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ORIGINAL ARTICLE

Sustaining success: aligning the public health workforce in South-Eastern Europe with strategic public health priorities

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Abstract

Objectives To map out the Public Health Workforce (PHW) involved in successful public health interventions.

Methods We did a pilot assessment of human resources involved in successful interventions addressing public health challenges in the countries of South-Eastern Europe (SEE). High-level representatives of eight countries reported about success stories through the coaching by experts. During synthesizing qualitative data, experts applied triangulation by contacting additional sources of evidence and used the framework method in data analysis.

Results SEE countries tailored public health priorities towards social determinants, health equalities, and prevention of non-communicable diseases. A variety of organizations participated in achieving public health success. The same applies to the wide array of professions involved in the delivery of Essential Public Health Operations (EPHOs). Key enablers of the successful work of PHW were staff capacities, competences, interdisciplinary networking, productivity, and funding.

Conclusions Despite diversity across countries, successful public health interventions have similar ingredients. Although PHW is aligned with the specific public health success, a productive interface between health and other sectors is crucial for rolling-out successful interventions.

Keywords Public health workforce · Essential public health operations · South-Eastern Europe

Introduction

In a time of urgent needs for economic development, social inclusion and sustainable environment ensuring health and well-being are critical in achieving sustainable development goals (World Health Organization 2016a). Health and well-being are undergoing many challenges, which require public health policy attention and implementation of intersectoral, population-based interventions, going beyond individual health services. In addition to efforts in sustaining success and further progress in maternal and child health as well as prevention and control of communicable diseases, public health priorities deal with numerous challenges tackling risk factors, social gradients and premature mortality (Stringhini et al. 2017). Today, the considerable burden of premature mortality is due to non-communicable diseases where two-thirds belong to cardiovascular disorders and cancer (United Nations 2016). With reference to social determinants, public health priorities request actions through many sectors and acknowledgment of local context. This commitment to

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"leaving no one behind" is a new impetus for the efficient performance of all public health services.

Significant progress is seen in strengthening public health services and capacities in Europe, under the leadership of WHO-Europe. Still, deficits in resources, political commitment, collaboration and evidence need to be addressed in order to be able to progress and prevent failures (World Health Organization 2016b, c). Changes are required in the public health workforce to align PWH with public health policy priorities. The public health workforce in Europe and many other regions of the world is undefined, fragmented and lacks formal acknowledgment (Otok and Foldspang 2016). A systematic and multilateral enduring effort, involving assessment, planning, implementation, and evaluation, is required to harmonize standards, education, and performance of professionals taking care of the population's health. The resolution on the EAP/PHS EUR/RC62/R5 calls upon the Member States to collaborate in the implementation of the European action plan and use the essential public health operations (EPHOs) as an appropriate framework (World Health Organization/Europe 2012a). Each of the EPHOs has workforce implications in producing sufficient numbers and the right type of professionals, geographical distribution, the right skills, and resources required ("Avenue for Action 7" and EPHO 7).

The countries of South-Eastern Europe (SEE) began to transform their public health systems in the early nineties following models developed over decades in the Western European countries. The recent account of the strategic orientation in the SEE public health sector is comparing two periods (Wiskow et al. 2016; Regional Cooperation Council 2013): "Many aspects addressed in the 2004 framework are pertinent with regard to the SEE 2020 health dimension and remain relevant in the current context. The integration of health as part of the economic SEE 2020 strategy reflects a significant paradigm shift and important step forward for public health."

To capture the public health situation, capacities of the public health workforce and provide a better understanding of possibilities to strengthen public health services in SEE region, we documented particular public health success stories. The objective of this paper is to map out the present composition and capacity of the Public Health Workforce (PHW) in the countries of South-Eastern Europe involved in success stories set within the national health priorities.

Methods

To tackle the aforementioned methodological hindrances, i.e., problems in the definition of the PHW and required competencies, WHO-Europe with partners has convened the pilot assessment of human resources involved in successes addressing public health challenges in the South-Eastern Europe Health Network (SEEHN) in 2016. The SEEHN comprises all nine countries of the SEE region: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYR Macedonia, Montenegro, Republic of Moldova, Romania, and Serbia. Ministry of Health in each country has delegated two high-level representatives to explore and describe an example of a public health success story, and lessons learned in strengthening PHW and aligning it with current public health policy. The representatives have used the information gathering tool developed for this purpose by WHO-Europe and partners. The tool contained a definition of the PHW endorsed by the Association of Schools of Public Health in the European Region (ASPHER), based on their educational background (Foldspang et al. 2014):

1. *Public health professionals* - professionals with sufficient public health competencies at bachelor level or a higher level (Master, Ph.D.)—whether working in—or outside the health system or in- or outside the public health services:
   (a) *General public health professionals* - persons with a bachelor degree in public health or a master degree in public health, re the Bologna principles;
   (b) *Graduates with other background making them able to fulfil comprehensive public health work* - examples are, medical doctors, having specialized in public health/community health and seniors with extensive experience within public health systems and functions but without the formal profile of group 1.a.
2. *Health professionals/staff* with more restricted public health competencies and functions in- or outside organized public health services; their main education will be a medical or other health-related programme with limited public health aspects—e.g., individually oriented health promotion, effective screening, and health protection.
3. *Other with job functions bearing on the population's health*, in- or outside the health system and in- and outside the public health services; educational background other than for groups 1 and 2. Examples are teachers, policemen, architects."

The information gathering tool comprised five sections: (1) country profile, (2) public health priorities, (3) country success story, (4) workforce related to the country success story and (5) lessons learned from the success story (see Additional file 1).

Respondents (i.e. country representatives) had to select a public health success story achieved in the last 5 years, and which was within the scope of health priorities, i.e., an example of an intervention or an initiative that was considered successful in addressing a public health challenge, at the national or sub-national level. The main presentation

of the success story included qualifying the public health problem, and the intervention deployed to address it. The core information in the tool contained specific subsections about public health professionals involved and description of necessary changes related to public health professionals to achieve the success story.

To provide the appropriate coaching of country representatives, eight experts have involved their skills. All coaches were medical doctors, educators and scientists with both MSc and PhD degree in public health and more than 10 years of work experience within the PHW area. Also, they had experience in similar coaching assignments. The coaching had the following characteristics:

- a set duration of 2 months;
- structured in nature by the information gathering tool with contacts scheduled on a regular basis;
- focused on the specific development issues related to public health workforce;
- included overseeing what was done and advising how to do it better.

Success stories were submitted by eight countries (Albania, the two parts of Bosnia and Herzegovina, i.e., Federation of BiH and Republic of Srpska, Bulgaria, Croatia, FYR Macedonia, Moldova, Montenegro, and Serbia).

The qualitative analysis was done by using the framework method as appropriate for multidisciplinary research (Gale et al. 2013). It helps to summarize qualitative data obtained with the information gathering tool and by the coaching of country representatives. This approach allows generating several framework matrices based on PHW qualities and EPHOs. During synthesizing qualitative data, a team also applied triangulation by contacting other sources of evidence. We have used relevant literature in the field of PHW and databases of international organizations: WHO Global Health Observatory data repository (World Health Organization 2016d), WHO/Europe European Health for All database (World Health Organization/Europe 2016), World Health Organization Global Health Expenditure Database (World Health Organization 2017), Food and Agriculture Organization and World Bank population estimates (Food and Agriculture Organization and World Bank 2016), UN World Urbanization Prospects (United Nations, World Urbanization Prospects 2016), and World Bank, International Comparison Program database (World Bank 2016).

Results

The context and country profile in the SEE region

The participating SEE countries are described according to profiles displayed in Table 1. The region is hosting approximately 53 million inhabitants, with the biggest population density in Moldova and the least in Montenegro. In 7 countries out of 9, more than half population is living in urban areas. GDP per capita in each SEE countries is well below the average estimated for the WHO European Region, and the same observation applies for health expenditure per capita and year. It varies between the lowest in Moldova (US$ 229) and the highest in Croatia (US$ 1050).

All countries in the SEE region have experienced a significant increase in life expectancy at birth, though Bulgaria, Macedonia, Moldova, Romania, and Serbia still did not reach European average of 76.8 years for both sexes. Increase in healthy life expectancy since 2000 is 3.5 years in average, being the fastest in Albania and Moldova. The mortality rate of children under 5 is still a problem at the national level, particularly in Moldova and Albania. Like in the other countries in the WHO European Region the leading causes of premature deaths in SEE are preventable diseases of the circulatory system, followed by neoplasms (Fig. 1).

In the past decade, most of the SEE countries have experienced transformation in their health systems adopting Bismarck or Beveridge models or a combination of them. Governance and regulation of public health services in all countries of the SEE region stays predominantly at the central level—under ministries responsible for health with some contributions from other ministries dealing with environmental protection, labour and social affairs, agriculture and food, transport and infrastructure, etc. (World Health Organization 2009). Funding is primarily by the state budget, or state health insurance, with minor contributions from local authorities depending on activity or programme and the level of decentralisation. The organizational structure for public health services is mainly based on the network of public health institutions providing health promotion, disease prevention and health protection. A national institute/ centre of public health exists in each country, though with a different scope of tasks and responsibilities. Nevertheless, they are performing public health services at country-wide level to address public health mandates in population health assessment, surveillance, monitoring and response to health hazards and emergencies, health promotion, prevention, and health protection. In addition, some countries have other institutions providing some EPHOs at the national level, e.g. Bulgaria has a National Centre of Infectious and Parasitic Diseases.

National public health success stories and workforce involved

Table 2 indicates national public health priorities and the public health intervention areas of national success stories

Table 1 Country profiles of the South-Eastern Europe Health Network (SEEHN) in 2015

Country	Mid-year population in thousands	Population density	Population ages 65 and above (% of total)	Urban population (% of total)	GDP per capita, PPP (current international $)	Health expenditure per capita (current US$)**	Life expectancy at birth, both sexes (years)	Healthy life expectancy (HALE) at birth	Increase in HALE 2000–2015***	Mortality rate, under-5 (per 1000 live births)	DALYs attributable to ambient air pollution (age standardized)****	Cause of death, by NCD (% of total)****
	1	2	3	4	5	6	1	1		1	1	1
Albania	2896.7	105	12	57	11,479.1	272	77.8	68.8	4.7	14.0	28,692	90
B&H*	3810.4	74	15	40	10,851.7	464	77.4	68.6	3.5	5.4	46,663	91
Bulgaria	7149.8	66	20	74	18,248.8	662	74.5	66.4	3.0	10.4	97,091	94
Croatia	4240.3	75	19	59	22,514.4	1050	78.0	69.4	3.0	4.3	31,122	93
Macedonia	2078.5	82	12	57	14,076.5	354	75.7	67.5	3.0	5.5	24,416	95
Moldova	4068.9	124	10	45	5049.0	229	72.1	64.9	4.5	15.8	53,627	89
Montenegro	625.8	46	14	64	16,050.2	458	76.1	67.9	3.0	4.7	5985	92
Romania	19,511.3	86	17	55	22,124.3	557	75.0	66.8	3.8	11.1	201,251	92
Serbia	8851.0	81	17	56	14,111.9	633	75.6	67.7	3.2	6.7	80,034	95
WHO European Region	902,394.0	33	16	71	30,308.5	2420	76.8	68.0	3.9	11.3	–	88

Sources of data

1. World Health Organization. Global Health Observatory data repository. http://apps.who.int/gho/data/node.imr

2. Food and Agriculture Organization and World Bank population estimates. http://data.worldbank.org/indicator/EN.POP.DNST?view=chart

3. World Bank staff estimates based on age distributions of United Nations Population Division's World Population Prospects. http://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS?view=chart

4. United Nations, World Urbanization Prospects. http://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?view=chart

5. World Bank, International Comparison Program database. http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?view=chart

6. World Health Organization Global Health Expenditure database. http://apps.who.int/nha/database

*B&H: Bosnia and Herzegovina comprising two entities: the Federation of B&H and Republic of Srpska

**The latest year—2014

***Calculation based on the source 1

****The latest year—2012

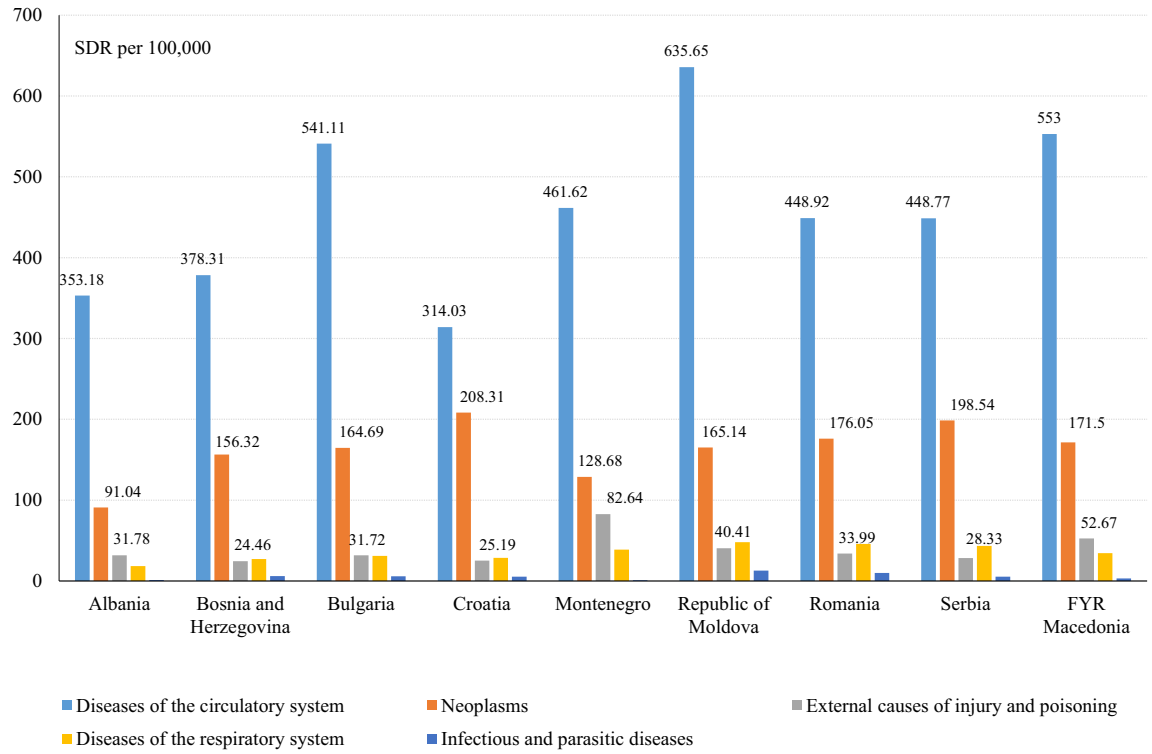

Fig. 1 Standardized death rates (SDR) per 100,000 in the member states of the South-Eastern Europe Health Network (SEEHN)—the main causes of deaths, all ages, the latest available year. Source: WHO/Europe (2016). European health for all database (HFA-DB). http://data.euro.who.int/nha/database. Accessed 05 Nov 2017

as developed by country representatives. Also, it provides a synthesis of public health challenges with main organizations involved in interventions. All SEE countries tailored public health priorities towards social determinants, health equalities, sustainable environment, and prevention of non-communicable diseases.

Over the last 5 years, these countries selected particular public health success stories regarding workforce capacity building (establishment of continuing education system in Albania, and health management centre in the Republic of Srpska) as well as regarding some of many health priorities competing for scarce resources (screening for malignant diseases in Croatia and Montenegro, risk factors in Moldavia and in Bulgaria, HIV/AIDS in the Federation of Bosnia and Herzegovina and protection from violence in Serbia and FYR Macedonia) (Table 2).

A variety of organizations was involved in achieving success: public sector institutions, non-governmental organizations and civic societies, voluntary groups and international partners. The same applies to the wide array of professions involved in the delivery of public health services:

- Public health professionals/ specialists (master or doctoral degree, medical doctors or dentists, specialists of epidemiology, microbiology and parasitology, occupational health, specialists in hygiene and environmental medicine, social medicine with organization and health economics, sanitary engineers, engineers of laboratory medicine and biostatistics and medical informatics, health management);
- Health professionals (general practitioners, specialist in general/family medicine, gastroenterologists, oncologists, psychiatrists, specialists in emergency medicine, paediatricians, surgeons, gynaecologists, and nurse, health technicians);
- Other professionals (teachers, police officers, sociologists with various specializations, psychologists, social workers, software programmers, mathematicians and system designers, pedagogues, special education teachers, lawyers, public prosecutors and other law specialist, journalists).

To structure these findings, we have extracted Table 3 after performing framework analysis (Gale et al. 2013) to provide a synthesis.

Also, the framework analysis points to the key enablers of the successful work of public health professionals, which are the following:

- legislation (introducing new laws as well as by-laws for job responsibilities, e.g., job descriptions are expanded, work procedures with new instructions, protocols, etc.),

Table 2 National public health priorities, success stories and organizations involved in interventions in member states of the South-Eastern Europe Health Network (SEEHN). Source: Information gathering tools filled in by country representatives

Country	Public health priorities	Success story—magnitude of the challenge	Organization involved
Albania	Improvement of governance in public health Improvement of health system financing Development of human resources in health sector, increase of capacities to manage services and institutions in more efficient way Improve the quality of health service Health promotion	Continuing education of public health workforce Public health professionals are required to undergo continuing education professional updated, to improve their knowledge and professional skills, in order to enhance the quality of health care	Council of Ministers Ministry of Health National Centre for Continuing Education Academia
Bosnia and Herzegovina			
Federation of B&H	Adoption of the development of public health strategy and legislation in compliance with EU Strengthening the functions of public health surveillance, and research of current and new threat to public health Development of health policies and institutional capacities for planning, management, regulation and application in terms of new public health Increase of engagement of population and community in health promotion through promotional and preventive programs	Response to HIV and AIDS Project was focused m on HIV prevention among risk groups and population, support to people living with HIV (PLHIV), increase in the availability of VCT services (voluntary, confidential counselling and testing), increase the availability of opioid substitution therapy (OST) programs, needle and syringe exchange, expansion of preventive services and build a supportive environment due to the strong sense of stigma and discrimination. As a part of Project, completed and enforced national Strategy for HIV/AIDS 2011–2015	Ministry of Health of FBiH Ministry of Health and Social Welfare Ministry of civil Affairs/CCM National Coordination body Department of Health and Other Services of Brcko District Federal and Cantonal Ministry of Health Federal and cantonal public health institutes Medical facilities NGOs
Republic of Srpska	Reducing differences in health status of the population Carrying out control of non-communicable and communicable diseases Strengthening public health capacities Creating healthy and supportive environment for health and well-being Promoting "Health in All Policies" approach	Establishment of the Centre for Health Management Human resources are the central component of all health systems and strengthening public health capacities unavoidably encompasses human resource capacity development. Identified public health challenge: lack of education in the field of health management, lack of resources for continuous education of managers of all profiles and levels in the health system, lack of knowledge and skills in the field of health management required for the improvement of quality system in health institutions in Republic of Srpska	Ministry of Health and Social Welfare of Republic of Srpska Public Health Institute of Republic of Srpska Academia 379 health professionals
Bulgaria	Ensuring financial sustainability of the health system Changes in the functioning of the health system through the orientation toward quality and outcome assurance as well as achievement of the national health objectives An active approach to care and establishment of supporting environment for specific and vulnerable groups of the Bulgarian population Capacity building of public healthcare	The festival "Sea and Health" for the promotion of public health and public health professionals "Blue growth" is a long-term strategy in support of the sustainable growth of the maritime branches in general. It acknowledges that the seas and oceans are driving forces of the European economy with great potential for innovations and growth. This is the contribution of the integrated maritime policy for the achievement of the goals of strategy "Europe2020" for intelligent, sustainable and incorporating growth. The aim of the intervention was to increase the public awareness of the citizens of Varna about the role of public health and PHP for the achievement of the goals of Health 2020	Faculty of Public Health Varna Municipality of Varna Regional Health Inspectorate Institute of Oceanology and Fishing Bulgarian Red Cross Naval Academy "N.Y. Vaptsarov" Bulgarian Academy of Science District Directorate for Food Safety Professional organisations and representatives of the business

Table 2 (continued)

Country	Public health priorities	Success story—magnitude of the challenge	Organization involved
Croatia	Informatisation and eHealth development Strengthening and better use of human resources in health care Strengthening of management capacities in health care Reorganization of the structure and activities of health care institutions Fostering quality in health care Strengthening preventive activities	Cervical cancer screening programme As data led to a conclusion that opportunistic screening was no longer an adequate prevention method, health authorities of the Republic of Croatia opted for the organisation and implementation of organised screening	Ministry of Health Croatian Institute of Public Health Croatian Health Insurance Fund County public health institutes 148 Concessionaire teams 81 teams within health centres
FYR Macedonia	Communicable diseases: increased access to key interventions for people living with HIV/AIDS Non communicable diseases prevention and control; nutrition Promoting health through a life-course approach: healthy ageing; social determinants of health; health and environment Health systems: National Health 2020; integrated people-centred health services; health information system strengthening Preparedness, surveillance and response, IHR and emergency risk and crisis management	Evidence based policy intervention for violence prevention Violence is serious public health problem in Republic of Macedonia that has negative impact on health, causing fatal injuries and death as well as injuries and psychological trauma that require outpatient treatment or hospitalization. Public health approach and ecological model have been used as a leading framework for situation analysis of the problem of violence in Macedonia, it's magnitude, burden, causes and risk factors at various levels, and to provide recommendations for evidence base policy interventions	Ministry of health, interior, education, justice, labour and social policy Governmental National Coordination Body for domestic violence prevention Institute of Public Health of Republic of Macedonia Department for violence and injury control and prevention Safe Community Affiliate Support Centre NGOs
Moldova	High rate of non-communicable diseases High smokers' rate High alcohol consumption Combating communicable diseases Mental health	Approving and implementing of tobacco control legislation Initial high smoking prevalence was observed e.g. 51.1% from male (15–59 years old). One in six individuals (16.5%) were exposed to second-hand smoke at home, one in four in the workplace (26.2%). The health-care expenditure related to diseases caused by tobacco consumption increased more than twice, while the estimates of the economic costs of tobacco-related loss of productivity due to premature death, hospitalization and outpatient treatment of smoking-related diseases significantly increased	Parliament and Government of the Republic of Moldova—decision makers Ministry of Health—lead and coordinating role WHO country office—expert role NGO—contributing to promotion of tobacco control policy. National Centre of Public Health—contributing to implementation on the national level Municipal and District Centres of Public Health
Montenegro	Prevention and control of chronic non-communicable diseases Prevention and control of communicable diseases Health care of vulnerable groups Strengthening public health	The colorectal cancer screening programme Colorectal cancer was one of the 10 top causes of premature mortality in Montenegro with 260 years of life lost per 100,000 in 2013 (ASR). The estimated mortality rate for colorectal cancer was 15.9 per 100,000 in 2012 (ASR (W)) and the estimated incidence rate was 264 per 100,000 (ASR (W)) In 2008, the National Cancer Control Plan was released based on Strategy for prevention of non-communicable diseases, followed by the National program for early colorectal cancer detection in 2010	Institute of Public Health 185 teams of general practitioners National team for colorectal cancer

Table 2 (continued)

Country	Public health priorities	Success story—magnitude of the challenge	Organization involved
Serbia	Physical, mental and social health of the population	Monitoring of child abuse in support to efficient prevention of violence against children	Government of the Republic of Serbia
	Health promotion and disease prevention		Council for Children Rights
	The environment and the health of the population	Childhood abuse and neglect is important from a public health perspective because it has long-lasting effects on mental and physical health. Based on research evidence, it is correlated with drug and alcohol misuse, obesity and criminal behaviour. Although the certain data on children mortality as a result of violence were available from the regular statistical reports, the exact data on the actual extent of violence that children in Serbia suffer was difficult to give since there was no unique system for recording and monitoring of these events	Ministry for Social Protection
	The working environment and the health of the population		Ministry of Health
	The organization and performance of the health system		Ministry of Sport
	Procedures for crisis and emergency situations		Ministry of Labour, Employment and Social Policy
			Institute of Public Health of Serbia and its network of 24 district IPHs
			UNICEF, Area Office for Serbia
			The Institute of Mental Health
			Social care system
			Police departments in all 23 districts
			169 local municipalities and PHC centres
			NGOs and civil societies

- funding (international technical assistance and project funding in the initial phases and afterwards introduction of regular mechanisms as for other public health services),
- adaptations in organisational structure (e.g., organizational changes are seen in the form of new professional teams, or units, departments, centres within existing institutions introducing the new rulebooks on internal organization and systematization of new job positions),
- expanding staff capacities (though most of the work has been delivered by the current personnel, new positions were opened, staff was recruited from other workplaces with more residents going to specialization),
- competency building of staff involved in the activity (on the job training, collaborative education, seminars, new specialization/ sub-specialization, continuing education/ continuing professional development),
- interdisciplinary networking (new teams were established, improving recognition and respect among professionals from different sectors), and
- productivity and cost containment (results and costs are monitored and reported annually overseeing efficiency and gaps in performance).

Table 4 is presenting participants' responses in relation to EPHOs delivered through activities during the intervention. Depending on public health challenges addressed, countries have delivered several EPHOs per successful intervention. All countries have engaged activities within EPHO-7—"Assuring a competent public health workforce", followed by EPHO-10—"Advancing public health research to inform policy and practice".

All country representatives did an effort to provide the lessons learned from their experience seen as "success factors or obstacles to overcome". As success factors, they recognized institutionalization, evidence-based interventions, vertical and horizontal collaboration, commitment to gaining new competencies, increase in social inclusion and mobilization. Serious obstacles to overcome in the future were: deployment of a successful intervention to a larger scale in the country (roll-out), insufficiency in regulation, work overload and lack of specific staff, missing appropriate training to gain competencies, the absence of a regular evaluation, and sustainability of funding for longer periods.

Discussion

This study describes the recent successful public health efforts in the eight SEE countries based on qualitative analysis of structured information collected from triangulated sources. Despite diversity across demographic and

Table 3 Synthesis of qualitative data on public health workforce involved in the success stories of the South-Eastern Europe Health Network (SEEHN)

Educational background	Employer	Basics of working methods	Outcomes
Public health master degree	Ministry of Health	The whole of government, the whole of society approach	Health-related effects to the target population
Doctoral level in various disciplines in public health	Network of public health institutes/ centres	Multi-sectorial	Half-way and pilot projects
Medical doctors, dentists, specialists in epidemiology, social medicine, organization and health economics, microbiology, hygiene and environmental medicine, occupational medicine, biostatistics and informatics	Primary health care institutions	Multi-institutional	Institutionalization (human and other resources)
Sanitary engineers, technology engineers	Inpatient health care—hospitals	Multi-disciplinary	Legal support
Public health nurses, community nurses, polyvalent patronage nurses	Centres for social work	Multi-dimensional	Better understanding and awareness of the relevance of the joint response to public health threats
Other	Educational institutions	Multi-level	
	NGOs	Coordinators' Networking	
	Other		

Table 4 Essential Public Health Objectives (EPHOs) covered by country activities performed during interventions in the South-Eastern Europe Health Network (SEEHN)

EPHOs	Albania	Bosnia and Herzegovina		Bulgaria	Croatia	FYR Macedonia	Moldova	Montenegro	Serbia
		Federation of B&H	Republic of Srpska						
EPHO 1: Surveillance of population health and well-being	■	■			■	■	■	■	■
EPHO 2: Monitoring and response to health hazards and emergencies		■			■	■	■		■
EPHO 3: Health protection, including environmental, occupational and food safety and others		■		■			■		
EPHO 4: Health promotion, including action to address social determinants and health inequity		■		■	■	■	■	■	■
EPHO 5: Disease prevention, including early detection of illness		■	■		■			■	■
EPHO 6: Assuring governance for health	■		■		■		■	■	
EPHO 7: Assuring a competent public health workforce	■	■	■	■	■	■	■	■	■
EPHO 8: Assuring organizational structures and financing	■	■	■			■			■
EPHO 9: Information, communication and social mobilization for health		■		■	■	■	■	■	■
EPHO 10: Advancing public health research to inform policy and practice	■	■	■		■	■	■	■	■

Filled box means that EPHO is covered by country activities

health indicators, like in the whole WHO European Region of 53 countries (World Health Organization 2016e), their successful public health interventions have similar ingredients, which can be identified as determinants of success.

During the last decade in all SEE countries there is a drive for the transformation of public health services towards better performance to achieve universal health coverage (South-Eastern Europe Health Network 2011; Ruseva et al. 2014; Wiskow et al. 2016). The impact of EPHOs on public health services is directed mainly towards surveillance, monitoring, informing health assessment, prevention and control of diseases. As a historical legacy (former Yugoslavia or countries under the influence of the Soviet Union) (World Health Organization 2009) EPHOs relating to governance for health or organisational structures are given less priority. In general, there is the impression of fragmentation and lack of alignment in the basic priority rating of public health challenges. Nevertheless, the prominent result of this assessment is that all countries have employed public health workforce with competencies to perform activities of several EPHOs and achieve stated objectives of interventions.

Delivery of public health services effectively and efficiently, on a large scale and with a long perspective not

only needs political commitment but also the allocation of sufficient resources (Martín-Moreno et al. 2016). However, there is a gap between official declaration and implementation, likely enhanced by the frequent negligence of cost-effectiveness of public health interventions (World Health Organization 2016c). Therefore, it is not surprising that recent public health success stories in SEE countries rarely represent a comprehensive approach to address the major health priorities such as circulatory diseases. Rather they describe a response to risk factors, HIV/AIDS, and surveillance or screening or skill deficiencies.

Necessary changes related to public health professionals were implemented at both levels: "hardware" (organizational structures, staff capacities, funding and legislation), and "software" (work procedures, skill-mix, productivity, cost containment, and interdisciplinary networking) to enable successful implementation of the interventions. Some of these changes were success factors only in some countries, while those half-way deployed acted rather as obstacles. Other authors have obtained similar results though targeting specific public health workforce and specific public health challenge, such as nutrition (Kugelberg et al. 2012) or obesity (Begley and Pollard 2016).

Meeting the new public health challenges, besides evidence-based planning, requires stronger capacities in health promotion and disease prevention to increase coverage of population groups at risk and accessibility of individual services addressing non-communicable diseases (Foldspang 2015; Otok and Foldspang 2016). Also, core capacities to respond to public health emergencies and outbreaks need strengthening, and the capacity of laboratory services remains to be increased (Rechel et al. 2014).

To strengthen the performance of public health services and sustain the public health achievements, in many regions of the world, scientists and professionals increasingly pay attention to the public health workforce and explore challenges through health policy and system research (Sheikh et al. 2014). Actual debates include both quantification and qualification of PHW relying on the adopted taxonomy of PHW (Jambroes et al. 2015; Boulton et al. 2014). This taxonomy involves many categories: occupation, the setting of the employment, type of employer, education, licensure/certification, job tasks and other.

Policy implications

Our qualitative analysis is a compendium of case studies describing the successful performance of public health professionals in countries of the SEE region. It provides knowledge for action, and a summary of practical guidelines derived in the various case studies for overcoming barriers in mobilizing the public health workforce. One of the first initiatives, based on lessons learned from the successful stories, was a joint discussion about strengthening PHW at the meeting of SEE ministries of health (Zuleta-Marin et al. 2017). Policy actions have to rely on global strategies such as "The Global Health Workforce Strategy 2030" (World Health Organization 2016f) to speed up and make further progress in developing the public health workforce. Also, they have to take lessons of good practices in the implementation of Millennium Development Goals (waiting for the first results from SDG implementation during the next years) in fast-tracking countries (Ahmed et al. 2016). Profiles of public health workforce fluctuate across Europe. Multidisciplinary teams are recommended in response, however still without a clear description of composition and skill mix in SEE region.

Despite this results, our analysis reflects specific country experience and cross-country differences. The extracted commonalities support an inclusive approach for skill and staff mix development, even in the case of a specific public health intervention, due to the nature of EPHOs interconnectedness. It is necessary to document the performance of public health workforce to sustain public health success in the long run, not only in the SEE region but worldwide (Vukovic et al. 2014). Important steps in further development are aligning the human resources for public health with the strategic priorities of public health policy as well as providing cost effectiveness and cost efficiency of their public health interventions (Laaser and Schröder-Bäck 2016; Müller-Nordhorn et al. 2016).

The task of strengthening public health services is complicated by the fact that there are no accepted norms as to which disciplines constitute the public health workforce, and which qualifications are required. We adopted the predominantly qualitative approach, proposed by WHO (World Health Organization 2012b), recommending embedded research, which will secure connections, synergy, and understanding among researchers, professionals and decision-makers in the field of the public health workforce development (Tricco et al. 2016; Ghaffar et al. 2017). Also, a productive interface between health and other sectors of the government/ society is crucial for developing a multidisciplinary public health workforce, besides evidence and knowledge translation related to supply and demand. Intersectoral working of public health professionals is a prerequisite in pursuing health and health equity, empowering citizens, fostering the universal health coverage, and reducing fragmentation in service delivery (Wismar and Martin-Moreno 2014). As the success stories were self-selected by the country teams, we cannot claim a representative coverage but provide a first impression of the ongoing transformations in the field.

Conclusions

Recent successful public health stories in SEE countries did not represent a comprehensive approach to address the major health priorities such as circulatory diseases. Although public health workforce is aligned with the specific public health success, these stories rather were describing the multi-sectoral, multi-institutional, multi-dimensional, multi-level and multi-disciplinary response to risk factors, HIV/AIDS, inefficient public health services such as surveillance or screening or skill deficiencies, usually initiated by international technical assistance. Nonetheless, lessons learned indicate key enablers of the successful deployment of an intervention addressing the local public health challenge, which can also act as obstacles if inappropriately processed. Being able to document success is a good start for raising the awareness and strategic communication with national and international stakeholders for strengthening public health services and capacities, and this qualitative study describes the pathway through.

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Compliance with ethical standards

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Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

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