



# ROADMAP TO PROFESSIONALIZING THE PUBLIC HEALTH WORKFORCE IN THE EUROPEAN REGION



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## Abstract

Although the WHO European Region has made great progress in reducing the burden of noncommunicable diseases, gains still need to be accelerated. Since Member States are requesting guidance on how to build the capacity of the public health workforce to help in this response, this Roadmap offers pragmatic and actionable recommendations for professionalizing the public health workforce. To this end, and based on current practice in the WHO European Region, the Roadmap puts forward several possible levers that can be engaged with by the range of stakeholders who have important roles and insights into improving public health, including governments, ministries, national, regional and local health authorities but also public health training institutions, public health institutes, professional organizations and employers of the public health workforce.

## Keywords

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## Abbreviations

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ASPHER	Association of Schools of Public Health in the European Region
CPH	Certified in Public Health
EU	European Union
ILO	International Labour Organization
ISCO	International Standard Classification of Occupations
NCD	noncommunicable disease
STEEPLE	social, technological, economic, ecological, political, legal and ethical factors
TB	Tuberculosis

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# FOREWORD



Over the years, ever since embarking on my public health career, I have been asked “So, as a public health doctor ... what is it that you really do?” countless times by family, friends, acquaintances and even colleagues. I always pause before replying, looking for examples that might resonate with the person in front of me and hopefully lead to an understanding that goes beyond trite definitions of public health that any online web search can offer.

It has not always been easy. With its focus on equitable health promotion and disease prevention, public health provides an essential foundation for systems of universal health care, and yet the work carried out by the public health workforce is frequently invisible and largely unrecognized by society.

National programmes intended to strengthen the overall health workforce have traditionally overlooked experts whose role is to provide essential public health operations. In some countries, failing to recognize public health as a profession and the lack of a coherent career pathway for the public health workforce has most probably contributed to this oversight.

As so often happens, only when disaster strikes is public health thrust into the limelight, calling on its unique understanding of the intersection between health, politics and society to save lives. The devastating experience of the COVID-19 pandemic over the past two years has dramatically unmasked a chronic lack of investment in public health even as the profile of the public health workforce has been raised.

As countries scrambled to contain the epidemic by strengthening long-neglected public health departments or building them up from scratch, public health professionals worldwide expended enormous effort to mitigate the impact of COVID-19 on society, often at a significant cost to their own mental and physical well-being and that of their families.

And yet, despite the gratitude and solidarity rightly shown towards health professionals on the front line and people in many supporting occupations, the public health nurses and physicians, health inspectors, contact tracers, laboratory technicians, epidemiologists and statisticians and many other public health professionals working tirelessly in the background to track and limit the spread of COVID-19, have often remained invisible and unacknowledged or thanked only in passing.

The COVID-19 pandemic has led to the death of millions, disrupted economies, exacerbated inequalities and worsened health inequities, exposing significant weaknesses in countries' ability to promptly and adequately respond to such threats to health. People with pre-existing chronic diseases often associated with lower socioeconomic status are more likely to suffer serious complications or die from COVID-19. Countries with a high proportion of the population overweight or low vaccination coverage have higher mortality rates. The mental, social and economic effects of the measures taken to limit its spread are incalculable.

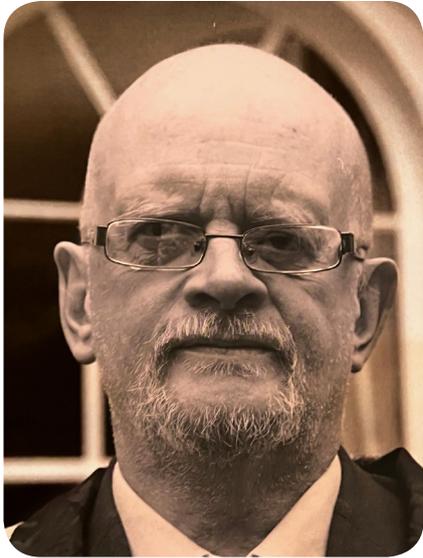
Further, the pandemic has also demonstrated that enhancing the skills and competencies of the public health workforce remains key to strengthening health system resilience and face the challenges that lie ahead – the next pandemic, climate change, digitization and worsening inequality, to name a few – with confidence. Public health professionals are in a position to understand the unique needs of their communities and vulnerable populations while building bridges between sectors and providing leadership that is key to leveraging maximum strategic impact as these challenges are addressed.

Public health is more than just a job. Public health is a calling for the public health physicians and nurses who lead national, regional and community responses to COVID-19 and other diseases, including noncommunicable diseases; the contact tracers who skilfully identify those most at risk of contagion; the epidemiologists and statisticians who track disease incidence and spread; the environmental health officers who ensure that food and water quality standards are followed; and many others. Professionalization will increase the likelihood that the public health workforce receives the training and funding that will enable it to continue to save lives and improve health systems while adhering to the highest possible ethical standards.

I am confident that this Roadmap, jointly produced by ASPHER and the WHO Regional Office for Europe in a partnership that I hope will continue to flourish for many years to come, will help countries to build the capacity of the public health workforce to respond to growing public health needs. I would also like to take this opportunity to acknowledge the sterling work of my colleagues within ASPHER and the WHO Regional Office for Europe who contributed to this Roadmap and to thank them for producing a tool that will prove useful to other stakeholders in developing public health capacity in Europe.

**Natasha Azzopardi Muscat**  
Director, Division of Country Health  
Policies and Systems  
WHO Regional Office for Europe

# PREFACE



When we think about public health, I have always found it helpful to think about the health of the public and the public health system, services and profession.

The health of the public should be everybody's business. It has always required the involvement of many different disciplines, from sanitary engineers to climatologists. It has often been driven by health professionals but also by lawyers, politicians and industrialists. It has always required the active involvement and consent of the public themselves. We also need public health systems, policies and services to protect and improve health.

The public health profession is charged with the knowledge and skills to deliver the system, the policies and the services. They are the professionals with the expertise to interpret health and disease in whole populations: what keeps people healthy? What causes disease? What are the best ways to respond to the health challenges we face? How do we measure which interventions are the most effective? Increasingly we must look at the health of the planet alongside the health of people. This extends the need for health to be everybody's business. It also requires that the public health profession have the skills to speak the language of ecologists, lawyers and town planners. It requires understanding the power of the new information revolution and the demands of operating in the era of fake news. It also requires a capacity for leadership and to work effectively with different political ideologies and government systems.

The COVID-19 pandemic has brought the vital need for public health expertise into stark relief. Public health expertise has never been more necessary and has never operated in more difficult circumstances. There have been efforts to manipulate a sense of mistrust of professionals. A popular sentiment in recent times has been "We've had enough of what experts think." George Bernard Shaw in *The Doctor's Dilemma* suggests that "professions are all conspiracies against the laity". Self-professed "commentators" have claimed knowledge of the pandemic that has influenced the wrong policies and cost lives.

The protection for the public is to ensure that public health standards are set. Individual public health professionals must operate to these standards and to an ethical code of conduct. These standards must be enforced on behalf of the public by independent regulation. Schools and programmes of public health have a vital role in delivering high standards of education and training in public health competencies and ethical practice. Professional public health is needed to protect and improve the health of people and the planet. Professionalization is needed to assure the public that those who profess to have the expertise really are experts.

I commend this roadmap to professionalizing the public health workforce. I am delighted that once again, the Association of Schools of Public Health in the European Region has been able to produce this joint work with the WHO Regional Office for Europe. I look forward to our continuing collaboration and our joint implementation of the professionalization and workforce development agenda. We will be pleased to work with Member States, schools of public health and partners to improve and protect the health of the people we serve and the planet we share.

**John Middleton**  
**President**

Association of Schools of Public  
Health in the European Region

# BACKGROUND

While the WHO European Region has made enormous strides in meeting the Sustainable Development Goals by 2030 and made great progress in improving health in the Region by strengthening its health systems, improvements are not happening fast enough.

The COVID-19 pandemic has brought public health front and centre in the minds and action of governments, communities and individuals across the globe. At the time of publication, more than 5 million people have died with COVID-19 across the globe. Public health is by definition everybody's business, requiring multiple, multidisciplinary interventions and requiring the full engagement of public. The pandemic exemplifies the need to include other disciplines and skill sets to tackle health challenges in Europe (Kluge, 2020). It requires public trust, in the professionals charged with public protection and in politicians ultimately responsible for decision-making. The pandemic has highlighted weaknesses in the health of societies in the European Region. Years of austerity policies have increased inequalities in health. Neglect of preventive policies targeting noncommunicable diseases and protection against common infections has added to the burden of ill health, grounded in unequal social and economic conditions. The realization that this pandemic, similarly to SARS-1, HIV, influenza and Ebola, is a zoonotic infection that has jumped to people has appropriately raised the profile of the One Health approach to addressing human and animal health together.

The air quality improvements of the first-wave pandemic lockdowns gave us a glimpse of what might be possible if societies adopted transport policies less reliant on fossil fuels. Later reliance on disposable plastics and personal transport have further harmed our fragile environments and added to global warming. Reduced availability of routine health care has added to waiting lists for acute and chronic conditions and conditions requiring surgical intervention. Lockdown measures have contributed to increased mental health problems, domestic violence and addiction. They have also compromised children's education and early development. So the pandemic and its responses have led to major upheaval in our societies and catastrophic disease and death affecting millions. Public health requires a cadre of skilled, knowledgeable, transdisciplinary professionals who are recognized and entrusted with improving and protecting the public's health. These professionals work in public health systems and services nationally and locally. These systems and services have been eroded over many years in many countries before the pandemic. The realization of this undervaluing and undermining of public health systems must now inform our drive to increase professionalization and protections by improving the skills of the workforce.

In addition to communicable diseases such as COVID-19, the impact of noncommunicable diseases in the WHO European Region is alarming, with four diseases (diabetes, cardiovascular diseases, cancer and chronic respiratory diseases) accounting for 85–90% of mortality and morbidity in the Region (Hay et al., 2017). Complicating this picture, countries in the European Region have the highest

rates of multidrug-resistant tuberculosis (TB) globally. Further, because of the rapid spread of HIV infection in the WHO European Region, HIV coinfection rates among people with TB also increased sharply from 7.8% in 2013 to 12.7% in 2017 (WHO Regional Office for Europe, 2019a). Antimicrobial resistance is not only a challenge for controlling TB in the Region but is increasingly becoming a threat to previously preventable maternal and neonatal mortality and food security. Poor management of mental health also challenges the Region, with three quarters of the people with major depression not receiving adequate treatment (WHO Regional Office for Europe, 2019b). Given population projections, which predict a doubling of the older population over the next 30 years (United Nations Department of Economic and Social Affairs, Population Division, 2017), the increase in the incidence of morbidity and especially complexity as the multiple burdens of disease converge and grow will only continue to place pressure on countries.

Clusters of preventable risk factors such as smoking, harmful alcohol consumption, overweight and especially obesity, unhealthy dietary habits and a lack of physical activity are currently some of the major contributing factors to the observed increase in the total burden of noncommunicable diseases in the European Region (WHO Regional Office for Europe, 2017a). Socioeconomically disadvantaged and vulnerable populations have greater exposure and are more vulnerable to risk factors, thus bearing a greater burden in terms of mortality and morbidity (Mackenbach et al., 2016). These noncommunicable conditions and the related risk factors are clearly influenced by social forces, and evidence shows that both healthy and unhealthy behaviour spreads “contagiously” in large social groups (Martín-Moreno et al., 2011).

The causes and exacerbators of poor health are therefore clearly not limited to the health sector. The responses required to address these inequalities, but also the negative effects of globalization, urbanization, environmental degradation and climate change, require system-wide and sector-wide responses. The control and prevention of harmful risk factors, promotion of healthy behaviour and marked strengthening of communication capacity to address the reality of these public health threats are the greatest challenges in all European Region countries and beyond.

Despite the challenging health, financial and organizational context, countries across the WHO European Region have begun to accelerate their efforts in tackling these public health challenges. Countries have already shown that the return on investment on public health interventions is high (WHO Regional Office for Europe, 2015a). For example, in the United Kingdom, getting one more child to walk or cycle to school could pay back up to an estimated £768 or £539, respectively, in health benefits, National Health Service costs, productivity gains and reductions in air pollution and congestion. In Italy, introducing a universal hepatitis B vaccine returns €2.78 for every €1 invested from a health system perspective, and the programme breaks even within 20 years. In Kyrgyzstan, a comprehensive nationwide salt-reduction policy offers a positive return on investment of 12.3 to 1 from productivity gains, with 1161 deaths averted and 15 493 life-years gained (WHO Regional Office for Europe, 2017b). The case for investing in public health and by extension, the professionals who work to roll out these public health interventions is nothing short of compelling.

In this context, Member States of the European Region of WHO endorsed the European Programme of Work 2020–2025 – United Action for Better Health (WHO Regional Office for Europe, 2020a). The move towards universal health coverage is a central priority of the European Programme of Work, and the European Programme of Work therefore commits the Regional Office to support the efforts of Member States to face post-COVID-19 recovery health workforce challenges, as follows:

- supporting the formulation of national strategies for improving working conditions and retaining and motivating the existing workforce as well as aligning the education, training and production of the future workforce with population health needs, including the requirements of post-COVID-19 recovery;
- convening a supranational consortium of academic and professional organizations to support continuing professional development for the health workforce that should work across Member States to reorient the existing health workforce to utilize innovative systems and technologies in order to provide team-based, people-centred care in the post-COVID-19 context; and
- supporting Member States to build sustainable health workforces by building consensus around regional and subregional initiatives to reach a fairer distribution of the health workforce and address shortages: by enabling a better understanding of health labour market dynamics; through monitoring health worker mobility; through shared strategies to mitigate “push” factors (including burnout and demotivation); and through actions to sustain and enhance trust between health workers and health authorities.

This Roadmap should be seen as an initiative to support these efforts, specifically in relation to the public health workforce.

# Defining public health

Contemporary definitions of public health share the principle that the core issue of public health is the “health of populations” at large and not in terms of incidence or individual occurrence of disease. Public health is concerned with health promotion, health protection and disease prevention along with health service delivery and quality (Griffiths et al., 2014) at the societal level and therefore not only reorients health systems and the design of health services towards addressing issues affecting the population at large but also engages organized efforts at the community level to improve health (Box 1). Law and policy formulation and evidence-informed health planning are essential features in all cases (Bjegovic-Mikanovic et al., 2013a). This necessitates close collaboration with public health planners and political leaders, whose involvement is vital to steer community programmes to improve health (Pencheon et al., 2006). The work of public health is therefore intrinsically multi- and interdisciplinary and should involve local, regional, national, international and supranational structures and organizations.

## Box 1. Defining public health

### Definition of public health

The science and art of promoting and protecting health and well-being, preventing ill health and prolonging life through the organized efforts of society (WHO Regional Office for Europe, 2012).

### Functions of public health

The WHO Regional Office for Europe developed a list of 10 essential public health operations and later published a detailed list of indicators (WHO Regional Office for Europe, 2019c). The aim is to “provide high-quality public health services to the population from both within and outside the confines of the health system” (WHO Regional Office for Europe, 2015b), and they are organized around the three meta-dimensions intelligence, service delivery and enabler essential public health operations. The 10 essential public health operations are:



Essential public health operation 1: Surveillance of population health and well-being



Essential public health operation 2: Monitoring and response to health hazards and emergencies

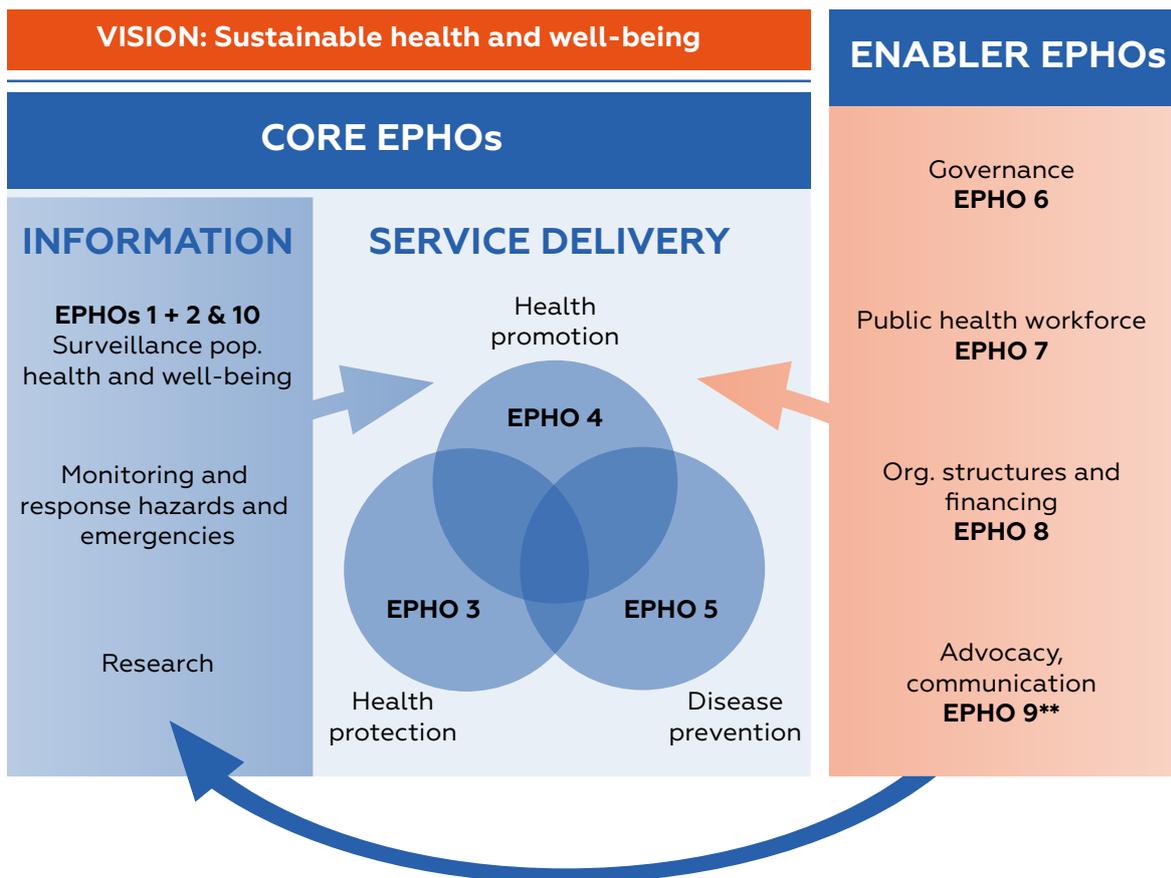


Essential public health operation 3: Health protection, including environmental and occupational health, food safety and others



Essential public health operation 4: Health promotion, including action to address social determinants and health inequity

-  Essential public health operation 5: Disease prevention, including early detection of illness
-  Essential public health operation 6: Assuring governance for health and well-being
-  Essential public health operation 7: Assuring a sufficient and competent public health workforce
-  Essential public health operation 8: Assuring sustainable organizational structures and financing
-  Essential public health operation 9: Advocacy, communication and social mobilization for health
-  Essential public health operation 10: Advancing public health research to inform policy and practice



# Wicked problems in public health and the workforce

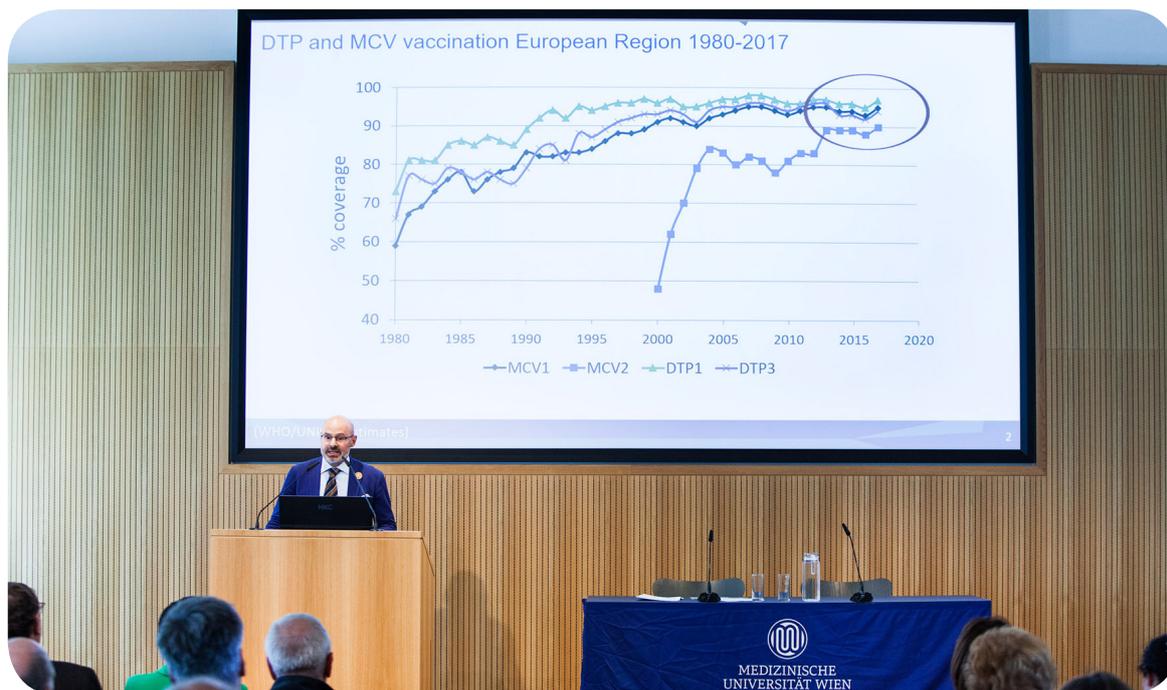
The public health challenges facing the WHO European Region share several features that qualify them often as wicked problems (Box 2). Wicked issues have complex causes and require complex solutions. They share several features, most of which are strikingly evident in the public health challenges societies face, including tackling obesity, alcohol misuse, poor mental health and environmental degradation. Unlike “tame” problems, which can be readily defined, and solutions identified, wicked problems cannot be resolved through traditional linear, analytical approaches (Hunter, 2009; van Rinsum et al., 2017). There are many examples of wicked problems in public health. A good example is obesity, especially in terms of its multiple causes, the absence of clear solutions and the range of organizations needed to address the problem (PLOS Medicine Editors, 2013).

## Box 2. What are wicked problems in public health?

### Wicked problems are:

- difficult to define;
- often have multiple causes and are interdependent with various factors;
- result in unforeseen or unintended consequences when any attempts are made to address them;
- have a level of social complexity and an absence of clear solutions;
- require changing human behaviour, which requires careful time and attention to designing interventions; and
- hardly ever sit conveniently under the responsibility of any single organization.

Source: adapted from Hunter (2009).



## Who is the public health workforce?

Given the complexity of the response required to tackle wicked problems in public health, professionals are needed who are not only equipped with public health training and knowledge but also mandated and supported to tackle these issues with interdisciplinary knowledge and skills, political savvy and leadership capabilities (Czabanowska, 2016; Martín-Moreno, 2000). The public health workforce includes individuals engaged in public health activities that are the primary part of their role (core public health workforce) (Centre for Workforce Intelligence, 2014), those who contribute to public health activities and essential public health operations only as part of their job and other professionals whose work may significantly affect population health (wider public health workforce) (Centre for Workforce Intelligence, 2015). The European Action Plan for Strengthening Public Health Capacities and Services recognizes and addresses the core and wider public health workforce, distinguishing between the following three main groups: (1) non-health sector professionals, (2) health and social care professionals who make up the wider public health workforce and (3) public health professionals who make up the core public health workforce (Rechel et al., 2018; Vinko, 2018). These are explained further.

### *The wider public health workforce*

#### **Non-health sector professionals**

Non-health sector professionals include actors from other sectors whose decisions and actions positively affect health, whether they realize it or not. They may be involved in fulfilling public health operations or services. This includes professionals at various levels of government who are drafting, adopting and implementing laws and policies or managing programmes in non-health sectors, technical officers such as lawyers, city planners and housing, education, transport and other officials.

## Health and social care professionals

The group of health and social care professionals has been defined as the personnel working in the health or social sectors (with great potential in health promotion, health protection and disease prevention) but without an explicit public health function. Indeed, across the WHO European Region, most health and social care professionals are benefiting from and being exposed to some sort of public health training at some point in their initial education. Based on a mapping of the Region, Box 3 lists a range of professionals who already benefit or can benefit from public health training in their existing professions. Increasing focus is anticipated to be directed towards building the public health competencies of wider groups of the health, social care and non-health sector workforce (such as public health medical specialists and public health nurses). For example, the European Union (EU) has a directive for specialization of the health professions, including public health medicine (European Parliament & European Council, 2005), and the competencies and syllabus for the practice of the public health medicine are managed and delivered by the European Union of Medical Specialists (2019a, b) Section on Public Health. At the same time, the core public health workforce will be expected to increasingly demonstrate consistency at higher levels of specialized public health competencies. Organizations, services and individuals will need to increasingly strengthen the processes used to grow and develop public health knowledge, abilities and skills and extend them to professionals who contribute to delivering essential public health operations, given their roles and responsibilities, but who do not always recognize and/or perceive themselves as being part of the (wider) public health workforce.

### Box 3. Professionals benefiting from public health training

Architects	Optometrists
Audiologists	Pharmacists
Biologists	Physicians
Dentists	Physiotherapists
Dietitians	Psychologists
Ecologists	Psychotherapists
Economists	Rehabilitation therapists
Engineers	Social workers
Lawyers	Speech language therapists
Managers	Statisticians
Midwives	Teachers
Nurses	Urbanists
Occupational therapists	

Source: the authors of this report.

This list is non-limitative, considering the wickedness of public health problems that call for engaging a wide range of professions to tackle certain public health issues.

## ***The core public health workforce***

### **Public health professionals**

While the wider public health workforce may serve to deliver many essential public health operations, and all will require some public health skills and competencies, not all will need to be public health professionals, the third cluster of the public workforce. The core public health workforce is engaged in providing essential public health operations as the primary part of their professional role. As such, they should display a more focused public health set of skills and be able to provide leadership that ensures networking, coherence, synergy and strategic impact. They not only include the professionals in traditional public health occupations (such as physicians specializing in preventive medicine and public health, food safety inspectors, environmental health officers and communicable disease control staff) (European Parliament & European Council, 2005; European Union of Medical Specialists, 2019a), but also a range of “new” practitioners working in the broad field of public health protection, disease prevention, health promotion, service delivery and quality assurance, such as those involved in projects and programmes (such as the healthy cities and health-promoting schools movements).

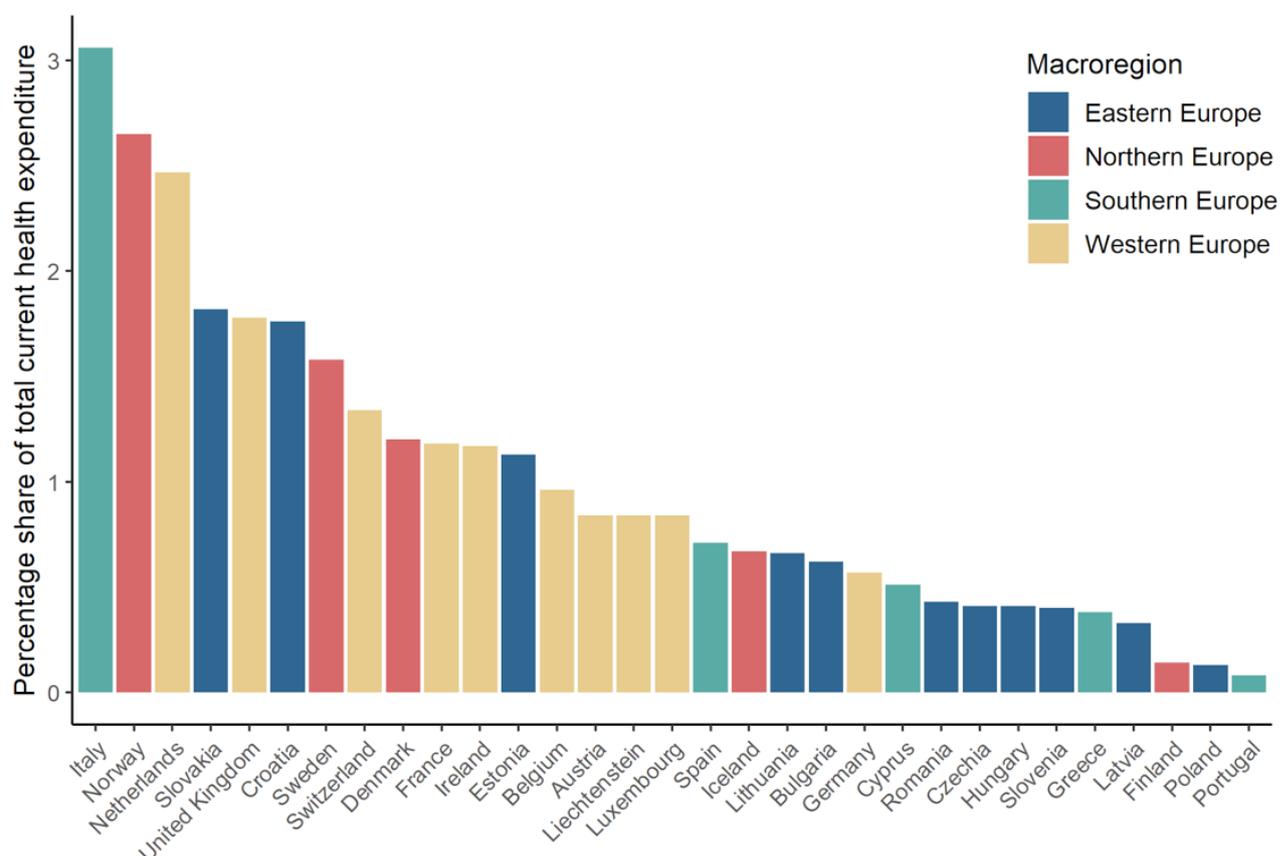
This group can be further divided into three groups based on educational background: professionals with a specific training in public health (such as doctorate, master or bachelor), physicians and other health-care professionals specializing in public health, and those without a formal public health degree but performing essential public health operations as the primary part of their professional role (Box 2). Public health professionals thus include both specialists (such as food safety inspectors) and generalists (such as public health managers) (Foldspang et al., 2014, 2016). Generalist public health professionals, accountable for the health of a defined population within the public health system, are similar to primary care doctors, who are also generalists. In both cases, generalist professionals can observe, identify and intervene in most situations within the public health system and call on one or more specialists when needed. Thus, a model parallel to the generalist-specialist model in the health-care system would include developing specialization based on a background of public health generalist competencies and essential public health operations (Birt & Foldspang, 2011; Foldspang et al., 2014, 2016).

# Making the case for professionalization

Several stakeholders and national and international policy frameworks (EU Health Policy Platform, 2017; WHO Regional Office for Europe, 2019d) have highlighted an urgent need for strengthening the professionalization of the public health workforce.

Because central government actions cannot alter most of the factors that shape public health and because public health is more about how sectors interact with one another – including urban planning, transport, environment, education and others, in addition to the health sector – this means passing the lead role to professionals who are trained and best placed to manage complex knowledge systems and link a range of sectors. Public health drawing on experts from a range of professions is what makes public health unique. It is their collective professional approach to complex societal problems that raises the public health profile from that of an occupation, concerned largely with reductive tasks per se, to a profession, potentially with the capacity to apply a wide range of holistic competencies, underpinned by a consensual understanding of and commitment to values that focus on health equity. Increasingly, greater attention to public health and its workforce by a wide range of stakeholders has created a climate that is more open to strengthening the presence of a public health workforce (DeSalvo et al., 2016).

**Fig. 1. Health-care expenditure in 2015 on providers of preventive care as a percentage of total current health expenditure in the 28 EU countries and countries in the European Economic Area**



Source: Eurostat 2019.

Although there is a positive climate and a documented need for upgrading public health, the public health workforce remains marginal in most relevant policy programmes and frameworks. It is not, for example, considered in the professional qualification directive of the EU nor addressed explicitly in the International Standard Classification of Occupations (ISCO) of the International Labour Organization (ILO) (European Parliament & European Council, 2005; ILO, 2008). Moreover, it is severely underfunded within the scope of health expenditure (Fig. 1) and faces several trends and drivers that pose major challenges to the composition and performance of the public health workforce (Table 1). These challenges vary across regions and can be categorized in social, technological, economical, ecological, political, legal and ethical factors (STEEPLE) (More et al., 2015).

**Table 1. Trends and drivers influencing the public health workforce in various countries**

<b>Drivers</b>	<b>Description</b>
<b>Social</b>	Ageing workforce, low recognition of public health profession and public health as a career choice, professional identity crisis and low morale, lack of retention and motivation
<b>Technological</b>	Heterogeneous training and education offer, both in curriculum content and wide variety of providing institutions, lack of continuing professional development opportunities
<b>Economic</b>	Limited funding of public health and under-resourcing, low salaries
<b>Ecological</b>	Affecting human health but also industry, trade, agriculture and migration – requiring a cross-sectoral and professional approach, cross-sectoral and cross-disciplinary approach among human, animal, plant and environmental disciplines required to synergistically address challenges such as antimicrobial resistance, pollution, food security, biosafety, biosecurity and emerging and re-emerging infectious diseases, population growth, urbanization, global travel and trade, industrial activities and climate change
<b>Political and legal</b>	Public health is not within the usual priorities of political leaders (often challenged by denialists), lack of legal or regulatory framework to develop and secure the public health workforce
<b>Ethical</b>	Lack of clearly formulated code of ethical and professional conduct in public health

Source: adapted from More et al. (2015).

To date, few countries in the WHO European Region have sought to professionalize the public health workforce. See case studies 1 and 2 in Annex 3 for examples. Diversity and differences in the organization and performance of European public health systems call for context-sensitive strategies. However, as both case studies illustrate, innovating the public health system and bringing its workforce to a new level require cross-sectoral collaboration and system-level actions supported by relevant legal and policy measures.



## Purpose of the Roadmap

This Roadmap has been developed to guide countries in accelerating the process of professionalization. Because the organization and performance of public health systems differs in the European Region, the Roadmap does not specify in which order each of these areas should be addressed. Although some countries may have adequate laws and regulations in place, others might still struggle with introducing public health as an academic discipline or with recognizing a specific role of a public health professional. At the same time, initiating the public health workforce professionalization process can help reform policy, legislation and the organizations that are needed to assure Region-wide improvements in public health and professional recognition.

The Roadmap sets out a list of essential levers and measures for professionalizing the public health workforce that are results-oriented and focused on systems thinking. The levers inform the operationalization of the measures to assure that they support professionalization, and the measures are actions that need to be implemented by a range of actors, including the government, public health organizations, public health professional groups but also employers of the public health workforce and nongovernmental actors, including patient and population groups. Indeed, this is how the Roadmap is set up for countries to follow, but they need to think carefully as to how they will take and adapt these recommendations to their specific contexts.

The target audience for the Roadmap comprises policy-makers and other leading actors in public health who want to catalyse reforms of the public health workforce at the national level. The Roadmap should serve as a valuable resource for governments, ministries, national, regional and local health authorities, directors of public health institutes, public health associations and other relevant organizations and agencies to adapt to fit the needs of their respective contexts. The Roadmap will also be of interest to colleagues involved in educating and training public health professionals, leading higher education institutions, postgraduate training organizations, public health employer organizations, public health professionals themselves and students.

# Methods

## *Scoping review*

Using PubMed and Google Scholar, a scoping literature review was carried out to identify strategies for professionalization. The review was conducted in 2017, focusing on literature published in English between 1 January 2000 and 30 October 2016. The results of this have been published elsewhere (Gershuni et al., 2019). Grey literature from a variety of public health institutions was also gathered. The following MeSH terms were used: “public health” and “manpower” or “workforce”, combined with the words “professional” and/or “professionalization”. Further sources were identified by hand-searching relevant websites such as WHO (2019a) and the EU Joint Action on Health Workforce Planning and Forecasting. Further, all available national public health workforce plans in the European Region countries, North America, Australia and New Zealand were identified by manual searching through Google web search. In addition, several studies on sociology of profession were singled out (Czabanowska et al., 2015; Dent et al., 2016; Macdonald, 1995; Millerson, 1964). As a result, nine professionalization measures and five professionalization levers were identified. The results of the review were used for developing the conceptual framework supporting the development of the Public Health Workforce Professionalization Roadmap.

## *The Coalition of Partners*

In 2017, the WHO Regional Office for Europe responded to the Joint Statement on Public Health Workforce Development and Professionalization, signed by 17 leading public health associations in 2017 (EU Health Policy Platform, 2017).

The WHO Regional Office for Europe assigned the Association of Schools of Public Health in the European Region (ASPHER) to lead a collaborative effort as part of the WHO Coalition of Partners initiative under the European Action Plan for Strengthening Public Health Capacities and Services to develop a Public Health Workforce Professionalization Roadmap. This Roadmap is a product of that process.

During the process, ASPHER reached out to colleagues in the public health community (schools of public health, public health associations, public health professionals, national institutes of public health etc.). These experts make up a group of cross-sectoral professionals involved in delivering public health services. They include:

- legal experts representing the ASPHER Working Group on Public Health Law, paying specific attention to legal perspectives on professionalization and legal frameworks that can hinder or facilitate the process;

- public health practice experts, represented by the International Association of National Public Health Institutes, the European Public Health Association and ASPHER; and
- individuals representing professional groups across the WHO European Region

The experts were key for validating in workshop format the framework, the key considerations of professionalization and the various areas of decision-making and stakeholders who need to be included and then to gather evidence based on the literature and their country contexts. The Coalition of Partners was also gathered to finalize the conceptual model for professionalization.

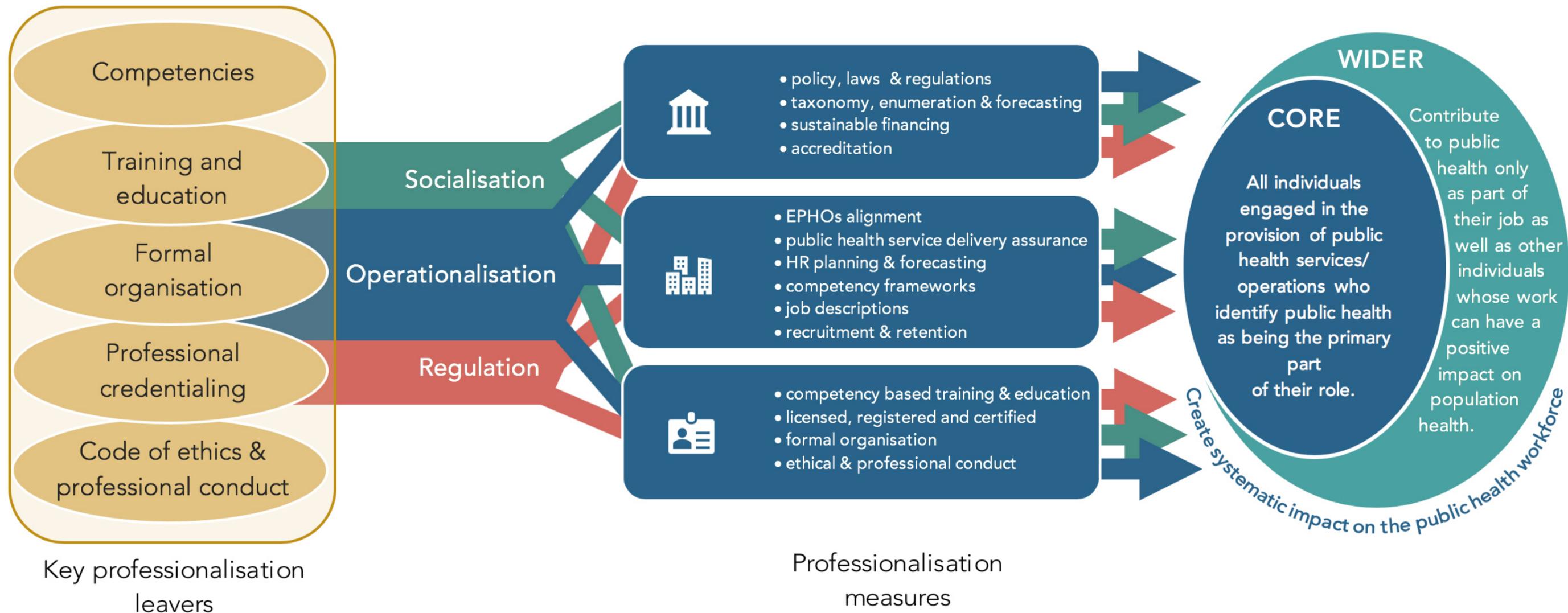
## ***Developing the Roadmap***

The Public Health Workforce Professionalization Roadmap was developed to guide and inform on the necessary steps needed to professionalize the core public health workforce in a given country. It provides a strategic view and actionable approach (conceptual model in Fig. 2) underpinning the roadmap and the vision associated with its outcomes. The visualization of the Roadmap (Fig. 3) incorporates: (1) four considerations, including leadership, country context, stakeholders and intersectorality of public health, including core and wider public health workforce and other health-related professions; (2) the conceptual model, which constitutes the core of the Roadmap and presents necessary levers that inform measures of professionalization and linking them with three governance levels responsible for the implementation process: government and policy, organizations and institutions and professions; and (3) the country assessment tool, which establishes a logical and practical approach, including major questions countries should ask when undergoing the assessment leading to the professionalization of the public health workforce, including “why”, “what” and “how”.

This visualization of the model cannot entirely do justice to the complexity of the diverse processes, actors and institutional conditions that affect the professionalization of the public health workforce. Moreover, it should be seen as a holistic model and a guiding light to operationalize professionalization measures that enable effective implementation. The model is sufficiently flexible to be adapted to the country-specific context. The Roadmap for professionalizing public health will help to identify pivotal steps and measures that need to be undertaken by the government, public health organizations and the public health workforce and raise the awareness of those who will lead necessary reforms. It will also guide the involvement of relevant stakeholders who are willing and capable of supporting the professionalization processes.

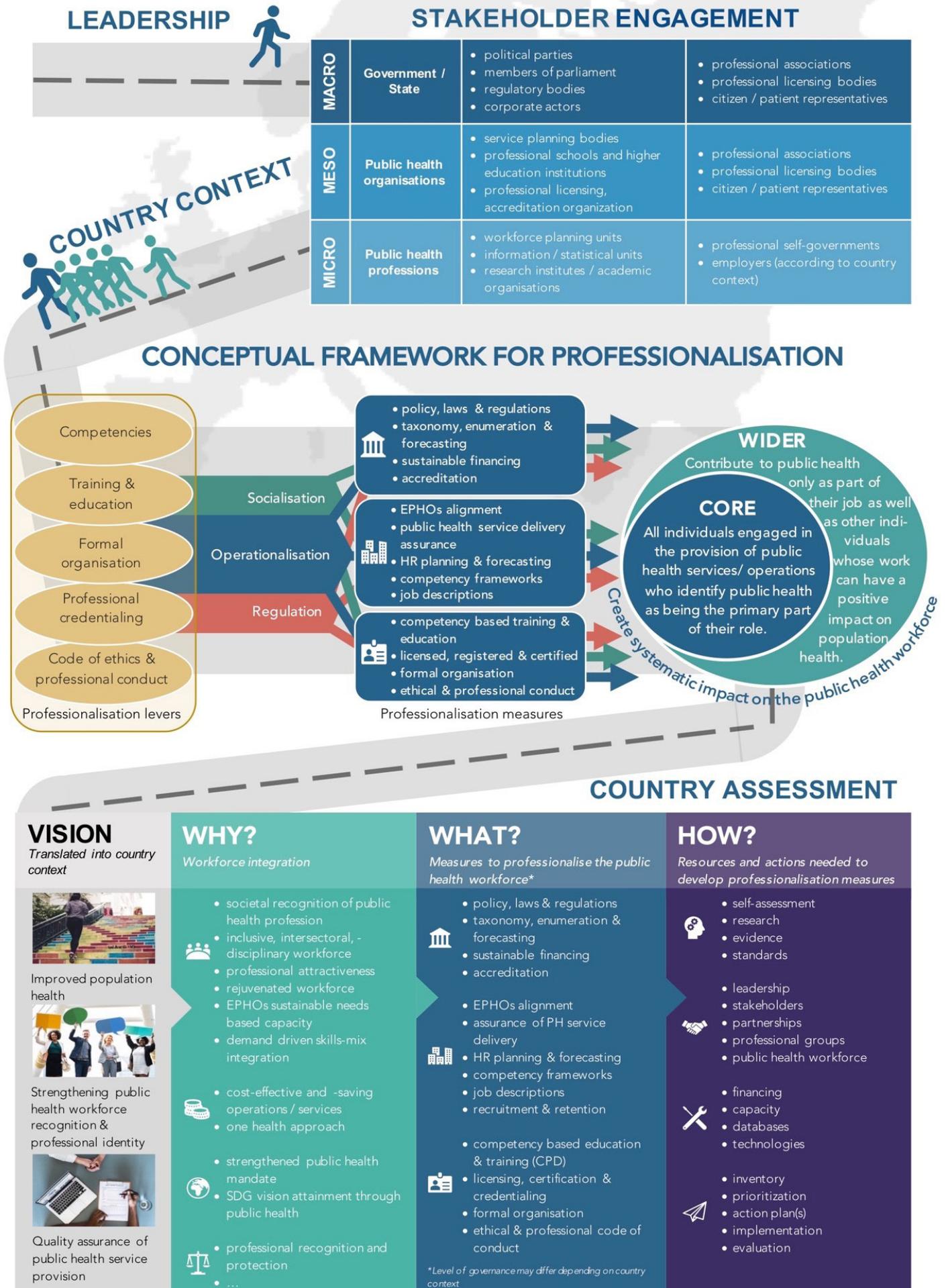
This enables one to visualize the meaningful narrative for systematically integrating the professionalization process and aims to simplify the complexity inherent in professionalization. Moreover, it aims to provide a common language and structure for developing and deploying a country-specific roadmap strategy. This results from defining the unit of analysis (the public health workforce) and framing the boundaries of the professionalization system. This process method has been used in business and other domains such as policy-making (Ferrari et al., 2015).

Fig. 2. The conceptual framework of the Roadmap



Source: adapted from Czabanowska et al. (2019 a, b).

Fig. 3. Visualization of the Roadmap



Source: adapted from Slock et al. (2019).

# The Roadmap

## *Conceptual framework*

The conceptual framework (Fig. 2) emphasizes the interdependence between five levers for professionalization, nine professionalization measures, the three levels of workforce governance (excluding transnational) and the involvement of multiple stakeholders, including representatives of the public. It brings the dynamics, intersections and diverse stakeholders into view, which can all contribute to the vision of professionalizing the public health workforce. The framework also distinguishes important implementation processes such as socialization, regulatory policies and operationalization.

### **Key considerations for professionalization**

Four considerations affecting the professionalization of public health workforce are incorporated into the Roadmap: leadership, country context, stakeholder involvement and intersectorality of public health.

#### **Leadership**

Leadership and adherence to a clear vision of improving population health, quality assurance of public health services, political commitment along with strengthened recognition and professional identity of the public health workforce are necessary prerequisites for professionalization, which is at a critical juncture for potential improvements. The authority of public health leaders in this process will arise from their ability to convince others of the central importance of population health and well-being through influence rather than control (WHO Regional Office for Europe, 2011).

A collaborative type of leadership in which responsibility and accountability are shared among those involved in the decision-making process and its outcomes is therefore needed. As a result, public health organizations should engage in building leadership capacity at every level, including governments, organizations and individual professionals themselves. Only working horizontally and vertically across sectors and stakeholders can bring about the expected transformation in which power for change is based on goals that serve a higher purpose (Czabanowska et al., 2014).

#### **Country context**

The framework also emphasizes the need to consider national needs and the conditions of the health-care system. This includes an overall public health system and existing public health strategies and its wider societal context. Further, public health services in the EU not only have different organizational structures but the governance, duties and responsibilities are regulated by national legislation and may differ considerably (Rechel et al., 2018). This therefore requires understanding the country's public health system context, with a clear definition of the main mission, vision and goals of public

health as well as public health core functions and services based on the current burden of disease, population health and health system performance and public health organizational context, including the existing resources and capacity in public health (quantification of the public health workforce, their distribution, age profile, sex, quality, level of training, expertise and professionalism) (Bernd & McKee, 2014; Centre for Workforce Intelligence, 2014, 2015; Czabanowska et al., 2017).

### **Public health and intersectorality**

Because public health and the public health workforce are essentially interdisciplinary and cross-sectoral, any framework targeting action in public health – such as the Roadmap – must necessarily consider more than the health sector and more than one health profession. For example, this essential multidisciplinary nature of public health and its inviolable crossover with primary health care can show the differences in health services between the two but there is always an overlap and need for shared priorities. As different levers are considered, those tasked with operationalizing the roadmap should therefore always consider how stakeholders from different sectors and disciplines can also be engaged and support the processes of professionalizing the public health workforce (Tiliouine et al., 2018).

### **Stakeholder involvement**

Stakeholder involvement or participation and capacity-building are two of five key dimensions of effective health-care governance and system innovation (Greer et al., 2016). Given the importance of stakeholders in governing the health system, it is important not to neglect and exclude them from a discussion about the governance of the public health professional. Effective stakeholder engagement needs to consider the different levels and considerations of professionalization processes to specify which groups should be involved most effectively at what level of decision-making and policy-making by focusing on areas in which these stakeholders interact rather than the specific stakeholders. The conceptual framework moves beyond the traditional silo approaches and interest-based strategies that often dominate health workforce policies and professional development (Dent et al., 2016; Frenk et al., 2010).

### **Levers for professionalization**

As mentioned earlier, the process of professionalization elevates the work to more than a job and engages commitment to treat the public health workforce as a professional cadre with inherent career trajectories based on expert knowledge and facilitated to develop, enhance and maintain competence through training and maintaining skills, through continuing professional development, ethical behaviour and protecting the interests of the public and population. However, traditional models legitimized the exclusion of multidisciplinary groups such as public health (Kuhlmann et al., 2018).

As a result, more critical and complex approaches to professional development have emerged, especially in the European Region. These include discussions that have focused on the role of the state (Johnson, 1995; Moran, 2004), citizenship (Bertilsson, 1990), power (Johnson, 1995; Saks, 2016), and feminism (Hearn et al., 2015; Kuhlmann & Bourgeault, 2008).

This approach moves the debate beyond the professional silo approaches and the assumption of essentialist traits and tribalism of professional groups to understand integration, collaboration and multiprofessional identities. At the same time, it acknowledges a need to define standards and shared goals that distinguish public health from other areas of the health workforce to strengthen professional knowledge and expertise to successfully claim professionalization.

Six dimensions of professionalization have been identified in the literature that are commonly mentioned to distinguish a profession from other occupations:

- skills based on abstract knowledge that is certified or licensed and credentialled;
- provision of training and education, usually associated with a university;
- certification based on competency testing;
- formal organization, professional integration;
- adherence to a code of conduct; and
- altruistic service.

These dimensions should also include and are dependent on research and experimentation.

### **Key measures for professionalization**

Based on the literature review, consultation with the Coalition of Partners and public health plans, nine measures that need to be addressed for a systematic professionalization strategy were identified (Gershuni et al., 2019). These measures are essential to develop, sustain and modernize the public health workforce effectively and include:

- alignment between essential public health operations or core public health functions and organizational resources and public health priority areas;
- adequate public health laws, regulations and norms at the national level;
- assessment of public health capacity;
- data sets and databases on the public health workforce;
- workforce development strategies and management;
- public health education and training, including continuing professional development, core competencies and competency models;
- accreditation, licensing and credentialling systems;
- workforce planning (forecasting strategies for enumerating and quotas); and
- adherence to codes of ethics and professional conduct

### **Levels of workforce governance**

As highlighted previously in the overview of the literature, successful professionalization processes should be understood as the meeting of supportive conditions on the level of government, provider organizations and professional groups, which all shape the pathways of professionalization. While recognizing the importance of the above and

key measures for professionalization as prerequisites to effectively position a country to enable the process of professionalizing the public health workforce, we propose a conceptual framework that includes three governance levels, in which governance is understood as a framework for navigating complex relationships (Greer et al., 2016; Kuhlmann et al., 2018; WHO Regional Office for Europe, 2018).

The levels of stakeholder engagement are: (1) the macro or government and policy level, (2) the meso or organizational level and (3) the micro or professional level (Kuhlmann et al., 2018). Although the EU and global level of public health and the health workforce governance is increasingly gaining relevance (Frenk & Moon, 2013) and needs consideration (such as standardizing qualifications and inclusion in the EU qualification directive), the focus of this Roadmap framework remains at the national and regional levels. Most importantly, the capacity-building for professionalization will focus on the meso levels of organizations, with some micro-level action, such as competency development within the public health professions. The proposed Roadmap framework attempts to assign the professionalization measures and levers to different levels of governance but may differ in each country-specific context.

### ***Implementation processes***

Socialization refers to the process of entrenching the skills, behaviour, values and motivations transferred between individuals or groups of individuals (Grusec & Hastings, 2015) in everyday practice in ways that are recognized as important by citizens and society at large. Socialization plays a crucial role in how organizations and professionals perceive the professional group in question – in this case the public health professional. Strengthening the organizational and interprofessional perceptions helps to address issues with identity crisis, job attitudes and self-image of the public health professional (Grusec & Hastings, 2015). A strong self-image is critical in times of technological change, job uncertainty and perceived economic and political instability (Probst, 2005). Socialization towards the public health professional, can result in improved organization commitment, job satisfaction (Saks & Ashforth, 1997), performance, retention (Phillips et al., 2015) and transfer of cultural norms and values between professionals (Cable & Parsons, 2001).

Organizations can contribute to socialization by introducing newcomers to the professional conduct of the organization (Van Maanen & Schein, 1977). It involves transmitting knowledge, skills and attitudes towards their professional role, enabling them to become familiar with the organization, adjust themselves accordingly (Bauer et al., 1998) and behave responsibly (Grusec & Hastings, 2015). There are at least three socialization tactics (Grusec & Hastings, 2015):

- candidate attraction can be informed by the development of job descriptions, recruitment strategies and an ethical and professional code of conduct which is well addressed in the labour market;

- employee orientation can be facilitated by aligning the essential public health operations and job descriptions so that professionals have clarity about their role and those of the colleagues with whom they work; and
- recruitment strategies should be supported by processes that integrate and assimilate new workers into organizations by using job descriptions, onboarding and acclimatization processes which include corporate values and priorities to formally and informally help colleagues to acquire new skills and competencies through mentoring and coaching to ensure organizational competence, to give some examples (Box 4).

#### **Box 4. Why is socialization important for professionalization?**

Strengthening the organizational and interprofessional perceptions helps to address issues with identity crisis, job attitudes and self-image of the public health professional (Grusec & Hastings, 2015)

Strengthening the transfer of knowledge and skills between professionals

Reducing the turnover resulting from matching expectations of job content, employee and organization

Improving the organization commitment, job satisfaction, performance (Saks & Ashforth, 1997) and retention (Phillips et al., 2015)

Transferring cultural norms and values between current and new employees (Cable & Parsons, 2001)

Regulation in public health aims to ensure and effectively manage service and operational outcomes towards the public interest. Regulation itself is multifaceted (such as laws, policies and norms), can apply to different dimensions of activity and can be deliberate actions that control behaviour using a variety of instruments (Baggott, 2002). In a broad sense, regulations can be divided into formal or direct (such as the legal system) and informal or self-regulation (such as an ethical code). In practice, regulations are complex combinations of both. For example, self-regulation of health professions (such as a code of ethics and professional conduct or professional standards) mostly functions within legal frameworks (such as national clinical audit and governance, complaints and disciplinary procedures). In general, it is important to assess and adapt if needed the legal impediments that can complicate the intended implementation of professionalization measures (Box 5) (Clarke, 2016).

### **Box 5. Why is regulation important for professionalization?**

Sets out the basic requirements in a legal framework for organizations and professions to develop policies

Facilitates the operationalization of professionalization measures, such as financing or providing a legal framework that allows a nongovernmental organization to set professional standards

Enables policy implementation across levels of governance

Provides legal support for planned policies

Operationalization is a process of zooming in, defining and illustrating the measurement of a phenomenon (professionalization) that is not directly measurable. It develops a set of operational criteria (measures and levers of professionalization) that can help countries in distinguishing specific cases and practices that satisfy these criteria. The criteria are always based on a theoretical foundation or model (Fig. 2). In this case, operationalization refers to unpacking the proposed professionalization and bringing it to practical terms of others, which is described in detail in the chapter on operationalizing the Roadmap. The operationalization process takes place at the three levels of governance. It can be complex yet vastly improve the efficacy of implementation policies if it considers regulation and socialization. For example, implementing recruitment tactics (socialization) based on a competency framework resulting in job descriptions (regulation) leads to more competent professionals and strengthens their self-image as valued as professionals (Box 6).

### **Box 6. Why is operationalization important for professionalization?**

Bridges the concepts of professions and workforce development with tangible measures

Clarifies the meaning of considerations, levers and measures

Proposes a set of concrete steps and questions to be asked on the road to professionalizing the public health workforce

Provides legal support for planned policies

## Country assessment, priority-setting and action planning

The Roadmap is a flexible and responsive strategic planning tool that enables a dynamic systems approach that shows how various functional strategies within and across the professionalization system align towards the strategic goal of professionalizing the public health workforce. Member States can use the third part of the visualization to do a strategic country assessment to set priorities and plan discussions and activities among country-level stakeholders. The assessment proposes a logical sequence of considerations that should be supported by specific questions facilitating the assessment and inventory of the current situation of the workforce (trends, drivers and composition) (why), followed by professionalization measures grouped under governance levels<sup>1</sup> (what), leading to the identification of resources and actions needed to develop or achieve the implementation of identified measures (how) (Fig. 4).

Fig. 4. Country assessment



Source: adapted from Slock et al. (2018).

The country assessment provides a template to further develop a self-assessment tool including specific questions and examples to facilitate European Region countries in conducting more in-depth country assessments (see the Roadmap toolkit). In-depth country assessment can help the countries in practically going through a professionalization process that fits the vision and is in accordance with their strategic priorities.

<sup>1</sup> Governance levels for measures might differ from country to country

# Operationalizing the Roadmap – a step towards implementation

This chapter is devoted to operationalizing the Roadmap described in the conceptual framework in three important steps:

- being clear about the scope of practice (including but not limited to competencies);
- identifying the role of the various stakeholders (specifying their role, scope and accountability including their legislative context) who are needed to shift and implement measures towards a more cross-disciplinary response to population health challenges; and
- identifying key areas of decision-making (see the conceptual framework).

The chapter provides some ideas of key questions that need to be asked and answered to be able to help countries in effectively professionalizing their public health workforce. Clearly outlining who is responsible for this process is important. For it to be effective, the health ministry in a given country should initiate or support professionalization activities because of its stewardship role. However, various public health stakeholders can initiate bottom-up interventions.

Without this clarity, countries have difficulty in justifying the necessary financial investments in such professionals (their training, employment and continual capacity-building) but also to set up the resources or legal and non-legal structures needed to develop and secure this workforce. The process of professionalization enables those pursuing it to perceive it as more than a job and rather as a career that necessarily involves systematic, continual investment not just from external actors but also from the individuals themselves. Allowing for and carrying out some way individuals can make this sort of commitment to public health is also an important benefit of the professionalization process, ensuring sustainability and intensive efforts towards tackling health challenges in a country. Professionalizing the public health workforce is a needed step to raise the profile of public health and attract young people to the field. The professionalization process would ensure an effective and adaptive response to key challenges facing public health, such as mismatches between training and practice (Paccaud et al., 2013) and a progressing professional identity crisis.



## Defining the scope of the public health workforce

Professionalizing the public health workforce first requires being clear about its scope. Unique to the scope of the public health workforce is its focus on population health needs in a way that focuses on ensuring cross-sectoral collaboration, working with sectors beyond the health sector and at various levels of government and nongovernmental actors to tackle the complexity of these health needs. Box 7 shows how this has been defined generically. Countries can adapt these to their specific settings. Case study 4 in Annex 3 shows examples from countries in south-eastern Europe.

### Box 7. Scope of the public health workforce

#### The public health professional:

- builds and strategizes the knowledge base and infrastructure for public health interventions;
- activates system-wide and cross-sectoral networks of relations and interactions that enable the implementation of comprehensive responses; and
- delivers high-quality achievements in public health.

The scope of the public health workforce is threefold and closely aligned with national needs and the WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region (WHO Regional Office for Europe, 2020b), which is one of the pillars and levers of the Roadmap. First, the public health workforce builds and strategizes the knowledge base and infrastructure for public health interventions. This is important for developing evidence-informed responses to public health dilemmas. Second, the public health workforce activates system-wide and cross-sectoral networks of relations and interactions that enable the implementation of comprehensive responses. Because of the nature of public health challenges that cross sectors and therefore geographical, technical or sectoral jurisdictions, people need to be tasked with activating networks that bridge these boundaries and build solutions that capitalize on a range of resources, knowledge paradigms and types of capacity. Finally, the public health workforce is tasked with delivering high-quality achievements in public health through either the oversight and management or the actual frontline solutions that have been identified by (health or non-health) organizations and institutions as necessary.

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## ***How will countries and relevant stakeholders define the scope of their public health workforce?***

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Respective governments and health ministries are required to define the role and scope of public health activity and how it relates to population health. However, making progress in defining the scope of the public health workforce requires defining more specifically the competencies associated with the various scopes of practice and public health services in accordance with the essential public health operations. A competency framework sets out the workforce's competencies: a set of foundational knowledge, skills and personal attributes desired for the public health workforce. These should feed into a competency-based learning model based on theory, research and practice (Frenk et al., 2010) engaged during education and training but also practice on an ongoing basis while maintaining a focus that enables the public health workforce and organizations to deliver essential public health operations (Bjegovic-Mikanovic et al., 2013b; Council on Linkages Between Academia and Public Health Practice, 2014). ASPHER's European list of core competences for the public health professional (Foldspang et al., 2018) and its subsequent editions present the combination of essential public health operations and competencies (Foldspang, 2016) and can be suited for education, including testing students and trainees.

The WHO Regional Office for Europe in collaboration with ASPHER and Maastricht University has developed the WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region (WHO Regional Office for Europe, 2020b) to guide the scope of the public health workforce and to accompany and support

the Roadmap. This was being developed during 2017–2019 in collaboration with major public health organizations and experts and the Coalition of Partners under the European Action Plan for Strengthening Public Health Capacities and Services. The purpose of the WHO-ASPHER Competency Framework for the Public Health Workforce (WHO Regional Office for Europe, 2020b) is to define, stimulate and support efforts at all stages of developing the public health workforce. It can assist:

- universities and other institutions of higher education in assessing the extent to which the curricula they offer prepare their graduates to be part of the core public health workforce;
- members of the core public health workforce in either self-assessing their personal development needs or assessing them in conjunction with a line manager or mentor;
- members of the wider public health workforce or those studying or in training to become members of the core public health workforce in obtaining insight into their current level of competence in public health;
- organizations in assessing the public health workforce competencies required to deliver their public health functions; and
- organizations in constructing job descriptions based on the essential and desirable competencies needed for a role.

The WHO-ASPHER Competency Framework for the Public Health Workforce (WHO Regional Office for Europe, 2020b) attempts to describe:

- the competencies required of the public health workforce to perform, for example, the WHO essential public health operations and core functions of national public health institutes;
- the minimum level of knowledge and skills expected of all members of the core public health workforce to be classified as competent in each of the individual competencies of the Competencies Framework for Public Health Workforce; and
- the higher levels of knowledge and skills to be classified as being proficient or expert in any competency.

The WHO-ASPHER Competency Framework for the Public Health Workforce (WHO Regional Office for Europe, 2020b) can guide not only initial training but also recruitment strategies, performance management, professional and ethical conduct, job descriptions and continuing professional development.

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***Have the competencies of the public health workforce been nationally or regionally defined? Are there international competency frameworks that can be drawn on?***

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# Key decision-makers in professionalizing the public health workforce

Because the work of public health is intrinsically multi- and interdisciplinary but also considers local, regional, national, international and supranational structures and organizations, countries need to map and scan the relevant stakeholders for professionalization. Table 2 provides examples of a range of stakeholders proposed by the Coalition of Partners. These should be adjusted to the country context.

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***Are countries aware of the potential of various stakeholders who influence – directly or indirectly – the course of the careers of members of the public health workforce? And are they present at the table?***

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## Key decision areas in professionalizing the public health workforce

Countries need to identify the key decision areas to be addressed at the various levels of workforce governance. Table 2 provides examples of the kinds of decisions the Coalition of Partners identified as requiring attention, including some of the rationale in relation to professionalizing the public health workforce. Annex 2 provides key resources to guide some of these decision areas. These should be adapted to the country context.

***How are countries approaching the different levels of governance? Do they know what types of decisions are important to the public health workforce?***

**Table 2. Operationalizing stakeholder involvement in professionalizing the public health workforce and its governance in various countries**

Workforce governance level	Levers and measures as key decision areas	Stakeholders
<b>Government and policy</b>	<ul style="list-style-type: none"> <li>• Developing public health strategies in alignment with workforce strategies</li> <li>• Establishing public health as an academic discipline and a profession</li> <li>• Laws and regulations</li> <li>• Financing for developing the public health workforce</li> <li>• Developing a public health workforce taxonomy to define job roles within the public health workforce</li> <li>• Developing workforce data, planning and forecasting methods for the public health workforce</li> </ul>	<ul style="list-style-type: none"> <li>• Political parties</li> <li>• Members of parliament</li> <li>• Regulatory bodies</li> <li>• Corporate actors</li> <li>• Professional associations</li> <li>• Professional licensing bodies</li> <li>• Representatives of citizens and patients</li> <li>• Workforce planning units</li> <li>• Information and statistical unit</li> <li>• Provider organizations</li> <li>• Research institutes and academic organizations</li> <li>• Professional trade unions</li> </ul>
<b>Institutions and organization</b>	<ul style="list-style-type: none"> <li>• Ensuring that the strategic objectives of public health organizations are aligned with the essential public health operations</li> <li>• Ensuring that the public health workforce employed by public health organizations delivers public health services in accordance with the essential public health operations</li> <li>• Ensuring that workforce planning and forecasting methods are applied to the public health workforce</li> <li>• Developing licensing and accreditation schemes based on the competencies of the public health workforce</li> <li>• Developing recruitment and retention strategies based on the competencies of the public health workforce</li> <li>• Developing job descriptions based on the competencies of the public health workforce</li> <li>• Developing training and retraining schemes based on the competencies of the public health workforce</li> </ul>	<ul style="list-style-type: none"> <li>• Employers (according to the country context)</li> <li>• Service planning bodies</li> <li>• Professional schools and institutions of higher education</li> <li>• Community governing bodies and networks</li> <li>• Representatives of citizens and patients at the organizational level</li> </ul>
<b>Professions</b>	<ul style="list-style-type: none"> <li>• Formal organization of the profession</li> <li>• Developing specific competencies (knowledge, skills and attitudes) in the public health workforce</li> <li>• Developing and supporting competency-based training, education and assessment both at initial training institutions and continuing professional development during service</li> <li>• Developing a code of ethics and professional conduct</li> </ul>	<ul style="list-style-type: none"> <li>• Professional associations</li> <li>• Professional unions</li> <li>• Professional licensing and accreditation organizations</li> <li>• Professional training institutions</li> <li>• Ethics committees</li> <li>• Professional journals</li> <li>• and academic platforms (conferences and networks);</li> <li>• Interprofessional networks</li> </ul>

Source: Kuhlmann (2006).

## Government and policy level

Several decisions are made at the government level that drive and can advance the professionalization of the public health workforce (Table 2). These primarily involve setting up the factors enabling system-wide professionalization of the workforce. They invoke the main functions of health systems as outlined in *The world health report 2000* (WHO, 2000) and reiterated in the Tallinn Charter: Health Systems for Health and Wealth (WHO Regional Office for Europe, 2008). These decisions should be positioned to engage a range of stakeholders, starting with defining the needs by the population through representatives of the public and continuing the process of making informed decisions collaboratively with stakeholders to optimize implementation by delegating responsibilities. The various decisions are described here and listed with key questions. The relevant stakeholders – as explained in the framework – range from government institutions to representatives of citizens and professionals (Box 8).

### Box 8. Proposed stakeholders to engage within the government level

Political parties

Members of parliament

Regulatory bodies

Corporate actors

Professional associations

Professional licensing bodies

Representatives of citizens and patients

Information and statistical units

Provider organizations

Research institutes and academic organizations

Professional trade unions

### Aligning public health strategies with workforce strategies

Meaningful and responsive public health strategies are based on continually updated, comprehensive population health assessments and developed with a range of stakeholders to maximize the collection of information, assess existing capacity and define the essential human, technical and financial resources required to meet these needs (NHS Confederation, 2011). Further, they reference the essential public health operation functions (WHO Regional Office for Europe, 2019c, f) according to countries' specific systems and organizational contexts.

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***Is the public health strategy up to date? Does it reflect contemporary population health needs? Does it reflect the essential public health operations? Who is currently delivering essential public health services and with what resources?***

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The European Action Plan for Strengthening Public Health Capacities and Services highlights the need for countries to have systems capable of delivering the 10 essential public health operations (WHO Regional Office for Europe, 2012). Assessing the capacity of the workforce is therefore essential. This can be done either through government bodies or independent committees or boards. In both cases, their scope of work determines the required training capacity and expertise. The understanding gained from taking such stock of public health needs related to workforce capacity can then be used to make decisions about how to set priorities for allocating resources to meet the needs that have been identified (WHO Regional Office for Europe, 2019e). Annex 2 provides an inventory of resources to map the capacity of the public health workforce.

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***Who is in the core public health workforce, where do they work and what do they do? Are they contributing to the needs identified by the public health strategy?***

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The process of developing public health strategies in accordance with workforce stakeholders is also an opportunity to bring the different stakeholders together around a common cause. Knowledge about which professionals are part of the public health workforce is essential to assess operational capacity. Assessing who contributes to essential public health operations is therefore necessary. Because of the crucial role of disease prevention in responding to and recovering from the COVID-19 pandemic, assessing the public health workforce remains critically important. Categorizing and enumerating clinical health professionals such as physicians, nurses and midwives, while challenging, is generally made simpler by the licensing and registration for these occupations. The public health workforce is more difficult to define, classify and enumerate because of a lack of a consistent definition of public health professionals; lack of licensure or certification of public health professionals in most cases; and lack of central registries of these professionals in most countries, except for Poland and the United Kingdom, where registration is optional. For example, the National Health

Workforce Accounts system has been developed to improve the availability and use of data on the health workforce. A similar approach is needed for the national public health workforce. Such accounts can help to agree on the target interventions that are most likely to bring about improvement for the population and define the added value of the public health workforce in implementing these interventions. This should be translated into a public health workforce strategy. See Annex 2 for an inventory of resources to develop workforce strategies.

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***Is a public health workforce strategy in place? Does it reflect the public health strategy?  
How can more benefit be obtained from professionals with public health competencies?***

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Part of aligning the workforce strategy with the public health strategy involves identifying public health competency frameworks (and lists of competencies) being used by institutions to identify public health professionals, inform career structures and job descriptions and evaluate and develop education and training programmes (Birt & Foldspang, 2011; Foldspang et al., 2018). Here it is important to examine the relative consistency of these public health competency frameworks with the public health strategy and workforce strategy but also with international frameworks (Birt & Foldspang, 2011; Foldspang, 2016).

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***Is a national competency framework for the public health workforce in place?  
Does it support the public health strategy?  
Does it support the workforce strategies?***

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**Public health as an independent academic discipline and a profession**

With public health workforce strategies in place and the necessary public health competencies and standards defined to understand the scope of the public health professional, existing education and training programmes available within the country need to be reviewed so that they represent the public health discipline and award a degree in public health. This can include considering the content, number of places, eligibility criteria and current funding. Action plans can be developed to define the necessary changes to the curricula, adjustments to entry requirements, structure or number of placements or whether completely new programmes need to be established.

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## ***Is an action plan in place to ensure that public health training is responsive to public health needs?***

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The European Action Plan for Strengthening Public Health Capacities and Services calls on countries to support public health workforce development, including developing the academic preparation of public health professionals (Bjegovic-Mikanovic et al., 2013b; Czabanowska et al., 2017; Otok et al., 2017). Here it is essential that countries ensure that the system has sufficient academic and teaching capacity to provide high-quality education, training and professional development to educate a public health workforce to an academic level (bachelor, master and PhD) and academics and qualified public health teachers who contribute to the public health education of health professionals and medical undergraduates.

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## ***Is public health offered as a discipline at the academic level? Are trainers adequately prepared to provide bachelor, master and PhD training to future public health professionals?***

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This can be supported by promoting a national framework of evaluation and certification of centres and programmes, developing precise educational standards for the reliability and functional accreditation of public health curricula at the academic level (bachelor, master and postgraduate) and integrating public health principles and methods into the professional education of physicians, nurses, pharmacists and other relevant and allied health professions and disciplines. Clear well-established rules of the game can be defined, in accordance with the competencies and professional standards defined at the national level and in accordance with the criteria defined by ASPHER at the European level (Birt & Foldspang, 2011; Foldspang, 2016). If public health regulatory bodies are in place, they can support developing clearly defined criteria for the information to be gathered by a candidate for registration as a public health professional within the public health regulatory body.

Ensuring that academic programmes and degrees are recognized in the country as providing a basis for selection criteria or preference for access to jobs for public health professionals is equally important. This involves verifying whether core public health posts are open to those who can demonstrate the prerequisite skills and capacity.

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***Are academic programmes and degrees recognized in the country as providing a basis for selection criteria or preference for access to jobs for public health professionals?  
Do these graduates occupy core public health posts?***

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### **Public health laws, regulations and the public health workforce**

In addition to securing the public health workforce as an independent profession through an established taxonomy, recognition of the academic discipline and creating job descriptions, the roles and job functions of public health professionals and public health organizations can be secured in public health laws and related by-laws and regulations. A recent publication (Rechel et al., 2018) reports on some of the differences in organization and financing. Although the historical background of each country's law is unique, there is both a need and opportunity to learn from each other to face well-known health threats and brace to tackle new ones. Exchanging knowledge and good and best practice on all levels of governance is an essential benefit of cooperation in a supranational organization such as the EU.

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***Do the public health laws and related laws identify the public health professionals or, more specifically, their roles and job functions?***

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The law can also define more pragmatically and efficiently what are the minimal requirements for the public health workforce and set targets on the percentage of the workforce that should meet those criteria.

### **Financing the public health workforce**

Increasing the financial investment in the public health workforce is key to accelerating gains in public health. Evidence has clearly demonstrated the link between staffing levels and improved service delivery and health outcomes (Vujicic et al., 2009).

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***Are salaries competitive for the public health workforce? Are remuneration schemes developed for specific public health roles and experience?***

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However, financial investment includes not only financing competitive salaries for a public health workforce but also supporting the various educational opportunities that can secure an available and acceptable public health workforce. These include loan repayment programmes, scholarships and internship programmes to encourage public health professionals, especially minorities, to enter the workforce. This enhances and supports diversity so that the public health workforce reflects the communities served. Including education stakeholders in this process is vital.

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***Are financial incentives in place to support the initial training of the public health workforce? Are they widely available and easily accessible to all parts of the population?***

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Financing is not limited to the initial training level but is key for keeping the newly acquired workforce in their places of employment through continuing education and training. This means supporting activities in the organizational and the professional domains outlined further on and encouraging system-wide capacity to engage and work with the range of stakeholders relevant to public health – since financing can also be used to develop collaboration between sectors.

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***Are financial incentives in place to organizations and professional groups active in supporting knowledge, networks and innovation in public health?***

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**Developing a public health workforce taxonomy**

Taxonomies allow for valid comparisons across different agencies and institutions and within a given organization and over time. The purpose of the taxonomy is to facilitate the systematic characterization of the public health workforce, outlining a set of minimum elements that should be used in evaluating the progress and development of the public health workforce. The Centre for Workforce Intelligence (2014) has defined core and wider public health roles categorized by the public

health skills and knowledge framework to calculate the workforce in the United Kingdom.

In addition, the International Standard Classification of Occupations (ISCO-08), currently used by 187 member countries (ILO, 2008) can act as a guiding light and enables the flexibility (Aluttis et al., 2013; Kroezen et al., 2018) needed to establish country-specific taxonomy while enabling data collection beyond government and public services (Boulton et al., 2014). However, the ISCO-08 suffers from transferability between countries because of national differences in educational requirements, occupational tasks and duties. Linking occupational categories to public health operations can therefore be instrumental as a stepping stone towards a taxonomy.

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## ***Is there a clear public health workforce taxonomy?***

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Currently, ISCO-08 has two sub-major groups (health professionals and health associate professionals) (ILO, 1990) within which only a few occupational titles refer explicitly to public health, and only six are directly linked to public health (1342 chief public health officer, 2142 public health engineer, 2212 public health specialist (medical practitioner), 2221 public health nurse, 2263 public health officer and 2265 public health nutritionist). The Coalition of Partners is working towards a system that aligns with the essential public health operations such that harmonization across health systems is achieved to improve cross-border collaboration. Limited international collaboration in health workforce planning (especially in regions of free movement of people such as the EU) can be improved through a universal taxonomy if one is going to be developed.

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## ***Which ISCO-08 occupations are part of the core and wider public health workforce? To which public health operations do they contribute?***

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### **Public health workforce data, planning and forecasting**

Regular assessment of the size and composition of the public health workforce has been a challenge for decades in almost all countries in the European Region. A proper enumeration method can use multiple data sources for the public health workforce to improve the accuracy of estimates. Data sources need to be able to provide information on a broad range of workforce indicators such as demographics, distribution, skills and qualifications, gender and working patterns. WHO's National Health Workforce Accounts (WHO, 2019) can serve as a good example and resource as well as. Nevertheless, data sources need to be improved and standardized methods

developed for continually monitoring the size and composition of the public health workforce. In all cases, public health workforce enumeration is especially important to account for the current turnover and its trends and thereby enable evidence-informed forecasting of the public health workforce required as stipulated in Towards a sustainable health workforce in the WHO European Region: framework for action (WHO Regional Office for Europe, 2017c).

Many approaches for workforce planning and forecasting can be used based on supply, demand or needs for public health (Kroezen et al., 2018). In addition, means such as practitioner-to-population ratio, historical patterns, case-load profiling, acuity measures, queuing theory and production function can aid in improving the accuracy of these models (Hornby et al., 1976; Hurst, 2006, 2008; Lipscomb et al., 1995; Musau et al., 2008; Schoo et al., 2008; Tucker et al., 1999). This means that the available research evidence on health workforce monitoring and planning is primarily focused on health-care professionals (Girasek et al., 2016). In contrast, the self-assessments of the essential public health operations within European Region countries found that a shortage of public health workers is a major limitation for public health services (Harris et al., 2017). This scarcity is likely to increase (Boulton et al., 2014) and results from the assumption that the labour market for different categories of health workers is in balance (Ono et al., 2013). This leads to policies oriented towards short-term budgetary planning while public health policy planning is only effective when backed up by a long-term vision (Leppo et al., 2013). Therefore, governments need to define who belongs to the public health workforce. Especially, those professionals contributing to essential public health operations should be included to enable adequate public health workforce capacity assessment, planning and forecasting.

This capacity is essential for determining the public health professional requirements in the system. It helps determine the size, location, composition and characteristics of the existing workforce and determining the skills gaps to develop ways to bridge these gaps while still ensuring that plans are in place to attract and train suitable candidates to deliver future services. In the repository of ASPHER's European Public Health Reference Framework, competencies are assigned to action, which can also support public health human resources planning, education and training (Foldspang, 2016; Foldspang & Otok, 2016).

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***Is there a system to systematically collect, monitor, evaluate and forecast information on the composition of the workforce?***

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## Organizational level

Several decisions are made at the organizational level that influence and can advance the professionalization of the public health workforce (Table 2). These primarily involve setting up the enabling factors for professionals to function effectively. These decisions can engage a range of stakeholders to optimize the information collected to make these decisions and optimize implementation by delegating responsibilities. The different decisions to be made are described here. The relevant stakeholders – as explained in the framework – range from government institutions to representatives of citizens and professionals (Box 9).

### Box 9. Proposed stakeholders to engage within the organization level

Employers (according to the country context)

Service planning bodies

Professional schools and institutions of higher education

Community governing bodies and networks

Representatives of citizens and patients at the organizational level

### Aligning organizational objectives with essential public health operations

At the level of public health organizations, it is important to ensure that the strategic objectives of organizations employing public health professionals are aligned with the essential public health operations. However, no public health system is organized as presented in the essential public health operations. Some effort is thus required to find these functions and elements within all of the various activities and structures of public health systems (Aluttis et al., 2014). This means that organizations are encouraged to consider essential public health operations and even mention them in the strategic planning and plans of the organization (the approach that is used to communicate within and between the partners involved in delivering the organization's core public health services).

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***Do organizations across sectors align their strategic with any of the essential public health operations?***

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This also means that the organization has clearly outlined the links between the essential public health operations and the benefits to its beneficiaries – patients, clients, customers and local communities – whether an explicitly public health service or a company seeking to contribute positively to the environment and public health. This explicit focus on the added value of aligning the organizational objectives with essential public health operations not only creates opportunities for employment for public health professionals but also helps to perpetuate a shared vision and set of common goals across providers or teams that benefits the productivity of the organization.

Since the strategic plans, goals and objectives are aligned with essential public health operations, it will be easier to create the right opportunities for public health professionals to engage, and for intersectoral action at the community level to happen such that it gives priority to comprehensive public health services to support well-being.

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## ***Are organizations hiring public health professionals to implement their strategies?***

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### **Managing the public health workforce**

As professionals are employed to address public health issues or wicked problems, regardless of their number and specific mission, the public health workforce employed should maintain focus on delivering public health services in accordance with the essential public health operations and their competencies. Here one recalls the importance of understanding that the scope of the public health professional is:

- to build and strategize the knowledge base and infrastructure for upstream public health interventions;
- to activate system-wide and cross-sector networks of relations and interactions that enable comprehensive responses to be implemented; and
- to deliver high-quality performance and achievements in public health.

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## ***Are public health professionals hired to do public health work optimally applying their scope and competencies?***

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## **Planning and forecasting methods are applied to the public health workforce**

Forecasting strategies for counting and assessing sufficiency based on need are very useful tools for understanding the need for services and to ensure that the labour available is sufficient if the services needed and essential package of public health services are to be delivered. Such tools are based on reliable and updated health workforce information, including the numbers of graduates from public health and health-related programmes and the flows of the workforce in and out of organizations. For this reason, human resources management staff should be equipped with an understanding of how their organizations are or are not meeting the needs of their clients for the public health workforce, and this information should be fed back into the databases being used to plan and forecast the supply of these graduates. The forecasting strategies of workforce requirements are very much related to workforce development, planning and management strategies since sophisticated models ideally monitor the whole labour cycle of this workforce as presented in the labour market framework developed by Sousa et al. (2014).

## **Accrediting organizations**

Regulating services and educational programmes to ensure that they comply with public health laws and the public health strategy can help advance public health. As this becomes more common, this creates another opportunity for public health professionals to contribute. In addition to accreditation standards, an organization can also use an excellence designation to address the institutions that demonstrate exemplary services.

The review of European Region accreditation systems found that all but three countries within the Region have national accreditation systems. These accreditation systems tend to be compulsory and carry penalties of closing for non-compliance. However, the national accreditation systems use criteria and standards that rely on generic standards rather than ones specific to the needs of the public health workforce. The European Competencies Framework for Public Health Workforce can support the integration of public health workforce competencies within national accreditation systems based around existing national qualification frameworks for the differing academic levels (bachelor, master and PhD). National accreditation agencies should be informed and supported with sectoral competency norms; for example, by issuing a certificate of competency compliance issued by the Agency for Public Health Education Accreditation in Belgium and partners or by integrating the framework within the formal self-evaluation processes of the national accreditation structures.

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***Are services or organizations being accredited and licensed to comply with public health law and the public health strategy?***

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## **Recruitment and retention strategies**

Recruiting public health professionals in organizations requires designing job descriptions based on public health workforce competencies. These competencies can be based on the WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region (WHO Regional Office for Europe, 2020b) or a national framework, established in each country with the range of professionals engaged in the professional domain. Retaining, in contrast, requires exploring public health workforce preferences to assure their more equitable distribution (WHO, 2011).

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***Is the organization aware of the competencies of public health professionals?  
Any national or international frameworks? Are job descriptions designed in accordance with them?***

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These job descriptions help focus public health professionals on the task at hand and the terms by which to continually oversee, manage and improve the quality of their work. Job descriptions may also include registration, licensing or credentialling and can assist in appraisal and assessment processes.

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***Do job descriptions include registration, licensing or credentialling requirements?***

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## **Continual training and quality improvement**

Continual training and a commitment to continual quality improvement are key for achieving high levels of performance among public health professionals. All employers of public health professionals should therefore establish systems of appraisal to review performance and to identify the development needs of their public health staff using agreed competency frameworks. These learning opportunities can be developed in collaboration with professional bodies (explored below in the professional domain), but what is important for organizations is that employers and organizations where public health professionals are working provide the resources and time needed to participate in regular continual learning and appraisals. A key goal here is to expand networks for public health professionals and expand learning about cross-sectoral influences on public health. Employers can establish a system to support the ongoing professional development of public health staff and methods of recording this.

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***Do organizations have retention strategies that allocate time and resources to enable public health professionals to participate in continual learning and professional development to help maintain their competencies?***

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Recommendations emphasize the need for collaboration between public health training institutions, public health researchers and public health professionals in service (wherever that may be). Collaborations can offer overarching platforms for public health education across sectors, research and practice. The goal of synchronizing competency-based learning models that are consistent across training institutions and employers becomes possible (Frenk et al., 2010).

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***Can collaborative platforms enable competency-based learning opportunities for public health professionals?***

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An interesting example of this is the employer standards implemented by the local government structures in England who employ public health professionals (see case study 2 in Annex 3) (Standing Group on Local Public Health, 2018). Following that approach, periods of study may be interspersed with periods of work, enabling professionals to stay more up to date and have greater capacity to influence and guide policy, planning and provision of essential public health services at the population level. In fact, education and training in public health, and especially training in health system organization and management, have distinct features requiring collaboration between researchers, policy-makers and other stakeholders and thus place different emphasis on interaction, communication and implementation (Stein, 2008).

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***Are continual learning opportunities linked and aligned across the whole system?***

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The situation (and the need for persuasive arguments for improvement) will differ slightly depending on whether the country has:

- a well-developed and overt public health system;
- a well-developed public health function spread out across a range of organizations and sectors and with a specific organization or member of the workforce with public health in their titles;
- a poorly developed public health system.

It may be useful to develop educational and training programmes in public health in the European Region (such as the ASPHER Public Health Training Academy (ASPHER, 2019) in accordance with the statements on the future of public health in Europe published by the European Public Health Association (2005) and other key stakeholders in Europe and elsewhere (Foldspang et al., 2016; Otok et al., 2017).

### ***Level of professions***

Several decisions are made at the level of professions that influence and can advance the professionalization of the public health workforce (Table 2). These primarily involve setting up the factors enabling professionals to function effectively. These decisions can engage a range of stakeholders to optimize the information collected to make these decisions and optimize implementation by delegating responsibilities. The various decision-making opportunities are described here. The relevant stakeholders – as explained in the framework – range from professional representatives to interprofessional networks such that a commitment to interprofessional collaboration and interdisciplinarity is maintained (Box 10).

#### **Box 10. Proposed stakeholders to engage within the professional domain**

Professional associations

Professional unions

Professional licensing and accreditation organizations

Professional training institutions

Ethics committees

Interprofessional networks

Representatives of citizens and patients

Academic platforms (journals, conferences and networks)

## Formal organization of the profession

Professional organizations have an important role to play in developing the workforce. In support of cognitive, normative and jurisdictional claims, professions have typically developed four interrelated and sometimes overlapping institutions: professional schools, professional unions, professional knowledge brokers and professional licensing and accreditation systems. If the public health workforce in a country is to be professionalized effectively, professional organizations must assume these four functions (Table 3).

### *Are the four key functions of a professional organization represented and equally protected to take place (financing and representation)?*

In some countries, professional organizations are defined by function; in others, professional organizations assume more than one of these functions. What is important is to maintain and optimize each of these functions, not giving priority to one over the other. Further, terms may differ – chambers, councils and the like.

**Table 3. Four key functions for professional organizations**

Drivers	Description
<b>Social</b>	<ul style="list-style-type: none"><li>Ensures that public health professionals are taught according to a public health strategy, public health laws and public health competencies</li></ul>
<b>Professional advocacy</b>	<ul style="list-style-type: none"><li>Protects the interests of the public health workforce</li><li>Ensures that the labour rights of public health professionals are protected</li><li>Advocates for appropriate compensation and wages</li><li>Represents the workforce in workplace conflicts and complaints</li></ul>
<b>Professional licensing accreditation</b>	<ul style="list-style-type: none"><li>Protects the public by ensuring that high-quality professionals are tasked with implementing public health services</li><li>Ensure basic entry standards to the profession and monitor adherence to these standards</li><li>Define and moderate ethical and professional conduct</li><li>Represents the public in complaints against the public health workforce</li></ul>
<b>Professional knowledge brokering</b>	<ul style="list-style-type: none"><li>Advance the science and expertise of public health</li><li>Provide training, develop journals, conferences, networks and interest groups.</li></ul>

If professional organizations are aligned and informed by a set of core public health competencies, they can ensure that training, occupational conditions, research and legal mechanisms all support the delivery of improved population health outcomes. They can help provide a collective voice for the profession that is independent of government and can act as advocates for investing in services and/or improvements at the population level. They can work collaboratively with other organizations within their geographical borders or beyond, with such organizations as ASPHER and the World Federation of Public Health Associations, forming alliances to tackle important public health issues.

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### ***Are the range of professional organizations collaborating with one another to ensure the alignment of public health goals?***

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#### **Developing specific competencies for the public health workforce**

The competencies of the public health workforce should be developed based on input from both academic institutions and non-academic organizations such as trade unions, scientific organizations or networks of professionals identifying around special interests in public health. This ensures that a range of approaches and interests are represented in the training and assessment of public health professionals.

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### ***Are the full range of professional organizations (academic and non-academic) involved in developing and supporting a competency framework for public health?***

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#### **Developing and supporting competency-based training, education and assessment**

For organizations, ensuring continual professional development, short-term and sandwich-type educational and training activities using collaborative platforms can be especially useful. Professional organizations are especially important in supporting existing knowledge and practice since academic educators may be removed from day-to-day practice. Here again the emphasis is on ensuring that the professional organizations are committed to collaborating across organizations to especially support employers and initial training institutions in delivering high-quality competency-based training, education and assessment on a continual basis.

## **Developing professional licensing and certification schemes**

Licensing and certifying professionals protect the public. These measures provide reassurance that high-quality public health services are in place and that the professionals tasked with these services can deliver them. The competencies being assessed by credentialling systems and used to justify licensing and/or certification are ideally based on the competencies identified as being of greatest priority for public health. They should also be closely aligned with the core curricula developed for initial and continual training.

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***Are the current credentialling systems (both academic and professional) in place meeting the criteria of the above definitions? And are these based on a public health competency framework (national or international)?***

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Credentialling for public health professionals is the process of obtaining, verifying and assessing the qualifications of public health professionals to provide services and operations for a public health organization or system; credentials constitute documented evidence of such qualifications. Recognition of public health as a profession requires achieving a common body of knowledge, skills and attitudes (as defined by competencies) and assurance of a competent workforce, with thoroughly established standards (based on accreditation and credentialling services). The competencies for public health graduates entering the profession are ensured through accredited education and training. Certification by relevant academic credentials is a step in the process towards professional credentialling; however, this fails to reach a significant part of the workforce that lacks a formal public health training background. Professional credentialling can enable members of this workforce a means to demonstrate their competence in public health regardless of their educational background and concurrently allow graduates of public health programmes to show employers that they meet the formal requirements for employability. For both, periodically renewing credentials can assure that the necessary continuing education and retraining is in place to help public health workers in defining a career path.

A professional credentialling system is a system of ensuring official and/or legal recognition to engage in a regulated professional activity through a specific licensing, certification or registration scheme. These measures need to be based on a competency framework, supported by key leaders in the organizations where public health professionals work and considered by the public health workforce development plans.

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## ***Are organizational and system leaders adhering to the processes of the existing credentialling systems?***

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Professional credentialling schemes can regulate what credentials are required to undertake certain roles within the public health system and provide good practice, guidance or legislation. This can mean developing a system of credentialling for individuals that enables them to demonstrate that they meet professional standards and competency frameworks and establishing continuing professional development and regular appraisal. Respect for and adherence to standards and processes by professional bodies and employers are essential. Professional credentialling schemes require a proactive organized professional public health body able to work in partnership with employers and government, as discussed in the section on professional organization.

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## ***Are professional credentialling procedures being used to regularly appraise the public health workforce?***

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Very little professional regulation is in place, except for licensing physicians who choose to specialize in public health, with only a few countries offering credentialling schemes for the wider public health workforce, such as opening the specialist system to non-physicians and/or offering other voluntary systems for certification or registration. See Annex 2 for resources on implementing public health professional credentialling and Annex 3 for case studies 2 and 5. Professional credentialling in public health would, once introduced widely, increase the professionalism of the public health workforce and build careers, providing evidence of mastery of core knowledge and skills and especially providing assurance to the community served of the professional standard (met and maintained) of the workforce.

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## ***Is the professional public health body tasked with professional credentialling subject to good governance and sufficiently funded to be able to achieve its mandate?***

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## **Developing a code of ethics and professional conduct**

A code of ethics and professional conduct for public health helps to define the norms, values and standards that are essential for public health and clarifies the purpose of its professional activities. The norms and values playing a central role in public health professional codes of conducts can vary (Laaser et al., 2017).

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### ***What are the key public health norms and values in your country?***

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The ethos of a profession can be codified in a document referred to as a code of conduct. By codifying norms and values into a code of conduct, professions can set ethical obligations and standards for professional organizations and individuals in a changing and ethically often challenging professional environment (Laaser et al., 2017; Lee et al., 2016). A code of conduct is an inherent precondition for professionalizing public health professionals. In some countries, such codes may also have a regulatory impact in the sense that professions are self-regulated under authority delegated by national authorities. In such cases, respecting the professional code of conduct becomes a legal obligation.

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### ***Does your country have a code of ethics for public health professionals?***

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Codes of ethics should be regularly revisited based on social, professional and other developments (see case study 6 in Annex 3) and might need regular adjustments (Lee et al., 2016). A code of ethics for public health in a country may differ from the country's code of ethics for medicine – since different norms and values are foundational to these separate professions. In public health, the issues dealt with are multifactorial and socially influenced, thereby implicating a different group of stakeholders and their rights but also their interests.

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### ***Has the code of conduct for public health professionals been updated to reflect the changing social, professional and important stakeholder developments?***

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# CONCLUSION

Few countries in the WHO European Region have sought to professionalize the public health workforce. This Roadmap has sought to help countries build the capacity of the public health workforce to help respond to the growing public health needs in countries. This Roadmap offers pragmatic and actionable recommendations for professionalizing the public health workforce. To this end and based on current practice in the WHO European Region, the Roadmap puts forward several possible levers for engagement by the range of stakeholders who have important roles in and insight into improving public health. It necessarily embraces a modern approach that emphasizes a cross-sectoral and cross-disciplinary approach. The path to professionalizing the public health workforce generally involves (1) being clear about the scope and the specific competencies required; (2) identifying key action areas for these professionals and (3) identifying the role of the various actors who are needed to shift towards a more cross-disciplinary response to population health challenges.

This clarity is required for countries to justify the necessary financial investment into such professionals (their training, employment and continual capacity-building) but also to set up the resources or legal and non-legal structures that are necessary to develop and secure this workforce.

## REFERENCES

- Aluttis CA, Michelsen M, Costongs C, Brand H on behalf of the Public Health Capacity Consortium (2013). Review of public health capacity in the EU. Brussels: European Commission Directorate General for Health and Consumers.
- Aluttis C, Van den Broucke S, Chiotan C, Costongs C, Michelsen K, Brand H (2014). Public health and health promotion capacity at national and regional level: a review of conceptual frameworks. *J Pub Health Res.* 3:199.
- ASPHER (2019). ASPHER Public Health Training Academy [website]. Brussels: Association of Schools of Public Health in the European Region (<https://www.aspher.org/users,52.html>, accessed 15 November 2021).
- Baggott R (2002). Regulatory politics, health professionals, and the public interest. In: Allsop J, Saks M, editors. *Regulating the health professions*. London: SAGE Publications; 31–46.
- Bauer TN, Morrison EW, Callister RR (1998). Organizational socialization: a review and directions for future research. *Res Personnel Hum Resources Manage.* 16:149–214.
- Bernd R, McKee M, editors (2014). *Facets of public health in Europe*. London: Open University Press (European Observatory on Health Systems and Policies Series; [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0003/271074/Facets-of-Public-Health-in-Europe.pdf](http://www.euro.who.int/__data/assets/pdf_file/0003/271074/Facets-of-Public-Health-in-Europe.pdf), accessed 15 November 2021).
- Bertilsson M (1990). The welfare state, the professions and citizens. In: Torstendahl R, Burrage M, editors. *The formation of professions: knowledge, state and strategy*. London: Sage Publications; 114–33.
- Birt C, Foldspang A (2011). European Core Competencies for Public Health Professionals (ECCPHP). ASPHER's European Public Health Core Competences Programme. Brussels: Association of Schools of Public Health in the European Region (<http://aspher.org/download/77/eccphp-2011.pdf>, accessed 15 November 2021).
- Bjegovic-Mikanovic V, Burazeri G, Laaser U (2013a). The framework of public health. In: Burazeri G, Kragelj LZ, editors. *Forum for Public Health in Southeastern Europe: health: systems – lifestyle – policies: a handbook for teachers, researchers and health professionals, volume 1*. Lage, Germany: Jacobs Publishing Company; 113–25 (<https://www.seejph.com/index.php/seejph/article/view/1920>, accessed 15 November 2021).
- Bjegovic-Mikanovic V, Vukovic D, Otok R, Czabanowska K, Laaser U (2013b). Education and training of public health professionals in the European Region: variation and convergence. *Int J Public Health.* 56:801–10.
- Boulton ML, Beck AJ, Coronado F, Merrill JA, Friedman CP et al. (2014). Public health workforce taxonomy. *Am J Prev Med.* 47:S314–23.

Cable DM, Parsons CK (2001). Socialization tactics and person- organization fit. *Personnel Psychol.* 54:1–23.

Centre for Workforce Intelligence (2014). Mapping the core public health workforce: literature review. London: Centre for Workforce Intelligence (<https://www.gov.uk/government/publications/mapping-the-core-public-health-workforce>, accessed 15 November 2021).

Centre for Workforce Intelligence (2015). Understanding the wider public health workforce. London: Centre for Workforce Intelligence ([https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/507752/CfWI\\_Understanding\\_the\\_wider\\_public\\_health\\_workforce.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/507752/CfWI_Understanding_the_wider_public_health_workforce.pdf), accessed 15 November 2021).

Clarke D (2016). Law, regulation and strategizing for health: Chapter 10. In: Schmets G, Rajan D, Kadandale S, editors. *Strategizing national health in the 21st century: a handbook*. Geneva: World Health Organization (<https://apps.who.int/iris/handle/10665/250221>, accessed 15 November 2021).

Council on Linkages Between Academia and Public Health Practice (2014). Core Competencies for Public Health Professionals. Washington (DC): Council on Linkages Between Academia and Public Health Practice ([http://www.phf.org/resourcestools/Documents/Core\\_Competencies\\_for\\_Public\\_Health\\_Professionals\\_2014June.pdf](http://www.phf.org/resourcestools/Documents/Core_Competencies_for_Public_Health_Professionals_2014June.pdf), accessed 15 November 2021).

Czabanowska K (2016). Public health competencies: prioritization and leadership. *Eur J Public Health.* 26:734–5.

Czabanowska K, Rethmeier KA, Lueddeke G, Smith T, Malho A, Otok R et al. (2014). Public health in the 21st century: working differently means leading and learning differently. *Eur J Public Health.* 24:1047–52.

Czabanowska K, Laaser U, Stjernberg L (2015). Shaping and authorising a public health profession. *South Eastern Eur J Public Health.* 2: DOI 10.4119/UNIBI/SEEJPH-2014-39.

DeSalvo KB, O'Carroll PW, Koo D, Auerbach JM, Monroe JA (2016). Public health 3.0: time for an upgrade. *Am J Public Health.* 106:621–2.

Dent M, Bourgeault IL, Denis JL, Kuhlmann E (2016). Introduction: the changing world of professions and professionalism. In: Dent M, Bourgeault IL, Denis JL, Kuhlmann E, editors. *The Routledge companion to the professions and professionalism*. London: Routledge; 1–10.

EU Health Policy Platform (2017). Joint statement on public health workforce development and professionalisation: call for a collaborative and consensus-building action. Brussels: Association of Schools of Public Health in the European Region ([http://aspher.org/download/91/vf\\_2017-phw-euhpp.pdf](http://aspher.org/download/91/vf_2017-phw-euhpp.pdf), accessed 15 November 2021).

European Parliament, European Council (2005). Directive 2005/36/EC on the recognition of professional qualifications. Official J European Union. L255/22 (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32005L0036>, accessed 15 November 2021).

European Public Health Association (2005). 10 statements on the future of public health in Europe. Brussels: European Public Health Association ([https://eupha.org/documents/publications/eupha\\_10\\_statements.pdf](https://eupha.org/documents/publications/eupha_10_statements.pdf), accessed 15 November 2021).

European Union of Medical Specialists (2019a). Section of Public Health UEMS. Brussels: European Union of Medical Specialists ([https://www.uems.eu/\\_data/assets/pdf\\_file/0011/98435/UEMS-2019.24-European-Training-Requirements-for-Public-Health.pdf](https://www.uems.eu/_data/assets/pdf_file/0011/98435/UEMS-2019.24-European-Training-Requirements-for-Public-Health.pdf), accessed 15 November 2021).

European Union of Medical Specialists (2019b). European Union of Medical Specialists [website]. Brussels: European Union of Medical Specialists (<https://www.uems.eu>, accessed 15 November 2021).

Ferrari AC, Bonaccorso F, Fal'ko V, Novoselov KS, Roche S Bøggild P et al. (2015). Science and technology roadmap for graphene, related two-dimensional crystals, and hybrid systems. *Nanoscale*. 7:4598–4810.

Foldspang A (2016). From potential to action. Public health core competences for essential public health operations. A manual. Brussels: Association of Schools of Public Health in the European Region (<http://aspher.org/download/137/booklet-competencesephos-volume-2.pdf>, accessed 15 November 2021).

Foldspang A, Otok R (2016). Competences based individual career and workforce planning in public health. *Eurohealth*. 22(4):21. (<https://apps.who.int/iris/handle/10665/332670> , accessed 15 November 2021).

Foldspang A, Otok R, Czabanowska K, Bjegovic-Mikanovic V (2014). Developing the public health workforce in Europe: the European Public Health Reference Framework (EPHRF): its Council and online repository. Concepts and policy brief. Brussels: Association of Schools of Public Health in the European Region ([http://aspher.org/download/27/ephrf\\_concept\\_and\\_policy\\_brief.pdf](http://aspher.org/download/27/ephrf_concept_and_policy_brief.pdf), accessed 15 November 2021).

Foldspang A, Müller-Nordhorn J, Bjegovic-Mikanovic V, Otok R (2016). 50 years of professional public health workforce development. ASPHER's 50th anniversary book. Brussels: Association of Schools of Public Health in the European Region (<http://aspher.org/download/80/anniversary-book-may2016.pdf>, accessed 15 November 2021).

Foldspang A, Birt C, Otok R, editors (2018). ASPHER's European list of core competences for the public health professional. 5th ed. Brussels: Association of Schools of Public Health in the European Region ([https://www.aspher.org/download/199/04-06-2018\\_aspher\\_s\\_european\\_list\\_of\\_core\\_competences\\_for\\_the\\_public\\_health\\_professional.pdf](https://www.aspher.org/download/199/04-06-2018_aspher_s_european_list_of_core_competences_for_the_public_health_professional.pdf), accessed 15 November 2021).

Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T et al. (2010). Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*. 376:1923–58.

Frenk J, Moon S (2013). Governance challenges in global health. *N Engl J Med*. 368:936–42.

Gershuni O, Czabanowska K, Burazeri G, Cichowska Myrup A, Von Krauss MK (2019). Is there a golden recipe? A scoping review of public health workforce development. *Eur J Public Health*. 29:401–8.

Girasek E, Kovács E, Aszalós Z, Eke E, Ragány K, Kovács R et al. (2016). Headcount and FTE data in the European health workforce monitoring and planning process. *Hum Resour Health*. 14(Suppl. 1):42.

Greer SL, Wismar M, Figueras J, McKee C (2016). Governance: a framework. In: Greer SL, Wismar M, Figueras J, editors. *Strengthening health system governance: better policies, stronger performance*. London: Open University Press; 27–56.

Griffiths P, Ball J, Drennan J, James L, Jones J, Recio A, Simon M (2014). *The association between patient safety outcomes and nurse/healthcare assistant skill mix and staffing levels and factors that may influence staffing requirements*. Southampton: University of Southampton.

Grusec JE, Hastings PD (2015). *Handbook of socialization, second edition: theory and research*. New York: Guilford Press.

Harris MR, Ruseva M, Mircheva D, Lazarov P, Ivanova T, Martin-Moreno JM (2017). Self-assessments of the essential public health operations in the WHO European Region 2007–2015. Experiences and lessons from seven Member States. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/351404>, accessed 15 November 2021).

Hay SI, Abajobir AA, Abate KH, Abbafati C, Abbas KM Abd-Allah F et al. (2017). Global, regional, and national disability-adjusted life years (DALYs) for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet*. 390:1260–1344.

Hearn J (2015). *Men of the world: genders, globalizations, transnational times*. London: Sage.

Hornby P, Mejia A, Ray D, Simeonov LA (1976). Trends in planning for health manpower. *WHO Chronicle*. 30:447–54.

Hunter DJ (2009). Leading for health and wellbeing: the need for a new paradigm. *J Public Health*. 31:202–4.

Hurst K (2006). Primary and community care workforce planning and development. *JAN*. 55(6):757–769.

Hurst K (2008). *Primary care trust workforce: planning and development*. London: Whurr Publishers Ltd.

ILO (1990). C171 – Night Work Convention, 1990 (No. 171). Geneva: International Labour Office ([http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100\\_INSTRUMENT\\_ID:312316](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312316), accessed 15 November 2021).

ILO (2008). International Standard of Occupations: ISCO-8. Geneva: International Labour Office ([https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms\\_172572.pdf](https://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_172572.pdf), accessed 15 November 2021).

Johnson T (1995). Governmentality and the institutionalization of expertise. In: Johnson T, Larkin G, Saks M, eds. *Health professions and the state in Europe*. London: Routledge:2–14.

Kroezen M, Van Hoegarerden M, Batenburg R (2018). The Joint Action on Health Workforce Planning and Forecasting: results of a European programme to improve health workforce policies. *Health Policy*. 122:87–93.

Kuhlmann E (2006). *Modernising health care: reinventing professions, the state and the public*. Bristol: Policy Press.

Kuhlmann E, Batenburg R, Wismar M, Dussault G, Maier CB, Glinos IA et al. (2018). A call for action to establish a research agenda for building a future health workforce in Europe. *Health Res Policy Syst*. 16(1):52.

Kuhlmann E, Bourgeault IL (2008). Gender, professions and public policy: new directions. *Equal Opportunities Int*. 27:5–8.

Laaser U, Schröder-Bäck P, Eliakimu E, Czabanowska K (2017). The One Health Global Think-Tank for Sustainable Health & Well-being (GHW-2030). A code of ethical conduct for the public health profession. *South Eastern Eur J Public Health*. 9.

Lee LM, Fisher CB, Jennings B (2016). Revising the American Public Health Association's public health code of ethics. *Am J Public Health*. 106:1198–9.

Leppo K, Ollila E, Peña S, Wismar M, Cook S, editors (2013). *Health in all policies: seizing opportunities, implementing policies*. Helsinki: Ministry of Social Affairs and Health.

Lipscomb J, Kilpatrick KE, Lee KL, Pieper KS (1995). Determining VA physician requirements through empirically based models. *Health Serv Res*. 29: 697–717.

Macdonald KM (1995). *The sociology of the professions*. London: Sage.

Mackenbach JP, Kulhánová I, Artnik B, Bopp M, Borrell C, Clemens T et al. (2016). Changes in mortality inequalities over two decades: register based study of European countries. *BMJ*. 353:i732.

Martín-Moreno JM (2000). Training and professionalisation in public health: is it really needed? *Int J Public Health Educ*. 2:A1-6.

Martín-Moreno JM, Apfel F, Sanchez JL, Galea G, Jakab Z (2011). The social nature of chronic noncommunicable diseases and how to tackle them through communication technology, training, and outreach. *J Health Commun*. 16(Suppl 2):94–106.

- Millerson G (1964). Dilemmas of professionalism. *New Soc.* 3:15–8.
- Moran D (2004). Governing doctors in the British regulatory state. In: Grey A, Harrison S, eds. *Medical governance: theory and practice*. Buckingham: Open University Press:27–36.
- More E, Probert D, Phaal R (2015). Improving long-term strategic planning: an analysis of STEEPLE factors identified in environmental scanning brainstorming. 2015 Portland International Conference on Management of Engineering and Technology (PICMET) (<https://ieeexplore.ieee.org/document/7273126/citations>, accessed 15 November 2021).
- Musau P, Nyongesa P, Shikhule A, Birech E, Kirui D, Njenga M et al. (2008). Workload Indicators of staffing need method in determining optimal staffing levels at Moi Teaching and Referral Hospital. *East Afr Med J.* 85:232–9.
- NHS Confederation (2011). The joint strategic needs assessment: a vital tool to guide commissioning. ([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/215261/dh\\_131733.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215261/dh_131733.pdf), accessed 15 November 2021).
- Ono T, Lafortune G, Schoenstein M (2013). Health workforce planning in OECD countries: a review of 26 projection models from 18 countries. Paris: OECD Publishing (OECD Health Working Papers, No. 62; <http://dx.doi.org/10.1787/5k44t787zcwb-en>, accessed 15 November 2021).
- Otok R, Czabanowska K, Foldspang A (2017). Public health educational comprehensiveness: The strategic rationale in establishing networks among schools of public health. *Scand J Public Health.* 45:720–2.
- Paccaud F, Weihofen A, Frank M (2013). Public health workforce in Switzerland: are public health workers lacking? *Int J Public Health.* 58:799–800.
- Pencheon D, Guest C, Melzer G, Gray M, editors (2006). *Oxford handbook of public health practice*. Oxford: Oxford University Press.
- Phillips C, Esterman A, Kenny A (2015). The theory of organisational socialisation and its potential for improving transition experiences for new graduate nurses. *Nurse Educ Today.* 35:118–24.
- PLOS Medicine Editors (2013). Addressing the wicked problem of obesity through planning and policies. *PLoS Med.* 10:e1001475.
- Probst TM (2005). Countering the negative effects of job insecurity through participative decision making: lessons from the demand-control model. *J Occup Health Psychol.* 10:320–9.
- Rechel B, Jakubowski E, McKee M, Nolte E, editors (2018). *Organization and financing of public health services in Europe*. Copenhagen: WHO Regional Office for Europe on behalf of European Observatory on Health Systems and Policies (<https://apps.who.int/iris/handle/10665/326254>, accessed 15 November 2021).

Saks AM, Ashforth BE (1997). Organizational socialization: making sense of the past and present as a prologue for the future. *J Vocat Behav.* 51:234–79.

Saks M (2016). A review of theories of professions, organizations and society: the case for neo-Weberianism, neo-institutionalism and eclecticism. *J Professions Organ.* 3:170–87.

Schoo AM, Boyce A, Ridoutt L, Santos T (2008). Workload capacity measures for estimating allied health staffing requirements. *Aust Health Rev.* 32:548–58.

Sousa A, Scheffler RM, Nyoni J, Boerma T. A comprehensive health labour market framework for universal health coverage. *Bull World Health Organ.* 2013;91:892–4.

Standing Group on Local Public Health (2018). The standards for employers of public health teams in England. London: Local Government Association (<https://www.local.gov.uk/standards-employers-public-health-teams-england>, accessed 15 November 2021).

Stein H (2008). Supporting and using policy oriented public health research at the European level. *Eurohealth.* 14:18–22.

Tiliouine A, Kosinska M, Schröder-Bäck P (2018). Tool for mapping governance for health and well-being: the organigraph method. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/329424>, accessed 15 November 2021).

Tucker JB, Barone JE, Cecere J, Blabey RG, Rha CK (1999). Using queueing theory to determine operating room staffing needs. *J Trauma.* 46:71–9.

United Nations, Department of Economic and Social Affairs, Population Division (2017). World population ageing: highlights. New York: United Nations ([http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2017\\_Highlights.pdf](http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2017_Highlights.pdf), accessed 15 November 2021).

van Rinsum CE, Gerards SMPL, Rutten GM, van de Goor IAM, Kremers SPJ (2017). Health brokers: how can they help deal with the wickedness of public health problems? *Biomed Res Int.* 1979153.

Van Maanen J, Schein EH (1977). Towards a theory of organizational socialization. Cambridge (MA): Alfred P. Sloan School of Management, MIT.

Vinko M (2018). Public health workforce development in Slovenia and wider. Ljubljana: National Institute of Public Health of Slovenia ([http://www.nijz.si/sites/www.nijz.si/files/uploaded/vinko\\_jz\\_03-06.pdf](http://www.nijz.si/sites/www.nijz.si/files/uploaded/vinko_jz_03-06.pdf), accessed 15 November 2021).

Vujicic M, Ohiri K, Sparkes S (2009). Working in health: financing and managing the public sector health workforce. *Directions in development: human development.* Washington (DC): World Bank (<https://openknowledge.worldbank.org/handle/10986/2621>, accessed 15 November 2021).

WHO (2000). The world health report 2000 – Health systems: improving performance. Geneva: World Health Organization (<https://apps.who.int/iris/handle/10665/268209>, accessed 15 November 2021).

WHO (2010). Tools for implementing rural retention strategies: towards a “how to” guide for “discrete choice experiments”. A methods workshop. Meeting report, 19–20 November 2010, Geneva, Switzerland. Geneva: World Health Organization ([https://www.who.int/hrh/resources/DCE\\_report.pdf](https://www.who.int/hrh/resources/DCE_report.pdf), accessed 15 November 2021).

WHO (2016). Global strategy on human resources for health: Workforce 2030. Geneva: World Health Organization (<https://apps.who.int/iris/handle/10665/250368>, accessed 15 November 2021).

WHO (2019). National health workforce accounts: better data and evidence on health workforce. Geneva: World Health Organization. (<https://apps.who.int/iris/handle/10665/311853>, accessed 15 November 2021).

WHO Regional Office for Europe (2008). The Tallinn Charter: Health Systems for Health and Wealth. Copenhagen: WHO Regional Office for Europe ([http://www.euro.who.int/\\_data/assets/pdf\\_file/0008/88613/E91438.pdf](http://www.euro.who.int/_data/assets/pdf_file/0008/88613/E91438.pdf), accessed 15 November 2021).

WHO Regional Office for Europe (2012). European Action Plan for Strengthening Public Health Capacities and Services. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/health-topics/Health-systems/public-health-services/publications/2012/european-action-plan-for-strengthening-public-health-capacities-and-services>, accessed 15 November 2021).

WHO Regional Office for Europe (2015a). The case for investing in public health. Strengthening public health services and capacity: a key pillar of the European Regional health policy framework, Health 2020. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/351406>, accessed 15 November 2021).

WHO Regional Office for Europe (2015b). Self-assessment tool for the evaluation of essential public health operations in the WHO European Region. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/344398>, accessed 15 November 2021).

WHO Regional Office for Europe (2017a). Core health indicators in the WHO European Region 2017. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/351429>, accessed 15 November 2021).

WHO Regional Office for Europe (2017b). Prevention and control of noncommunicable diseases in Kyrgyzstan: the case for investment. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/351407>, accessed 15 November 2021).

WHO Regional Office for Europe (2017c). Towards a sustainable health workforce in the WHO European Region: framework for action. Copenhagen: WHO Regional Office for Europe EUR/RC67/Conf.Doc./5 (<https://apps.who.int/iris/handle/10665/338630>, accessed 15 November 2021).

WHO Regional Office for Europe (2018). High-level regional meeting: health systems respond to NCDs: experience of the European Region, Sitges, Spain, 16–18 April 2018. Briefing note for presenters and panellists. Copenhagen: WHO Regional Office for Europe <https://apps.who.int/iris/handle/10665/345579>, accessed 15 November 2021).

WHO Regional Office for Europe (2019a). Tuberculosis in the WHO European Region - Factsheet [website]. Copenhagen: WHO Regional Office for Europe ([https://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0008/397484/Factsheet\\_WHO\\_WTBD\\_2019.pdf](https://www.euro.who.int/__data/assets/pdf_file/0008/397484/Factsheet_WHO_WTBD_2019.pdf), accessed 15 November 2021).

WHO Regional Office for Europe (2019b). Data and resources: prevalence of mental disorders [website]. Copenhagen: WHO Regional Office for Europe (<https://www.euro.who.int/en/health-topics/noncommunicable-diseases/mental-health/data-and-resources>, accessed 15 November 2021).

WHO Regional Office for Europe (2019c). The 10 essential public health operations [website]. Copenhagen: WHO Regional Office for Europe (<https://www.euro.who.int/en/health-topics/Health-systems/public-health-services/policy/the-10-essential-public-health-operations>, accessed 15 November 2021).

WHO Regional Office for Europe (2019d). Coalition of Partners [website]. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/health-topics/Health-systems/public-health-services/coalition-of-partners>, accessed 15 November 2021).

WHO Regional Office for Europe (2019e). Toolkit to help European Region move towards sustainable health workforce now available online [website]. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/health-topics/Health-systems/health-workforce/news/news/2018/7/toolkit-to-help-european-region-move-towards-sustainable-health-workforce-now-available-online>, accessed 15 November 2021).

WHO Regional Office for Europe (2020a). United Action for Better Health, European Programme of Work [website]. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/339209>, accessed 15 November 2021).

WHO Regional Office for Europe (2020b). WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region [website]. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/347866>, accessed 15 November 2021).

# ANNEX 1. GLOSSARY OF TERMS

**Altruistic service** is regard and devotion to the welfare of other people. This definition does not assume that professionals should be expected to provide work or services without appropriate remuneration.

**Code of ethics and professional conduct** is a document offering guidance on the moral norms and values considered relevant to guide the conduct of the members of a profession. A code of ethics and professional conduct can also function as a policy document, a decision aid and aide memoire or as a foundation for disciplinary measures within (including exclusion from) a professional association or professional body.

**Competencies** are composites of individual attributes (knowledge, skills and attitudinal or personal aspects) that represent context-bound productivity and are important for defining the role a person plays within an organization or system (Loo & Semeijn, 2004).

**Competency-based curricula** are teaching and training systems that are based on the demonstration of the fact that, with them, students or trainees can learn and are able to apply the knowledge and skills they are expected to obtain as they progress through their education and training activities; organized around competencies, or predefined abilities, as outcomes of the curriculum.

**Credentialing for public health professionals** is the process of obtaining, verifying and assessing the qualifications of public health professionals to provide services or operations for a public health organization or system; credentials constitute documented evidence of education or training, certification or licensure and experience.

**Health-care workforce** comprises the physicians, nurses, pharmacists, dentists and other professionals who provide direct health care.

**Job attitudes** are evaluations of one's profession that constitute an employee's feelings toward, beliefs about and attachment to one's professional position (Judge & Kammeyer-Mueller, 2012). Overall job attitudes can be conceptualized as (1) affective job satisfaction representing subjective feelings about a job (Thompson & Phua, 2012) or (2) objective cognitive assessments of specific features of the profession, such as pay, conditions, opportunities and other aspects of a specific job (Harrison et al., 2006).

**Profession** is a career for someone who wants to be part of society, who becomes competent in their chosen domain through training, maintains their skills through continuing professional development and commits to behaving ethically to protect the interests of the public.

**Professional competency models and profiles** are frameworks for defining the knowledge and skill requirements. Ideally, they should include a collection of competencies that jointly define successful job performance and should be used for defining, assessing and appraising competencies within organizations and systems.

**Professional integration** is the process of a professional becoming part of larger group or organization of individuals engaged in the same profession.

**Professional licensing system** is a system of ensuring an official and/or legal permission to engage in a regulated professional activity, service or operation.

**Public health** is the science and art of preventing disease, prolonging life and promoting health through the organized efforts of society.

**Public health capacity strengthening** is a process of enabling systems to conduct public health actions in a self-determined and sustainable manner, with the underlying idea that enhancing the capacity of a system to prolong and multiply health effects represents an added value to the health outcomes achieved by singular interventions. Seven core domains for public health capacity include: resources, organizational structures, workforce, partnerships, leadership and governance, knowledge development and country-specific context.

**Public health professionals** are individuals trained and working in providing public health services and operations, most typically as employees of a public health organization. Ideally, they should be designated a set of activities reserved under provision of an agreement based on education and training prerequisites or the equivalent.

**Public health system** comprises all public, private and voluntary entities that contribute to delivering essential public health services.

**Public health training** refers to both traditional education and training of public health degree programmes (such as doctorate, master and specialty training for physicians) as well as continuing professional development, public health courses within other specialty degree programmes (such as nursing, pharmacy, law, journalism and architecture) and short courses for professionals working in all fields that affect the health of the population.

**Public health workforce** includes all individuals engaged in providing public health services and operations who identify public health as being the primary part of their role (core public health workforce) but also those who contribute to public health only as part of their job as well as other individuals whose work can improve population health (wider public health workforce).

**Public health workforce development** is the process of analysis, education, planning, management, and capability development to strengthen public health success by aligning the workforce to current and future public health challenges.

**Taxonomy** is a standardized method for classifying public health workers, enabling valid comparisons across agencies and institutions and within a given organization and over time.

**WHO European Region** is defined by the countries listed by the WHO Regional Office for Europe (2019).

**Workforce planning** systematically identifies and analyses what an organization is going to need in terms of the size, type and quality of workforce to achieve its objectives. It determines what mix of experience, knowledge and skills is required and sequences steps to get the right number of right people in the right place at the right time.

## ***References***

Harrison DA, Newman DA, Roth PL (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Acad Manage J.* 49:305–25.

Judge TA, Kammeyer-Mueller JD (2012). Job attitudes. *Annu Rev Psychol.* 63:341–67.

Loo JV, Semeijn J (2004). Defining and measuring competences: an application to graduate surveys. *Quality Quantity.* 38:331–49.

Thompson ER, Phua FTT (2012). A brief index of affective job satisfaction. *Group Organ Manage.* 37:275–307.

WHO Regional Office for Europe (2019). Countries [website]. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/countries>, accessed 16 May 2019).

# ANNEX 2. KEY RESOURCES FOR PROFESSIONALIZING THE PUBLIC HEALTH WORKFORCE

## Developing a workforce strategy

### *WHO*

- Toolkit for country health workforce strengthening (WHO Regional Office for Europe, 2012b).
- Global strategy on human resources for health: Workforce 2030 (WHO, 2016).
- WHO tools and guidelines for human resources for health (WHO, 2019).
- National health workforce accounts – a handbook (WHO, 2017).
- A comprehensive health labour market framework for universal health coverage (Sousa et al., 2014).
- WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region (WHO Regional Office for Europe, 2020).
- The dynamics of the health labour market (Vujicic & Zurn, 2006).

### *United Kingdom*

- Workforce strategy & standards document 2018–2021 (Faculty of Public Health, 2018).

## Assessing the capacity of the public health workforce

### *United Kingdom*

- Fit for the future – public health people. A review of the public health workforce (Public Health England, 2016).

## Mapping the core public health workforce

### *United Kingdom*

- Mapping the core public health workforce: literature review (Centre for Workforce Intelligence, 2014).
- Fit for the future – public health people. A review of the public health workforce (Public Health England, 2016).
- The “fishbone” or Ishikawa diagram can be used to identify all factors possibly affecting the public health workforce (Ishikawa, 1986; Minnesota Department of Health, no year).

## Developing competency frameworks

### *WHO*

- WHO Regional Office for Europe (2020b). WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region [website]. Copenhagen: WHO Regional Office for Europe (<https://www.euro.who.int/en/health-topics/Health-systems/public-health-services/publications/2020/who-aspher-competency-framework-for-the-public-health-workforce-in-the-european-region-2020>, accessed 15 November 2021).
- Strengthening a competent health workforce for the provision of coordinated/integrated health services (Langins & Borgermans, 2015).

### *Association of Schools of Public Health in the European Region (ASPHER)*

- ASPHER’s European list of core competences for the public health professional (Foldspang et al., 2018).
- The European Public Health Reference Framework (Foldspang et al., 2014).

### *United States of America*

- Core competencies for public health professionals (Council on Linkages Between Academia and Public Health Practice, 2014).
- Crosswalk of the 2014 core competencies for public health professionals and the essential public health services (Council on Linkages Between Academia and Public Health Practice, 2015).

# Establishing public health as an academic discipline and a profession

## ***Association of Schools of Public Health in the European Region (ASPHER)***

- European Core Competences for Public Health Professionals (ECCPHP). ASPHER's European Public Health Core Competences Programme (Birt & Foldspang, 2011; Foldspang, 2016).
- Survey of European schools and departments of public health and employers of public health professionals (Bjegovic-Mikanovic et al., 2013; Vukovic et al., 2014).
- ASPHER's European list of core competences for the public health professional (Foldspang et al., 2018).
- The European Public Health Reference Framework (EPHRF) (Foldspang et al., 2014).

## ***United Kingdom***

- Public health skills and knowledge framework 2016 (Public Health England et al., 2016).
- Mapping the core public health workforce: literature review (Centre for Workforce Intelligence, 2014).
- The standards for employers of public health teams in England (Standing Group on Local Public Health, 2018).
- Fit for the future – public health people. A review of the public health workforce (Public Health England, 2016).
- Workforce strategy & standards document 2018–2021 (Faculty of Public Health, 2018).

## ***United States of America***

- Council on Linkages Between Academia and Public Health Practice [website] (Public Health Foundation, 2019)
- Core Competencies for Public Health Professionals (Council on Linkages Between Academia and Public Health Practice, 2014).
- Crosswalk of the 2014 core competencies for public health professionals and the essential public health services (Council on Linkages Between Academia and Public Health Practice, 2015).

## ***Other***

- Developing the public health workforce: training and recognizing specialists in public health from backgrounds other than medicine: experience in the UK (Gray & Evans, 2018).
- A pan-Canadian strategy for public health workforce education (Spasoff, 2005).

## Public health workforce data, planning and forecasting

### *Switzerland*

- The Swiss online survey can be used to collect data on the public health workforce (Frank et al., 2013).

## Implementing public health professional accreditation and credentialing

### *WHO*

- European Action Plan for Strengthening Public Health Capacities and Services (WHO Regional Office for Europe, 2012a)
- Coalition of Partners (WHO Regional Office for Europe, 2019).
- European Region accreditation review (Goodman, 2019).
- A handbook on managing public health professional credentialing in the European Region (Otok et al., 2019).

### *United Kingdom*

- About us [website] (UK Public Health Register, 2015).
- Faculty of Public Health [website] (Faculty of Public Health, 2019)

### *United States of America*

- CPH: Certified in Public Health [website] (National Board of Public Health Examiners, 2019).

### *Other*

- European Union of Medical Specialists (2013).

## Managing the public health workforce

### *United States of America*

- Competency-based job descriptions (Council on Linkages Between Academia and Public Health Practice, 2014).
- Competency-based workforce development plans (Council on Linkages Between Academia and Public Health Practice, 2015).

## Recruitment and retention strategies

### *United States of America*

- Competency assessments for public health professionals (Council on Linkages Between Academia and Public Health Practice, 2014).

## Continual training and quality improvement

### *United States of America*

- Council on Linkages Between Academia and Public Health Practice (2014, 2015)
- Competency assessments for public health professionals (Council on Linkages Between Academia and Public Health Practice, 2014).

## Developing a professional code of ethics and conduct for public health professionals

- Principles of the ethical practice of public health (Public Health Leadership Society, 2002) – adapted as the code of conduct of the American Public Health Association. However, the code is currently being revised, and this project is worthwhile to monitor and learn from (Lee et al., 2016).
- Good public health practice framework 2016 (Faculty of Public Health, 2016).
- The One Health Think-Tank for Sustainable Health & Well-being (GHW-2030) (Laaser et al., 2017).

## **References**

Birt C, Foldspang A (2011). European Core Competencies for Public Health Professionals (ECCPHP). ASPHER's European Public Health Core Competences Programme. Brussels: Association of Schools of Public Health in the European Region (<http://aspher.org/download/77/eccphp-2011.pdf>, accessed 15 November 2021).

Bjegovic-Mikanovic V, Vukovic D, Otok R, Czabanowska K, Laaser U (2013). Education and training of public health professionals in the European Region: variation and convergence. *Int J Public Health*. 56:801–10.

Centre for Workforce Intelligence (2014). Mapping the core public health workforce: literature review. London: Centre for Workforce Intelligence ([https://recipeforworkforceplanning.hee.nhs.uk/Portals/0/HEWM\\_LinksAndResources/CfWI%20Public%20health%20mapping%20report%20literature%20review%20-%20Oct%202014.pdf](https://recipeforworkforceplanning.hee.nhs.uk/Portals/0/HEWM_LinksAndResources/CfWI%20Public%20health%20mapping%20report%20literature%20review%20-%20Oct%202014.pdf), accessed 15 November 2021).

Committee of Ministers (2010). Recommendation CM/Rec(2010)6 of the Committee of Ministers to Member States on good governance in health systems. *Eur J Health Law*. 17:389–401.

Council on Linkages Between Academia and Public Health Practice (2014). Core Competencies for Public Health Professionals. Washington (DC): Council on Linkages Between Academia and Public Health Practice ([http://www.phf.org/resourcestools/Documents/Core\\_Competencies\\_for\\_Public\\_Health\\_Professionals\\_2014June.pdf](http://www.phf.org/resourcestools/Documents/Core_Competencies_for_Public_Health_Professionals_2014June.pdf), accessed 15 November 2021).

Council on Linkages Between Academia and Public Health Practice (2015). Crosswalk of the 2014 core competencies for public health professionals and the essential public health services. Washington (DC): Council on Linkages Between Academia and Public Health Practice ([http://www.phf.org/resourcestools/Documents/CC2014\\_EPHS\\_Crosswalk\\_final.pdf](http://www.phf.org/resourcestools/Documents/CC2014_EPHS_Crosswalk_final.pdf), accessed 15 November 2021).

Faculty of Public Health (2016). Good public health practice framework 2016. London: Faculty of Public Health ([https://www.fph.org.uk/media/1304/good-public-health-practice-framework\\_-2016\\_final.pdf](https://www.fph.org.uk/media/1304/good-public-health-practice-framework_-2016_final.pdf), accessed 15 November 2021).

Faculty of Public Health (2018). Workforce strategy & standards document 2018–2021. London: Faculty of Public Health (<https://www.fph.org.uk/media/1265/fph-workforce-strategy-march-2018.pdf>, accessed 15 November 2021).

Faculty of Public Health (2019). Faculty of Public Health [website]. London: Faculty of Public Health (<https://www.fph.org.uk>, accessed 15 November 2021).

Foldspang A (2016). From potential to action. Public health core competences for essential public health operations. A manual. Brussels: Association of Schools of Public Health in the European Region (<http://aspher.org/download/137/booklet-competencesephos-volume-2.pdf>, accessed 15 November 2021).

Foldspang A, Otok R, Czabanowska K, Bjegovic-Mikanovic V (2014). Developing the public health workforce in Europe: the European Public Health Reference Framework (EPHRF): its Council and online repository. Concepts and policy brief. Brussels: Association of Schools of Public Health in the European Region ([http://aspher.org/download/27/ephrf\\_concept\\_and\\_policy\\_brief.pdf](http://aspher.org/download/27/ephrf_concept_and_policy_brief.pdf), accessed 15 November 2021).

Foldspang A, Birt C, Otok R, editors (2018). ASPHER's European list of core competences for the public health professional. 5th ed. Brussels: Association of Schools of Public Health in the European Region ([https://www.aspher.org/download/199/04-06-2018\\_aspher\\_s\\_european\\_list\\_of\\_core\\_competences\\_for\\_the\\_public\\_health\\_professional.pdf](https://www.aspher.org/download/199/04-06-2018_aspher_s_european_list_of_core_competences_for_the_public_health_professional.pdf), accessed 15 November 2021).

Frank MW, Weihofen A, Schmucki MD, Nocera S, Paccaud F (2013). Public health workforce in Switzerland: a national census. Zurich: Foundation Swiss School of Public Healthplus (<https://ssphplus.ch/assets/downloads/publications/public-health-february-2013b.pdf>, accessed 15 November 2021).

Goodman J (2019). European Region accreditation review. Agency for Public Health Accreditation. Copenhagen: WHO Regional Office for Europe. Working document.

Gray S, Evans D (2018). Developing the public health workforce: training and recognizing specialists in public health from backgrounds other than medicine: experience in the UK. *Public Health Rev.* 39:14.

Ishikawa K (1986). Guide to quality control. Industrial engineering and technology series. Vol. 2. Tokyo: Quality Resources.

Kluge H. A new vision for WHO's European Region: united action for better health. *Lancet Public Health.* 2020;5:e133-4.

Laaser U, Schröder-Bäck P, Eliakimu E, Czabanowska K (2017). The One Health Global Think-Tank for Sustainable Health & Well-being (GHW-2030). A code of ethical conduct for the public health profession. *South Eastern Eur J Public Health.* 9.

Langins M, Borgermans L (2015). Strengthening a competent health workforce for the provision of coordinated/integrated health services. Copenhagen: WHO Regional Office for Europe ([http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0010/288253/HWF-Competencies-Paper-160915-final.pdf](http://www.euro.who.int/__data/assets/pdf_file/0010/288253/HWF-Competencies-Paper-160915-final.pdf), accessed 15 November 2021).

Lee LM, Fisher CB, Jennings B (2016). Revising the American Public Health Association's public health code of ethics. *Am J Public Health.* 106:1198-9.

Minnesota Department of Health (no year). Fishbone diagram [website]. Minneapolis: Minnesota Department of Health (<https://www.health.state.mn.us/communities/practice/resources/phqitoolbox/fishbone.html>, accessed 15 November 2021).

National Board of Public Health Examiners (2019). CPH: Certified in Public Health [website]. Washington (DC): National Board of Public Health Examiners (<https://www.nbphe.org>, accessed 15 November 2021).

Otok R et al. (2019). A handbook on managing public health professional credentialing in the European Region. In preparation.

Public Health Foundation (2019). Council on Linkages Between Academia and Public Health Practice [website]. Washington (DC): Public Health Foundation (<http://www.phf.org/programs/council/Pages/default.aspx>, accessed 15 November 2021).

Public Health England (2016). Fit for the future – public health people. A review of the public health workforce. London: Public Health England ([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/524599/Fit\\_for\\_the\\_Future\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/524599/Fit_for_the_Future_Report.pdf), accessed 15 November 2021).

Public Health England, Public Health Wales, NHS Scotland, Public Health Agency of Northern Ireland (2016). Public health skills and knowledge framework 2016. London: Department of Health ([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/584408/public\\_health\\_skills\\_and\\_knowledge\\_framework.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/584408/public_health_skills_and_knowledge_framework.pdf), accessed 15 November 2021).

Public Health Leadership Society (2002). Principles of the ethical practice of public health. Washington (DC): Public Health Leadership Society ([https://www.apha.org/-/media/files/pdf/membergroups/ethics/ethics\\_brochure.ashx](https://www.apha.org/-/media/files/pdf/membergroups/ethics/ethics_brochure.ashx), accessed 15 November 2021).

Sousa A, Scheffler RM, Nyoni J, Boerma T. (2014) A comprehensive health labour market framework for universal health coverage. *Bull World Health Organ.* 2013 Nov 1;91(11):892-4. doi: 10.2471/BLT.13.118927. Erratum in: *Bull World Health Organ.* 2014 Mar 1;92(3):228. PMID: 24347720; PMCID: PMC3853957.

Spasoff R (2005). A pan-Canadian strategy for public health workforce education. Ottawa: Pan-Canadian Public Health Human Resources Committee (<https://phabc.org/wp-content/uploads/2015/07/Pan-Canadian-Strategy-for-Public-Health-Workforce-Education.pdf>, accessed 15 November 2021).

Standing Group on Local Public Health (2018). The standards for employers of public health teams in England. London: Local Government Association (<https://www.local.gov.uk/standards-employers-public-health-teams-england>, accessed 15 November 2021).

UK Public Health Register (2015). About us [website]. London: UK Public Health Register (<https://www.ukphr.org/about-us>, accessed 15 November 2021).

Vukovic D, Bjegovic-Mikanovic V, Otok R, Czabanowska K, Nikolic Z, Laaser U (2014). Which level of competence and performance is expected? A survey among European employers of public health professionals. *Int J Public Health.* 59:15–30.

Vujcic M, Zurn P. (2006) The dynamics of the health labour market. *The International Journal of Health Planning and Management.* 2006;21(2):101-115. doi:<https://doi.org/10.1002/hpm.834>

WHO Regional Office for Europe (2012a). European Action Plan for Strengthening Public Health Capacities and Services. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/336410>, accessed 15 November 2021).

WHO Regional Office for Europe (2012b). Toolkit for country health workforce strengthening. Copenhagen: WHO Regional Office for Europe (<https://apps.who.int/iris/handle/10665/340340>, accessed 15 November 2021).

WHO (2016). Global strategy on human resources for health: Workforce 2030. Geneva: World Health Organization (<https://apps.who.int/iris/handle/10665/250368>, accessed 15 November 2021).

WHO (2019). WHO tools and guidelines for human resources for health [website]. Geneva: World Health Organization (<https://www.who.int/workforcealliance/knowledge/toolkit/hrhtoolkitpurposepages/en/index3.html>, accessed 15 November 2021).

WHO Regional Office for Europe (2019). Coalition of Partners [website]. Copenhagen: WHO Regional Office for Europe (<http://www.euro.who.int/en/health-topics/Health-systems/public-health-services/coalition-of-partners>, accessed 15 November 2021).

WHO Regional Office for Europe (2020). WHO-ASPHER Competency Framework for the Public Health Workforce in the European Region [website]. Copenhagen: WHO Regional Office for Europe (<https://www.euro.who.int/en/health-topics/Health-systems/public-health-services/publications/2020/who-aspher-competency-framework-for-the-public-health-workforce-in-the-european-region-2020>, accessed 15 November 2021).

# ANNEX 3. CASE STUDIES

## 1. The approach to the public health workforce in the United Kingdom

The United Kingdom has distinguished between the core and the wider public health workforce, with the former including specialists and consultants (working in senior management roles) and practitioners (working at the front line) (Centre for Workforce Intelligence, 2014) and the latter including professionals involved in public health but not as their primary function (such as midwives, general practitioners, community pharmacists, social workers). The system in the United Kingdom, in the form of the Public Health Skills and Knowledge Framework, follows several principles such as separating staff members with distinct skill sets or functions, identifying qualified staff through distinct registration or qualification processes and providing a competency framework setting out the range of functional competencies that professionals who work in public health practice could be expected to possess (Public Health England et al., 2016). Such an approach enables better recognition of public health professionals, establishes the importance of their professional identity and reduces the likelihood of a professional identity crisis.

The system has further invested in the UK Public Health Register, which was set up in 2003 with support from the Department of Health to provide a regulatory home for multidisciplinary leaders in public health not eligible to be regulated by existing statutory regulators of health-care professionals. The Register holds a database of public health professionals and therefore has the means to identify, raise the profile of and communicate with the public health workforce while recognizing the multidisciplinary skills and competencies and the diversity of those who practise in the many areas of public health. From its beginnings as a regulator of all multidisciplinary public health specialists (from backgrounds other than medicine and dentistry), the Register has expanded to regulate public health practitioners and, since 2015, has registered Specialty Registrars (UK Public Health Register, 2015).

### **References**

Centre for Workforce Intelligence (2014). Mapping the core public health workforce: literature review. London: Centre for Workforce Intelligence ([https://recipeforworkforceplanning.hee.nhs.uk/Portals/0/HEWM\\_LinksAndResources/CfWI%20Public%20health%20mapping%20report%20literature%20review%20-%20Oct%202014.pdf](https://recipeforworkforceplanning.hee.nhs.uk/Portals/0/HEWM_LinksAndResources/CfWI%20Public%20health%20mapping%20report%20literature%20review%20-%20Oct%202014.pdf), accessed 15 November 2021).

Public Health England (2016). Fit for the future – public health people. A review of the public health workforce. London: Public Health England ([https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/524599/Fit\\_for\\_the\\_Future\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/524599/Fit_for_the_Future_Report.pdf), accessed 15 November 2021).

UK Public Health Register (2015b). Specialist registration by portfolio assessment – framework of competencies [website]. The UK Public Health Register (<https://http://www.ukphr.org/news/specialist-registration-by-portfolio-assessment-framework-of-competencies>, accessed 15 November 2021).

## 2. Professionalizing the public health workforce in Poland

Public health professionals in Poland are not well recognized in the health-care sector, even though both public and private universities have been providing bachelor and master programmes since 1994. An estimated 12 000 graduates or more have already received their degrees and entered the labour market. However, there is no formal registry, and estimates might be elusive. Specialization in public health (postgraduate training) is available for health-care professionals and for those who have graduated from other master degree fields such as biology or economy. This accounts for an additional 2000–3000 specialists in public health on the market. They mainly find employment in: sanitary inspection (16 000 employees in Poland), central, regional and local health authorities or and technical posts in health-care facilities. Unfortunately, the formal structure of the health-care system does not recognize public health professionals within health promotion and health education. The National Institute of Public Health–National Institute of Hygiene together with the Department of Public Health of the Ministry of Health in Poland identified the underlying causes of the current situation, which boil down to the lack of a formal registry of public health practitioners, lack of understanding of their competencies and lack of universal standards for the teaching process.

As a result, in October 2017, the Director of the Institute appointed and officially established the Council for Cooperation and Public Health Workforce Development, which comprises deans and directors of the faculties of health sciences in Poland and key public health institutions including: the Secretary of State (responsible for public health affairs in the Ministry of Health); Department of Public Health, Ministry of Health; Association of Schools of Public Health in the European Region; Agency for Health Technology Assessment in Poland; Chief Health Inspectorate; and National Health Fund. The Council works in small working groups to plan and implement a roadmap to professionalizing public health in Poland. After a year of consensual endeavour of the Council, the Institute and the Educational Research Institute, the Sectoral Framework for Competencies in Public Health was developed

and announced in November 2018 together with a pilot voluntary registry for public health professionals provided by the Institute. The registry will be gradually transferred into an official national public health workforce registry. For 2019, the Council has planned intensive work aiming at harmonizing the university education in public health and unified certification through a public health examination to be organized independently by the Institute in 2020.

At the same time, the new roles for public health professionals in a publicly funded health-care sector have been defined around coordination of care in a new model of community-based mental health care and in a new model of primary care in Poland. The major barrier for countrywide rollout defined by National Health Fund is the lack of a formal registry and a description of competencies. By organized and collective work, this barrier seems to finally have been overcome with the development of the framework and the registry. The Central Registry of Public Health Graduates (CRAZP) is available at the website of the National Institute of Public Health–National Institute of Hygiene (<https://www.pzh.gov.pl/rejestracja-absolwenta>).

### 3. Employer standards for public health teams employed by local government in England

The Local Government Association has published *The standards for employers of public health teams in England* (Standing Group on Local Public Health, 2018). These employer standards are the outcome of work carried out by the Standing Group on Local Public Health Teams and followed consultation on draft standards.

The purpose of the employer standards is to enable employers to provide a well-led and supportive professional environment to enable public health professionals to maintain their professionalism.

In summary, the employer standards provide employers with five areas of activity to support their professional public health workforce.

- Employers should establish effective partnerships, internally and externally, to support the delivery of public health and enhance education and continuing professional development
- Employers should use effective workforce planning systems to make sure that a workforce is available to deliver public health outcomes (this was included because many local authorities did not want to employ public health consultants, and at least 20% of directors of public health posts in England remain unfilled).
- Employers should provide opportunities for effective continuing professional development and access to up-to-date research and relevant knowledge.

- Employers should ensure that public health specialists and practitioners, nurses, pharmacists and other professionals can maintain their professional registration and undergo professional revalidation if appropriate (this was included since there was concern that, once the specialists were removed from the National Health Service into local government, there was no mechanism for doctors to maintain their continuing professional development for the purposes of revalidation and licensing).
- Employers should support the creation and maintenance of a qualified workforce, ensuring that public health teams have regular and appropriate opportunities for professional education, training and development.

## **References**

Standing Group on Local Public Health (2018). The standards for employers of public health teams in England. London: Local Government Association (<https://www.local.gov.uk/standards-employers-public-health-teams-england>, accessed 15 November 2021).

## **4. Human resources for public health services: success stories in south-eastern Europe**

The WHO Regional Office for Europe together with the South-Eastern Europe Health Network (SEEHN) (Ruseva et al., 2015) organized a technical workshop on human resources for public health services in Banja Luka, Bosnia and Herzegovina in October 2016. The workshop provided an opportunity to share country case studies from across south-eastern Europe with the expectation of sharing successful experience and lessons learned in strengthening the public health workforce and aligning it with the priorities of the national health policy (Bjegovic-Mikanovic et al., 2018).

The definition of the public health workforce was based on their educational background (Foldspang et al., 2014), and a corresponding information gathering tool (Bjegovic-Mikanovic et al., 2018) helped to identify and describe the public health workforce and categories of public health professionals involved in the successful case study in each country. Further, the application of the tool served to explore the related sources of information while considering that the specific national background influences the composition of the public health workforce. This endeavour indicated the challenges of presenting an evidence-informed case for investing in public health professionals in each country and indicated key enablers of the successful deployment of an intervention addressing the local public health challenge by multidisciplinary public health teams.

As a result, the national representatives agreed about similar ingredients of successful case studies and highlighted some lessons learned.

- Political will is an extremely important factor in public health to ensure support for, sustainability of and continuity of public health interventions.
- The multidisciplinary approach is a crucial factor for success in public health, and the multisectoral approach guarantees sustainable partnerships across branches of public life.
- During the effective work of public health professionals, target groups and communities must be addressed effectively.
- Establishing a system of health in all policies for specific public health challenges is the main contributing factor in strengthening the public health workforce.
- Elaborating legislation and the legislative framework with clearly defined roles of public health professionals is significant for further development.
- New organizational structures are needed that will support the strengthening of the public health workforce and continuing professional development in close partnership with universities and schools of public health.
- Piloting the public health intervention allows step-by-step development of the public health workforce, which will be able to work across essential public health operations and promote cross-sectoral collaboration.

## **References**

Bjegovic-Mikanovic V, Santric-Milicevic M, Cichowska A, Kraye von Krauss M, Perfilieva G, Rebac B et al. (2018). Sustaining success: aligning the public health workforce in south-eastern Europe with strategic public health priorities. *Int J Public Health*. 63:651–62.

Foldspang A, Otok R, Czabanowska K, Bjegovic-Mikanovic V (2014). Developing the public health workforce in Europe: the European Public Health Reference Framework (EPHRF): its Council and online repository. Concepts and policy brief. Brussels: Association of Schools of Public Health in the European Region ([http://aspher.org/download/27/ephrf\\_concept\\_and\\_policy\\_brief.pdf](http://aspher.org/download/27/ephrf_concept_and_policy_brief.pdf), accessed 15 November 2021).

Ruseva M, Chichevalieva S, Harris M, Kostova N, Jakubowski E, Kluge H et al. (2015). The South Eastern Europe Health Network: a model for regional collaboration in public health. *South Eastern Eur J Public Health*. 3.

## 5. Credentialing and certification in the United States of America

The National Board of Public Health Examiners (2019) tested the first cohort of candidates for Certified in Public Health (CPH) in 2008. Since then, more than 8500 people have taken the exam and more than 7000 have become credentialled. Of these, 6500 are currently working in public health, in the United States and in many other countries as well.

The CPH designation is given to candidates who meet CPH eligibility requirements (either attendance at a CPH-accredited school or programme or at least five years of work experience in public health) and have passed the CPH exam. The CPH has 200 questions and tests candidates on knowledge and proficiency in areas deemed essential to the public health workforce. CPH-certified individuals must maintain their status through a biannual recertification process of reporting continuing education and professional development hours.

The exam is developed through a job task analysis process that surveys the workforce on their primary responsibilities and tasks. The tasks found to be frequently performed and critical to perform are the foundation for the domains of the CPH exam.

The Association of Schools of Public Health in the European Region recently collaborated with the National Board of Public Health Examiners to identify areas of similarity between the CPH domains and tasks and the recently constructed European Competencies Framework for Public Health Workforce. The two frameworks align very closely. The two organizations are interested in collaborating on the next job task analysis process, which is slated to begin in late 2019.

### **References**

National Board of Public Health Examiners (2019). CPH: Certified in Public Health [website]. Washington (DC): National Board of Public Health Examiners (<https://www.nbphe.org>, accessed 15 November 2021).

## 6. Public health workforce, ethical practice and One Health

Viewed historically, public and individual health were interdependent. Hippocrates in ancient Greece and others shared the belief that “season, diet, the winds and lifestyle for individual people’s health” influenced personal health and quality of life (Lueddeke, 2016). It was not, however, until the 19th century and the work of physician, pathologist and social reformer Rudolf Virchow that the concept of medicine as a social science – principally to fight poverty and diseases – became national priorities in Europe and North America in areas such as sanitation bolstered by germ theory (about 1800–1890). In these regions, waves of public health improvement followed in the late 19th and early 21st centuries with major scientific breakthroughs (about 1890–1950), the birth of the welfare state and social security (about 1940–1960) and systems thinking, including associating risk factors with lifestyle (1960s–present) (Lueddeke, 2016). Some of these waves have found their way into low- and middle-income countries, although much more needs to be done to close the gap between rich and poor countries. Although while there have been and continue to be considerable health achievements globally, such as increases in life expectancy, it has become clear that reductionist, silo-oriented interventions are having limited results in big picture public health issues, such as climate change and environmental degradation, population increases and overconsumption (energy, water, food and raw materials), regional conflicts and geopolitical dysfunction, forced migration, technology and impact of artificial intelligence on employment (Lueddeke, 2019).

Taken together, these challenges raise ethical issues in the relationship between people and nature directly, in terms of sustainable resource use and/or within the limits of ecosystems (Keitsch, 2018), or indirectly, in terms of just distribution or equal opportunities. In terms of the latter, England’s Chief Medical Officer, Sally Davies, cautions that most of the factors that shape public health can’t be altered by central government actions ... the concept of public health is now also more encompassing because these days public health is about “how we live our lives – and that takes in urban planning, our interactions with each other loneliness and well-being” (Foster, 2015).

Against this background, developing a code of practice and professional conduct for public health suggests moving away from a strictly human-centric approach to the formation of ethical values (biopsychosocial) to embrace a more holistic eco-centric orientation – encompassing a planet (animals, plants and environment) – people one health and well-being multidisciplinary perspective (Lueddeke, 2019) across all competencies (pillars 1 and 2) – especially promoting the values of respect, sharing, participation, responsibility, transparency, accountability, justice, human dignity, freedom, sustainability and solidarity (Mas et al., 2013).

In terms of evolving a new code of practice in public health, consideration might also be given to incorporating the fundamental principles that underpin the Sustainable Development Goals (United Nations, 2015) – interdependence, universality and solidarity, which are expected to be implemented by all segments of all societies, working together. Reflecting the “Agenda’s profound ethical foundation”, the underlying moral code is that “No-one must be left behind. People who are hardest to reach should be given priority” (UN News, 2016). Unquestionably, public health has a pivotal role to play in delivering this global, national and local aspiration.

## **References**

Foster M (2015). Dame Sally Davies interview: the chief medical officer on e-cigarettes, antibiotic resistance – and stepping out of the comfort zone. London: Civil Service World (<https://www.civilserviceworld.com/articles/interview/dame-sally-davies-interview-chief-medical-officer-e-cigarettes-antibiotic>, accessed 15 November 2021).

Keitsch M (2018). Structuring ethical interpretations of the sustainable development goals – concepts, implications and progress. *Sustainability*. 10:829.

Lueddeke GR (2016). *Global population health and well-being in the 21st century: toward new paradigms, policy and practice*. New York: Springer Publishing Company.

Lueddeke GR (2019). *Survival: one health, one planet, one future*. London: Routledge.

Mas JT, Díez AA, Martínez MM, Pagán JL (2013). Transparency, accountability and participation: a common agenda for social cohesion and governance in Latin America. *Collection of Studies into Local and Regional Public Policies on Social Cohesion 06*. Barcelona: URB-AL III Programme Orientation and Coordination Office (<https://observ-ocd.diba.cat/sites/observ-ocd.org/files/2018-04/transparency-accountability-and-participation-a-common-agenda-for-social-cohesion-and-governance-in-latin-america.pdf>, accessed 15 November 2021).

United Nations (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*. New York: United Nations (<https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>, accessed 15 November 2021).

UNNews(2016). “No-one left behind” is ethical imperative of new development agenda – UN deputy chief. United Nations (<https://news.un.org/en/story/2016/01/519872-no-one-left-behind-ethical-imperative-new-development-agenda-un-deputy-chief>, accessed 15 November 2021).

## **The WHO Regional Office for Europe**

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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