Essential public health functions in Ireland

Perspectives to strengthen public health capacities and stewardship
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Foreword

The coronavirus disease 2019 (COVID-19) pandemic has highlighted the critical gaps in public health capacities and services both in Ireland and globally. Ireland has a strong history of investing in the health of its population and, through Sláintecare and Healthy Ireland, has made strides towards a strengthened health system. However, COVID-19 has highlighted the need to ensure health systems resilience, in particular with regard to the challenges that lie ahead, including an ageing population, changing disease profiles, increasing socioeconomic inequity, rising rates of antimicrobial resistance, climate change and the threat of further pandemics.

This publication represents an important milestone on Ireland’s journey towards reforming and strengthening the delivery of public health. With this work, Ireland has placed itself at the forefront of action to ensure health system resilience through strengthening the essential public health functions. This approach is the result of a timely collaboration between the Department of Health, Ireland and the World Health Organization and we are delighted to continue to deepen our joint work to improve and protect the health and well-being of the people of Ireland.

Many of the lessons identified during COVID-19 are not new and reflect the lessons identified through experiences with other public health emergencies. These lessons include the need to strengthen the stewardship and capacities of public health, while ensuring cooperation for health within and beyond national health systems, government and society at large. COVID-19 presented the global community with a brief window of opportunity to do things differently to ensure we are more prepared to meet the next public health challenge.

Now is the time to act and implement the change required to meet current national and international public health challenges and lay the foundation of resilience to deal with the challenges that lie ahead. We must work together to ensure that the findings and recommendations in this publication, and other important initiatives on strengthening and reforming the delivery of public health functions, will serve as the basis for policy and decision-making, resource allocation and multi-sectoral actions going forward. As we have observed from COVID-19, the cost of inaction – on lives, livelihoods, society, the economy and our future – has been too high and the world cannot afford to pay this price again.

We thank everyone involved in the development of this publication and look forward to seeing the fruits of this work emerge over the coming months and years.

Tony Holohan
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Department of Health
Ireland

Zsuzsanna Jakab
Deputy Director-General
World Health Organization
About this report

This report was developed through a collaboration between the Health Services Resilience Team, WHO headquarters and the Department of Health, Ireland. The aim of the work is to support the Department of Health by conducting a joint national mapping of the essential public health functions (EPHFs) in Ireland in relation to policy, infrastructure, service provision, coordination and integration. This mapping includes identifying gaps and opportunities for improvement with reference to experience with coronavirus disease 2019 (COVID-19) and offers perspectives to promote public health through improved stewardship and operationalization of the EPHFs.

This work was a key input for the Public Health Expert Advisory Group, which was established by the Minister of Health and the Minister of State with responsibility for public health, well-being and the national drugs strategy in January 2022. The Group is tasked with making recommendations to strengthen the delivery of public health in Ireland. The Department of Health defined the scope of the report and identified the key questions to be addressed within the collaboration while the Health Services Resilience Team provided technical expertise, developed the approach, undertook the analyses and proposed policy options. The Health Services Resilience Team presented the findings of this report to the Public Health Reform Expert Advisory Group at a workshop organized by the Department of Health in Dublin, Ireland in May 2022. The aim of the workshop was to further inform and develop recommendations for public health reforms.
Acknowledgements

This report was the result of a collaboration between the Health Services Resilience Team, World Health Organization (WHO) and the Department of Health, Ireland.

The report was produced by Geraldine McDarby, Yu Zhang and Saqif Mustafa from the Integrated Health Services Department, WHO headquarters, Geneva, Switzerland, with valuable input from Redda Seifeldin and under the overall supervision of Sohel Saikat.

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Special appreciation goes to Zsuzsanna Jakab (Deputy Director-General, WHO, Geneva, Switzerland) and Tony Holohan (Chief Medical Officer, Dublin, Ireland) for their overall leadership and support. Special thanks also go to WHO Deputy Director-General’s Office; Executive Director’s Office for Universal Health Coverage and Life Course; and the management team of the Integrated Health Services Department.
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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<tbody>
<tr>
<td>COVID-19</td>
<td>coronavirus disease 2019</td>
</tr>
<tr>
<td>EPHFs</td>
<td>essential public health functions</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>GP</td>
<td>general practitioner</td>
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<tr>
<td>HSE</td>
<td>Health Service Executive, Ireland</td>
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<tr>
<td>HSP</td>
<td>Health Service Plan</td>
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<tr>
<td>ICT</td>
<td>information and communications technology</td>
</tr>
<tr>
<td>IHR 2005</td>
<td>International Health Regulations, 2005</td>
</tr>
<tr>
<td>MERS</td>
<td>Middle East respiratory syndrome</td>
</tr>
<tr>
<td>NPHET</td>
<td>National Public Health Emergency Team</td>
</tr>
<tr>
<td>NSP</td>
<td>National Service Plan</td>
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<tr>
<td>PHC</td>
<td>primary health care</td>
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<tr>
<td>SARS</td>
<td>severe acute respiratory syndrome</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Executive summary

Coronavirus disease 2019 (COVID-19) has uncovered a lack of public health capacities, undermining health system resilience worldwide. Globally, the economic costs are in the trillions, with Ireland estimated to have spent in excess of 25 billion euro in direct costs, or more than 12.2% of the gross national income in 2021 alone. These costs are in addition to the far-reaching social impacts including increasing inequity and poverty and a cost of living crisis. Modern health systems face a number of complex stressors—changing demographics, population migration and displacement, rising antimicrobial resistance and climate change among others—many of which increase the potential for further public health emergencies. As such, the importance of health system resilience as a means of protecting population health and ensuring sustainable economic and social development is clear. The essential public health functions (EPHFs) are recognized as a key strategy to build health system resilience by reducing health system fragmentation, orienting health systems towards population needs and health equity, supporting intersectoral action for health and addressing complex public health problems in a cost-effective way (Box E1). The median of return on investment for public health interventions in high-income countries is estimated to be 14.3 euro for every 1 euro spent. Despite this, in national planning and budgeting within the European Union (EU), curative and rehabilitative services incur more than 50% of healthcare expenditure while expenditure for preventive care averages less than 3%. This relative underinvestment in public health generates billions of euros in additional costs to health services and the wider economy.

Box E1

Overview of the essential public health functions

The essential public health functions (EPHFs) are grounded in the approach to public health which seeks to protect health against hazards, prevent disease and promote population health and well-being through universal access to health services that are based on population health needs, guided by community engagement and participation, and supported by multisectoral action for health and interventions targeting the wider determinants of health. The EPHFs advocate for proportionate investment in public health and provide an integrated approach to health system strengthening in support of resilience for universal health coverage, health security and other related Sustainable Development Goals.

Before the COVID-19 pandemic, Ireland’s health system was under considerable pressure due to weaknesses in the acute health care sector, primary health care (PHC) infrastructure and public health capacities. Despite an unprecedented increase in health-sector spending during the pandemic, the system remains vulnerable due to these pre-existing gaps.

As Ireland looks to recovery from the COVID-19 pandemic, the need to strengthen public health capacities in support of health system resilience has been identified as a political priority. The aim of this report is to present an overview of the current state of the EPHFs within health and allied sectors and services in Ireland. The work is informed by current and future health system stressors and lessons emerging from international experience with COVID-19 in order to inform national policy for building health system resilience.

Current state of the EPHFs in Ireland

It is clear from an examination of the current Irish context in terms of population and health system characteristics that challenging times lie ahead for Ireland. The population in Ireland is growing, and ageing, and a significant proportion (22.5%) were reportedly living in socioeconomically disadvantaged conditions before COVID-19, with COVID-19 further exacerbating pre-existing inequity. Ireland has high rates of many chronic diseases and multimorbidity is on the rise. A significant proportion of deaths (40%) are attributable to behavioural risk factors including smoking, diet, alcohol consumption and physical inactivity. Before the pandemic, the Irish health system was under considerable pressure with long waiting times for inpatient care, diagnostics and many outpatient services. Demands for primary care are increasing on the back of a retiring workforce, and public health services have been under-resourced and underutilized.

To inform this work, 10 lessons emerging from international experience with COVID-19 with specific reference to country-level delivery of the EPHFs were identified and reviewed within the Irish context.
1. Health system resilience is a key enabler of effective emergency response

Effective emergency response requires a resilient health system that can adapt to multiple challenges, whether they be rising rates of noncommunicable diseases or an emerging infectious disease threat such as the COVID-19 pandemic so that disruptions to essential services are minimized. This lesson was identified after previous public health emergencies, but the scale of disruptions seen globally with COVID-19, demonstrate that it had not effectively translated into health system planning and implementation. Weaknesses in Ireland’s health system in the acute care hospital sector, PHC infrastructure and public health capacities undermined the resilience of the health system. Substantial ad hoc investment was required to address these underlying issues in parallel with the investment required to support response efforts.

2. Most countries were unable to effectively deliver the EPHFs due to a long-standing lack of focus on and investment in public health capacities

Globally, there is a long-standing lack of focus and investment in public health capacities with investment traditionally skewed towards the acute care hospital sector. This imbalance fails to make use of the benefits of investment in preventative and health promotive interventions including lessening demand for acute care services and a reduction in health inequity. Successive reviews from 1999 up until the most recent Crowe Horwath review have recognized that public health in Ireland has not been sufficiently resourced to deliver on its defined remit. In line with the global situation, investments in health remain skewed towards the acute care sector.

3. Lessons learned from previous public health events are key to building health system resilience

While global comparison of country performance with respect to COVID-19 presents difficulties, some countries have managed to keep the number of deaths low by fast-tracking whole-of-government approaches and building on lessons from past emergencies. In the Irish context, resources to support the systematic capture and sharing of lessons was limited. Where lessons have been identified, for example, after the H1N1 influenza pandemic in 2009 or within successive reviews of the public health services, implementation has been limited. It is likely that if these learnings and recommendations, including key recommendations of the Sláintecare report, had been implemented in a timely manner, they would have enabled a more effective and less costly pandemic response while supporting the maintenance of essential services.

4. Public health leadership and governance are fundamental to facilitate an effective, timely and coordinated national response

The unprecedented nature of COVID-19 coupled with a widespread lack of health system resilience demonstrated the importance of an intersectoral response to health protection and set the example of what constitutes whole-of-government and whole-of-society approaches. The importance of effective public health governance was acknowledged as key to enable an efficient and effective response at an operational level. Ireland delivered a whole-of-government response coordinated at the highest level and supported by existing mechanisms, including the National Public Health Emergency Team (NPHET) and existing emergency structures as well as new structures such as the Special Committee on COVID-19 Response chaired by the Taoiseach. However, at an operational level, clarity on roles, responsibilities and relationships and standardization in roles and approaches are lacking. Supporting legislation is often decades old, which affects the coordination and delivery of essential services.

5. Many countries had weak data and information capacities on health status, and health service and surveillance systems

Data and information systems are essential to allow rapid identification of events, enable decision-making and evaluate policy and response strategies. Despite this need, many countries lacked access to high-quality, timely data on health status including on high-risk populations, and health system
utilization and outcomes. Interoperability of data at the local, national and regional levels was also underdeveloped. Analytical capacities, including in modelling, and ability to use of big data and artificial intelligence, were also lacking. Ireland has managed to deliver high-quality and integrated data to support decision-making, but this has been in spite of, rather than enabled by, existing information infrastructure and capacity. This effort has been supported by the procurement of new systems, the expansion and development of new partnerships, and the agility and willingness of the workforce to adapt.

6. **A comprehensive and effective public health response requires effective communication**

Effective pandemic response relies on effective communication with the public as well as with other relevant stakeholders to build trust, support compliance with control measures and even counteract the spread of misinformation. While the local public health voice needs to be further developed, nonetheless, strong national communication was a key strength of the Irish response; operational updates from the Health Service Executive, Ireland (HSE) were complemented by briefings from the Department of Health and messaging was targeted and tested, and its effectiveness monitored.

7. **Public health science, knowledge, research and innovations are fundamental to delivering many public health functions**

The pandemic has heightened the value of public health knowledge, research and evidence and the need to develop an operational public health research resource. Countries that performed well during COVID-19 were able to quickly incorporate scientific evidence into decision-making processes and policy at all levels. They were also able integrate innovation from technology, for example, in support of remote consultations or contact tracing as well as innovations in service delivery. Ireland’s pandemic response has been evidence-driven and supported by innovation. This was achieved by expanding existing national capacity and infrastructure and strengthening international collaborative platforms for information-sharing. In addition, innovation was also rapidly embraced during COVID-19.

8. **Defining and developing the public health workforce and core competencies for public health expertise are essential to build and sustain health system resilience**

The wider public health workforce is emerging from experience with COVID-19 as a key enabler to build and sustain health system resilience. Ireland employed a number of innovative strategies to increase the health workforce during COVID-19. However, the historic skew towards the acute care sector meant deficiencies existed in community and primary care as well as public health. Within the core public health workforce, the focus has been on medical staff, with a failure to identify the expertise and skills required to deliver the EPHFs in all contexts and to recognize and develop the wider public health workforce.

9. **Effective pandemic response requires whole-of-government and whole-of-society planning and actions across health system functions and levels and across sectors and society**

Effective emergency response requires whole-of-government, whole-of-society planning and actions. Countries that did well in their COVID-19 response were those that aligned multisectoral public health actions with public outreach and socioeconomic support. Ireland did this, delivering a whole-of-government response by creating new infrastructures where needed and utilizing existing structures where appropriate.

10. **Community engagement was of paramount importance in fighting COVID-19**

COVID-19 has demonstrated the value of community-led responses and local engagement. In many respects, Ireland has had a whole-of-society response to COVID-19 with: high levels of community
engagement in adherence to public health guidance including vaccination; mobilization of individuals, communities and networks to support response efforts; and compliance with public health and social measures.

EPHF delivery in the Irish context

The following are the key high-level findings for delivery of the EPHFs in Ireland.

1. There is a strong focus on acute health care services and service development with limited evidence of a proportionate focus and investment in strengthening population health services. This is in part attributable to lack of updated legislative and institutional arrangements for the delivery of public health functions and services at national and subnational levels.

2. The evidence indicates a siloed approach to the delivery of the EPHFs in terms of strategy, planning, financing, implementation, and monitoring and evaluation mechanisms. The focus is on vertical delivery structures with limited consideration given to wider or cross-cutting health system strengthening or identifying opportunities for synergies across programmes and inputs, such as health infrastructure, workforce and information systems.

3. No overarching strategy, policy or governance structure exists that coordinates the planning and delivery of the EPHFs across the system to support alignment of resources, workforce, initiatives, activities and accountability mechanisms. This situation can contribute to the diffusion of the EPHFs across the system and lead to duplication, gaps, inefficient use of resources and limited visibility and positioning of public health within and outside the health sector.

4. Strong, emergency-focused, intersectoral mechanisms exist at the highest level of government as do mechanisms that support intersectoral and international collaboration and information-sharing. However, at the operational level a lead agency mandated and resourced to steer emergency preparedness and response and coordinate maintenance of essential health services is lacking.

5. A legislative basis is in place for many of the threats defined within EPHF5 (health protection) and EPHF10 (quality and access). However, evidence of proportionate and public health-focused legislation to support the delivery and strengthening of the EPHFs is limited. What legislation is in place: applies to the control of infectious diseases and is not specific to all-hazards emergency response; lacks clarity on mandates, roles and responsibilities; contains critical gaps; and has not been updated for some time despite recognition of significant inadequacies. Evidence of legislation supporting other EPHFs in relation to important public health challenges and stressors is limited.

6. The need for whole-of-society, whole-of-government approaches and health in all policies is recognized and referred to and evidence shows the intent to integrate and align different aspects of the EPHFs. However, implementation of whole-of-system approaches appears limited, and the adoption of an intersectoral approach to public health and the EPHFs is ad hoc. Improvements have been noted with the COVID-19 response.

7. Evidence exists of senior public health medical input at most administrative or operational levels within the health sector1 although input at the most senior levels is absent, i.e. the lack of recognition of public health leadership at the highest levels of the HSE including the HSE Board and the executive management team.

8. The scope of public health activities, as defined within national strategies and plans, is not supported by legislation, governance, infrastructure or resources beyond those for health protection. Regional input on health service improvement and health improvement is ad hoc and varies by region. In addition, regional departments are not included within the Healthy Ireland delivery structures and the National Service Plan (NSP) outlines resources primarily for health protection functions only.

9. The health information system and its infrastructure have significant operational limitations, including the absence of a case management system and lack of interoperability of health and health service data across sites and settings, and between the health and animal sectors, the environmental and agricultural sectors and other sectors, despite a considerable amount of data generation and analysis within individual areas.

10. Population health needs assessment do not appear to be routinely conducted or utilized to drive public health planning and prioritization at the national level. Some regional population health needs assessments appear to have been done with non-standardized approaches that are often not aligned with national priorities.

Despite various stressors and significant ongoing challenges, the Irish health system has been performing comparatively well in terms of population satisfaction, health outcomes such as life expectancy, and in

1 National level directorates, units and programmes with specialist public health input include Quality and Patient Safety, the National Immunization Office, the National Cancer Control Programme, the Health Intelligence Unit, the Health Protection Surveillance Centre, Test and Trace, Clinical Design and Innovation.
the context of COVID-19. In Box E2, key strengths that can be leveraged and further developed in the context of recovery following COVID-19 towards building health systems resilience are outlined.

**Box E2**

**Strengths and opportunities in the current delivery of the EPHFs in Ireland**

1. Considerable capacity exists within health and allied sectors to deliver the EPHFs. While delivery is generally ad hoc and informal, there is evidence of increased integration and coordination during COVID-19 that could be sustained.

2. The high level of existing public health medical expertise can be further recognized and utilized to support the delivery of the EPHFs to build health system resilience.

3. The public health workforce has demonstrated resourcefulness, agility and adaptability, which has contributed to health system resilience. This workforce can be recognized, supported and developed to better respond to ongoing and future stressors.

4. The strong evidence generation, synthesis and capacity developed during the COVID-19 pandemic can be further supported, building on existing national and international collaborative arrangements and developing new opportunities in support of a strong operational resource for public health research.

5. Structures mobilized during COVID-19 can be institutionalized through political will and sustained operationalization to ensure a whole-system approach to health beyond the emergency context to meet routine and future health system challenges and stressors.

6. Existing health information systems can be strengthened by incorporating capacities for public health intelligence.

**Areas for improvement to optimize EPHF delivery in the Irish context**

Operationalization of the EPHFs can ensure comprehensive and integrated consideration of public health in national health and allied sectors in Ireland that is both affordable and sustainable. As COVID-19 clearly demonstrated, the cost of inaction is too high and implementation of multisectoral approaches and health in all policies are needed given the likelihood of further public health emergencies of similar or even greater scale in the near future. Just as action on the EPHFs requires support beyond the health sector, the benefits are also felt beyond the health sector and across society as a whole in terms of increased coverage of health services, enhanced health security, healthier populations, and sustainable social and economic development.

Given the strengths and capacities available within the Irish system to support delivery of the EPHFs, with reference to national and international experience with COVID-19, and being mindful of the major health and socioeconomic challenges faced, several opportunities are apparent that support the optimal delivery of the EPHFs. These are presented below together with functional and concise actions in support of each area of improvement. Box E3 provides additional information on the essential enablers required to underpin these actions and ensure their effectiveness.

1. Enhance integration and coordination of the EPHFs within the Irish health and allied sectors (e.g. education, finance, transport and business) for strategy, planning, financing, implementation, and monitoring and evaluation to reduce fragmentation and promote efficiency and effectiveness.

2. Increase the visibility and profile of the public health agenda within Ireland by strengthening national governance, legislative and institutional arrangements.

3. Sustain and utilize existing mechanisms in support of a whole-of-government and whole-of-society approach to health, including emergency preparedness and response.

4. Further define, recognize and develop the public health workforce to ensure its agility and capability to adapt to ongoing and evolving public health challenges.

5. Address critical issues in the health information system to ensure the availability of appropriate and timely public health data to inform policy- and decision-making.
1. **Political commitment at the highest level** is the most important enabling factor. If this commitment is absent, action across all other areas is unlikely to be effective and sustained.

2. **Institutional structures to lead and coordinate the EPHFs** provide the institutional foundation for the EPHFs. These include national and subnational governance arrangements.

3. **A strong public health workforce** is at the heart of efforts towards delivering the EPHFs recognising that this workforce includes those working within and beyond the health sector, for example, in road safety, allied emergency services, agriculture and food industries, and broader social and economic policy.

4. **Population health needs assessment and risk profiling** are key to contextualizing and delivering the EPHFs at the local level and support reorientation and adaptability of systems to meet evolving population needs and build health system resilience.

5. **Monitoring and evaluating provision of the EPHFs** allows better use of limited resources, especially given anticipated fiscal constraints following COVID-19, as well as the identification of gaps and duplication in activities at national and subnational levels. The evidence generated from monitoring and evaluation can also facilitate better evidence-informed policy- and decision-making.

6. **Multisectoral responsibility and accountability for the EPHFs** can accelerate progress towards universal health coverage, health security and sustainable development by creating an environment in which all actors are accountable for their responsibilities and are aware of the wider benefits of health in all policies to respective sectors and broader socioeconomic development and wellbeing.
Introduction

The unprecedented health, social and economic effects of the coronavirus disease 2019 (COVID-19) pandemic have exposed a widespread lack of public health capacities globally, which undermines health system resilience (Box 1). Globally the economic costs are in the trillions, with Ireland estimated to have spent in excess of 25 billion euro in direct costs, or more than 12.2% of the gross national income in 2021 alone (1). These costs are in addition to the far-reaching social impacts including increasing inequity and poverty and a cost of living crisis (2,3). This and other recent public health emergencies, including severe acute respiratory syndrome (SARS), the financial crisis of 2007–2008, the Ebola virus disease in West Africa, Middle East respiratory syndrome (MERS), climate change threats and others, have clearly demonstrated that insufficient action has been taken to date to build health system resilience. It is clear that many have regarded resilience as an inevitable outcome of health system investment, and have failed to realize that building health system resilience requires intentional design and dedicated planning and resourcing to ensure return on investment and desirable population health outcomes. While circumstances beyond the health sector, including globalization, urbanization, increased animal–human proximity, changing demographics, population migration and displacement, and climate change, are all increasing the potential for complex public health emergencies, health systems are coming under mounting pressure from less acute stressors such as ageing populations and rising incidence of noncommunicable diseases. This situation makes health system resilience even more important as continuing gaps not only threaten population health, but also hinder social and economic development. The World Health Organization (WHO) has recognized essential public health functions (EPHFs) as a key strategy to build health system resilience, and has called on countries to strengthen health system resilience aid recovery from COVID-19 by investing in the EPHFs and the foundations of the health system, using all-hazards emergency risk management and whole-of-government and whole-of-society approaches (1).

Box 1

Health system resilience

Health system resilience has traditionally been conceptualized as the ability of a health system to resist, absorb, accommodate, adapt to, transform through and recover from the impact of shocks in a timely and efficient manner, all the while maintaining, modifying and restoring essential functions and structures (4). Regardless of the nature of the shock, key attributes for health system resilience are critical in translating this concept into practice, such as: awareness (recognizing risks and capacities); mobilization (coordinating and disbursing resources); self-regulation (timely response and adjustments as needed); integration (bringing together routine health systems and emergency actions); transformation (identifying and applying lessons from shocks); and diversity (providing a range of services and involving various actors). There is also growing discourse on the idea of everyday health system resilience which separates resilience from shock events and refers rather to the ability of health systems to constantly adjust to chronic stressors so that health systems are strengthened or transformed during everyday challenges (5).

The EPHFs are a fundamental and indispensable set of collective actions under the primary responsibility of the State which are required to ensure effective public health actions, including the protection, maintenance and promotion of population health (6). While conceptualizations of the definition and scope of public health can differ, The EPHFs can transcend these conceptual differences and support the integration of public health into health and allied sectors and multisectoral policy and planning processes. From an institutional perspective, the EPHFs can also be regarded as the capacities that health authorities should build and strengthen by promoting multisectoral interventions or actions on the wider determinants of health, in partnership with civil society (7). Health system foundations and their strengthening with the EPHFs are therefore key to ensure holistic approaches to public health from policy to planning to provision of services (6,8). Box 2 gives an overview of the EPHFs.

Many countries and global actors have developed EPHF lists/frameworks that reflect their respective priorities and contexts. Despite differences, there are significant commonalities, including a focus on health promotion and protection, disease prevention and equity and actions on the wider determinants of health. WHO recently developed a consolidated list through a crosswalk analysis of existing authoritative lists and this list is proposed as the reference list of activities for a country to ensure effective public health action for both chronic stressors and acute events (6).
Box 2

Overview of essential public health functions

The essential public health functions (EPHFs) are grounded in the public health approach that seeks to protect health against various hazards, prevent disease and promote population health and well-being through universal access to health services. EPHFs support service design according to population health needs, guided by community engagement and participation, and supported by multisectoral action for health and interventions targeting the wider determinants of health. The EPHFs advocate for proportionate investment in public health and provide an integrated approach to health system strengthening in support of resilience for universal health coverage, health security and other related Sustainable Development Goals (SDGs) (Fig. 1).

Fig. 1. Relationship between the EPHFs, health system strengthening for resilience and higher level health-related goals

Operationalization of the EPHFs can support orientation of health systems to meet population needs and the anticipation of service changes required to meet evolving demand, which is a feature health system resilience. The EPHFs can reduce demand on more costly secondary and tertiary health services by supporting a greater focus on disease prevention and health promotion actions to reduce population risk. The EPHFs play a significant role in reducing health and socioeconomic inequities by strengthening collaboration within the health sector, ensuring more equitable access to essential health services and products, and supporting better engagement with communities and participatory decision-making. The EPHFs also extend beyond the health sector and facilitate a whole-of-government and intersectoral approach to health and well-being. This approach promotes shared responsibility for health through collaboration with allied sectors, including education and housing, to support effective actions on the wider determinants of health and inequity (6).
Despite the recognition of the value of operationalizing the EPHFs, such as in World Health Assembly Resolution 69.1 (Box 3) and in the European Action Plan for Strengthening Public Health Capacities and Services (10), COVID-19 has exposed the weaknesses in public health governance, capacities and infrastructure in countries at all income levels in the face of shock events of this scale².

### Box 3

**World Health Assembly Resolution 69.1**

Resolution World Health Assembly Resolution 69.1 (WHA 69.1) provides a clear explanation of the importance of the EPHFs, their contribution to universal health coverage and other health-related Sustainable Development Goals, their multisectoral nature and their interconnectedness with other areas such as primary health care, health system resilience, governance, sustainable health financing and determinants of health (8).

Resolution WHA 69.1 also urges countries to build strong public health systems with the EPHFs, including leadership in establishing effective health governance by health authorities at national and subnational levels, and strengthening institutional and operational capacity and infrastructure for public health, including for public health institutes as appropriate to national contexts (8).

In the context of recovery from COVID-19, WHO promotes investment in health system foundations with a focus on PHC and the EPHFs for building back better, fairer and more resilient health systems (4). Based on country experiences with COVID-19 and other shock events affecting health system, the EPHFs have the potential to reduce fragmentation in health systems, orient health systems towards population needs, support intersectoral action for health and address complex public health problems in a cost-effective way. The median of return on investment for public health interventions is estimated to be 14.3 to 1 in high income countries (11). Despite this, in national planning and budgeting within the European Union (EU), curative and rehabilitative services incur more than 50% of healthcare expenditure while expenditure for preventive care average less than 3% (12). This relative underinvestment in public health generates billions of euro in additional costs to health services and the wider economy.

### Irish context

With more than 1.5 million cases and 7000 deaths to date, Ireland’s experience with COVID-19 has been similar to many other European countries, albeit with lower than average case rates, deaths and excess mortality (13). Before the pandemic, Ireland’s health system was under considerable pressure due to longstanding critical weaknesses and had extremely long waiting times to access care and diagnostics (14,15). A lack of acute hospital capacity, intensive care units and isolation capacity, limited infection prevention and control capacity and occupational health services, underdevelopment of PHC, significant infrastructure deficits in information technology systems, and chronic underinvestment in public health have all contributed to severe and ongoing disruptions to essential health services in response to COVID-19 (15). A record amount of funding has been committed to the health sector during the pandemic, with much of this being used to tackle long-standing systemic issues, including: increasing public hospital capacity through private sector purchasing; increasing the number of health care workers and the capacity of the national ambulance service, centralizing procurement of medical technologies; supporting remote monitoring of patients and consultations; and developing health and social care services in line with the Sláintecare reform programme (Box 4) (14). Despite these measures the health system is still under considerable pressure. As Ireland looks to recovery from the pandemic, the need to strengthen public health capacities in support of health system resilience has been identified as a political priority. The EPHFs represent a cost-effective, comprehensive and integrated approach to health system strengthening.

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² The WHO European Region has used the term essential public health operations to draw a clear distinction between public health functions and health system framework functions.
The Irish health system is currently undergoing significant transformation and reform. Sláintecare is the cross-governmental 10-year plan for transformation of the Irish system published in 2017. This plan represents a policy roadmap which seeks to deliver health system reform towards universal access to high-quality health services based on need and the reorientation of the system towards integrated primary health and community care. The original Sláintecare report is grounded in a public health approach to health system planning and emphasizes an intersectoral approach to health. Implementation has been modest to date, and complicated by the COVID-19 pandemic, but reform is ongoing. Arguably, the intended strengthening of primary health care within Sláintecare would have enabled a more resilient response to the pandemic (14).

Sláintecare places emphasis on investing in the development of public health in Ireland. Following the recommendations of several independent reviews, a new model for the delivery of public health was developed in 2019. This model recommended the development of a hub-and-spoke model of service delivery, which encompasses all domains of public health practice and enabled strong public health leadership supported by multidisciplinary teams. Recruitment into the new model is currently underway, with a focus on health protection (Fig. 2).

**Fig. 2.** Organogram of national-level delivery of public health within the new service delivery model.

**Box 4**

Ireland’s ongoing health system transformation and reform programme

The Irish health system is currently undergoing significant transformation and reform. Sláintecare is the cross-governmental 10-year plan for transformation of the Irish system published in 2017. This plan represents a policy roadmap which seeks to deliver health system reform towards universal access to high-quality health services based on need and the reorientation of the system towards integrated primary health and community care. The original Sláintecare report is grounded in a public health approach to health system planning and emphasizes an intersectoral approach to health. Implementation has been modest to date, and complicated by the COVID-19 pandemic, but reform is ongoing. Arguably, the intended strengthening of primary health care within Sláintecare would have enabled a more resilient response to the pandemic (14).

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Aim and objectives

The aim of this report was to present an overview of the current state and consideration of the EPHFs within health and allied sectors and services in Ireland in order to inform national policy for building health system resilience. This aim was achieved through:

- Elucidating current and future health system stressors and challenges within the Irish context based on the current burden of disease, expected demographic changes and current health systems considerations and service provision;
- Conducting a strategic and focused review of the current state of the EPHFs in Ireland with a focus on national and international lessons from experiences with COVID-19, population needs and public health threats and challenges;
• Identifying existing strengths and opportunities for improvement, building on national experiences to inform policy options and shared learning with other countries; and

• Proposing concise actionable policy options to the national health authority to address identified gaps, while helping to optimize the delivery of public health through improved stewardship and operationalization of the EPHFs at national and subnational levels.

A detailed methodological approach for the work is given in Annex 1 and Annex 2.
Current state and consideration of the EPHFs in Ireland

Ongoing and potential public health challenges

Through rapid review of recent literature and triangulation of findings in consultation with Ireland’s Department of Health, four key thematic public health stressors were determined, which were further exacerbated during the pandemic (Fig. 3). Top priority areas for action in relation to EPHF delivery to tackle these challenges were also addressed.

Fig. 3. Key public health stressors and challenges in Ireland

- Population growth expected over next two decades
- Increasing elderly population
- Increasing migrant communities
- Increasing socioeconomic inequity

- Multimorbidities are the norm rather than the exception
- Increasing rates of obesity
- High rates of cancer, heart disease and respiratory disease
- Increasing mental health issues and substance abuse
- Longer-term impact of COVID-19

- Limited health information systems and cyber security issues
- Health workforce shortages and dissatisfaction
- Primary care and hospital capacity issues
- COVID-19-related disruptions across the health system and services

- Limited legislation and underinvestment in public health
- Emergency and reactive focus of public health services
- Limited formal linkages to clinical and multisectoral services


Source: developed by the Health Services Resilience team, WHO.

Demography and socioeconomic conditions

Population growth and ageing demographic

Unlike most European countries, the population in Ireland is growing, placing substantial pressure on individual and population-based health services. It is estimated that the population in Ireland has grown 9.1% since 2012 to an estimated 5.01 million (17). The most significant growth was seen in the older age groups with an increase of 35% among people 65 years and older since 2012, higher than the EU average of 15.7% (17). This population growth is projected to continue over the next two decades with the population projected to reach 5.74 million by 2041, with steep and quick increases expected in the older age groups (17,18).

Socioeconomic inequalities

According to the 2016 census, 22.5% of the Irish population were living in disadvantaged socioeconomic conditions. There are a significant number of socioeconomically vulnerable and marginalized groups in Ireland including asylum seekers, people from the Traveller community, recent migrants and homeless people (19-21). Such communities often suffer from poorer health outcomes and the cost to treat, and failing to prevent, such health inequities is estimated to be 508 million euros annually (22,23).

Ireland has had a positive net migration since 2015 (24). The number of immigrants to the country in the year from April 2020 to April 2021 is estimated to have decreased by 23.7% while the number of emigrants also decreased over the same period with a positive net migration of 11 200 in the year from April 2020 to April 2021, compared with 28 900 in the previous year, a decrease of 61.2% (24,25). These migration patterns in the year to April 2021 likely reflect changes in travel patterns during the COVID-19
pandemic. In 2022 up to June, more than 17 000 Ukrainian refugees have arrived in Ireland and this figure is likely to increase (26).

Population disease profile

The leading causes of mortality in Ireland in 2020 were cancer (30%), diseases of the circulatory system (28%) and diseases of the respiratory system (11%) (Fig. 4) (27). In 2020, COVID-19 accounted for 2259 deaths which was 7% of the total number of deaths in 2020 (14,27). About 40% of all deaths in Ireland are attributable to behavioural risk factors such as tobacco use, dietary risks, alcohol consumption and low physical activity. Alcohol consumption in Ireland is one of the highest in Europe and substance abuse is also on the rise (14). Together, such behavioural risk factors are likely to contribute to sustained increases in rates of obesity and mental health issues requiring public health policy attention and intervention. Multimorbidity is another increasingly prevalent consideration in planning for public health services. Among ageing populations, evidence suggests that multimorbidity is the norm rather than the exception.

Fig. 4. Leading causes of death in Ireland


Note: Number and share of COVID-19 deaths are for 2020 while for other causes the data are for 2018.


Health systems and infrastructure

There is broad consensus that the current health system and infrastructure in Ireland is under considerable strain, further compounded by COVID-19 (18,28). Ireland’s health system constitutes a complex mix of public and private financing and delivery, which contributes to inequities and challenges in the comprehensive provision of the EPHFs (29). A recent review of health services capacity indicated that the health system “is hospital-centric, community-based services are fragmented and there is lack of integration of care within and across different services” (18). Pressures on governance arrangements, financing, the health workforce, and population health and well-being are exacerbated because reactive, curative and acute health care services are often the default and take precedence over proactive, preventative and health promotion services, which receive limited attention and investment (18). Investment in the public health workforce and health information and information technology systems to meet growing population health needs has been limited.

Primary care and community services

Growing population size and changing demographics are increasing demand for primary care services. In addition, reforms aimed at increasing universal access to PHC will place further demands on primary and community care. The general practitioner (GP) workforce in Ireland in 2016 consisted of 3570 whole time equivalent doctors. While a significant number of GPs are expected to retire over the coming years, the requirement for GPs is projected to increase to 4970 by 2031 (an increase of 39%) (18). A 46%
rise in demand for all primary care services is projected \((18)\). Therefore, recruitment and retention of all multidisciplinary health workers to meet the needs of patients in the community and comprehensively deliver the EPHFs will be a challenge to the health system in the coming years.

**Hospital capacity**

Patients using the public health system in Ireland currently experience long waiting times, poor outcomes relative to cost and high occupancy levels across acute care public hospitals \((30)\). Ireland recorded a bed occupancy rate of 95% in 2017, the highest rate among countries of the Organisation for Economic Co-operation and Development. These challenges existed before the COVID-19 pandemic and are likely to worsen without significant reform to the current health systems, as demand for non-elective inpatient episodes in public hospitals has been projected to increase by 24% from 2016 to 2031 \((18)\).

A total of 3,294,019 bed days were used in 2020 with most of these being used by patients aged 65 years and older (Fig. 5) \((17)\). Inpatient and day case hospital discharges had been rising up to 2020, reflecting an increase in hospital activity before 2020. However, since 2020, discharges have fallen sharply, indicating longer hospital stays and pressures on the health system and reflecting the effects of the COVID-19 pandemic \((17)\).

**Fig. 5.** Public hospital bed days by type of care, age group and sex, Ireland, 2020

![Diagram](image)

Source: Department of Health, Ireland, 2021 \((17)\).

**Population-based health services**

Public health in Ireland and the organization and delivery of population-based health services were already undergoing change and reforms before the COVID-19 pandemic, which has further highlighted stressors and gaps in national EPHF capacity. Population-based health services have not seen proportionate investments relative to individual health care despite their potential to ease pressure on acute care services and hospitals, and their cost–effectiveness. Furthermore, investments made in population health services have been reactive, for example, in building testing and tracing capacities to respond to COVID-19. Most public health specialists, the core personnel responsible for delivering the EPHFs, were previously based within eight regional departments across the country, which corresponded to the historical health board regions rather than the current HSE community health organizations or the hospital-group areas. In line with proposals under Sláintecare, public health departments are now restructuring to align with six regional health areas. The misalignment in service delivery structures contributed to insufficient coordination of public health services within and between primary, community and social care and acute care services; where there are linkages, this is reportedly the result of informal relationships built between colleagues, rather than through formal structures and mechanisms \((31)\).

Recent reviews of Ireland’s population health services \((32,33)\) have highlighted many issues with the positioning of public health and the public health workforce, which have impeded delivery of the EPHFs. These issues include: dissatisfaction with employment terms and conditions; lack of a national public health strategy; recognition of the wider expertise required within regional teams; an ageing public health workforce; the need to enhance the attractiveness of the profession and address the status of
public health physicians including joint specialist training and the creation of joint posts with academic institutions; and the need for a review of the legislation underpinning the EPHFs in Ireland to adopt a more modern approach to delivery of population health services that is aligned with contemporary, ongoing and future public health challenges.

**Lessons from global experiences with COVID-19 with relevance to the Irish setting**

In order to inform the context for strengthening public health capacity within Ireland, a rapid review of recent academic and grey literature was undertaken to identify international lessons from the experience with COVID-19 at the country level and with relevance to the delivery of one of more of the EPHFs (see Annex 2 for detailed methods). The following lessons were extracted and their relevance to the Irish context is highlighted.

1. **Health system resilience is a key enabler of effective emergency response**

As countries usually have only one public health system – one workforce, one infrastructure and one supply chain – effective emergency response relies on a well-functioning and resilient health system that can absorb shocks and adapt as needed, while maintaining essential individual and population-based health services. Health system resilience enables the scaling up of emergency control measures while maintaining routine services (34). COVID-19 highlighted a global lack of health system resilience with most countries reporting sustained disruptions to essential health services and resultant preventable mortality and morbidity. No service delivery platform or types of health services have been exempted from the adverse effects of COVID-19 and more than two years into the pandemic, many health systems are still unable to move to recovery or fully transition beyond the acute phase of COVID-19 (35). WHO’s recent position paper “Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic and beyond” recommends utilizing investments in pandemic response to support long-term health system strengthening (4).

Weaknesses in Ireland’s health system before COVID-19 have undermined the resilience of the Irish health system. These weaknesses include: insufficient acute hospital capacity, intensive care capacity and appropriate isolation capacity; limited infection prevention and control capacity; underdevelopment of PHC infrastructure; gaps in health information and surveillance systems; and a traditional reliance on private sector purchasing (Box 5). Significant investment was required to ensure a level of service continuity as well as adequate response measures in the face of the pandemic. In addition to investments in response efforts, an additional five million euros in health care expenditure was made available in the budget between March 2020 and the October 2021 to address long-standing infrastructural deficits and capacity issues within the acute care sector as well as pre-existing deficits in relation to testing and tracing (14,36). Private sector purchasing agreements were utilized to rapidly increase acute care hospital capacity in response to the first wave of COVID-19 in early 2020 similar to actions undertaken in other western European health systems. Despite these measures, levels of unmet medical need in Ireland rose significantly during the pandemic from the pre-existing high levels, with a disproportionate impact on those from lower socioeconomic groups (14).
The National Treatment Purchase Fund

The National Treatment Purchase Fund is a statutory body established in 2004 that collects data on public hospital waiting lists and purchases private sector hospital and nursing home capacity for public-sector patients who meet certain criteria in terms of length of waiting time. The National Treatment Purchase Fund aims to reduce acute care hospital and community waiting lists by utilizing private sector capacity. The National Treatment Purchase Fund budget has been rising steadily since 2018, with an allocation of 150 million euros for 2021.

Business consulting

There has been a historic reliance on professional consulting services within the Irish health system, both before and during COVID-19. Long-standing service level agreements with several consulting firms support the provision of a range of professional consulting services, including data analysis and modelling, strategic workforce planning, financial analysis, and support of testing and tracing operations during COVID-19. Over a four-year period (2018–2021), 140 million euros were spent on such services. The use of consulting services may reflect a lack of expertise within the health system, a lack of recognition or use of available expertise or the desire for independent analysis.

Box 5

Private sector purchasing in Ireland

The National Treatment Purchase Fund

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2. Most countries were unable to effectively deliver the EPHFs due to a long-standing lack of focus on and investment in public health capacities

All EPHFs are needed to mitigate the impact of health system shocks such as the COVID-19 pandemic while continuing to meet population health needs. As is the case with many infectious diseases, COVID-19 has a more severe clinical course among elderly people, people with underlying medical conditions and certain risk factors, and people with socioeconomic vulnerabilities (37). Many countries struggled to scale up core public health services due to long-standing lack of investment in these services (38). The initial response was dominated by non-pharmaceutical interventions including health education, risk communication, testing, contact tracing and source investigation, and many countries in Europe and globally lacked the acute care public health capacity to mobilize and sustain these effective preventive measures (39). This failure to invest in prevention and health promotion ultimately increased the vulnerability of populations, and therefore health systems, to the effects of the virus.

In the Irish context, public health resourcing and capacity were identified as a risk early in the pandemic by the NPHET3 and significant resources were mobilized, focusing on health protection. Multiple successive reviews of the public health delivery system extending back to 1999 identified important capacity and structural problems and recognized that public health had been inadequately resourced or supported to deliver on its defined remit, including prevention and health promotion (26,40). Spending on prevention in Ireland is slightly lower than EU averages. While variations in classification may affect comparability, the budget for the Health and Wellbeing Division4 generally accounts for less than 1% of total health care expenditure and is less than the target budget proposed within Sláintecare. Much of the initial and sustained investments in response to COVID-19 has remained skewed towards the acute care sector (14).

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3 The NPHET is a national team of experts and senior leadership of health services within Ireland’s Department of Health that are assembled to respond to specific public health emergencies, the current NPHET provide national direction, guidance and expert advice on COVID-19 response.

4 The former Health and Wellbeing Division of the HSE focused on health promotion and the reduction of social inequalities within the health sector. Its functions and services have been redistributed to other HSE directorates in recent restructuring. It still maintains a budget line in the most recent NSP 2022.
3. Countries that had incorporated lessons learned from previous public health events to support health systems appeared to have better resilience to COVID-19

While lessons are still emerging from the global experience with COVID-19, the strategic lessons are similar to those identified from previous public health emergencies including Ebola virus disease, SARS and MERS (34).

Many countries with early success in reducing the spread of COVID-19 were those with previous experiences with public health emergencies (e.g. SARS, MERS, Ebola virus disease, human cases of avian influenza). These countries utilized lessons learned to improve health systems with strengthened EPHFs. These lessons included: taking precautionary measures in responding to the outbreak of a new virus in the absence of firm evidence; defining clear command and control structures (such as incident management systems and emergency operations centres) with broader health systems and non-emergency health services participation; closely engaging communities in decision-making and implementation; building trust; and mobilizing the health workforce (Box 6) (38,41). However, globally most national action plans for health security remain either partially or completely unfinanced and coordination between health security and broader health sector planning is lacking. This issue highlights the need to have systematic mechanisms to not only identify and record lessons from emergencies but to ensure implementation of these lessons (34).

In Ireland, many important lessons were captured through systematic mechanisms following the country’s experience with influenza A virus H1N1 in 2009. These lessons included: the need to clarify roles and responsibilities of those involved in emergency response; the need to enhance surveillance capacity and develop modelling capacity; and the need to review the national pandemic preparedness plan to support more protracted emergencies and to ensure regular testing and revision of plans (42,43). However, there was no evidence of substantive implementation of these findings before the COVID-19 pandemic and a lack of alignment between emergency planning and wider health sector planning is apparent (32). Timely investment in and implementation of lessons identified on the need for resources and public health reforms, extending back to 1999 and more recently; investment in key aspects of Sláintecare, including eHealth; the provision of community-based care; and investment in staff and services, could have enabled a more effective and less costly response to COVID-19 while also supporting the maintenance of essential services and reducing the levels of staff burnout.

![Box 6](image)

**South Korea and Vietnam: health systems learning from experience**

The performance of South Korea and Vietnam stood out in their response to the first wave of COVID-19. Learning from experience with Middle East respiratory syndrome, the South Korean government took a decisive and aggressive strategy to detect, screen and isolate cases with support of surge capacities (44). The public was willing to follow public health advice including wearing masks and cooperating with contact tracers and took precautionary measures.

Vietnam had both the knowledge and infrastructure to take appropriate action in early 2020 from its experiences of severe acute respiratory syndrome in 2003 and human cases of avian influenza between 2004 and 2010. For example, Vietnam took a targeted approach to testing (e.g. scaling up testing in areas with community transmission) and conducted three degrees of contact tracing for each positive case (45).

4. Public health leadership and governance are fundamental to facilitate an effective, timely and coordinated national response

Global experience with COVID-19 has reinforced what has been demonstrated with previous public health emergencies. Much of effective pandemic response falls outside the health system or the current operational remit of public health. For this reason, political leadership to ensure whole-of-government mobilization is of paramount importance and requires mechanisms that enable intersectoral decision-making and mobilization of whole-of-government resources. On an operational level, effective preparedness and response relies on public health governance. COVID-19 demonstrated a lack of

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5 Emergency and continuity plans should undergo regular testing using tools such as simulation exercises with the results being used to inform and improve future plans.
clarity in terms of mandates, roles and responsibilities internationally and at all administrative levels within countries. While countries have policies, legislation, regulations and structures related to the International Health Regulations, 2005 (IHR 2005)⁶, these are often outdated, being developed before the rollout of IHR 2005 and are not fit for current complex public health challenges (46). In response to COVID-19, many countries are revisiting the focus and scope of their national public health institutes, with a view to further coordinating and strengthening stewardship for the delivery of the EPHFs (47,48).

The Irish response to COVID-19 was coordinated centrally at the highest political level, through the Department of the Taoiseach in collaboration with the Department of Health and the HSE. The NPHET⁷ for COVID-19, convened in January 2020 with clear governance structures, supported the Department of Health in providing public health advice to government and working with the HSE’s National Crisis Management Team which manages the health system response. A newly formed Special Committee on COVID-19 Response, with representation from all government departments and other agencies and chaired by the Taoiseach, provided suitable prominence for formal structures and accountability to ensure implementation of a whole-of-government response (14,49).

In Ireland, the need to reform public health legislation, governance and operating structures had been recognized before COVID-19, and the experience with COVID-19 highlighted specific issues including: lack of a mandate for monitoring high-risk settings, lack of a legislative basis for the IHR 2005; and lack of specific legislation supporting emergency response, which led to the need for a substantial amount of primary legislation, much of which was temporary (42,43,50,51). COVID-19 has also highlighted the lack of role definition and clarity in relation to the EPHFs within the wider health sector, including the lack of memoranda of understanding to enable necessary data- and information-sharing within the HSE and with public bodies, and lack of service level agreements to ensure the standardization and delivery of a range of services, from environmental health to childhood immunization (50).

5. Many countries had weak data and information capacities for health status and health service and surveillance systems

Data and information systems are essential to enable: rapid recognition of public health events, effective and timely decision-making; and design, implementation and evaluation of effective health policies and response strategies. However, many countries lacked or had poor-quality data on health status, including on high-risk populations, and health system utilization and outcomes. Interoperability of data at the local, national and regional levels was also underdeveloped. Analytical capacities, including in modelling capacity and the ability to utilize big data, were also lacking (39,52-55). Monitoring, surveillance and early warning systems were unable to identify potential public health events or to transfer data from local to central reporting units and institutions in support of timely public health action (56).

Ireland has managed to deliver high-quality, integrated data to support decision-making despite pre-existing weaknesses in health information system data, infrastructure and interoperability as well as modelling and analytical capacities. A silo approach to health information has led to little integration between systems including hospital data, infectious disease surveillance, laboratory systems and vaccine information systems (32,42,51). The level of transparency has been high in relation to available data, with open access portals and additional systems that have ensured comparatively accurate assignment of COVID-19-related mortality (57). Much of this work has been supported by the procurement of new systems and the development and expansion of data partnerships, some of which were temporary. These measures harnessed technical capacities within both the public and private sectors as well as the flexibility of the workforce and resource intensive work arounds that negatively impacted the workforce, rather than being enabled by pre-existing systems (50). This has implications for sustainability as well for the workforce in terms of burnout. Many of these new systems are still separate from or only partially integrated with existing systems and some carry recurring licensing fees (50).

6. A comprehensive and effective public health response requires effective communication

Effective pandemic response relies on effective communication with the public as well as with all other relevant stakeholders. Clear, targeted, coherent, understandable, transparent and sustained communication to the public, including communicating uncertainty and change, supported building trust within the population, which in turn supported compliance with control measures, and hindered

⁶ The IHR 2005 are an instrument of international law that is legally binding on 196 countries.
⁷ The NPHET for COVID-19 was convened in January 2020 and comprised more than 30 medical and scientific experts. It was supported by a multidisciplinary coronavirus expert advisory group with 10 focused subgroups.
misinformation (39,58,59). Despite this, many countries struggled to coordinate clear public messaging or failed to tailor messages to specific groups including young people, vulnerable groups and migrants (39). Communicating in this kind of fast-changing environment with the many uncertainties requires communication specialists who should be recognized as part of the public health workforce (38).

While the need to strengthen the local voice of public health has been recognized, strong national communication was a key strength of the Irish response. Frequent operation reports from the HSE and briefings from NPHET representatives, as well as regular, clear and consistent engagement with the media and the public, led by the Department of Health supported high levels of acceptance of public health measures including vaccination. The use of a government information system ensured coordination in cross-governmental messaging and the use of experts supported direct communication of key messages to target audiences. In addition, innovative communication initiatives supported the engagement of younger people in the COVID-19 pandemic response (49,60). Behavioural analysis, mobility trend reports, focused research and testing of planned communication were conducted to maximize clarity and assess the effectiveness of the messaging (Box 7) (61-63). Additionally, the support for measures and high levels of compliance reported on a weekly basis through these surveys were used to re-emphasise the strong sense of solidarity and a united social response to the pandemic (38).

Box 7

Use of research to improve messaging in Ireland

A strengthened collaboration between the behavioural research unit at the Economic and Social Research Institute – a multidisciplinary team of behavioural scientists including economists and psychologists that specializes in applying behavioural science to policy – and the Department of Health saw cooperation across a range of projects that explored attitudes and behavioural responses to COVID-19 restrictions and disease prevention measures. This work helped to inform communication and engage with the public. An example of this work is a paper published in 2021 that examined factors associated with vaccine hesitancy (64).

7. Public health science, knowledge, research and innovations are fundamental to delivering many public health functions

The pandemic has highlighted the need to fund and expand the capacity for sustainable evidence generation and synthesis, supported by appropriate public health expertise, to allow the rapid review and incorporation of innovation, including new approaches, technologies and interventions to enhance pandemic management as well as future preparedness (52). Countries that performed well in managing COVID-19 incorporated scientific evidence into decision-making at all levels. Scientific advisory bodies or ad hoc structures to gather scientific knowledge and advice were considered good approaches to channel scientific information into decision-making processes, including: managing and increasing hospital and transport surge capacity (65); informing government decisions on border closures and reopening (66); and updating contact tracing guidance (39,41,53,54,67).

The incorporation of innovation often poses challenges in terms of acceptability and equity while also requiring legislative, administrative and financial support. Despite the challenges, innovation has played an increasingly important role in delivering clinical and public health services during COVID-19 (39,67). Innovative digital technologies have increased countries health system capacities, such as: national contact tracing and warning apps; telemedicine tools to support remote consultation and maintenance of essential health services; monitoring and use of artificial intelligence to detect, monitor and predict the spread of COVID-19; and online platforms to tackle disinformation (39,68). Innovative approaches to service delivery also saw partnerships between public health, primary and community care and others that helped the COVID-19 response while reducing the reliance on essential services in several countries (39).

Ireland’s response to the pandemic has been evidence driven and supported by the expansion of existing research capacity and infrastructure and enhanced access to COVID related data (49). A number of Irish organizations have provided rapid evidence reviews of health technologies and responses to clinical queries about COVID-19 (49). The newly established COVID-19 Expert Advisory Group and the COVID-19 Evidence Synthesis Team of the Health Information and Quality Authority provided rapid and rolling collation and analysis of the available evidence to the NPHET which supported evidence-based decision-making at the highest level. The COVID-19 Evidence Synthesis team in particular provided many outputs including rapid health technology assessments, scoping reports, rapid reviews of public health guidance and evidence summaries, supplemented by an evidence-to-advice framework to guide the
development of advice (69). The effectiveness of messaging was increased using behavioural analysis, mobility trend reports and focused research (61-63). Access to key international platforms for the sharing of information, experience and expertise were key to informing Ireland’s public health response while enhancing coordination; these included: European Centre for Disease Prevention and Control, WHO, the Health Security Committee, the EU Scientific Advisory Council, and the EU and European Economic Area national immunization technical advisory groups (52). Ireland has invested in innovation in support of the COVID-19 response with the development of a contact tracing app and the upgrading of information and communications technology (ICT) to enable remote consultation and monitoring. The Health Research Board has funded local projects that used technology such as artificial intelligence-enabled analysis (41,70). Innovative approaches to service delivery have also been developed including community-based COVID-19 assessment units supported by primary care, a population vaccination programme and regional school teams supported by a partnership between public health and the Department of Education (Box 8).

**Box 8**

**Ireland’s COVID-19 schools’ teams**

Maintaining in-person education for children was a stated priority in Ireland from early on in the COVID-19 pandemic. However, regional public health departments were not adequately resourced to enable effective risk assessment and management of all school cases. A collaboration between regional public health and the Department of Education saw school inspectors redeployed to regional departments of public health. A national public health working group developed standard operating procedures and a public health risk assessment tool for educational settings and undertook training to upskill school inspectors on how to utilize the risk assessments. School inspectors made use of their existing knowledge of and relationships with schools across the country to maximize the impact of these assessments and revise them as learning from the educational setting and the pandemic evolved. This collaboration proved both essential and beneficial in maintaining in-person learning for much of the pandemic.

8. Defining and developing the public health workforce and core competencies for public health expertise are essential to build and sustain health system resilience

The public health workforce is intrinsically multi- and interdisciplinary, made up of both specialists, with specific expertise in a defined area, and generalists, who have a skill set that delivers across a range of public health activities and includes clinical and non-clinical staff. As such, the public health workforce includes: a core workforce for whom the delivery of public health functions constitutes their primary role; workers who contribute to one or more public health functions as part of their roles; and a wider group of allied occupations whose work significantly affects population health and who make up the wider public health workforce (71,72).

Countries that managed the pandemic better took proactive measures to quickly expand their health and public health workforce with mixed strategies, including: hiring staff from the private sector or military services; mobilizing volunteers; using medical students; redeploying staff from non-essential services; or recruiting retirees. Internationally the need to expand expertise within the public health workforce was recognized, including in: field epidemiology, microbiology, data science, economics, communications; and health behaviour. Communication specialists in particular were identified as a necessary element of the public health workforce (59).

Early in the pandemic in Ireland, the NPHET identified the need to build sustainable multidisciplinary capacity through the implementation of existing workforce plans including in public health, occupational health and community health (52). The distribution of health care workers before and during COVID-19 in Ireland has been skewed towards the acute care sector with a lack of funding for public health identified in successive reports (32,73,74). Within the specialist workforce, medical specialists have been prioritized with limited focus on other expertise including nursing, statistics and modelling, economics, and social and behavioural science. The HSE initiated a plan of recruitment of multidisciplinary personnel into public health in compliance with recommendations of pre-pandemic reports and in line with the current public health reform process that are underway (32,74,75).

During the COVID-19 pandemic, Ireland used a variety of innovative approaches to expand the health workforce, including: redeploying staff from non-essential services to public health and acute care services; bringing forward end-of-course examinations for final-year medical students to increase the
medical workforce; employing student nurses as health care attendants; using medical retirees; making provisions for the retention of foreign health care workers; and increasing the hours of part-time staff (Box 9). Despite these measures, there was significant and sustained pressure on the public health workforce with the need to provide an uncontracted seven-days-a-week service at the regional level and for labour intensive workarounds due to the lack of enabling information technology infrastructure. The resourcefulness, adaptability and agility of the workforce to deliver across the EPHFs since the first wave of the COVID-19 pandemic cannot be understated and must be considered a key contributor to the successes in Ireland’s COVID-19 response (50).

Box 9

Ireland’s call

On St Patrick’s Day 2020, the operational arm of the health system in Ireland, the Health Service Executive, launched the “Be On Call” for Ireland, an international recruitment campaign. This campaign called for health care workers not already employed in the Irish public system to be on call for Ireland and to register their interest and availability to support the COVID-19 response through an online portal. While the number of staff ultimately employed through this initiative was modest, the messaging promoted a sense of national solidarity. Within a week of its launch, 60,000 people had applied, with some health care workers choosing to return home from abroad in response to the call (49).

9. Effective pandemic response requires a whole-of-government and whole-of-society planning and actions across health system functions and levels and across sectors and society

Countries that have performed well in managing COVID-19 to date aligned multisectoral public health actions with public outreach and socioeconomic support (39,41,53,67). Prioritizing a single public health activity, intervention or interventions solely within the health sector has not been effective (41). For example, the prioritization of social distancing with a focus on a ban on large gatherings and travel restrictions that excluded mask-wearing, institutional closures, and adequate test and contact tracing services was associated with higher COVID-19 incidence and mortality rates (76–78). Equally, the siloed focus on health protection over promotion and prevention contributed to widening inequity, and increased the health risks of marginalized and vulnerable groups, while inclusive and integrated public health actions supported vulnerable populations (38,39,58). In some countries, pre-existing multisectoral efforts in managing public health issues boosted their performance during COVID-19 by enabling them to make use of long-standing multisectoral collaborations in national response (Box 10).

Box 10

Utilizing pre-existing multisectoral collaborations for public health

Finland, with one of the lowest excess mortality rates due to the COVID-19 pandemic in the world, has implemented intersectoral action for health initiatives since the 1970s (79). For example, the Advisory Board for Public Health, under the Ministry of Social Affairs and Health, serves as an intersectoral national body with a mandate to support “the implementation of measures to develop well-being, health and safety in different sectors of society, also outside the healthcare and social welfare sector” (80). During COVID-19, Finland made use of these long-standing collaborations in national responses, for example, involving actors from the public and private sectors as well as volunteer organizations in improving national health systems (81).

Ireland adopted a multifaceted approach to the COVID-19 pandemic that involved: rapid scale up of testing and tracing capacity; e enforcement of public health measures designed to limit virus transmission including mask-wearing, hand hygiene, and social distancing; enhancement of health care capacity; institutional closure and restrictions on gatherings; and economic measures to reduce the impact of the COVID-19-related restrictions on households and businesses (49). Pre-existing structures, including the National Zoonotic Committee, created the foundations for interprofessional and intersectoral working which enabled quicker multisectoral responses (50). Similarly, pre-existing infrastructure for engaging with vulnerable populations, including homeless people and the Traveller population, were utilized to improve contact tracing and source investigation, support adherence to public health guidance.
including vaccination, and identify and distribute effective messaging. This infrastructure was then used as a model for the development of infrastructure to support other vulnerable populations. In addition, the pre-existing One-Health approach to antimicrobial resistance had created an infrastructure which is now being used for other public health issues including COVID-19.

Pandemic planning has proven to be a particular weakness globally with widespread lack of investment and prioritization. Many countries lacked a coherent, whole-of-government approach to pandemic planning and relied on the assumption of influenza-like outbreaks. Most countries failed to assess baseline health system capacity and vulnerability, as well as to update, test or implement plans (41,53,67). In Ireland, the strategic role for pandemic preparedness lies with the Department of Health while operational aspects lie with the HSE. The HSE’s Health Protection Surveillance Centre acts as the national focal point for IHR 2005 although it does not have the mandate or resources to provide a rapid operational response (50). The joint HSE/Department of Health pandemic plan, last updated in 2007, focuses on the health sector and influenza. The Health Protection Surveillance Centre pandemic plan, developed by the Expert Advisory Group for pandemic flu in 2008, also focused on pandemic influenza. This group has not met since 2014. While the development of a new plan by the Health Protection Surveillance Centre was underway in 2019, work was paused with the onset of the pandemic (50).

10. Community engagement was of paramount importance in fighting COVID-19

Community responses and local engagement have been vital resources in the response to COVID-19. Countries that secured public trust tended to perform better in managing COVID-19 (38,39,67). Trust can be promoted by actively involving communities in decision-making (38,41,54). Where community structures, such as cadres of community health workers, have been mobilized, they have made a critical difference in: establishing trust in government instructions; extending services; relaying scientific information; and reaching the most vulnerable and marginalized people. However, the potential for communities to shape the response at the decision-making table has been largely neglected (41).

In many respects, Ireland has had a whole–of-society response to the COVID-19 pandemic with evidence of significant levels of community engagement, for example, high levels of adherence to public health guidance, and mobilization of individuals and community groups and networks. The Gaelic Athletic Association (GAA) is a nationwide network of local clubs developed around the Irish national sports of Gaelic football and hurling. More than 2000 clubs exist across the country and this network was utilized to provide local support to individuals and families whose movements were restricted and who were isolating in response to COVID-19 status. Translate Ireland, a nongovernmental organization that provides accessible videos to enable migrants to access information and services within Ireland, developed video messaging in more than 30 languages on the COVID-19 guidelines and restrictions in Ireland using health care providers. Pre-existing infrastructure to support the Traveller community8, comprising partnerships between nongovernmental organizations, local authorities and the HSE were used to support contact tracing and source investigation, support adherence to public health guidance and vaccination, and identify and distribute effective messaging.

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8 The Traveller community is an ethnic minority group within Ireland that has substantially worse health outcomes when compared to the general population.
**EPHF delivery in the Irish context**

**Overview**

To inform the goal of strengthening public health, a national review of the EPHFs in relation to policy, infrastructure, service provision, coordination and integration was conducted for Ireland. The consolidated list of 12 EPHFs proposed as a reference list for countries within the recent WHO report *21st century health challenges: can the essential public health functions make a difference?* (3) was reviewed by the joint DOH/WHO working team for definition, components and scope (Annex 3). A set of fundamental EPHFs with relevance to Ireland was agreed (Box 11). This set formed the basis of the mapping process which considered, among other things, the identified ongoing and potential public health challenges in Ireland and global lessons from the COVID-19 pandemic in relation to their significance for the Irish context. Mapping of the domains of public health practices in the Irish context against the reference list is shown in Annex 4, and key stakeholders in reference to the EPHFs are presented in Annex 5. For a detailed description of the methods used to inform the review, please see Annex 1, Annex 5 and Annex 6.

Box 12 summarizes the key high-level findings in the Irish context. Table 1 provides a visual overview of technical grading of high level EPHFs delivery in Ireland. More detailed explanation informing this grading is described in Table 2.

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**Box 11**

**Fundamental essential public health functions relevant to the Irish context**

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 environmental and occupational hazards, communicable disease threats, food safety threats, and 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 an adequate size and quality of the 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
Box 12

Summary of key high-level findings

1. There is a strong focus on acute health care services and service development with limited evidence of a proportionate focus and investment in strengthening population health services. This is in part attributable to lack of updated legislative and institutional arrangements for the delivery of public health functions and services at national and subnational levels.

2. The evidence indicates a siloed approach to the delivery of the EPHFs in terms of strategy, planning, financing, implementation, and monitoring and evaluation mechanisms. The focus is on vertical delivery structures with limited consideration given to wider or cross-cutting health system strengthening or identifying opportunities for synergies across programmes and inputs, such as health infrastructure, workforce and information systems – EPHF4 (planning, financing and management).

3. No overarching strategy, policy or governance structure exists that coordinates the planning and delivery of the EPHFs across the system to support alignment of resources, workforce, initiatives, activities and accountability mechanisms. This situation can contribute to the diffusion of the EPHFs across the system and lead to duplication, gaps, inefficient use of resources and limited visibility and positioning of public health within and outside the health sector – EPHF3 (governance, regulation & legislation); EPHF4 (planning, financing and management); EPHF9 (workforce).

4. Strong, emergency-focused, intersectoral mechanisms exist at the highest level of government as do mechanisms that support intersectoral and international collaboration and information-sharing – EPHF1 (monitoring and surveillance); EPHF2 (public health emergency management). However, at the operational level a lead agency mandated and resourced to steer emergency preparedness and response and coordinate maintenance of essential health services is lacking.

5. A legislative basis is in place for many of the threats defined within EPHF5 (health protection) and EPHF10 (quality and access). However, evidence of proportionate and public health-focused legislation to support the delivery and strengthening of the EPHFs is limited. What legislation is in place: applies to the control of infectious diseases and is not specific to all-hazards emergency response; lacks clarity on mandates, roles and responsibilities; contains critical gaps; and has not been updated for some time despite recognition of significant inadequacies. Evidence of legislation supporting other EPHFs in relation to important public health challenges and stressors is limited.

6. The need for whole-of-society, whole-of-government approaches and health in all policies is recognized and referred to and evidence shows the intent to integrate and align different aspects of the EPHFs. However, implementation of whole-of-system approaches appears limited, and the adoption of an intersectoral approach to public health and the EPHFs is ad hoc. Improvements have been noted with the COVID-19 response.

7. Evidence exists of senior public health medical input at most administrative or operational levels within the health sector although input at the most senior levels is absent, i.e. the lack of recognition of public health leadership at the highest levels of the HSE including the HSE Board and the executive management team.

8. The scope of public health activities, as defined within national strategies and plans, is not supported by legislation, governance, infrastructure or resources beyond those for health protection. Regional input on health service improvement and health improvement is ad hoc and varies by region. In addition, regional departments are not included within the Healthy Ireland delivery structures and the NSP outlines resources primarily for health protection functions only.

9. The health information system and its infrastructure have significant operational limitations, including the absence of a case management system and lack of interoperability of health and health service data across sites and settings, and between the health and animal sectors, the environmental and agricultural sectors and other sectors, despite a considerable amount of data generation and analysis within individual areas.

10. Population health needs assessment do not appear to be routinely conducted or utilized to drive public health planning and prioritization at the national level. Some regional population health needs assessments appear to have been done with non-standardized approaches that are often not aligned with national priorities.
Table 1. Visual high level summary of delivery of essential public health functions in Ireland

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<th>Essential public health function</th>
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- Limited consideration for EPHFs within specific technical area
- Some degree of consideration for EPHFs within specific technical area
- EPHFs strongly considered and integrated within technical area

*The description of each EPHF is in Box 11.*
Table 2. Technical grading used to inform visual mapping

<table>
<thead>
<tr>
<th>Themes</th>
<th>Technical areas</th>
<th>EPHFs strongly considered and integrated within technical area</th>
<th>Some degree of consideration for EPHFs within specific technical area</th>
<th>Limited consideration for EPHFs within specific technical area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy &amp; planning</td>
<td>Legislative frameworks</td>
<td>Specific up to date legislation underpinning the identified EPHF</td>
<td>Legislation exists supporting delivery of the identified EPHF but is out of date or has significant gaps</td>
<td>No significant legislation underpinning delivery of identified EPHF if appropriate</td>
</tr>
<tr>
<td>Key policies &amp; strategies</td>
<td></td>
<td>Existing specific and up to date strategies or policies supporting the delivery of the identified EPHF that are implemented and resourced</td>
<td>Specific strategies or policies exist but they are not fully implemented, resourced or are out of date or are narrow in scope</td>
<td>No significant specific strategies or policies supporting delivery of the identified EPHF</td>
</tr>
<tr>
<td>Design &amp; prioritisation</td>
<td>Designated EPHF is strategically designed and prioritised according to a national strategy or plan</td>
<td>Identified EPHF is considered within broader national health sector planning and aligned in terms of content, resources and governance</td>
<td>Design of EPHF delivery is ad hoc and/or prioritisation mechanism is unclear/absent</td>
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<tr>
<td>Incorporation into planning</td>
<td>Identified EPHF is incorporated into broader national health sector planning and aligned in terms of content, resources and governance</td>
<td>Identified EPHFs is considered within broader national health sector planning and some alignment is apparent with respect to resources, content and governance</td>
<td>There is limited consideration of identified EPHF within broader national health sector planning and limited alignment</td>
<td></td>
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<tr>
<td>Inputs &amp; infrastructure</td>
<td>Inputs &amp; infrastructure</td>
<td>Appropriate inputs and infrastructure is in place to support delivery of identified EPHF</td>
<td>Inputs and infrastructure to support delivery of the identified EPHFs exists but are fragmented or under resourced</td>
<td>Limited inputs and infrastructure to support the delivery of the identified EPHF</td>
</tr>
<tr>
<td>Service provision</td>
<td>Impact and influence</td>
<td>Identified EPHF influences service provision i.e. inform planning, prioritization or resource allocation</td>
<td>Identified EPHF is considered within planning, prioritization and resource allocation processes</td>
<td>Identified EPHF has no impact on planning, prioritization or resource allocation</td>
</tr>
<tr>
<td>Resource allocation process</td>
<td>Resource allocation mechanisms are in place to ensure delivery of identified EPHF in all contexts</td>
<td>Resource allocation mechanism is in place to support delivery of identified EPHF in some contexts</td>
<td>Resource allocation mechanisms are unclear or lacking for all contexts</td>
<td></td>
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<tr>
<td>Incorporation of prevention and promotion</td>
<td>Prevention and health promotion are incorporated into delivery of identified EPHF in all contexts</td>
<td>Prevention and health promotion are considered in the delivery of identified EPHF</td>
<td>Prevention and health promotion are not considered in the delivery of the identified EPHF</td>
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<tr>
<td>Coordination &amp; integration</td>
<td>Stakeholders involved in provision</td>
<td>All relevant stakeholders are actively engaged in provision of the identified EPHFs</td>
<td>There is some consideration for stakeholder involvement in provision of the identified EPHF</td>
<td>There is no consideration for stakeholder involvement in the identified EPHF</td>
</tr>
<tr>
<td>Mechanisms to support coordination</td>
<td>There are formal mechanisms supporting integration of the identified EPHF with all other relevant EPHFs within health and allied sectors</td>
<td>There are limited formal mechanisms or some informal mechanisms to support integration of identified EPHF with other relevant EPHFs</td>
<td>There are no mechanisms supporting integration of identified EPHF with other relevant EPHFs</td>
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<tr>
<td>Monitoring &amp; evaluation</td>
<td>Appropriate and relevant monitoring and evaluation mechanisms for the identified EPHF are integrated within wider monitoring mechanisms</td>
<td>Some consideration of monitoring and evaluation of identified EPHF exists and are stand alone or siloed</td>
<td>There is limited consideration of monitoring and evaluation of identified EPHF</td>
<td></td>
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</tbody>
</table>
Policy and planning

General overview

A brief introduction to the health system in Ireland is described in Box 13. Within policies, strategies and plans there is a strong focus on the curative and regulatory aspects of health care services and developing acute care in hospital settings with limited evidence of a proportionate focus on supporting the delivery and strengthening of public health services. While this focus is historic, it is also evident in current policies including Sláintecare, which, while recognizing the important role of the public health approach, has remained focused on delivery of individual health care in successive implementation plans and strategies (30,31,82). No chief public health role exists at the executive management level within the HSE, nor is there an HSE board member with requisite public health skills or expertise – EPHF3 (governance, regulation and legislation); EPHF4 (planning, financing and management).

The NSP sets out the type and volume of health and social services to be provided on an annual basis. While evidence indicates links between the NSP and other HSE plans and government policies, implementation of priority programmes appear separate within the health sector. Focus is on specific programme areas without taking account of the impact on the whole system or identifying opportunities for synergies across programmes, inputs, infrastructure, workforce and other areas. Health sector programmes and plans rarely incorporate intersectoral elements or mechanisms. Healthy Ireland, which applies a settings-based approach to health promotion, is the exception to this and this framework has been considered within the strategic implementation plan for Sláintecare. While the need for whole-of-government, whole-of-society approaches is recognized within a number of high-level policies and strategies, overall evidence of the meaningful implementation of these approaches appears limited and is most prominent in relation to aspects of clinical care (e.g. Sláintecare). Effective implementation of strategies appears weak, with evidence of delayed or partial implementation of successive health sector strategies (30,32,83). Despite this weakness, Ireland’s health system compares well in measures of health system effectiveness (14).

Box 13

Irish health system at a glance

Health policy is developed and delivered by the Department of Health, led by a Minister of Health. Health service delivery incorporates a mix of public, voluntary and private elements. Public health and social care services are delivered primarily by the Health Service Executive, with some provision contracted through private providers and voluntary agencies, including the provision of primary care, inpatient hospice care and disability services.

About 10% of the population is entitled to free access to primary care and hospital-based services, which is based mostly on income. Further schemes provide additional services free of charge, including general practitioner visits, medicines and appliances for people meeting criteria for age, chronic illness or income. However, most of the population pays for primary care services, while hospital-based care is either free of charge or provided at a reduced cost. Private hospital care is also available to people with private health insurance (14,49).
Legislative frameworks

Under Ireland’s Health Act (1970) all residents qualify to receive health services. However, from the onset of this legislation, the emphasis was on the curative and regulatory aspects of health services and on the development of acute care in hospital settings; this has been a defining characteristic of health policy in Ireland in the decades following the Act. Evidence of proportionate public health-focused legislation to support delivery and strengthening of the EPHFs is limited. What specific legislation does exist lacks clarity on roles and responsibilities and is not in line with current structures. Medical Officer of Health legislation governs the investigation and control of notifiable infectious diseases and outbreaks – EPHF2 (public health emergency management); EPHF5 (health protection). These actions are under the authority of the Medical Officer of Health, which is delegated to specialists in public health medicine under: the health acts of 1947 and 1953; Infectious Disease Regulations 1981 and subsequent amendments to these regulations; Health (duties and officers) Order 1949; and Health Act 2004. Evidence of public health legislation in support of other EPHFs and important public health challenges and stressors such as noncommunicable diseases, cancer, lifestyle and health and well-being improvement is limited.

Box 14

Key public bodies and their role in supporting essential public health function 5

1. Environmental Protection Agency: monitoring and enforcement of bathing water, drinking-water and air quality
2. Irish Water: monitoring drinking-water quality and managing water networks
3. Food Safety Authority of Ireland: monitoring and enforcement of food and food products
4. Health and Safety Authority: monitoring and enforcement of workplace chemicals, occupational health and safety law, workplace accidents;
5. Health Protection Surveillance Centre: conducting human infectious disease surveillance
6. Department of Agriculture, Forestry and the Marine: conducting surveillance of animal infectious diseases
7. Health Information and Quality Authority: monitoring and enforcement of public health care standards

Specific legislation to support emergency response or underpin IHR 2005 monitoring is lacking with multiple gaps undermining an effective response to COVID-19, including in data sharing, quarantine and monitoring high-risk sites – EPHF1 (monitoring and surveillance); EPHF2 (PH emergency management); EPHF5 (health protection). The lack of a legislative framework underpinning the emergency response led to the need for a significant amount of primary legislation within Ireland, which hindered a timely response. Before COVID-19, evidence of updates to public health legislation was limited, or such updates were difficult to find. A programme of work to update public health legislation has been identified within successive Sláintecare implementation plans, but there is no evidence that such a work is in progress.

Multiple legislative frameworks with varying degrees of regulatory and enforcement mechanisms are in place to support the delivery of many of the EPHFs – EPHF1 (monitoring and surveillance); EPHF2 (public health emergency management); EPHF3 (governance, regulation and legislation); EPHF5 (health protection); EPHF10 (quality & access). For example, in relation to EPHF5 (health protection), frameworks exist for individual health threats including environmental threats (food, water, air, chemical and radiation), communicable diseases and occupational hazards, with independent public bodies or government agencies focused on a single threat and mandated to monitor and/or enforce roles at the national level (Box 14).

While limited in group membership and scope, some alignment across individuals and agencies delivering EPHF5 is apparent, such as that under the newly developed National Interdepartmental Antimicrobial Consultative Committee, jointly chaired by the Chief Medical Officer of the Department of Health and the Chief Veterinary Officer of the Department of Agriculture, Forestry and the Marine (84).

10 The list is intended to be indicative rather than exhaustive.
**Policies and strategies**

While multiple policies and strategies exist that support the delivery of the EPHFs, no overarching strategy or policy is available that coordinates the planning and delivery of the EPHFs across the system to support alignment of structures, resources, governance and workforce. The absence of such a strategy or policy creates the potential for a diffusion of the EPHFs across the system with duplication, gaps and inefficient use of resources – EPHF3 (governance, regulation and legislation); EPHF4 (planning, financing and management); EPHF9 (workforce). Most policies and strategies refer to a number of aspects of the EPHFs within the same document; for example, Healthy Ireland refers to several EPHFs, including EPHF3 (governance, regulation and legislation); EPHF5 (health protection); EPHF6 (prevention and early detection); EPHF7 (health promotion); EPHF8 (community engagement); EPHF11 (research) across overlapping or related areas (EPHF5) with limited evidence of alignment in terms of content or resources.

Where public health is defined, there is a mismatch between the scope of public health services, as defined within strategies and policies, and what is supported within planning, with a clear focus on health protection in terms of resourcing, infrastructure and planning. For example, while goal three of the Healthy Ireland Framework is to protect the public from threats to health and well-being, public health services outlined to reach this goal are limited to vaccination, IHR 2005 compliance and the prevention, control and surveillance of infectious diseases. Similarly, within the NSP 2021, public health services are outlined in broad terms while actions within the plan only relate to health protection services. Within the NSP 2022 greater emphasis was put on the promotion of health and well-being with a commitment made to ensure the contribution of public health into service design and policy implementation. However, focus on the delivery of clinical care remains apparent as does the focus on health protection within public health (85).

Strategies and policies are grounded in national data, with a reliance on external consultants for much project management, data analysis and forecasting. This reliance on external professionals may reflect a lack of appropriate technical expertise, particularly in statistical modelling capacity, a failure to recognize the technical expertise present, or the desire for so-called independent analysis. With COVID-19, this reliance has increased with external consultancy firms providing a range of services, from internal reporting mechanisms to community health network profiles. These COVID-19 capacities could be transitioned into national systems to ensure the legacy of ongoing investment.

**Design and prioritization**

No overarching coordination of the strategic design, planning and delivery of the EPHFs exists across the system to support alignment of structures, resources, governance, workforce and accountability. The approach to the design of EPHF delivery varies with some national level activities developing in response to strategic planning, including Ireland’s National Screening Service and National Cancer Control Programme. Others are developing more organically or on an ad hoc basis in response to external requests where strategic plans are or were lacking, such as the Health Protection Surveillance Centre and the Clinical Care Programmes. Strategic coordination of the input of those with specialist training and skills in public health into the EPHFs at the national or regional levels is lacking, as is a strategy for the organization or delivery of regional public health services.

Governance structures for the delivery of the EPHFs vary with some being led and managed through national structures only (e.g. cancer, immunization and screening), national and regional structures (e.g. health protection and emergency management) (Fig. 6) or regional structures only (e.g. health service improvement). No overarching governance structure for the EPHFs exists, with a number of vertical programmes reporting into the Office of the Chief Clinical Officer on the Executive Leadership Team of the HSE and others reporting through the Office of Strategic Planning. There is no senior public health medical or EPHF representation at the executive management level. Under the new model for public health, a new National Director for Public Health will report to the Office of the Chief Clinical Officer. No formal mechanism is in place to enable senior public health medical input in the national planning and prioritization process. Public health input is apparent within service development planning but appears to be ad hoc rather than formalized or consistent; for example, while public health medical input into Clinical Innovation and Design is formalized, strategic input into the individual clinical programme is not and is done on an ad hoc basis. Where input occurs, it tends to be at national rather than regional levels; for example, there was no input from regional departments of public health on the enhanced community care programmes, chronic disease hubs or healthy communities (50).

Formal integration of the EPHFs within the health sector is limited and the EPHFs in general are not incorporated into broader national health sector planning. However, the most recent implementation plan for Healthy Ireland signalled an intention to move to greater alignment for delivery of some EPHFs.
The new model for delivery of public health services supports the delivery of all four domains of Irish public health practice (i.e. health improvement, health services improvement, health protection and health intelligence) at national and regional levels within a single infrastructure. However, health protection remains separate from the other domains of practice, both from a practical and governance perspective at national and regional levels.

**Fig. 6.** Split regional governance structure for health protection

MDT: multidisciplinary team.

Source: adapted from Sláintecare presentations.

**Inputs and infrastructure supporting delivery of the EPHFs**

No single or unifying infrastructure exists to support delivery of the EPHFs, with wide variation in the inputs and supporting structures. Many EPHFs are represented at multiple levels within the HSE including within single-service national directorates, divisions or units, e.g. child health, cancer control, health service improvement, and national immunization. For example, EPHF6 (prevention and early detection) is represented within the Department of Health and the Department of Agriculture, Food and Marine at the governmental level and is delivered through several national and regional HSE structures, public bodies and nongovernmental organizations, and locally through GPs, local authorities and communities, all with varying degrees of internal and external collaboration (Fig. 7). The structures supporting delivery of other EPHFs are more streamlined; for example, EPHF7 (health promotion) is primarily delivered through national, regional and local HSE structures, with strategic direction from the Healthy Ireland programme within the Department of Health. Service delivery structures and inputs vary regionally for some EPHFs; for example, for the delivery of social inclusion services – EPHF7 (health promotion) (Fig. 7).
Fig. 7. Illustrative structures supporting delivery of EPHF6 and EPHF7

**EPHF6: Promoting prevention and early detection of diseases including communicable and noncommunicable**

- Dept of Health
- Dept of Agriculture, Food and the Marine

**EPHF7: Promoting health and well-being and actions to address the wider determinants of health and inequity**

- Dept of Health
- Dept of Employment Affairs and Social Protection

**PUBLIC BODIES & NGOs**

- Irish Water
- Environmental Protection Agency
- Food Safety Authority of Ireland
- Traveller Health Unit
- Irish Cancer Society

**HSE**

- Health & Well-being
- National Cancer Control Programme
- Child Health Programme
- Social Inclusion Office
- National Screening Service

**Organizational level**

- Regional
- National
- Government
- Local

- NPH: essential public health function; Dept: department; NGOs: nongovernmental organizations; HSE: Health Service Executive, Ireland; CHOs: community health organization; DPH: Department of Public Health GPs: general practitioners.

Note: The Institute of Public Health is a cross-border, research-focused organization co-funded by the government of Ireland and the government of the United Kingdom of Great Britain and Northern Ireland.

Source: developed by the Health Services Resilience Team, WHO.

The infrastructure for the delivery of EPHF2 (public health emergency management) is strong, including regional and national emergency management with interagency structures from regional to national levels. In response to a public health threat, such as a pandemic, the Department of Health is the lead government agency and is responsible for pandemic planning and the establishment of health security structures. The HSE is responsible for operational aspects of the health system pandemic response. The Health Protection Surveillance Centre within the HSE serves is the IHR 2005 focal point, but it does not have the capacity to be the lead agency in preparedness and response within the HSE (50). The internal public health emergency management structures are less well developed as they move from the regional to the national level, and have limited national enabling functions outside of times of emergency response.

Some EPHFs are driven and/or delivered across and beyond the health system, often in collaboration with national level public bodies with a legislative mandate, such as Irish Water, the Food Safety Authority of Ireland and the Environmental Protection Agency – EPHF5 (health protection; EPHF10 (quality and access); EPHF12 (medicines and technology). This applies particularly to EPHF5 (health protection) where there are multiple agencies focused on a single threat that formally link with other agencies (e.g. HSE) and groups that have a specialized function, such as regional departments of public health and environmental health, or a specialized role, such as local authorities (11). It also applies to EPHF7 (health promotion), which is mainly delivered through the Healthy Ireland infrastructure led by the Department of Health, which recognizes the intersectoral nature of health and links with organizations, communities and settings at local levels as appropriate (86).

The former Health and Wellbeing division of the HSE represented the public health aspect of health service delivery and incorporated many aspects of the EPHFs, including: public health, environmental health, infection prevention and control, immunization, crisis pregnancy, health promotion and improvement, chronic diseases and screening – EPHF1 (monitoring and surveillance); EPHF2 (public health emergency

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11 Local authorities responsible for the provision and administration of many public services, including housing, planning, road maintenance, environmental protection and fire services.

12 Following recent restructuring, the Health and Wellbeing Division no longer exists, its services and functions were redistributed to other HSE divisions, although it retains a budget line within the current NSP.
management); EPHF5 (health protection); EPHF6 (prevention and early detection); EPHF7 (health protection); EPHF8 (community engagement); EPHF10 (quality and access); and EPHF12 (medicines and technologies). However, there were no regional structures to support public health input beyond EPHF2 (public health emergency management) and EPHF5 (health protection), and the infrastructure for the delivery of EPHF7 (health promotion) bypassed public health at both the national and regional levels. Similarly, the National Corporate Service Plan recognizes the role of public health in health protection but commits resources primarily to health protection activities. Recent NSPs describe public health as having a role in health protection, with a focus on immunization, infectious disease prevention and control, response to environmental hazards, emergency response, health improvement and advising on health and social care service planning, all underpinned by health intelligence – EPHF1 (monitoring and surveillance); EPHF2 (public health emergency management); EPHF4 (planning, financing and management); EPHF5 (health protection); EPHF6 (prevention and early detection); EPHF7 (health protection); EPHF10 (quality and access) – but again, resources identified within the plans are heavily skewed towards health protection. For example, key deliverables for action for public health and health protection in the 2021 NSP related to sustaining the COVID-19 response, COVID-19 testing and tracing, procurement of a case and incident management system, and development of five-year national health protection information plan and health information bill (87).

The public health workforce is not defined and a strategic approach to resourcing and development of this workforce is not evident in relation to capacity or skills mix, nor to alignment of existing expertise with health service needs. In relation to the core public health workforce, successive reviews have indicated that resourcing of national and regional public health has been insufficient to deliver on their defined remit, both in consultant-level grades and the number and skills mix of the supporting multidisciplinary teams. Much of the specialist public health workforce is not working at the top of their licence due to a lack of administrative and multidisciplinary support (32,43,50,51). Currently a multidisciplinary workforce is being recruited into public health as part of the implementation of a new service delivery model, with the intention to release the specialist workforce to work at a more strategic level.

Statistical modelling capacity has been highlighted as a particular deficit both before and during the COVID-19 pandemic. While there is evidence of technical expertise for evidence synthesis within the Health Information and Quality Authority, it has lacked the capacity to support evidence-based decision-making in health service improvement and transformation (50). Substantial evidence-generating capacity also exists within the health sector – nationally within the HSE research function, in regional departments of public health and clinical settings, and in academic departments of public health – although evidence of strategic alignment or utilization of this capacity is limited.

While research had highlighted the need for stockpiles of personal protective equipment, pandemic planning processes were insufficient, and procurement and supply chains were challenged during the COVID-19 pandemic due to the volatility of global markets. This situation affected numerous settings, including home-care services, residential care facilities, hospitals and GP clinics, and led to the need to prioritize high-exposure areas. In an effort to address undersupply, a COVID-19 procurement framework was introduced to expedite negotiations and purchase agreements (88, 89).

Risk communication is a key element of several EPHFs and a core competency of public health. However, the present HSE infrastructure does not enable rapid input of public health expertise or support communication with the public, other stakeholders or other relevant groups at regional or local levels. Currently, HSE communication resources are coordinated centrally with 1 whole time equivalent supporting all regional departments of public health (50).

EPHF delivery is supported by many different laboratory services – primarily in relation to EPHF5 (health protection). The delivery of these services is somewhat separate, with results generally maintained in separate surveillance and information systems. Human laboratory services are currently provided by 46 hospital laboratories nationally with reference testing assigned to several larger hospitals, including the Public Health Laboratory, the National Viral Reference Laboratory and the State Laboratory. The Department of Agriculture, Food and Marine’s public health services are supported by a central laboratory with several regional laboratories (90). Consideration is currently being given to how laboratory capacities might be more streamlined in the future (91).

While it is clear that a significant amount of health and health service data informs health system planning, deficiencies in health information infrastructure and capacity have been identified before and during the pandemic (42,43,51,92). The health information infrastructure is fragmented with multiple data collection points and repositories within and outside the HSE13, and a lack of clarity on data access and sharing mechanisms. No regular national population health needs assessment appears to have been

13 The current Catalogue of National Health and Social Care Data Collections gives 124 national data collections with various organizational owners within and outside the health service.
undertaken with several regions developing regional population health needs assessments which are not standardized or in line with national prioritization processes. The need for a case and outbreak management system, integrated with surveillance and laboratory systems, has long been recognized. The capacity for epidemiological risk assessment and horizon scanning or the use of artificial intelligence and big data is limited. The limited modelling capacity within the Health Protection Surveillance Centre in particular and the health sector in general has also been recognized before and during the COVID-19 pandemic (42,43,51). While the Irish Minister for Health has recently proposed the development of a new health information bill to ensure Ireland has a fit-for-purpose national information data centre to enhance patient care and better support planning and health service delivery, this bill will likely take a number of years to develop and implement (93).

Service provision

The evidence suggests that all 12 identified EPHFs are being delivered to varying degrees within the Irish setting. Delivery is embedded in the health and social care infrastructure with services provided by multiple actors, both private and public. No coordinated approach to delivery of the EPHFs exists; some EPHFs are delivered directly through the health service and others in partnership with, public bodies, nongovernmental organizations and academia. Fragmentation is evident, with some EPHFs (32) being delivered at many different organizational and service levels within the health sector – EPHF1 (monitoring and surveillance); EPHF4 (planning, financing and management); and EPHF5 (health protection) – as well as in partnership with, public bodies and nongovernmental organizations – EPHF5 (health protection); EPHF6 (prevention and early detection); and EPHF7 (health promotion).

Fig. 8. Collaboration between public health, health and social care, and animal health to support delivery EPHF5 (health protection))
The delivery of the EPHFs tends to be narrow and separate, with a general focus on health protection (EPHF5). Many EPHFs including health protection (EPHF5) (Fig. 8) are delivered through informal partnerships rather than formal mechanisms that utilize existing capacity, expertise and resources to support efficiency in delivery of the EPHFs. For example, regional public health expertise tends to be focused on the delivery of health protection services. This focus is particularly apparent in the delivery of health sector planning and strategic development where private sector purchasing of external business consultants is relied on to support strategy and planning (50). Where there has been public health medical input into the development of models of care, the evidence suggests greater integration of preventive elements into service delivery, although the focus is still on health care delivery rather than primary prevention. Even within health protection, existing multisectoral structures supporting EPHF delivery are narrow in scope, including the One Health structure to support delivery of the national action plan on antimicrobial resistance (84).

The HSE Healthy Ireland structures seek to integrate prevention and health promotion into health service and community structures, and there is evidence of key reforms in enhancing primary preventive services and partnerships for health and well-being within recent NSPs (85,87). Sláintecare aims to improve primary and community services and reduce the reliance on hospital care, all underpinned by a public health approach. However, the ability to deliver the EPHFs in all contexts is still lacking, with no pre-existing surge capacity or mechanisms to ensure proportionate investment in public health capacities.

The HSE receives notification of funding allocation and priorities to be included in the NSP by the Department of Health. The HSE is responsible for the allocation of funding and sets out the high-level services to be provided within the NSP, which is approved by the Minister for Health. Resources are allocated based on existing level of service, or historic patterns of population demands, rather than in line with projected population demographics and policy objectives. While procedures are in place to support the mobilization of external resources from outside organizations and agencies, the HSE does not have the capacity for a contingency fund for emergency response in normal times (94). A central government COVID-19 contingency fund was set aside in 2022.

Coordination and integration

Integrated service delivery is lacking within the Irish system. One of the underpinning aims of Sláintecare is to address this issue by providing integrated services delivered through a long-term transformation programme. In relation to the EPHFs, no strategic approach is in place to coordinate all EPHFs, and levels of integration and coordination vary by organizational and service delivery levels. Where integration exists, it is often ad hoc and through informal mechanisms and channels supported by personal relationships and personalities. The exception is Healthy Ireland, which coordinates the delivery of services in a number of key priority areas, including tobacco, alcohol, healthy eating and active living, sexual health and crisis pregnancy, mental health and well-being, healthy childhood, and staff health and well-being, using multidisciplinary partnerships and actions.

National and regional public health medicine is not formally integrated in many structures delivering the EPHFs, including Healthy Ireland structures and the One Health structure for antimicrobial resistance. At the regional level, the roles, responsibilities and formal relationships of organizations delivering the EPHFs are often not defined or supported by memoranda of understanding or service level agreements, which has resulted in significant regional variation and hindered accountability. Regional structures and interprofessional forums supporting delivery of the EPHFs exist, but they lack strong national stewardship or integration within appropriate national structures and mechanisms. These structures are therefore not empowered to deliver their role through national budgeting, nor do they have access to supportive resources such as communications support and expertise. Primary care is also not generally integrated into emergency preparedness and response mechanisms, and its role in the delivery of the EPHFs has not been explicitly recognized.

Integration of available data is lacking, both at cross-service delivery levels (e.g. primary, secondary and tertiary levels) and between health and social care data systems. The need for the widespread roll-out of a unique health identifier to enable integration has long been recognized (36). Data across the human/animal/environmental interface are also not integrated, despite a plethora of available data, many of which are in open access repositories or in annual public reports (e.g. bathing water quality, human infectious disease surveillance and animal health).

The development of the public health sector within academia appears ad hoc with no strategic approach. Some centres have formalized links with public bodies and/or data repositories over time or have organically evolved to support health system aims (50). The current HSE strategy for research aims to develop an enabling infrastructure to support research without setting strategic direction or establishing
formal linking mechanisms to align research with health sector needs. The Health Research Board seeks to provide such alignment and aligns research capacity to assess the implementation of a number of strategies and policies. However, the proposed research forum to support more strategic alignment of research capacities with health system goals has not been established and public health input into the research tendering process of the Health Research Board is limited (50).

Monitoring and evaluation

It is clear from HSE national and corporate planning documents that detailed health service performance metrics are available and utilized for management and planning across a range of clinical and social care services. These performance metrics tend to be clinically focused measures of utilization and activity rather than outcomes. Key deliverables or activities are identified in a number of sections of the NSP; however, directly linked indicators for monitoring and evaluation were only found for the national operation model for COVID-19 test and trace. The need to develop effective monitoring and evaluation systems has been recognized, and while key performance indicators are often mentioned, they are not always readily defined. Within Sláintecare, plans are proposed to develop or revise area-specific key performance indicators (30).

A number of key performance indicators were found in the National Scorecard of the National Service Plan under quality and safety, access and integration, finance, governance and compliance and workforce, although these were largely focused on clinical services rather than public health functions or population-based services. The National Performance Indicator Suite, also within the NSP, includes a section on population health and well-being with several targets, most (8/9) of which are relate to vaccine uptake.

Where monitoring and evaluation frameworks exist, they tend to be siloed. Specific monitoring and evaluation frameworks are available for the implementation of Healthy Ireland and Sláintecare, although some indicators fail to capture relevant outcome data and the consequences of failure to achieve targets are unclear. There is, however, a signalled intent to align frameworks, including Healthy Ireland and Sláintecare, with system outcomes using the Health System Performance Framework, which is currently in development supported by the European Commission Structural Reform Support Service (30).

Mechanisms that support learning

Systematic approaches are lacking at the system level to ensure that learning is captured and translated into practice to improve performance, except for the inter- and after-action reviews following public health incidents. Adequate resources and skills mix are not available internally to support regular reviews (50). Specific national level departments, units and public bodies involved in the delivery of the EPHFs, including the National Screening Service, the National Cancer Control and Prevention Programme and the Health Information and Quality Authority, have developed internal approaches to capture lessons learned. For internal HSE units or departments, implementation of the findings requires the need for the development of business cases to access any required funding. Public bodies have the capacity to implement learning in line with their mandate and available resources. Regionally, there is no standardization across public health departments or in the use of learning systems to ensure best practice is captured, shared and applied consistently across all regions (50).

Strengths and opportunities

Despite significant challenges in relation to capacity, infrastructure and staffing, the Irish health system has been performing comparatively well across many health and health system indicators, including within the context of COVID-19. It is clear, however, that Ireland is facing a challenging time in the recovery period and beyond, with increasing pressure on the health system. This stems from the backlog of demand worsened by disruptions due to COVID-19 and an ageing population coupled with the burden of multimorbidity, and the high prevalence of underlying risk factors for chronic diseases. Health and socioeconomic inequities are also widening and implementation of Sláintecare, with its focus on community and primary care, has been slow. At the same time, economic constraints are likely in the wake of COVID-19 and the emergence of other public health challenges. While this leaves the Irish system vulnerable to the ongoing as well as future public health emergencies, the system has many strengths that can be further developed and utilized to enhance the effectiveness of recovery efforts while building resilience in all contexts.
1. Considerable capacity exists within health and allied sectors to deliver the EPHFs, and there is evidence of increased integration across EPHFs in response to COVID-19

The baseline capacities to deliver all of the EPHFs are readily identifiable within the Irish health system with some intersectoral extension noted. Some integration is apparent across the EPHFs and there is evidence that this increased during the COVID-19 response. This integration is generally ad hoc and informal, unsupported by formal mechanisms or infrastructure, and organic rather than strategic in development. This leads to duplication, gaps and variation in delivery while also hindering the effective utilization of existing capacity and expertise within the system. This situation is particularly apparent with evidence synthesis and generating capacity and within regional departments of public health. As a result, the opportunity to align resources, workforce, activities and accountability mechanisms is missed. The fragmentation of EPHF delivery also undermines the visibility and value of the public health agenda within and outside the health sector, perpetuating the over-reliance on acute care capacity.

There is an opportunity to operationalize the EPHFs within the Irish setting to promote alignment with and utilization of existing capacity to harness efficiencies and maximize synergies across the EPHFs. The EPHFs provide a comprehensive and operational framing for strengthening public health stewardship for the EPHFs at national and subnational levels. There is no single evidence-based approach to the delivery of the EPHFs, with models ranging from a diffusion of the EPHFs across the system, as is the case in the Irish setting, to the delivery of a number of EPHFs through a single independent institute. Following the experience with COVID-19, many countries with national public health institutes are currently widening their scope to enhance public health capacities. Regardless of the approach, effective operationalization of the EPHFs requires formal mechanisms that promote the integration in EPHF delivery both within and outside the health sector. It also requires appropriate visibility and placement of public health to enable effective influence of policy and strategy within and outside the health sector, which will enable legislation and governance, and proportionate and accessible resourcing.

2. There is a high level of public health expertise within the system that has been adding value within and beyond the health sector both before and during COVID-19, although this expertise is not supported by legislation, infrastructure, governance or adequate resources

The delivery of regional public health within the Irish context has followed a primarily medical model. Public health doctors in Ireland undertake higher specialist training in public health, which, while based on four domains of practice – health protection, health service improvement, health improvement and health intelligence – implicitly encompass the EPHFs. Higher specialist training is accredited nationally by the Royal College of Physicians Ireland and is recognized internationally. Public health medical expertise has been recognized in successive national reviews as adding value and promoting alignment with a public health approach where present. Consultants provide public health input in a number of national level programmes or divisions within the HSE as well as regionally, although input is lacking at the executive management level. Currently no enabling structures exist that ensure or promote input across all domains of Irish public health medical practice, and this is particularly acute for regional departments of public health. There is limited evidence of intersectoral partnerships with public health medicine and few mechanisms to support such collaboration.

A new model for public health service delivery was developed in 2019 in response to the recognized need to update legislation and change governance and infrastructure in order to enable public health leadership within the system. The new model for service delivery supports input across all domains of Irish public health medical practice and creates consultant-led multidisciplinary teams to enable consultants to work at the top of their licence, while allowing for the resourcing and development of public health multidisciplinary teams. The model does not however define the expertise required within public health teams, address underlying legislative gaps, promote intersectoral collaboration or ensure proportionate visibility of public health within the health sector. The existing specialist public health workforce, despite their current limited capacity, has demonstrated an agility and adaptability. These strengths, combined with the education and training institutions of this workforce, constitute a strong foundation which can be built upon to better deliver all EPHFs and build health systems resilience to deal with ongoing and future public health challenges. An opportunity exists to review the new model in light of lessons learned from COVID-19 to ensure existing public health expertise and capacity is utilized and enabled through the development of supportive legislation, infrastructure, governance and resources.
3. The Irish health care workforce has demonstrated tremendous resourcefulness and agility in response to COVID-19, in the face of significant infrastructure, capacity and staffing challenges

Workforce capacities have traditionally been skewed towards acute care health services, with significant capacity issues apparent before and during the COVID-19 response (50). Before COVID-19, Ireland was experiencing health workforce recruitment problems, particularly with clinical staff and the public health workforce was chronically under-resourced. Innovative approaches to expanding the workforce in response to COVID-19 saw the return of a significant number of retirees as well as the enlistment of students to bolster response capacity. Despite these and other efforts, rapid and ongoing redeployment to public health and community services was required to support COVID-19 response. There was a need to develop and deliver training and guidance materials to support redeployed staff, and to design new models of care to support testing and vaccination services, among other things. Staff across regional departments of public health provided a seven-day a week service, and health care workers across the system engaged with labour-intensive workarounds to provide the data required to support the response and effective decision-making. There is a need to identify the expertise and competencies required to effectively deliver across the EPHFs in all settings as well as formally recognize and resource these roles, including consideration of surge capacities.

The opportunity exists to recognize, support, resource and develop the public health workforce, both the core workforce and those within the wider health sector and beyond who contribute to the delivery of the EPHFs, so as to promote agility and the ability to adapt to evolving public health challenges while improving motivation and retention.

4. Significant capacity for evidence generation and synthesis exists within the Irish health system

The Irish health system has significant research capacity, locally within both acute and primary care services, regionally within departments of public health and nationally within HSE structures. While the HSE research strategy seeks to create an enabling infrastructure and environment to support research, it does not integrate existing capacity and align this with health system needs. Ireland has a number of well recognized and established academic departments of public health in universities around the country as well as a number of public bodies that collect and analyse health-related data. Some of the institutions had established relationships with national HSE functions, data repositories and/or regional departments of public health. These relationships are generally ad hoc and supported by informal mechanisms, although a number of joint academic and clinical posts exist. In addition, a number of public bodies, including the Health Information and Quality Authority, the Economic and Social Research Institute, and Institute of Public Health, deliver analysis or synthesis of local or international data in support of health and health system optimization. These bodies have been either under-resourced to support effective health system and health service transformation on an ongoing basis, or they are not sufficiently aligned to ensure health system needs. Ireland also contributes to a number of international collaborations including WHO, European Centre for Disease Prevention and Control, the Institute for Public Health, the European Medicines Agency and the EU Scientific Advice Platform on COVID-19. The pandemic has strengthened and enhanced many of these collaborations.

The opportunity exists to align and utilize existing capacities to create a strong operational research resource. This resource could enable joint activity planning, sharing of information and expertise, and resource optimization, which could support sustainability of the EPHFs given the anticipated fiscal constraints following COVID-19. The increased multisectoral collaboration during COVID-19, and the structures and mechanisms that enabled this collaboration, demonstrate that a more holistic and integrated approach to public health is possible.

5. The need for whole-of-society and whole-of-government approaches to health is recognized and efforts have been made to align and integrate, although the focus on clinical care remains

The need for a whole-of-government and whole-of-society approach to health is recognized within Irish strategy and policy documents, most notably Sláintecare and Healthy Ireland. Ireland delivered a whole-of-government response to COVID-19 by utilizing and widening existing interagency emergency management structures, widening the scope of existing multisectoral mechanisms, including the One Health platform for antimicrobial resistance, and strengthening existing international collaborations.
and information-sharing mechanisms. This effort was further supported by the creation of a special cabinet committee with representation from all government departments and agencies and chaired at the highest level, which ensured whole-of-government actions.

Commitment to whole-of-society engagement is also incorporated within Sláintecare and Healthy Ireland although implementation tends to be focused on information-sharing rather than partnership and engagement. Existing mechanisms have supported and utilized community engagement and partnership for health including the Healthy Ireland Council, citizens’ assembly (Box 15) and Oireachtas committee public consultations. A whole-of-society response to COVID-19 was apparent in Ireland, with a high degree of community engagement with response efforts and high levels of national and health system solidarity. This was supported by a strong, integrated national communications approach that ensured a single governmental message as well as the targeting, testing and monitoring of the effectiveness of messaging.

There is an opportunity to sustain, embed and utilize these mechanisms to support whole-of-government and whole-of-society engagement for health and to ensure true community and intersectoral partnership for health in support of resilience.

Box 15

Ireland’s citizens assembly

A citizens’ assembly brings together citizens to discuss and consider important legal and policy issues. Members are randomly selected from the electoral register and should reflect Irish society in terms of age, sex, social class and regional spread. The assembly invites and accepts submissions from people who are interested in the topic, including Expert Advisory Groups, and makes recommendations to the Oireachtas. Previous assemblies have considered the eight amendments of the Constitution which granted equal rights to life of a pregnant woman and her unborn child, gender equality, voting rights, same sex marriage and blasphemy.

6. Despite infrastructural and capacity issues in relation to health information systems, data informed planning is evident at a high level within the health sector and Ireland has had a data driven response to COVID-19

Ireland’s open access to data and ability to mobilize resources to develop new data partnerships and enhance existing ones have helped the country manage significant deficits in ICT infrastructure, interoperability and capacity. Much of this was due to local innovation and labour-intensive workarounds rather than improvement in infrastructure or capacities. The health information infrastructure is fragmented with lack of clarity on access and information-sharing mechanisms within and outside the health sector. Sustainable modelling and statistical capacity are lacking and capacity for epidemiological risk assessment and horizon scanning is limited. While many health service performance data are available to support health sector planning, assessment of national population health needs is lacking, and many key performance indicators are activity-base rather than performance-based. Mechanisms that promote the systematic capture of information to inform learning and improvement are lacking. Addressing these foundational issues presents a real opportunity to transform the health system.

Limitations of the review

In order to align with the ongoing public health reform process in Ireland, the time for conducting this analysis of the EPHFs in Ireland was short. This limited the options in terms of the approach and the granularity of findings. The approach taken was a rapid review of key documents combined with interviews with key informants with a focus on health system and health sector documents and

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15 The Healthy Ireland Council was reported as the most significant action within Healthy Ireland to utilize whole-of-society engagement. Established for a three-year period, it comprised 36 members from a wide range of sectors and included recognized leaders and influencers, academics, older people, sports organizations, nongovernmental organizations, media and young people.

16 Oireachtas committees may use public consultations to seek input from groups or organizations in relation to matters on its work programme. They often relate to proposed legislation or important policy areas and provide an opportunity for stakeholders and interested parties to contribute. Submissions are accepted from any person or party.
stakeholders. Findings focused on high-level stewardship and coordination of the EPHFs rather than on the detailed delivery or effectiveness of each individual public health function. The time constraint informed the study design and the objectives of this analysis. It is important to note that this review is not as in depth as the assessment of EPHF implementation identified as a key for operationalizing the EPHFs. However, the current approach can be adapted by other countries to gain a strategic and focused understanding of the delivery of the EPHFs in their contexts.

The fast and constantly evolving structures in response to COVID-19 and the ongoing multiple health sector reforms (e.g. Sláintecare, and public health reform) created another challenge in understanding the up-to-date delivery of the EPHFs in Ireland. Most documents reviewed reflected EPHF delivery before COVID-19 with some related to the COVID-19 response and others reflecting changing priorities with COVID-19. The most recently published documents reflect planning at the national level, but implementation of the plans may take time. Some recent changes in the EPHFs have not been properly documented and may not have been captured in the findings. However, key informant interviews mitigate this information bias to some extent.
Potential areas of improvement for the optimal delivery of the EPHFs

Operationalizing the EPHFs can ensure comprehensive and integrated consideration of public health in national systems in Ireland that is both affordable and sustainable. As COVID-19 clearly demonstrated, the cost of inaction is too high and implementation of multisectoral approaches and health in all policies are needed given the likelihood of further public health emergencies of similar or even greater scale in the near future. The aim of this review was to identify actions that could address gaps and optimize the delivery of public health through the improved stewardship and operationalization of the EPHFs at national and subnational levels. Taking into account the strengths and capacities currently present within the Irish health and allied systems to support delivery of the EPHFs, with reference to national and international experience with COVID-19 and being mindful of the major health system challenges faced, several opportunities become apparent that support the optimal delivery of the EPHFs. These are presented below together with functional and concise actions in support of each area of improvement. Box 16 provides additional information on the essential enablers required to underpin these actions and ensure their effectiveness.

1. Enhance integration and coordination of the EPHFs within the Irish system for strategy, planning, financing, implementation, and monitoring and evaluation to reduce fragmentation and promote efficiency and effectiveness

- Utilize the EPHFs to define the operational scope of public health. The EPHF approach provides a comprehensive and cost-effective approach to public health. Its use would ensure that all requirements to enable effective public health action are appropriately addressed, integrated and aligned within the Irish setting.
- Develop a national public health strategy, aligned with the current health sector strategy, which recognizes the intergovernmental and intersectoral nature of public health action, provides appropriate financing mechanisms to support delivery, and ensures that existing capacities are utilized, including capacities for research and evidence synthesis and within regional departments of public health.
- Develop key performance indicators for the EPHFs and health system resilience that: are relevant to population health outcomes at national and subnational levels; move towards intersectoral responsibility and accountability for health; and are incorporated into appropriate sectoral plans to further promote intersectoral alignment and harness synergies in delivering the EPHFs.

2. Increase the visibility and profile of the public health agenda within the Irish setting

- Identify the appropriate strategic placement of and adequate resourcing for a coordinating structure for public health to enable public health leadership to effectively promote and sustain proportionate focus and investment in public health on an ongoing basis.
- Review the governance structures for the delivery of the EPHFs at all levels, both within and beyond the health sector, to ensure clarity in definition of the roles, responsibilities and relationships of all entities delivering the EPHFs to ensure standardized approaches to and accountability for delivery of all EPHFs.
- Review the institutional arrangements for the delivery of public health at all levels to ensure appropriate mechanisms are in place to enable effective delivery of intersectoral action on health and actions on the wider determinants of health nationally and regionally.

3. Sustain and utilize existing mechanisms in support of a whole-of-government and whole-of-society approach to health, including emergency preparedness and response

- Define the desired new baseline for national systems, taking account of the additional resources and structures within the current COVID-19-focused baseline. A national level inventory can identify the structures and resources that need to be sustained during the transition from acute response
to the recovery period in order to ensure the protection and promotion of health as part of wider socioeconomic recovery.

- Identify the structures and coordinating platforms to be sustained and utilized in support of a whole-of-government approach to health that addresses a wider range of public health challenges in an integrated manner, as well as the socioeconomic dividends expected from such investment. This would enable ongoing whole-of-government promotion of health and well-being, while also strengthening interprofessional and intersectoral response mechanisms for future public health emergencies; for example, the Special Cabinet Committee on COVID-19, the collaboration between the public health and the Department of Education on COVID-19 and the One Health Committee for Antimicrobial Resistance.

- Sustain and harness the existing mechanisms promoting whole-of-society participation in health such as the Healthy Ireland Council and the Citizen’s Assembly to promote community engagement, partnership and empowerment to inform and engage at all levels.

4. Define, recognize and develop the public health workforce to ensure its agility and capability to adapt to ongoing evolving public health challenges

- Define the skill set and competencies of the public health workforce required to effectively deliver all the EPHFs in all settings and contexts. This definition should include the current diverse and interdisciplinary public health workforce as well as public health specialists, allied health and care workers and those outside the health sector involved in the delivery of one or more of the EPHFs. This also includes identifying the baseline capacity of the public health workforce and what is required to enable them to deliver the EPHFs.

- Profile and map the wider public health workforce to inform workforce planning as well as the development of appropriate mechanisms to enable surge capacity during public health emergencies. This action would facilitate rapid scale-up and scale-down as appropriate and targeted redeployment of the workforce as required.

- Develop national and regional strategies for addressing priority gaps in workforce availability and competency. This can include review of pre- and in-service public health education and the development of competency-based and modular education programmes in priority public health areas contextualised to Ireland’s national and subnational setting which can be integrated into wider training programmes. This should be a collaborative exercise with key stakeholders and partners across public health organizations, schools of public health and academic departments, and health and allied sectors.

5. Address critical issues in the health information system to ensure the availability of appropriate and timely data that support an effective response to all public health challenges

- Review the current ICT strategy to ensure ICT issues in infrastructure, security and digitalization are recognized and properly addressed and supported by appropriate resourcing to guarantee timely implementation.

- Ensure integration and interoperability of data and systems across and between health and allied sectors as a foundation for health system strengthening.

- Ensure sustainable modelling capacity, evidence synthesis and public health intelligence that promotes an evidence-informed approach to planning, prioritization and implementation, with systematic consideration of lessons identified from various shocks and stressors.

- Ensure the upcoming health information bill recognizes the need for public health intelligence as distinct from health system performance data so that robust and timely data are available to support surveillance, monitoring and decision-making in all contexts. This could be aligned with the recent EU data strategy which provides for the establishment of independent national health information centres to receive health information data from private and public sources.
1. **Political commitment at the highest level** is the most important enabling factor. If this commitment is absent, action across all other areas is unlikely to be effective and sustained.

2. **Institutional structures to lead and coordinate the EPHFs** provide the institutional foundation for the EPHFs. These include national and subnational governance arrangements.

3. **A strong public health workforce** is at the heart of efforts towards delivering the EPHFs recognising that this workforce includes those working within and beyond the health sector, for example, in road safety, allied emergency services, agriculture and food industries, and broader social and economic policy.

4. **Population health needs assessment and risk profiling** are key to contextualizing and delivering the EPHFs at the local level and support reorientation and adaptability of systems to meet evolving population needs and build health system resilience.

5. **Monitoring and evaluating provision of the EPHFs** allows better use of limited resources, especially given anticipated fiscal constraints following COVID-19, as well as the identification of gaps and duplication in activities at national and subnational levels. The evidence generated from monitoring and evaluation can also facilitate better evidence-informed policy- and decision-making.

6. **Multisectoral responsibility and accountability for the EPHFs** can accelerate progress towards universal health coverage, health security and sustainable development by creating an environment in which all actors are accountable for their responsibilities and are aware of the wider benefits of health in all policies to respective sectors and broader socioeconomic development and wellbeing.

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**Box 16**

Key considerations to support operationalization of essential public health functions (6)

1. Political commitment at the highest level is the most important enabling factor. If this commitment is absent, action across all other areas is unlikely to be effective and sustained.

2. Institutional structures to lead and coordinate the EPHFs provide the institutional foundation for the EPHFs. These include national and subnational governance arrangements.

3. A strong public health workforce is at the heart of efforts towards delivering the EPHFs recognising that this workforce includes those working within and beyond the health sector, for example, in road safety, allied emergency services, agriculture and food industries, and broader social and economic policy.

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6. Multisectoral responsibility and accountability for the EPHFs can accelerate progress towards universal health coverage, health security and sustainable development by creating an environment in which all actors are accountable for their responsibilities and are aware of the wider benefits of health in all policies to respective sectors and broader socioeconomic development and wellbeing.
References


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86. Healthy Ireland: a ten year plan to achieve universal healthcare in Ireland. Health Policy. 2018;122(12):1278–82. doi: 10.1016/j.healthpol.2018.05.006


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Annex 1. Method for mapping

Literature search and document review protocol

Review objective

To conduct national mapping of essential public health functions (EPHF) in Ireland in relation to policy, infrastructure, service delivery, coordination and integration, incorporating lessons learned from the coronavirus disease 2019 (COVID-19) pandemic, for improved stewardship and operationalization of the EPHFs at national and subnational levels.

Document review

A list of recent (2019) Irish strategy and planning documents that referred to one or more of the EPHFs was compiled using the illustrative list in Table A1.1. Where recent strategies and policies in key areas were not available but older documents existed, the older documents were included in the review.

Table A1.1. Types of documents reviewed

<table>
<thead>
<tr>
<th>Health systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Health Sector Strategic Plan and complementary national documents pertaining to national legislation, policy or regulation (e.g. public health legislation, International Health Regulations, 2005 strategic plans)</td>
</tr>
<tr>
<td>National quality policy or strategy</td>
</tr>
<tr>
<td>Health system assessments</td>
</tr>
<tr>
<td>Public health system assessments</td>
</tr>
<tr>
<td>Health information management system documentation</td>
</tr>
<tr>
<td>Health financing documentation (e.g. health budget or national health accounts)</td>
</tr>
<tr>
<td>Health research</td>
</tr>
<tr>
<td>Subnational operational planning efforts</td>
</tr>
<tr>
<td>Health workforce strategies with relevance to public health</td>
</tr>
<tr>
<td>Public health reviews</td>
</tr>
<tr>
<td>Relevant programme-specific plans and reports (e.g. antimicrobial resistance, immunization and noncommunicable diseases)</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Health security</th>
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</thead>
<tbody>
<tr>
<td>Emergency preparedness and response plans</td>
</tr>
<tr>
<td>Performance of veterinary services reports</td>
</tr>
</tbody>
</table>

Searches

1. Peer reviewed literature search

Databases: PubMed, OVID, Web of Science, EBSCOhost (including Academic Search Complete Business Source Complete, SocINDEX with full text, EconLit and MEDLINE), Scopus and ProQuest (including IBSS Online and ASSIA). Snowballing from articles included from December 2011 onwards.

The mapping was further supplemented by the findings of an evaluation of the integration between EPHFs in the Irish context involving stakeholder mapping and interviews with key informants.
Restrictions: Published December 2011–January 2022; articles in English only.

2. Grey literature search

Sites searched: Google, Health Service Executive, Ireland and Department of Health websites, WHO website and four grey literature databases (WHO IRIS repository, National Bureau of Economic Research, Global Health, and Open Grey)

Restrictions: Published December 2011–January 2022; articles in English only.

Types of documents/articles to be included

Included:

- Publications related to one or more EPHF
- Publications from the Irish context
  - Those from countries of similar socioeconomic status (e.g. United Kingdom of Great Britain and Northern Ireland, France, Canada, Germany, and Greece) were also included if of technical/EPHF relevance
- Publications at the national or subnational level
- Publications based on empirical data and analysis.

Excluded:

- Publications primarily focusing on clinical care and individual health services
- Publications from middle-/low-/lower-middle-income countries
- Publications that are primarily conceptual and not based on empirical data.

Example search string

((public health OR essential public health function* OR essential public health operation* OR essential public health service* OR population health OR health protection OR health promotion OR health improvement OR health service improvement OR health intelligence OR disease prevention) AND (Republic of Ireland OR Ireland OR Irish))

Analysis

All documents were reviewed using the key questions matrix (Table A1.2).
<table>
<thead>
<tr>
<th>Area</th>
<th>Technical questions</th>
<th>Cross-cutting questions</th>
</tr>
</thead>
</table>
| Policy and planning          | • What legislative frameworks support delivery of the EPHFs in terms of individual public health functions (e.g. Ministry of Health, data protection and sharing), and integration between functions and across government departments and sectors as appropriate?  
• What are the key policies and strategies that support the EPHFs in Ireland?  
• Is there evidence of effective implementation of identified strategies?  
• What policies govern the mobilization of and allocation of resources for the EPHFs?  
• How are essential public health services designed and prioritized?  
• How are the EPHFs incorporated into broader national health sector planning and aligned in terms of content, resources and governance mechanisms?  
• How is monitoring and evaluation incorporated into policies and planning for the EPHFs (e.g. responsibility, timing and actions)?  
• What are the strengths, areas for improvement and opportunities in terms of:  
  - policies, plans and strategies  
  - legislation  
  - infrastructure  
  - service provision and  
  - coordination and integration?  
• Are there examples of good practice and/or lessons learned from recent public health events or health system stressors, e.g. COVID-19, that can inform future directions and improvement?  
• How is monitoring and evaluation of the EPHFs integrated or aligned to support unified goals within and out with the health sector?  
• Is there evidence of systematic capture and translation of lessons learned? |                                                                                                                                                                                                                        |
| Inputs and infrastructure     | • What are the inputs and infrastructure in Ireland that support delivery of the EPHFs?  
• Institutes, laboratories, national and regional units, public health schools, research facilities and clinical care facilities.  
• Health workforce (e.g. public health workforce, primary health care workforce and health care workers trained/oriented in public health)  
• Is the appropriate skills mix in place to enable delivery of all EPHFs?  
• Are skills utilized appropriately, i.e. matched to task?  
  - Health information systems (e.g. interoperability, mechanisms that promote access to and sharing of surveillance, health service, clinical, demographic and other data for public health with all relevant partners) and other information and communications technology structures  
  - Supply chains for essential medicines, diagnostics, therapeutics, vaccines and personal protective equipment  
  - Relevant organizations beyond the health sector  
• What mechanisms are in place that support learning within the EPHFS?  
• To what extent is the current infrastructure fit for purpose to meet the current and emerging threats to public health in Ireland? |                                                                                                                                                                                                                        |
| Service provision            | • How are systems and services oriented to deliver and maintain the EPHFs in all contexts?  
• How do the EPHFs affect and influence service provision within Ireland?  
• What mechanisms are in place that enable public health to inform planning, prioritization and resource allocation?  
• What are the processes in place to determine resource allocation in all contexts?  
• Are all EPHFs delivered within current structures, either directly or through defined collaborative partnerships (e.g. research and development, academia and Irish Engineer Corps)?  
• How are preventative and health promotive interventions incorporated into service provision in all contexts? |                                                                                                                                                                                                                        |
<table>
<thead>
<tr>
<th>Area</th>
<th>Technical questions</th>
<th>Cross-cutting questions</th>
</tr>
</thead>
</table>
| Coordination and integration | • Who are the key stakeholders involved in the provision of the EPHFs?  
• Within and out with the health sector (e.g. animal, agricultural and environmental actors, community health, army engineer corps, services for vulnerable populations, laboratory services, primary care and the private sector)  
• To what extent are the roles, responsibilities and governance structures of each key stakeholder group clearly defined?  
• What are the mechanisms that support the coordination and integration of the EPHFs in Ireland within the health sector, across sectors, in government departments and at the community level?  
• Is there evidence of duplication of delivery of the EPHFs across the system?  
• What mechanisms are in place that enable a whole-of-government/ whole-of-society approach?  
• Are there examples from recent public health events or health systems stressors such as COVID-19 or economic downturns where a whole-of-government/ whole-of-society approach was used? |  

Annex 2. Approach to strategic lessons

Collation of strategic lessons from global experience with coronavirus disease (2019) with reference to delivery of essential public health functions at the country level

Context

The overall aim of this collaborative project was to undertake national mapping of the agreed essential public health function (EPHFs) in Ireland in relation to policy, infrastructure, service provision and coordination and integration with a view to proposing actionable recommendations to improve the stewardship and operationalization of the EPHFs. The recommendations will be grounded in the context of lessons learned from the global experience with COVID-19. This will require the identification and collation of lessons learned internationally and contextualized to the Irish setting.

Aim and objectives

The aim of the collation of strategic lessons was to identify examples of good practice and/or lessons learned from experiences with COVID-19 or other recent public health events or health system stressors that can inform future directions and improvements. Some commonly identified areas of focus for lessons learned to date include urban versus rural challenges, private sector engagement, multisectoral engagement, inequity and areas of deprivation.

The objectives include:

- Identifying examples of good practice in the delivery of or coordination between the EPHFs at country level with reference to COVID-19 or other recent public health events or stressors;
- Identifying lessons learned relevant to the delivery of or coordination between the EPHFs obtained through direct country-level experience of COVID-19 or other recent public health events or stressors; and
- Contextualizing identified lessons within the Irish context using available evidence.

Approach and scope

A rapid review of recent (2020 to present) literature encompassing peer-reviewed published academic literature and other relevant and accessible literature from key global and national organizations will be undertaken to identify relevant materials for review. Materials will be included in the review if they:

- present lessons identified through direct experience with COVID-19 or other recent public health events or stressors;
- are at the country level rather than at the level of global actors or organizations; and
- are of relevance to the delivery of one or more of the EPHFs.

Materials will be excluded from the review if they:

- are relevant to global rather than national actors;
- are not based on direct experience or analysis of country-level data; and
- relate to aspects of COVID-19 beyond the EPHFs, e.g. clinical care, individual-level vaccine effectiveness and effectiveness of public health interventions.
## Annex 3. EPHFs agreed scope and boundaries

<table>
<thead>
<tr>
<th>EPHF</th>
<th>Description</th>
<th>Components</th>
<th>Scope</th>
</tr>
</thead>
</table>
| Monitoring and evaluating population health status, health service utilization and surveillance of risk factors and threats to health | Monitoring and evaluating population health status, health service utilization and surveillance of risk factors and threats to health | Surveillance tools and resources | Health data sources and tools  
Population health and disease surveillance  
Surveillance of health system performance  
Analysis and integration of available data sources  
Mechanisms for dissemination and use of data |  
Mechanisms to provide data/analysis to, for example, policy holders, national and local governments, public health departments, health service organizations, community health organizations and civil society |
| Public health emergency management | Activities that support the prevention of, preparation for, early identification of, rapid response to and recovery from public health emergencies of various origins | Planning for preparedness and response to health emergencies | Periodic risk assessments (natural hazards, human cases, technologies  
Emergency planning (plans, sector-specific protocols)  
Coordination structures/mechanisms  
Information management  
Risk communication  
Identification and monitoring of health hazards  
Risk and vulnerability assessments  
Alert systems for specific risks  
Laboratory support for threat investigation  
Preparedness and response  
Institutional framework for emergency preparedness  
Mitigation actions to reduce long-term vulnerability to public health emergencies  
Implementation of International Health Regulations, 2005 |
<table>
<thead>
<tr>
<th>EPHF</th>
<th>Description</th>
<th>Components</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assuring effective public health governance, regulation and legislation</td>
<td>Building and maintaining a strong operational infrastructure for public health that includes effective health governance, regulation and public health legislation</td>
<td>Governance includes evidence-based policy development that informs decision-making on issues related to public health</td>
<td>Clarity and coherence of organizational structures for delivery of public health functions</td>
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<tr>
<td></td>
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<td>Linkages to all independent public agencies on health</td>
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<td>Links between public health and initiatives that affect health beyond the health sector (e.g. trade, environment, foreign policy, agriculture (and development)</td>
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<td>Clear lines of institutional responsibility and accountability within and across public health functions</td>
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<td>National strategies, policies and plans for public health</td>
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<td>Quality assurance schemes for health system</td>
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<td>Systems for evaluation of effectiveness of public health interventions</td>
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<td></td>
<td>Collaborative government mechanisms for public health challenges</td>
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<td></td>
<td>Public health legislation and regulation include the institutional capacity to formulate health legislation, especially public health laws and regulations that enable actions to prevent disease, and protect and promote public health by ensuring proper, consistent and timely compliance with the regulatory and enforcement frameworks</td>
<td>Legislation for public health</td>
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<td></td>
<td>Enforcement mechanisms</td>
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<tr>
<td></td>
<td></td>
<td>Regulations pertaining to, for example, public health, infectious diseases, environment, food, chemical, radiation, occupational health and safety, housing, planning</td>
<td>Mechanisms for multisectoral action on health</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Institutional structure or platforms for the appropriate implementation of key public health functions (e.g. national public health institutes, health protection agencies and centres for (disease control)</td>
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<td></td>
<td>Public health laboratory capacity (e.g. general, environmental, other hospital, university and (private)</td>
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<td>National public health institutes, schools of public health, actors delivering the EPHFs outside government and oversight mechanisms</td>
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<td></td>
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<td></td>
<td>Mechanisms that support communication of key messages to appropriate stakeholders</td>
</tr>
<tr>
<td>EPHF</td>
<td>Description</td>
<td>Components</td>
<td>Scope</td>
</tr>
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<tr>
<td>Supporting efficient and effective health systems and multisectoral planning, financing and management for population health</td>
<td>Planning, financing, assessment and management of health systems, including 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</td>
<td>Health policy and planning cycle</td>
<td>Mechanisms for stakeholder participation in policy development including public health</td>
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<td>Structures and mechanisms to support the use of situational analyses, population health needs assessments, health impact assessments and health technology assessments in policy development</td>
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<td>Population health needs assessments including needs-based prioritization to support allocation of resources at national and subnational levels to support national planning</td>
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<td></td>
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<td></td>
<td>National, regional and local strategies, policies and plans for public health monitoring and evaluation activities embedded in strategies and policies on public health</td>
</tr>
<tr>
<td>Financing and resource allocation</td>
<td>Budget lines for systematic and emergency public health services within the health system (in various areas including primary care, specialized care, procurement, enforcement, emergency services, laboratories, national public health institutes and the education sector)</td>
<td></td>
<td>Allocation of resources based on public health principles of equity and cost-effectiveness and alignment of allocation with service planning</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Purchasing and procurement mechanisms linked to public health planning</td>
</tr>
<tr>
<td>Development, implementation and evaluation of models of care</td>
<td>Implementation of strategies, policies and plans for public health</td>
<td></td>
<td>Development, implementation and evaluation of models of care</td>
</tr>
<tr>
<td><strong>EPHF</strong></td>
<td><strong>Description</strong></td>
<td><strong>Components</strong></td>
<td><strong>Scope</strong></td>
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<tr>
<td>Protecting populations against various and cross-sectoral natural, human-induced and environmental health threats, which may or may not evolve as public health emergencies</td>
<td>Protection from various hazards including environment, occupational, communicable disease, food, chemical and radiation hazards, road safety, and protection of workers, patients, consumers and the environment</td>
<td>Legislative and regulatory frameworks to protect health</td>
<td>Communicable diseases, environmental hazards including air, water and soil quality, climate change mitigation and energy security, housing and planning legislation and regulation, occupational health and safety legislation and regulation, food safety, chemical and radiation hazard safety, road safety, consumer product safety, patient safety, and ports of entry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Technical and institutional capacity for risk assessment across threats</td>
<td>Integrated surveillance systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Capacity of public health laboratories</td>
<td>Mechanisms for analysis and sharing of data on threats and challenges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Independently mandated enforcement authorities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Collaborative mechanisms including cross-border mechanisms</td>
<td>Intersectoral and cross-border mechanisms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supervision, monitoring, evaluation and enforcement mechanisms</td>
<td>Audits and reporting systems</td>
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<td></td>
<td>Inspections and monitoring</td>
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<td></td>
<td></td>
<td>Coordinated resource mobilization</td>
<td></td>
</tr>
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<td></td>
<td>Management and mitigation of risks</td>
<td>Effective penalties for infractions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mechanisms for information and communication sharing (fluidity of communication and collaboration between Ministry of Health and stakeholders including other government ministries, laboratories, information systems, civil services, and community stakeholders (industry, labour, agriculture, general population)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Incentives for preventive actions</td>
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<td></td>
<td></td>
<td>Institutional capacity to respond to hazards</td>
<td></td>
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<td></td>
<td></td>
<td>Research to track progress</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Risk communication mechanisms</td>
<td></td>
</tr>
<tr>
<td>EPHF</td>
<td>Description</td>
<td>Components</td>
<td>Scope</td>
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</tr>
<tr>
<td>Promoting prevention and early detection of diseases including noncommunicable and communicable diseases</td>
<td>Disease prevention involving specific interventions aiming to minimize the burden of disease and associated risk factors, including legislation and policies that reduce exposure to risk factors or promote factors that prevent diseases</td>
<td>Primary</td>
<td>Primary preventive services and activities including vaccination and post and pre exposure prophylaxis, provision of information on behavioural and medical health risks and measures to reduce risks at individual and population levels, disease prevention programmes at primary and specialized health care levels, nutritional and food supplementation, maternal and neonatal care programmes, and dental hygiene education and oral health services</td>
</tr>
<tr>
<td>Secondary prevention</td>
<td>Secondary prevention including population-based screening programmes for early detection of disease, provision of maternal and child health programmes, including screening and prevention of congenital malformations and provision of chemoprophylactic agents to control risk factors (hypertension), provision of secondary preventive services for noncommunicable diseases</td>
<td>Secondary prevention</td>
<td>Secondary prevention including population-based screening programmes for early detection of disease, provision of maternal and child health programmes, including screening and prevention of congenital malformations and provision of chemoprophylactic agents to control risk factors (hypertension), provision of secondary preventive services for noncommunicable diseases</td>
</tr>
<tr>
<td>Tertiary prevention</td>
<td>Provision of rehabilitation services for chronic diseases, pain clinics, survivorship support and palliative care</td>
<td>Tertiary prevention</td>
<td>Tertiary prevention</td>
</tr>
<tr>
<td>Support mechanisms</td>
<td>Supporting legislation and regulatory mechanisms</td>
<td>Support mechanisms</td>
<td>Support mechanisms Supporting legislation and regulatory mechanisms</td>
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<tr>
<td></td>
<td>Capacity for multisectoral actions and mechanisms to promote intersectoral collaboration and leadership performance of health impact assessments on full range of national policies</td>
<td></td>
<td>Capacity for multisectoral actions and mechanisms to promote intersectoral collaboration and leadership performance of health impact assessments on full range of national policies</td>
</tr>
<tr>
<td></td>
<td>Multisectoral partnerships for disease prevention</td>
<td></td>
<td>Multisectoral partnerships for disease prevention</td>
</tr>
<tr>
<td></td>
<td>Mechanisms and structures that support reorientation of health services to develop care models that encourage disease prevention</td>
<td></td>
<td>Mechanisms and structures that support reorientation of health services to develop care models that encourage disease prevention</td>
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<tr>
<td></td>
<td>Communications infrastructure</td>
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<td>Communications infrastructure</td>
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<tr>
<td>EPHF</td>
<td>Description</td>
<td>Components</td>
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<tr>
<td>Promoting health and well-being and action to address the wider determinants of health and inequity</td>
<td>Empowerment of people to increase control over their health through health literacy and multisectoral action to increase healthy behaviour, health promoting environments and efforts intended to address the wider determinants of health and health inequities</td>
<td>Legislation and regulations to increase healthy behaviours, health promoting environments and act on social determinants</td>
<td>Promotion of health enabling settings (schools, workplaces and health services) and healthy behaviours including healthy eating and physical activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Policies, strategies and interventions to promote health &amp; wellbeing, equity and address wider determinants</td>
<td>Intersectoral policies and strategies targeting major common risk factors, mental health and substance abuse, sexual and reproductive health, domestic violence, homelessness, addiction and root causes of ill health (e.g. housing and education)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intersectoral and interdisciplinary capacity</td>
<td>Services and interventions to address major common risk factors, mental health and substance abuse, sexual and reproductive health and domestic violence</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Advocacy and awareness campaigns on, for example, determinants of health and health inequity</td>
</tr>
<tr>
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<td></td>
<td>Support mechanisms</td>
<td>Strategies and mechanisms to enhance health literacy and engagement of all communities and populations</td>
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<td></td>
<td>Reorientation of health services</td>
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<td></td>
<td>Structures, mechanisms and processes to enable intersectoral decision-making and action including across housing, planning, education and health (key stakeholders include industry, agriculture, communications and construction)</td>
<td>Collaboration with public and private (not-for-profit) organizations that provide support services for specific vulnerable populations, including people subject to domestic violence, homeless people, vulnerable migrants and prisoners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Support mechanisms</td>
<td>Supporting legislation and regulatory mechanisms</td>
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<td></td>
<td>Capacity for multisectoral action-mechanisms to promote intersectoral collaboration and leadership</td>
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<td></td>
<td>Multisectoral partnerships for health promotion</td>
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<td></td>
<td>Mechanisms and structures that support reorientation of health services to develop care models that encourage promotion of health and well-being</td>
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<td>Communications infrastructure</td>
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<td>EPHF</td>
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<tr>
<td>Ensuring community engagement, participation and social mobilization for health and well-being</td>
<td>Health communication for public health, community participation and social mobilization, involving 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</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Scope</th>
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</thead>
<tbody>
<tr>
<td>Communication for public health</td>
<td>Communication strategy incorporated into priority public health programmes</td>
</tr>
<tr>
<td></td>
<td>Public health messaging based on target audiences countering unhealthy marketing campaigns, using different media</td>
</tr>
<tr>
<td></td>
<td>Partnerships with marketing groups and media</td>
</tr>
<tr>
<td></td>
<td>Mechanisms to promote engagement and involvement of local communities and civil society in health promotion and public health issues</td>
</tr>
<tr>
<td></td>
<td>Risk communication activities</td>
</tr>
<tr>
<td></td>
<td>Monitoring and evaluating public health communication campaigns</td>
</tr>
</tbody>
</table>

| Multisectoral participation in organization and implementation            | Mechanisms that support community participation and social mobilization in health issues including health services development and evaluation |
|                                                                           | Organization of communication and social mobilization (responsibilities of staff, partnership with media, marketing) interaction of civil society promoting public health issues |
|                                                                           | Access to health and health system data for civil society and organized groups (while protecting privacy)                                                                                               |

<p>| Monitoring and evaluation                                                | Monitoring of social determinants of health, inequities, among others                                                                                                                                  |
|                                                                           | Evaluation of communications and social mobilization efforts and activities                                                                                                                             |</p>
<table>
<thead>
<tr>
<th>EPHF</th>
<th>Description</th>
<th>Components</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensuring adequate quantity and quality of the public health workforce</td>
<td>Efforts to ensure a competent public health workforce in adequate numbers for promoting and protecting population health</td>
<td>Strategic action in human resources management systems</td>
<td>Human resources strategy linked with long-term public health strategies and plans with coordination of human resources planning between the Ministry of Health and institutions of higher education</td>
</tr>
<tr>
<td>Distribution, retention and performance evaluation of public health workforce</td>
<td>Improved conditions for human resources, opportunities for career advancement, incentives to retain human resources in regions with shortages, prioritization of management training, and periodic recertification procedures</td>
<td>Certification and recertification and licensing</td>
<td></td>
</tr>
<tr>
<td>Human resources development cycle</td>
<td>Mapping to identify number and skills mix of professionals required to deliver public health services/public health work profiles including health, environment, food, agriculture and livestock sectors</td>
<td>Human resources development strategy in place, informed by situational analysis and with embedded monitoring and evaluation</td>
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<td></td>
<td></td>
<td>Appropriate recruitment and retention policies/strategies including remuneration and terms and conditions</td>
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</tr>
<tr>
<td>Generation of human resources</td>
<td>Public health education institutions and public health curricula</td>
<td>Implementation of continuous training programmes for active public health workers, including clinical practitioners and health care support staff</td>
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<td></td>
<td>Accredited training programmes for public health professionals</td>
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<tr>
<td>Assuring quality of and access to health services</td>
<td>Development and application of regulatory mechanisms and other interventions to ensure access to and the quality of health services delivered</td>
<td>Quality assurance</td>
<td>Capacity of unit(s) responsible for quality to plan, implement, monitor and evaluate quality assurance programmes</td>
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<tr>
<td></td>
<td></td>
<td>Health care accreditation mechanisms for all services</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Clinical governance</td>
<td></td>
</tr>
<tr>
<td>Ensuring equitable access</td>
<td>Surveillance of inequities in health and wider determinants of health that act on access to health services</td>
<td>Mechanisms and structures to promote health literacy</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Engagement mechanisms and infrastructure for engaging with vulnerable populations and whole of society</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Monitoring and evaluation</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Components</td>
<td>Scope</td>
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</tr>
<tr>
<td>Advancing practice and translation of public health research to promote innovation for protection and promotion of population health</td>
<td>Development of public health priorities for research and practice</td>
<td>Processes to identify national public health research priorities including health services research</td>
<td></td>
</tr>
<tr>
<td>Strengthening institutional capacity and financing of research for public health</td>
<td>Evidence generating mechanisms and infrastructure including collaborative partnerships</td>
<td>Alignment of research agenda with health priorities</td>
<td></td>
</tr>
<tr>
<td>Knowledge brokering and operational links between research institutions and policy-makers in a way that optimizes the translation of research findings into policy</td>
<td>Participation of research community in public health planning, particularly indicator development</td>
<td>Establishment of call for proposals for commissioned research, including independent research into the effectiveness of public health activities in parallel with university initiated research</td>
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<td></td>
<td></td>
<td>Maintenance of scientific and ethical standards in research</td>
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<td></td>
<td>Inclusion of research activities in public health education and continuing education</td>
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<td></td>
<td></td>
<td>Maintenance of and access to health indicator databases for researchers</td>
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<tr>
<td></td>
<td></td>
<td>Development of new methods, technologies and solutions in public health</td>
<td></td>
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<td></td>
<td></td>
<td>Financing mechanisms for public health research</td>
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<td></td>
<td></td>
<td>Coordination of research agenda</td>
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<td></td>
<td>Utilization and translation of research results in support of evidence-informed policy and planning (e.g. local publications, policy briefs and policy advocacy)</td>
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<td></td>
<td></td>
<td>Mechanisms and structures to disseminate research findings to public health colleagues</td>
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<td></td>
<td></td>
<td>Mechanisms to translate evidence into policy and practice</td>
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<td></td>
<td></td>
<td>Interpretation of raw data gathered from data sources to support public health planning</td>
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<tr>
<td>EPHF</td>
<td>Description</td>
<td>Components</td>
<td>Scope</td>
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</tr>
<tr>
<td>Ensuring equitable access to and rational use of essential medicines and other health technologies</td>
<td>Monitoring of and development of interventions to ensure equitable access to and rational use of essential medicines and technologies</td>
<td>Monitoring and evaluation</td>
<td>Mechanisms to monitor the access to and use of essential medicines and health technologies, including antibiotics (antimicrobial resistance) and vaccines to provide data that allows identification of vulnerable and marginalized populations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interventions</td>
<td>Mechanisms to support equity in access to and use of essential medicines and other health technologies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Infrastructure</td>
<td>Mechanisms that support stakeholder engagement across all relevant sectors (e.g. agriculture and environmental health in relation to antimicrobial resistance) and communities (e.g. Traveller communities and vulnerable (migrants)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strategies and policies to promote equitable access to and rational use of medicine and other technologies</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mechanisms and processes that support the timely review of health technologies and innovations and promote timely uptake of technologies where deemed appropriate</td>
</tr>
</tbody>
</table>
Annex 4. Mapping Irish domains of public health practice against the EPHFs

- **HEALTH PROTECTION**
  - Assuring quality of and access to health services
  - Public health emergency management
  - Protecting populations against various health threats
  - Supporting health systems, multisectoral planning, financing and management
  - Prevention and early detection of communicable and noncommunicable diseases
  - Ensuring community engagement, participation and social mobilization
  - Promoting health and well-being and action on social determinants and inequity
  - Ensuring equitable access to and rational use of essential medicines and technologies

- **HEALTH SERVICE IMPROVEMENT**
  - Monitoring and evaluating population health status, health service utilization and surveillance of risk factors and health threats
  - Public health research

- **HEALTH IMPROVEMENT**
  - Assuring effective public health governance, regulation and legislation
  - Ensuring public health workforce
### Annex 5. Stakeholder mapping of EPHFs

<table>
<thead>
<tr>
<th>Essential public health function</th>
<th>Domain(s) of Public Health Practice</th>
<th>Main organization(s)</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>Health intelligence</td>
<td>Health Intelligence Unit, Quality and Patient Safety, Health Protection Surveillance Centre, Department of Agriculture, Food and the Marine, Regional departments of public health, Central Statistics Office, Hospital groups</td>
</tr>
<tr>
<td>Public health emergency management</td>
<td>Health protection</td>
<td>National Emergency Coordination Group, National Public Health Emergency Team (Chief Medical Officer/Department of Health), National and area crisis management teams (interagency), Pandemic Incident Control Team, COVID-19 Public Health Operational Group, National Public Health Emergency Preparedness Group, Port Health Group, Irish Army Engineer Corps</td>
</tr>
<tr>
<td>Assuring effective public health governance, regulation and legislation</td>
<td>All domains of practice</td>
<td>Department of Health, Health Information and Quality Authority</td>
</tr>
<tr>
<td>Supporting efficient and effective health systems and multisectoral planning, financing and management for population health</td>
<td>Health service improvement, health protection, health improvement</td>
<td>Health Services Executive, Ireland’s Strategy and Planning, Health Service Improvement Crowe Horwath Group</td>
</tr>
<tr>
<td>Essential public health function</td>
<td>Domain(s) of Public Health Practice</td>
<td>Main organization(s)</td>
</tr>
<tr>
<td>----------------------------------</td>
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</tr>
<tr>
<td>Protecting populations against various and cross-sectoral natural, human-induced and environmental health threats, which may or may not evolve as public health emergencies</td>
<td>Health protection, health service improvement</td>
<td>Health Protection Surveillance Centre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environmental Health</td>
</tr>
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<td></td>
<td></td>
<td>Department of Agriculture, Food and the Marine</td>
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<td>Irish Water</td>
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<tr>
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<td></td>
<td>National Drinking Water Group</td>
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<tr>
<td></td>
<td></td>
<td>National Bathing Water Group</td>
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<tr>
<td></td>
<td></td>
<td>Health and Safety Authority</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Food Safety Authority</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Irish Aid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Global Health</td>
</tr>
<tr>
<td>Promoting prevention and early detection of diseases including noncommunicable and communicable diseases</td>
<td>Health service improvement, health improvement and health protection</td>
<td>National screening programmes</td>
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<tr>
<td></td>
<td></td>
<td>Child Health Programme</td>
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<td></td>
<td>National Immunization Office</td>
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<tr>
<td></td>
<td></td>
<td>Regional departments of public health</td>
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<tr>
<td></td>
<td></td>
<td>Health Protection Surveillance Centre</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Local authorities</td>
</tr>
<tr>
<td>Promoting health and well-being and action to address the wider determinants of health and inequity</td>
<td>Health improvement, health service improvement, health protection</td>
<td>Healthy Ireland (Department of Health)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Healthy Ireland (Health Services Executive, Ireland)</td>
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<tr>
<td></td>
<td></td>
<td>Community health organizations</td>
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<td></td>
<td>Hospital groups</td>
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<td></td>
<td>Local authorities</td>
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<tr>
<td></td>
<td></td>
<td>Regional departments of public health</td>
</tr>
<tr>
<td>Ensuring community engagement, participation and social mobilization for health and well-being</td>
<td>Health service improvement, health protection</td>
<td>Healthy Ireland/Health and Wellbeing</td>
</tr>
<tr>
<td>Ensuring adequate quantity and quality of the public health workforce</td>
<td>All domains</td>
<td>National Doctors Training and Planning</td>
</tr>
<tr>
<td>Assuring quality of and access to health services</td>
<td>Health service improvement, health protection</td>
<td>Health Information and Quality Authority</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quality and Patient Safety</td>
</tr>
<tr>
<td>Essential public health function</td>
<td>Domain(s) of Public Health Practice</td>
<td>Main organization(s)</td>
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<td>---------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Advancing public health research</td>
<td>All domains</td>
<td>Health Information and Quality Authority</td>
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<tr>
<td></td>
<td></td>
<td>Health Services Executive, Ireland, Research and Development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic departments</td>
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<tr>
<td></td>
<td></td>
<td>Regional public health departments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Health Research Board</td>
</tr>
<tr>
<td>Ensuring equitable access to and rational use of essential medicines and other health technologies</td>
<td>Health Service Improvement, Health Improvement</td>
<td>Health Information and Quality Authority</td>
</tr>
</tbody>
</table>
## Annex 6. List of documents reviewed within the Irish setting

<table>
<thead>
<tr>
<th>Health systems</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Health Sector Strategic Plan and complementary national documents relating to national legislation, policy or regulation (e.g. public health legislation, International Health Regulations, 2005 and strategic plans)</td>
<td>Sláintecare Report 2017; Implementation plans and strategic plan; Healthy Ireland Framework 2019–2025; implementation plans; outcomes framework; Programme for Government 2020 – Our Shared Vision; HSE National Service Plan 2021; HSE National Service Plan 2022; HSE Corporate Plan 2021–2024</td>
</tr>
<tr>
<td>National quality policy or strategy</td>
<td>National Patient Safety Strategy 2019–2024</td>
</tr>
<tr>
<td>Health system assessments</td>
<td>Health service capacity review 2018; Review of health demand and capacity requirements in Ireland to 2031; Report of Public Health Review Group April 2002; public health system assessments; consultant roles and functions of public health physicians in Ireland May 2003; Review of the interim public health emergency medical out of hours service December 2009; scoping enquiry into the Cervical Check Screening Programme 2019; Crowe Horwath Report on the Role, Training and Career Structures of Public Health Physicians in Ireland 2018; Public Health Medicine in Ireland: looking to the Future 2016</td>
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<tr>
<td>Health information management system documentation</td>
<td>Public service information and communications technology strategy 2015; eHealth Strategy for Ireland</td>
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<td>Health financing documentation, e.g. health budget or national health accounts</td>
<td>National service plans 2019–2022</td>
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<tr>
<td>Health research</td>
<td>Health Research Board Strategy 2021–2025; HSE action plan for health research 2019–2029</td>
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<tr>
<td>Subnational operational planning efforts</td>
<td>Community Health Organisation delivery plans; hospital group plans</td>
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<tr>
<td>Health workforce strategies and/or documentation (with relevance to public health)</td>
<td>Workforce review 2013 (HSE)</td>
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<tr>
<td>Relevant programme-specific plans and reports (e.g. antimicrobial resistance, immunization and noncommunicable diseases)</td>
<td>National action plan on antimicrobial resistance 2017–2020 (HSE); One health national action plan on antimicrobial resistance (Government of Ireland); Roadmap for Social Inclusion 2020–2025: ambition, goals, commitments</td>
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<tr>
<td>Health security</td>
<td>Document</td>
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<tr>
<td>Emergency preparedness and response plans</td>
<td>HSE Department of Health Pandemic Plan 2007; Health Protection Surveillance Centre Pandemic Influenza Plan 2009; Ireland’s National action plan in response to COVID-19, 2020</td>
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<tr>
<td>Health service continuity plans or equivalent</td>
<td>Planning for health services delivery in the COVID-19 pandemic – winter 2020 to end 2021; Winter planning within the COVID-19 pandemic, October 2020–April 2021; Resilience and recovery 2021–2020: plan for living with COVID-19</td>
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<tr>
<td>Performance of veterinary services reports</td>
<td>Department of Agriculture, Food and the Marine annual reports</td>
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<tr>
<td>After action reports/reviews</td>
<td>After action report on Health Protection Surveillance Centres’ response to pandemic influenza 2009; Report of the pandemic review group, Department of Health 2013; Evaluation of the pandemic response-review report, HSE 2010</td>
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