>
<tr>
<td></td>
<td>Promoting health and well-being and actions to address the wider determinants of health and inequity</td>
<td>Models of care that prioritize primary care and public health functions</td>
<td>Immunization</td>
<td>Population services</td>
</tr>
<tr>
<td></td>
<td>Assuring quality of and access to health services</td>
<td>Ensuring the delivery of high-quality and safe health care services</td>
<td>Emergency preparedness</td>
<td></td>
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<td></td>
<td>Ensuring equitable access to and rational use of essential medicines and other health technologies</td>
<td>Purchasing and payment systems</td>
<td>Emergency response operations</td>
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<tr>
<td></td>
<td>Promoting prevention and early detection of diseases, including noncommunicable and communicable diseases</td>
<td>Physical infrastructure and appropriate medicines, products and technologies</td>
<td>Chemical events and radiation emergencies</td>
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<tr>
<td></td>
<td>Advancing public health research</td>
<td>Primary-health-care oriented research</td>
<td>Food safety</td>
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<td>Biosafety and biosecurity</td>
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<td>Medical countermeasures and personnel deployment</td>
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<td>Antimicrobial resistance</td>
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<td>Zoonotic diseases</td>
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</table>
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