



OASES

Promoting evidence-based reforms on medical deserts

D5.4 Report of the sustainability of ways to mitigate medical desertification

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Lead author	Elina Kärkkäinen (THL)
Contributors	Cyprus: Kyriaki Anastasiou (INHWE), Matteo Vezzosi (INHWE) Finland: Timo Sinervo (THL), Visa Väisänen (THL) France: Guillaume Chevillard (IRDES), Véronique Lucas-Gabrielli (IRDES) Hungary: László Galambos (SU) Italy: Stella Lanzi (AGENAS), Lisa Baldini (AGENAS) Alessandra Cese (AGENAS), Alessia Carbone (AGENAS), Giovanni Baglio (AGENAS) Republic of Moldova: Liliana Buzdugan (NPHA), Sergiu Otgon (NPHA) Romania: Monica-Georgiana Brînzac (UBB)
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1. Executive summary

Medical deserts are an urgent challenge that health systems and health workforce across Europe are facing. The purpose of this document is to describe the sustainability and transferability of the ways to mitigate desertification that have been developed in previous OASES project's pilot studies.

The sustainability of the ways is analysed based on the 'Framework for Action on the Health and Care Workforce 2023-2030' developed by WHO (2023a), which places health and care workers at the centre with five themes: Retain and recruit; Build supply; Optimize performance; Plan; and Invest. The comprehensiveness of each countries' ways in contrast to the aspects of sustainability is analysed, while considering the countries' local contexts to assess whether the actions as a totality are sustainable. Transferability of the actions was analysed by comparing the OASES countries' health service systems to other health service systems in Europe while directing attention to the countries' local environments.

The OASES countries' ways to mitigate medical deserts are categorized into three groups: health workforce, service provision, and policy and regulation. The actions mostly concern whole countries or regions, but some ways targeting medical desert areas are also present. Most of the individual actions are seen as sustainable. The sustainability of the ways to mitigate medical deserts is generally in a good state. Most countries direct attention to all different sustainability themes and in principle are able to address the many sides of the medical desert phenomenon. The sustainability themes have, however, been addressed with varying levels of intensity.

All countries aim to increase public investment in health workforce and/or to optimize the use of public funds. The countries focus often on planning policies related to human resources for health with an intersectoral approach by engaging key stakeholders. Nearly all countries aim to recruit and retain health workforce and, in many cases, direct special attention to medically deserted areas. Also, nearly all countries aim at optimizing the performance of the health system by contributing to more efficient services. On the contrary, health and well-being of the workforce, gender-sensitive policies and actively contributing to public investment in the health workforce by justifying its benefits to critical funders and stakeholders, are not addressed in any of the actions. The analysis also presents an indicative picture of what sustainability themes can be addressed with different types of ways, which can help to direct attention to right areas of action.

Transferability of the ways to mitigate medical deserts to other European countries is generally good. Most ways can be transferable to most health service systems, depending on the national needs regarding medical deserts. Some ways are more easily suitable for similar health systems to where they were originally developed. The ways focusing on policy and regulation function at a more general level, enhancing their transferability to various health systems. Health workforce and service provision related ways are more related to the specific features of the health systems, which might limit their transferability.

Since medical deserts are unique in each country, one-size-fits-all approach is not suitable, and instead the countries should tailor their strategies and actions individually for their local contexts. The information on this report and previous OASES project's deliverables can guide potential strategies and ultimately viable actions to be implemented across Europe to foster positive change and mitigation of medical deserts.

2. Introduction

European countries face several shared health-related challenges among which are aging population - projected to increase considerably in the coming decades (Eurostat 2024) -, chronic conditions, multi-comorbidities, and environmental, social and economic pressures (WHO 2018a, v). Medical deserts are an urgent challenge that health systems and health workforce across Europe are facing (WHO 2022a, 2).

The term “medical desert” refers to several situations or areas where people have difficulties in accessing care, as described in the framework of medical desertification (Deliverable 5.1). A distinction is made between the concepts of medical desert and medical desertification: medical desertification is a process towards medical deserts. Medical desert can refer to geographical areas in which there is a lack of health services or poor quality of them, and situations in which subgroups of the population are not able to have access to health programs or services due to their socio-economic conditions or to any other factor (e.g., linguistic, cultural, legal or bureaucratic reasons). Medical desert may appear as a lack of health professionals in a given territory, difficulties in attracting new ones, the fact that retiring professionals are not replaced, or lengthy waiting times and long distances when accessing health care. Although healthcare facilities would be available, there may be a lack of health professionals to deliver adequate care. Medical desert is often associated with medically underserved areas and rural areas in the international literature (Deliverable 5.3, 6-7).

Determinants of medical desertification have been identified in previous OASES project's deliverables. Deliverable 5.1 (framework of medical desertification) and Deliverable 5.3 (Report of the state of art of desertification in Europe and ways to mitigate desertification) have identified and presented five domains of the determinants of medical desertification or coverage of health workforce based on work by WHO (2018a), Danish et. al (2019) and Asghari et. al (2020). The determinants are personal-related factors of health workforce; characteristics of the practice or organization; service system; workforce planning and monitoring; and training or supply of health workforce (Deliverable 5.3, 10-11). These are elaborated more below to enable a comprehensive picture of the topic of medical deserts and the areas of interest that are the underlining factors behind it.

1. Health worker personal-related factors
 - a. Attitude of the workers to and experiences of certain areas (rural vs. cities).
 - b. Family-related factors (workplace of the spouse and location of the family).
 - c. Interests/hobbies of the person and the family vs. possibilities, such as culture, sports, schools.

- d. Health-related factors.
- e. Other environmental factors, such as climate, sparsely populated areas, infrastructures and proximity of services.
- 2. Characteristics of the practice /organization
 - a. Scope of practice, size of the practice.
 - b. Work organization (service model: single practice, team model, task shifting, integration).
 - c. Workload and work environment (call schedule, flexibility, management, training, social support, autonomy).
 - d. Career possibilities.
 - e. Pay systems.
 - f. E-health, digital services.
- 3. Service system
 - a. Coordination of care between primary and social care and between primary and hospital care.
 - b. Low resources in primary care.
 - c. Parallel service systems (private services, occupational health care).
- 4. Workforce planning and monitoring
 - a. Presence of a HWF planning system that includes one or more forecasting method(s) to estimate the supply (in- and outflows) and demand (main future driver) in the long run.
 - b. Presence of a HWF monitoring system, including a national/regional HWF register, and data on health professional mobility.
- 5. Training / supply of health workforce
 - a. Investment, how many professionals are trained.
 - b. Rural rotations (internships).
 - c. Migration vs. immigration of health workforce.

As seen in the determinants of medical deserts, health workforce has a critical role in the endeavour of mitigating medical deserts and enabling quality health care service delivery (WHO 2018a, v), although other aspects of health systems must not be forgotten. Flinterman et al. (2023) have found that while numerous countries recognize the severity of medical deserts and implement measures to mitigate them, they do so without a robust rationale substantiating the selection of specific policies and measures. Thus, more detailed information about the sustainability and transferability of the possible ways of mitigating medical deserts can help to plan effective actions and strategies. Also, as information regarding medical deserts in Europe is yet rare, this report will provide needed information to guide the work further specifically in the European region.

2.1 Purpose and scope of the document

This document is one of the last deliverables of the OASES project, during which medical desertification and ways to mitigate the deserts in Europe have been explored. As the antecedents of medical desertification have shown to vary between service systems and areas, also the ways to mitigate desertification are assumed to have limitations relating to national service systems, education, or other national reasons. The purpose of this document

is to describe the sustainability and transferability of the ways to mitigate desertification that have been developed in previous OASES pilot studies.

To be able to shed light on the wider scalability of the initiatives, the major aspects of European health service systems are explored. More in-depth are described the OASES countries' service systems. The sustainability and then the transferability of the actions are analysed, taking into account the country specific requirements of the pilot studies and local peculiarities in contrast to service systems in other countries.

2.2 Structure of the document

This report is organised as follows:

- **Section 2** sets a base for the report by presenting key findings and concepts about medical deserts and their mitigation.
- **Section 3** describes the framework for the sustainability analysis and methods for conducting the analysis.
- **Section 4** describes broadly the different health service systems that can be found in Europe.
- **Section 5** describes more in-depth the health service systems of the OASES participating countries.
- **Section 6** describes the sustainability of the ways to mitigate medical deserts that have been identified in the previous OASES countries' pilot studies. The section provides by-country information on the different ways to mitigate medical deserts, and then an analysis of the sustainability of the actions as individual actions and in regard to the local contexts. At the end of the chapter is an overview of all the mitigating actions and their sustainability.
- **Section 7** discusses the transferability of the mitigating ways to other European countries and health service systems.
- **Section 8** first summarises the key findings of the report about the sustainability and transferability of the ways targeted at mitigating medical deserts. Second the chapter discusses the reliability and limitations of the report and lastly draws future recommendations.

2.3 Relation to other work in the project

This document builds on top of the previous OASES deliverables “D5.3 Report of the state of art of desertification in Europe and ways to mitigate desertification” and “D6.3 Reports on pilot studies”. This report will continue the OASES country descriptions produced in D5.3 and utilize the country-specific information gathered in D5.3 in the analysis of this report. This report and its analysis will continue and deepen the understanding of the pilot study actions first described in the D6.3.

2.4 Reference documents

The following documents have been consulted for drafting/developing this document:

Reference	Document Title	Document Reference	Version	Date
Huhtakangas, M. et al. (2023)	D5.3 Report of the state of art of desertification in Europe and ways to mitigate desertification		2.0	3.8.2023
Brinzac, M. et al. (2024)	D6.3 Reports on pilot studies		3.0	Under review

Table 1: Reference documents

2.5 Glossary of acronyms

Acronym	Description
EU	European Union
GDP	Gross Domestic Product
GP	General practitioner
HRH	Human resources for health
HWF	Health workforce
OASES	Promoting evidence-based reforms on medical deserts
OOP	Out-of-pocket
SHI	Social Health Insurance
VHI	Voluntary Health Insurance
WHO	World Health Organization

Table 2: Glossary of acronyms

3. Framework and methods for sustainability analysis

Sustainability and scale-up of the medical deserts’ mitigation strategies found in OASES participating countries’ pilot studies will be analysed. The analysis is in two parts.

First part of the analysis focuses on the outcomes of the pilot studies to mitigate the medical deserts in terms of **sustainability**, in the OASES countries. The analysis is based on the “Framework for Action on the Health and Care Workforce 2023-2030” developed by WHO (2023a). The framework used in this report is slightly modified: the contents of the themes are summarized into a more concise, evaluable format. The framework places health and care workers at the centre and has five inter-related themes in between which a concerted action by multiple partners is needed. The five themes are Retain and recruit; Build supply; Optimize performance; Plan; and Invest. The themes and their modified content are described in more detail in table 3.

1. Retain and recruit: addressing health and care workers’ needs	Good working conditions: reasonable workload, work-life balance, positive workplace culture, supportive management, career advancement, workplace safety (zero tolerance on abuse and violence)
	Fair and effective remuneration of health and care workers
	Health and well-being (both physical and mental) of health and care workers: including occupational risks and stigma around mental health challenges

	<p>Gender-sensitive policies: gender-balance, gender sensitive policies and practices e.g., in retention strategies and remuneration</p> <p>Attracting students into health and care professions</p> <p>Recruitment and retainment: special attention to rural and underserved areas; ethical practices especially for international recruitment</p>
2. Build supply: strengthening education and training, skills and competencies	<p>Modern education and training: strong teaching-capacity of health and education institutions; education and training of health and care workforce reflecting population needs and service requirements such as competences in working in interprofessional teams and analysing and adopting new evidence; diverse routes into health and care professions such as vocational training; regulation and accreditation of health and care education and training</p> <p>Strong continuous professional development: opportunities for acquiring new knowledge and skills throughout careers are available across the health and care workforce; opportunities for unskilled health and care workers to attain and formalize skills during careers; standards and approaches to continuous professional development</p> <p>Digital health competencies: use of digital health tools is included in training curricula</p>
3. Optimize performance: redefining teams and skill-mix; use of digital solutions	<p>Multi-professional teams and skill mix: task-shifting between different health and care workers in order to have their skills used to best effect; autonomy of teams</p> <p>Quality interaction with patients: culture of person-centred care and empowerment; professional standards to patient safety</p> <p>Appropriate use of digital technologies by professionals and patients: use of digital solutions can e.g., promote opportunities to change the balance between ambulatory and inpatient care</p> <p>Efficient services: more time for care and effective service delivery; adequate facilities and equipment; effective management to support optimal performance</p>
4. Plan: comprehensive HRH (human resources for health) policies; better data; coordination of multiple stakeholders in line with changing needs	<p>Planning and forecasting needs: strategic planning using best available evidence, including information on current and future needs of health and care workforce, health system goals and priorities, understanding local context; assessing the results</p> <p>Intersectoral approach to planning: engaging key stakeholders such as health-, education- and finance ministries, professional associations, private sector actors</p> <p>Strong capacity of HRH units: strategic workforce planning and management; leadership capacity; equitable representation of women in decision-making positions</p> <p>Regulated education, service delivery and professions in health and care sector; planning for the health and care workforce accompanied by effective regulation</p>

	<p>Strong HRH information systems: optimizing use of available research and data to create a picture of the whole health labour market including both private and public sector</p>
<p>5. Invest: increased, sustained and smarter public investment in the health and care workforce, which contributes to economic growth and societal cohesion</p>	<p>Increasing public investment and optimizing the use of funds: discussions on funding levels and modalities to decide where investments should be made; innovative health and care workforce policies to increase the workforce’s availability, accessibility and productivity; prioritizing investment in primary health care workforce</p> <p>Making the case for investing in the health and care workforce: dialogue with critical ministries and funders to justify the benefits of public investment in workforce education, development and protection by using evidence from:</p> <ul style="list-style-type: none"> • Economic and social contribution of health and care workforce • Vital component of rural development • Fundamental role in aging societies • Critical to the Sustainable development goals agenda

Table 3: Framework for Action on the Health and Care Workforce 2023-2030 modified from WHO (2023a)

The actions found in the pilot studies are evaluated in relation to the Framework (table 3) to assess how comprehensively the aspects of **sustainability** are taken into account in each country's actions. In addition, the assessment of the sustainability of the actions considers the specific features and challenges of the countries, so that it can be assessed whether the actions as a totality are sustainable in relation to the local context. Possible unsustainability of the individual actions will be addressed and noted in the analysis as well.

The information needed for the analysis of the sustainability is gathered from four sources: 1) service system descriptions in chapter 5 of this report, 2) a survey about the pilot studies’ results from the OASES participating countries (described below), 3) previous OASES deliverable “D5.3 Report of the state of art of desertification in Europe and ways to mitigate desertification” for information about local peculiarities, and 4) previous OASES deliverable “D6.3 Reports on pilot studies” for information about the mitigating actions and country specific situations.

The survey sent to the OASES participating countries was formulated together with the OASES project’s Work Package 1 and Work Package 6 leaders. In the survey, the respondents were first asked to list the actions identified during their pilot study to mitigate the medical deserts, and then select, from that list, the actions to be either sustainable or unsustainable based on their perspective and experience of their country/region. Secondly, they were invited to analyse the actions, considering factors of sustainability that were defined in the survey. Thirdly, the countries were given an opportunity to add if they had anything more to say about the sustainability of the actions.

The second part of the analysis is an analysis of the measures to mitigate desertification in participating countries in terms of **transferability** to other European countries. Each action, both sustainable and unsustainable, identified in the pilot studies will be analysed by comparing the health service systems of the countries to other health service systems in Europe. Attention will be directed to the countries' local environments and other local peculiarities in contrast to service systems in other countries.

The information used in the transferability analysis includes: 1) descriptions of European countries' service descriptions in chapter 4 of this report, 2) OASES countries' service system descriptions in chapter 5 of this report, and 3) previous OASES deliverable "D5.3 Report of the state of art of desertification in Europe and ways to mitigate desertification" for information about local peculiarities in OASES countries and medical deserts in Europe.

4. Descriptions of European countries service systems

In order to analyse the transferability of the ways to mitigate medical deserts, an understanding of the health systems of the European countries has to be made. Health service systems can be divided into different categories – a common typology is to describe the systems as a Beveridge or a Bismarck model as done by van der Zee and Kroneman (2007). In this report, the descriptions and grouping of European countries' health service systems is based on above mentioned Bismarck and Beveridge typology by Kroneman and van der Zee (2007), complemented with typologies by Böhm et al. (2013) and Borisova (2011).

4.1. National Health Service model

National Health Service model, also referred as Beveridge model, is financed by general taxation (van der Zee & Kroneman 2007) that can be complemented by other levies applied to certain products such as hydrocarbons, alcohol and tobacco (Carrilero et al. 2021). The model is strongly influenced by the state and thus Ministry of Health is responsible for the health budget (van der Zee & Kroneman 2007). The National Health Services model is organized hierarchically: primary care is typically the first contact-point whereas specialized care can only be accessed with a referral (GPs' gatekeeping system), and it includes strict geographic subdivisions. Service provision is predominately public as hospitals are state-owned and doctors are contracted by the National Health Services. The model enables universal access to health services for all citizens (van der Zee & Kroneman 2007).

The ideal type of the National Health Service model, where state tends to have a strong role in governing the financing, regulation and service provision, is found in the Nordic countries (Denmark, Finland, Iceland, Norway and Sweden), United Kingdom and two southern European countries, Portugal and Spain (Böhm et al. 2013). **National Health Insurance** type differs from the ideal type in relation to service provision (Böhm et al. 2013). The state is involved in financing and regulating the system, but the service provision is predominantly private: there is more freedom for choosing physicians or hospitals. This type of health system is found in Ireland and Italy (Böhm et al. 2013).

4.2. Social Health Insurance model

Social Health Insurance model, also referred as Bismarck model, is financed by compulsory social security contributions from employees and employers (van der Zee & Kroneman 2007). These financial resources are directed to employees and their beneficiaries, whereas non-covered sectors or people can be financed by general taxation (Carrilero et al. 2021). The system is more loosely organised with less state influence compared to the Beveridge model (Kroneman & van der Zee 2007). Instead, it is more pluralistic with a strong influence of health care providers and (social) insurers. Access to care is often less hierarchical as there is parallel access to primary and specialised care and no strict geographic subdivisions. Care is typically provided by non-profit private hospitals and individual practitioners (van der Zee & Kroneman 2007).

The Social Health Insurance model can be further divided into more precise models based on differences in governance, which is done by Böhm et al (2013). In the **traditional Social Health Insurance model**, societal actors' role is dominant in healthcare financing and regulation, whereas services are mainly delivered by private for-profit providers. This group includes the Central European countries Austria, Germany, Luxembourg and Switzerland. In the **Etatist social health insurance model** financing is organized by societal actors, state is responsible for regulating the system, and provision has been delegated to private actors. Central and Eastern European countries such as Czech Republic and Slovakia and three Western European countries (Belgium, France and the Netherlands) would belong to this classification (Böhm et al. 2013).

4.3 Transition models

Separation between the Social Health Insurance and the National Health Service systems is not applicable to all parts of Europe, and thus a cluster of transition models is recognised by Borisova (2011), considering the countries of the Central and Eastern Europe countries. They have been, and are, developing their health service systems from the Semashko model of state planned, owned and budgeted services with a focus on infectious diseases and inpatient care and increasing under-financing (Borisova 2011).

The first transition model according to Borisova (2011) consist of **Reformed hybrid model**. The health service system has Social Health Insurance characteristics combined with tax-based funding, since the SHI contributions are collected primarily through, possibly earmarked, tax. Healthcare service delivery is done by both public and private facilities; inpatient services are mostly public, whereas outpatient services are mostly privatized or mixed. The system provides universal coverage for the country citizens. This model is found in Central and Eastern Europe countries: Bulgaria, Croatia, Estonia, Hungary, Latvia, Poland, Romania and Slovenia (Borisova 2011).

Second transition model is **Reformed ambivalent model** (Borisova 2011). This model has dual qualities of the health-care system in terms of the roles of state, funding and providers. The system is Social Health Insurance based but with generally lower contribution rates. Most healthcare facilities are publicly owned. The range of the covered services and benefits vary

between the Eastern European countries of this model: Albania, Kyrgyzstan, Lithuania, Moldova and Macedonia (Borisova 2011).

Third group of transition models is **Quasi-Semashko model**, in which functioning reforms are in process (Borisova 2011). The role of the state is strong as the systems are centralised and hierarchical, and state's role is remarkable in budgeting the tax-based system, though related with under-financing. Most of the service facilities are publicly owned. The services' focus is largely on curative (inpatient) care. This model can be found in Eastern European countries of Azerbaijan, Kazakhstan, Tajikistan, Turkmenistan, Ukraine and Uzbekistan, and in Belarus (Borisova 2011).

Fourth and last transition model is **Loosely regulated model**, where the funding for the system is Social Health Insurance based, and services have been privatized (Borisova 2011). Reforms have been loosely monitored and implemented. Healthcare is under-financed and public expenditure on health is low, as well as the services and benefits covered, so the healthcare costs lay largely on the patients themselves. This model is found in Eastern European Armenia and Georgia (Borisova 2011).

5. Descriptions of OASES participating countries' service systems

In this chapter the OASES countries' public health service systems will be described. The main features of the systems are first presented in table 4, and after that more in detail in the following chapters.

	Cyprus	Finland	France	Hungary	Italy	Moldova	Romania
Organisation of the public healthcare system							
Principle responsibilities	Principle responsibilities: shared between state and other public actors.	Principle responsibilities: shared between state and public regional wellbeing services counties (WBSC).	Principle responsibilities: shared between state, SHI system and local authorities.	Principle responsibilities: state actors.	Principle responsibilities: shared between the state and regional and local authorities.	Principle responsibilities: shared between state and Local Public Authorities.	Principle responsibilities: shared between state and other public actors.
Financing source(s)				Financing: compulsory SHI contributions from employers and employees, government transfers.			
Service provider(s) and payer(s)	Financing: statutory health insurance contributions.	Financing: revenues from state taxation and statutory NHI contributions.	Financing: revenues from income taxation, other taxation and statutory SHI contributions.		Financing: national and regional taxation.	Financing: statutory health insurance contributions and state budget transfers.	Financing: compulsory SHI contributions from employees and employers, state contributions.
Governance (main governing bodies)	Service providers: State Health Services Organisation (public services) and contracted private providers. Health Insurance Organization acts as a single public payer of services from public and private providers. Governance: MoH (regulating the system), The Health Insurance Organisation (administering the Health Insurance Fund), Health	Service providers: WBSCs (public services, either self-provided or outsourced to private providers), Social Insurance Institution nominally purchases the services partly covered by NHI reimbursements: occupational healthcare, private healthcare and higher education students' non-profit healthcare.	Service providers: private for-profit, private non-profit and public providers which the SHI scheme reimburses. Governance: MoH, government (national management and regulation, health policy, healthcare expenditure, financing and provision), regional health authorities (managing health	Service providers: National Health Insurance Fund (NEAK) is a single public payer of services from public and private providers. Governance: Ministry of Interior (strategic planning, controlling finances, regulating and determining the benefits package, administering the health system through the	Service providers: regions through local health authorities, either providing them directly or buying them from private providers and hospital trusts. Governance: central government, including the MoH (overall stewardship of the system, defining health policy, national benefits package and per capita budget, negotiations with the regions to set a	Service providers: National Health Insurance Company (NHIC) is a single public payer of services from public and private providers. Governance: MoH (health policy, legislation, public emergency care and tertiary level services), Other state authorities (managing, regulating and supervising health	Service providers: District Health Insurance Houses buy services at local level from public and private providers, MoH buys services under national programmes, provided by districts and the capital. Governance: MoH (primary responsibility for healthcare, including general management, SHI

	Cyprus	Finland	France	Hungary	Italy	Moldova	Romania
	Insurance Fund (responsibility for the financial operation of the system), The State Healthcare Services Organisation (responsibility for the public facilities).	Governance: The Government and Ministry of Social Affairs and Health (steering the health system, control over the NHI, budget, legislation), WBSCs (self-governing public organizations in their region, need to negotiate with ministries and collaborative areas).	care provision at their level), SHI (responsibility of the funds, negotiating with healthcare providers).	National Directorate General for Hospitals (OKFŐ), OKFŐ (managing state-owned medical facilities, organizing certain economic matters, and medical licensing), NEAK (budget, financing, planning of healthcare).	formula for the financing of the regions), Regions (legislative and executive power, financing, planning and providing services through local health authorities).	services and related issues such as medicines), NHIC (responsibility of the health insurance and managing the costs, volume and quality of contracted services), Local Public Authorities (developing and maintaining public facilities in their areas. Steering and budget responsibility is at administrative councils with stakeholder representatives).	scheme, health policy, regulation), National Health Insurance House (administering and regulating the health system and collected funds in National Health Insurance Funds, financing of the services), District Public Health Authorities and District Health Insurance Houses (local representation of the Ministry and NHIH).
Health expenditure¹							
Main sources of financing, % of total expenditure:	Government and compulsory schemes, total 74.9	Government and compulsory schemes, total 79.1	Government and compulsory schemes, total 84.8	Government and compulsory schemes, total 70.8	Government and compulsory schemes, total 75.9	Government and compulsory schemes, total 65.5	Government and compulsory schemes, total 80.3
Government and compulsory schemes, total	Government 33.1	Government 65.5	Government 5.5	Government 11.7	Government 75.8	Government 5.1	Government 17.5
of which Government scheme	Compulsory contributory health insurance 41.1	Compulsory contributory health insurance 13.6	Compulsory contributory health insurance 79.3	Compulsory contributory health insurance 59.1	Compulsory contributory health insurance 0.2	Compulsory contributory health insurance 60.3	Compulsory contributory health insurance 62.7
	VHI: 4.5	VHI: 4.5			VHI 2.6	VHI 3.6	VHI 0.7

	Cyprus	Finland	France	Hungary	Italy	Moldova	Romania
Compulsory contributory health insurance scheme*	VHI 7.4	OOP: 16.5	VHI: 6.4	VHI 3.1	OOP 21.5	OOP 30.9	OOP 19.0
	OOP 17.8	% GDP: 9.6	OOP: 8.8	OOP 26.1	% GDP: 9.6		% GDP: 6.2
	% GDP: 8.4		% GDP: 12.1	% GDP: 7.3		% GDP: 6.8	
Voluntary health insurance expenditure (VHI)							
Out-of-pocket expenditure (OOP)							
Health expenditure, as % of GDP							
Health services delivery							
Primary, specialist and inpatient care providers	Primary care: mainly private personal doctors' practices in health centres and hospitals, and public healthcare centres.	Public WBSCs: primary care in local health centres (GPs, nurses, other professionals) (public or private), specialist care in outpatient departments of hospitals or larger health centres, inpatient care in public hospitals.	Primary care: private GPs and nurses' solo and group practices, public healthcare centres, public and private non-profit and for-profit hospitals' emergency walk-in centres.	Primary care: family doctors' private solo practices. Specialist care: mostly public hospitals and medical facilities. Inpatient care: mostly public hospitals.	Primary care: GP's private solo practices. Specialist care: mostly public outpatient care facilities, and public and private mainly for-profit hospitals. Inpatient care: public and private mainly for-profit hospitals.	Primary care: mostly public (some private) family doctor offices and health offices (rural areas), large family care centres in urban areas. Specialist and inpatient care: public republican, district, municipal and tertiary level hospitals, private health centres.	Primary care: family doctors' mostly private solo practices. Specialist care: mostly public hospital outpatient departments and mostly private specialist clinics, centres and solo specialist physician offices. Inpatient care: public and private hospitals.
Doctors' gatekeeping in the public system	Specialist care: mainly private specialist doctors' practices in medical centers and hospital departments.	Private healthcare: primary and specialized care in ambulatory settings,	Specialist care: private specialist doctors' group and solo practices, public healthcare centres, private	Gatekeeping: partly, family doctor referral for certain specialized care is mandatory	Gatekeeping: yes, GPs' referrals to specialist care.		
Choice of provider: yes/no							
Technology-use in the service provision							

Cyprus	Finland	France	Hungary	Italy	Moldova	Romania
<p>Inpatient care: state and private hospitals.</p> <p>Gatekeeping: yes, non-mandatory referral to specialist care. Access to services requires registering with a personal doctor.</p> <p>Choice of provider: yes, all services</p> <p>Technology: fully e-based operations, including communication, referrals, and prescriptions via IT-system.</p>	<p>some private hospitals. Occupational healthcare: primary and specialized care in mostly private ambulatory settings.</p> <p>Gatekeeping: yes, access to specialist care via doctors in public and occupational care. No gatekeeping in the private system.</p> <p>Choice of provider: limited within the public WBSCs' services (primary care and hospital care facility can be chosen within the publicly funded facilities). Non-existent in occupational care. Usually free choice in private care.</p> <p>Technology: electronic prescribing, national information system (patient</p>	<p>and public hospitals' outpatient departments. Inpatient care: public and private non-profit and for-profit hospitals.</p> <p>Gatekeeping: partly, non-mandatory referral to specialist care.</p> <p>Choice of provider: Yes, in all services.</p> <p>Technology: one national eHealth platform, e-prescriptions, health-related data, telehealth.</p>	<p>to attain the care for free, as without a referral, there are user-fees. Some specialized care can be attained without a referral.</p> <p>Choice of provider: yes, can choose a family doctor and a physician in hospital and specialist care.</p> <p>Technology: electronic health records in healthcare facilities, national health information system for patients and professionals for accessing patient information, telehealth, online services.</p>	<p>Choice of provider: yes, can choose a GP within one's region and a specialist care facility.</p> <p>Technology: health information system for patients (online booking, certificates, telemedicine, prescriptions), national e-prescriptions for medicines and some for referrals for outpatient visits.</p>	<p>Gatekeeping: yes, access to specialist and further care is free with family doctors' referrals. Obligation to register to a family doctor to access services.</p> <p>Choice of provider: partly, free choice of primary care provider with an expectation to register with a family doctor in the nearest facility.</p> <p>Technology: in its first stages of development. Telemedicine, diagnostic testing system, e-registration for family doctors and registration database.</p>	<p>Gatekeeping: partly, access to certain specialist care needs a family doctor referral gatekeeping by family doctor but for certain conditions specialists can be accessed directly.</p> <p>Choice of provider: partly, free choice of a family doctor.</p> <p>Technology: progressing. National health insurance card, electronic prescribing, telemedicine and electronic reporting of patient information.</p>

	Cyprus	Finland	France	Hungary	Italy	Moldova	Romania
		information, prescriptions, platform for service users), regional service provider patient records and IT systems, digital services and consultations.					
Health coverage							
Right to services	Right to services: all legal residents, refugees, and asylum seekers.	Right to services: all permanent residents are covered (asylum seekers and undocumented migrants have access to limited services).	Right to services: whole population based on residence, essential care for undocumented migrants.	Right to services: benefits package for those paying SHI contributions. Around 95% are insured. Emergency care is for everyone regardless of the insurance status free of charge.	Right to services: all legal residents.	Right to services: public service package is for those paying the health insurance contributions (87.7% in 2021).	Right to services: public service package is for those paying the health insurance contributions (around 89% in 2017).
Extensiveness of the services	Extensiveness of the services: Outpatient care services (personal and specialist doctor, allied health professionals), preventive dental care, diagnostic tests, emergency care, ambulance services, inpatient care, palliative care, rehabilitation services, medicines.	Extensiveness of the services: outpatient health counselling and checks, mental health services, dental care, diagnostic tests, emergency care, inpatient care, medical rehabilitation services, palliative care, NHI reimbursements for	Extensiveness of the services: outpatient consultations (physicians, midwives, allied health professionals), basic dental care, diagnostic tests, emergency care, inpatient care, rehabilitation services, palliative care, medicines, medical devices, transportation.	Extensiveness of the services: public benefits package includes primary and specialist care in ambulatory and inpatient settings, medicines, medical devices, dental care.	Extensiveness of the services: primary, specialist and inpatient care, medicines, some curative dental care, diagnostics and laboratory tests, therapeutics, rehabilitation, emergency care, palliative care.	Extensiveness of the services: primary healthcare is for everyone free of charge: emergency care, primary care visits, medicines and inpatient care for certain diseases. Public benefits package: outpatient and inpatient care, certain prescribed outpatient medicines,	Extensiveness of the services: minimum benefits package for all (life-threatening emergencies, infectious diseases, pregnancy care). Public benefits package: nearly all outpatient and inpatient care, additional emergency care, some dental care, certain rehabilitation care,
Co-payments in the services and goods					Co-payments: in outpatient specialist visits, dental care, non-urgent emergency care, diagnostic and laboratory tests, outpatient medicines.		
Protective measures							

	Cyprus	Finland	France	Hungary	Italy	Moldova	Romania
	<p>services, fixed prices.</p> <p>Protective measures: some payment exemptions, annual cumulative cap, less for low-income people and children.</p>	<p>medicines, travel costs and certain private health, dental services.</p> <p>Co-payments: apply in most services (except in occupational care), fixed prices.</p> <p>Protective measures: annual cost ceilings separate for health services, prescription medicines and travel costs (children included within one parent's ceiling).</p>	<p>Co-payments: apply in most services. Fixed prices.</p> <p>Protective measures: payment exemptions for low-income people and children, capping system with per service, per day and annual caps, additional insurance schemes for very low income and chronically ill people.</p>	<p>Co-payments: apply especially in outpatient medicines, also in dental care and rehabilitation services. Informal payments in many services.</p> <p>Protective measures: exemptions for medicine and medical devices costs, rehabilitation, diagnostic and many therapeutic services for certain vulnerable people. Dental care, outpatient and inpatient preventive care free for children.</p>	<p>Protective measures: several exemption categories (e.g., age, income, certain diseases, maternity) but no overall annual cap or other major financial protection mechanisms.</p>	<p>emergency dental care, certain dental care for children and pregnant women.</p> <p>Co-payments: especially in medicines and dental care. Informal payments are prevalent especially in hospitals.</p> <p>Protective measures: no exemptions or protective measures on user-fees.</p>	<p>some home healthcare services such as palliative care, prescribed medicines, medical devices, medical transportation.</p> <p>Co-payments: in inpatient and rehabilitation care, dental care and medicines. Informal payments are believed to be substantial.</p> <p>Protective measures: exemptions in inpatient care for around 60% of the people (children, certain youth and vulnerable people).</p>
Health workforce							
Number of practicing physicians/1000 persons²	Number of practicing physicians: 3.1	Number of practicing physicians: 3.8	Number of practicing physicians: 3.2	Number of practicing physicians: 3.1	Number of practicing physicians: 4.0	Number of practicing physicians: 3.8	Number of practicing physicians: 3.3
Number of practising nurses	Number of practising nurses: 3.9	Number of practising nurses: 13.2	Number of practising nurses: 9.3	Number of practising nurses: 6.6	Number of practising nurses: 6.3	Number of practising nurses: 7.3	Number of practising nurses: 7.7

	Cyprus	Finland	France	Hungary	Italy	Moldova	Romania
nurses/1000 persons²	Nurses' roles: limited task-shifting, limited prescription rights for APNs.	Nurses' roles: extensive task-shifting, limited prescription rights for registered nurses.	Nurses' roles: limited task-shifting, limited prescription rights for APNs.	Nurses' roles: limited, no prescription rights.	Nurses' roles: limited, no prescription rights.	Nurses' roles: no/limited task-shifting, not enough information on the topic. No prescription rights for nurses.	Nurses' roles: no task-shifting, no prescription rights for nurses.
Nurses' roles: task-shifting³ from physicians to nurses (extensive, limited, no task-shifting), including prescription rights							

Table 4: The main features of the OASES countries' health service systems

APN=advanced practice nurse, GDP=gross domestic product, GP=general practitioner, MoH=Ministry of Health, OOP=out-of-pocket cost, SHI=social health insurance, VHI=voluntary health insurance.

¹: Health expenditure data is from Eurostat (2023) except Moldova from WHO (2024). Data refer to year 2020. Compulsory contributory health insurance includes compulsory medical savings accounts. VHI includes other voluntary healthcare prepayment schemes than just voluntary health insurance schemes.

*Government and compulsory contributory health insurance scheme expenditure does not fully match in all countries; hence, the numbers should be interpreted as indicative.

²: Data refer to year 2020 except to year 2019 for Cyprus. The numbers are gotten by taking head count practicing doctors and practicing nurses who are in direct contact with patients (or best match from France and Finland) from WHO (2023b) and WHO (2023c) and divided with population count (World Bank 2024). EU average is counted by country, including data from 2020 or latest year. Due to missing or old data, the data about nurses in France is from DREES (2023), and the data about nurses and physicians in Finland is from THL (2023a). The data might have discrepancies due to multiple sources and varying data collection and reporting methods.

³: task-shifting composes of implementation and extent of official practice assessed by seven clinical activities in year 2015 by Maier & Aiken (2016a), complemented with additional sources: prescriptive authority, medical diagnoses/advanced health assessments, ordering tests, medical treatment, responsibility for a panel of patients, referrals and first point of contact. Extensive= 7 actions, Limited= 2-6 actions, No task-shifting= 0-1 actions

5.1 Cyprus

Cyprus is a south-eastern European country, whose population size, according to World Bank (2024a), was 1,237,537 in 2020. Life expectancy in Cyprus is among the highest in Europe, being 82.3 years in 2020, which is above the EU average of 80.6 years (OECD 2021a, 4). Gender gaps in life expectancy are smaller than in most other countries across the EU; Cypriot women live around four years longer than men (OECD 2021a, 4). Gross domestic product per capita¹ was €25,790 in 2020, below the EU average of €29,801. Relative poverty rate, however, is less common in Cyprus than in the EU in general. The percentage of persons living with less than 60% of median equivalised disposable income was at 14.7 percent, compared to EU 16.5% in 2019 (OECD 2021a, 2).

Organization. The health service system in Cyprus has been a universal General Healthcare system since June 2019 after a major health system reform that unified a previously fragmented system (OECD 2021a, 7). The General Healthcare system is a blended model, incorporating both National Health Service and Social Health Insurance elements (OECD 2023a, 9) with state governance, health insurance financing and uniform access to all citizens (see chapter 4). The health system is implemented by a public legal entity, Health Insurance Organisation that acts as a single payer of services from both public and private providers (OECD 2021a, 7), and the citizens have a freedom to choose their service providers from the public and private providers (Petrou 2021). The public health services provider, tantamount with private providers, is the State Health Services Organisation (Petrou 2021).

Governance. Different public actors regulate the healthcare system in Cyprus. Ministry of Health has the overall regulating responsibility for the health system. The Health Insurance Organisation administers Health Insurance Fund where state revenues and contributions, levied through wages, incomes and pensions, are collected (Gesys 2022a; OECD 2023a, 9). Health Insurance Fund is responsible for the financial operation of the system (Petrou 2021). The State Healthcare Services Organisation is responsible for the development, management, control and supervision of hospitals and health centres in the public sector (OECD 2023a, 9).

Health expenditure. Cyprus spends less on health than the EU on average: 8.4% of GDP was directed towards health in 2020, compared to the EU average 10.9 % (Eurostat 2023; table 4). Of the total health expenditure, in the year 2020, 74.9% were government and compulsory schemes (government 33.1%, and compulsory contributory health insurance 41.1% of the total health expenditure), when out-of-pocket (OOP) costs constituted of 17.8%. The share of government and compulsory spending has increased, and the OOP costs have declined notably after the introduction of the General Healthcare system. However, OOP costs remain above EU average of 14.4%. Also, voluntary health insurance's share of the total spending remains higher in Cyprus than in the EU: 7.4 % and 4.4%, respectively, in 2020 (Eurostat 2023; table 4).

¹ Reported as purchasing power parity (PPP), which is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

Health services delivery. Health services delivery is a mix of public and private services in which beneficiaries can choose from (Gesys s.a.). Primary care is delivered by mostly private personal doctors' practices (OECD 2021a, 9-10) in health centres and hospitals (Gesys 2023) and public healthcare centres (Samoutis & Tedeschi 2015, 33). Specialist care is delivered by, again, mostly private specialist doctors' practices in medical centers and hospital departments (Gesys 2023). Inpatient care is provided by state and private hospitals (Petrou 2021).

Personal doctors (PD) have a gatekeeping role in the healthcare system (Petrou 2021). PDs are usually the first contact point of the health system providing primary healthcare services, and they guide and refer beneficiaries to more specialised outpatient specialist services, for example specialist doctors, when needed (Petrou 2021; Gesys s.a.). In addition, access to services in the first place requires a registration in a personal doctor list (Health Insurance Organisation 2022a). However, referral is not mandatory in order to access specialist services, but the cost without a referral rises exponentially from 6 to 25 euro (Petrou 2021).

Digital IT-services are in the centre of the health care system, as its operation is fully e-based (Petrou 2021). Starting from beneficiary enrolment and PD list registry (Health Insurance Organisation 2022b) to personal information access, referrals and prescriptions, submission of claims, medical audit, implementation of protocols, communication across providers and beneficiaries, and audit control can all be concluded through the information technology system (Petrou 2021).

Health coverage. The General Healthcare System covers the whole population: all legal residents and refugees and asylum seekers (Petrou 2021; OECD 2021a, 14). The provided services within the healthcare system are outpatient care services (personal and specialist doctor, allied health professionals), preventive dental care, diagnostic tests, emergency care, ambulance services, inpatient care, palliative care, rehabilitation services and medicines (OECD 2021a, 10; Gesys s.a.).

Co-payments apply to most services with fixed prices, though some exemptions apply (OECD 2021a, 16). The cost of services ranged from €1–10 per visit, procedure or medicine in 2021 (the fee of €25 applied to specialist visits without a referral) (Petrou 2021). Personal doctor and inpatient healthcare are free of charge (Gesys s.a.). Annual cumulative cap for the services is also present with a maximum amount being €150 per person and €75 for children and low-income people in 2021 (Petrou 2021).

Health personnel. The number of practicing physicians was 3.1 per 1,000 people in 2019, below the EU average of 3.7 per 1,000. When it comes to nurses, the number is well below: there were 3.9 practicing nurses per 1,000 persons in 2019, compared to EU average 8.2/1,000. The similar numbers of physicians and nurses reflect the central role of doctors in the system. Task-shifting from doctors to nurses is limited; nurses can limitedly order medical tests, provide treatment and diagnosis under physician oversight, serve as the first point of contact (Maier & Aiken 2016a; Maier & Aiken 2016b) and prescribe a limited set of medicines (Maier 2019). The nurses that can be entitled to the prescription right are advanced practice

nurses who have a master's degree with certain specialization, and they need an authorization from competent authority (Maier 2019).

5.2 Finland

Finland is a country located in northern Europe. Its population size was 5,529,543 in 2020 (World Bank 2024a). Life expectancy in Finland is over the EU average, standing at 82.2 years in 2020, whereas the EU average was 80.6 years (OECD 2021b, 4). Gender gaps in life expectancy are, however, notable, levelling with the EU average of women living 5.6 years longer than men (OECD 2021b, 4). Gross domestic product per capita² in Finland is above the EU average, being €33,949 in 2020, compared to €29,801 in the EU. Relative poverty is less common in Finland compared to other European countries, as in Finland the percentage of persons living with less than 60% of median equivalised disposable income was 11.6% in 2019, compared to EU 16.5%.

Organization. The Finnish health service system is close to the ideal type of the National Health Service model, based on publicly financed and regulated and mainly publicly provided health services for all residents (STM 2023a; Tynkkynen et al 2023, 3, 4; see also chapter 4.1). The health system is financed by national tax-based mechanism (Keskimäki et al. 2019, 42) but also statutory National Health Insurance (NHI) scheme, which is funded by employees' income-based contributions, employers' expenditure to an occupational health care scheme and the state (Keskimäki et al. 2019, 21; Tynkkynen et al. 2023, 5).

A major and comprehensive reform in health and social services organizations was implemented in January 2023 (Tynkkynen et al. 2023, 3). The responsibility for organizing health care, social care and rescue services was transferred from municipalities to 22 self-governing wellbeing services counties (WBSC) including the city of Helsinki, the Hospital District of Helsinki and Uusimaa, and five collaborative areas (Tynkkynen et al. 2023, 3-4). The WBSCs are responsible for primary and secondary care, and the Hospital District of Helsinki and Uusimaa and the collaborative areas are responsible for specialized care (Tynkkynen et al. 2023, 3-4; Tikkanen et al. 2023). The services can either be self-provided or outsourced to the private market (Tynkkynen et al. 2023, 8; Tikkanen et al. 2023). The WBSCs get their funding from government's transfers based on a formula that considers the demographics and morbidity in the counties (Holster et al. 2022a; Tynkkynen et al. 2023, 5). In addition to the public services by WBSCs, other parallel provision channels for healthcare services exist. These are partly publicly financed by the NHI scheme: occupational health care scheme for most employees, private services and higher education students' non-profit Finnish Students Health Service system (Keskimäki et al. 2019, 21, 60, 62; Tynkkynen et al. 2023, 4).

Governance. The role of the central government is to legislate and steer the health system, including recommendations for the wellbeing services counties about service organization (Keskimäki et al. 2019, 28; Tynkkynen et al. 2023, 4). Ministry of Social Affairs and Health is responsible for national level planning and steering, the NHI scheme and preparing

² Reported as purchasing power parity (PPP), which is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

legislation, general policy guidelines and budget (Keskimäki et al. 2019, 17; Tynkkynen et al. 2023, 4). Other national authorities under the Ministry regulate and supervise health services, pharmaceutical products and health professionals at national and regional levels (Keskimäki et al. 2019, 28, Tynkkynen et al. 2023, 4, STM 2023a). At regional level the WBSCs have autonomy in organizing the services but they need to agree on the distribution of work within their collaborative area and to negotiate about finances and service delivery with ministries (Tynkkynen et al. 2023, 3-4).

Health expenditure. Finland spends less on healthcare services than EU in general; Finland spent 9.6% of GDP in 2020, whereas the EU average was 10.9% (Eurostat 2023; table 4). Government and compulsory financing schemes totalled at 79,1% of the health expenditure, of which government spending's share was 65.5% and compulsory contributory health insurance 13.6%. Voluntary health insurance's relatively minor role, accounting for 4.5% of the total health spending, is close to the EU average of 4.4%. Out-of-pocket payments accounted for 16.5 % of the total health expenditure in 2020, which exceeds the EU average of 14.4% (Eurostat 2023; table 4).

Health services delivery. When it comes to the delivery of care, there are three parallel systems in Finland (Tynkkynen et al 2023, 4). The predominant health system is the public Wellbeing Services Counties' system for all residents in all levels of care (Tynkkynen et al 2023, 4). Primary care is provided in local health centres by general practitioners, nurses and other professionals, specialized care is provided in outpatient departments of hospitals or larger health centres, and inpatient care in public hospitals (Keskimäki et al. 2019, 97; Tynkkynen et al 2023, 10-11). Within the WBSCs' services, beneficiaries can choose their health care provider facility among other public providers in primary and hospital care (Keskimäki et al. 2019, 38).

The second system is the private sector mostly providing primary and specialist services in ambulatory settings, but also some private hospitals exist (Tynkkynen et al 2023, 4, 11). In self-paid private services, care providers can be freely chosen (Keskimäki et al. 2019, 37).

The third system is occupational health care which is available for employees whose employers are statutorily obliged to provide occupational health care, although only preventive services are obligatory (Keskimäki et al. 2019, 37). The services are mostly ambulatory primary and specialist services mainly bought from private providers (Tynkkynen et al 2023, 4, 8). Service providers are determined by the employer (Keskimäki et al. 2019, 37-38).

The Finnish health system has a strong gatekeeping system by general practitioners who control the access to specialist level services (Keskimäki et al. 2019, 97) in public and occupational healthcare, whereas in private services specialists can be accessed directly (Keskimäki et al. 2019, 38).

Technology is used in healthcare services and its use is developing (Tynkkynen et al. 2023, 10). Digital services and (tele)consultations are used increasingly in healthcare services,

especially as a consequence of the Covid-19 pandemic (Keskimäki 103; OECD 2021b, 15). Electronic prescribing has become the only method of prescribing except in cases of technical failure and emergency (Tynkkynen et al. 2023, 12). When it comes to the information systems used in the healthcare service facilities, different IT systems are used in regional and local levels. However, a national information system is in use which includes patient information, prescriptions and a platform for service users (Keskimäki et al. 2019, 27).

Health coverage. All permanent residents in Finland are covered for public health care services (Keskimäki et al. 2019, 52). When it comes to asylum seekers and undocumented migrants, the situation is different. Asylum seekers can access care through reception centres (Keskimäki et al. 2019, 52), and undocumented migrants have access to urgent care (Tynkkynen et al. 2023, 7). The covered services within the public health system are a wide range of preventive and curative services (Keskimäki et al. 2019, 53). The services include outpatient health counselling and health checks for adults and children, social services, services for substance abusers, (Finlex 2010), mental health care, dental care (prevention, care and specialist services), inpatient care, (Tynkkynen et al. 2023, 11-12), emergency care, (STM 2023b) and medical rehabilitation services (Keskimäki et al. 2019, 53).

As part of the public coverage, National Health Insurance scheme reimburses partly the costs for outpatient prescription medicines, travel costs to healthcare and certain private sector health and dental services (Keskimäki et al. 2019, 21, 53; Tynkkynen et al. 2023, 5, 7). In private care the reimbursement rate from the NHI is small, so patients need to pay extensive user-fees or access these services via private insurance (Keskimäki et al. 2019, 37). The covered services vary in occupational care as employers choose whether they include only work-related preventive services or provide additional curative primary healthcare services or even specialist services (Holster et al. 2022b).

Co-payments also exist in most services in public care, whereas there are no user fees in occupational care (OECD 2021b, 14; Keskimäki et al. 2019, 55). Some mechanisms for financial protection exist: certain exemptions for children and treatment of specific conditions, and an option to apply for income assistance for people with very low income (Tynkkynen et al. 2023, 7). Annual cost ceilings exist but are set at high level: in 2022 the ceiling was €692 for health services, €592 for prescription medicines and €300 for travel costs per person (children included within one parent's ceiling) (Tynkkynen et al. 2023, 7).

Health personnel. The number of practicing physicians in Finland was 3.8 per 1,000 inhabitants in 2020, which is a little over the EU average of 3.7 physicians. The number of nurses, in turn, was 13.2 per 1,000 inhabitants in 2020, which is considerable higher compared to EU average of 8.2/1,000 inhabitants. In addition, the Finnish healthcare system includes practical nurses and nurse assistants who do less demanding tasks than registered nurses, but they are not included in the numbers above.

The high number of nurses and lower number of physicians suggests a broad task division, and Finland is a country with extensive task-shifting from physicians to nurses (Maier & Aiken 2016a). Nurses can have a broad responsibility of a panel of patients, they can execute

medical treatments and act as a first point of contact (Maier & Aiken 2016a). Thus, nurses have a significant role in providing first-contact care; consultations with nurses partly substitute for consultations with doctors (OECD 2021b, 11) and nurse consultations cover around half of the outpatient ambulatory appointments in public health centres (Keskimäki et al. 2019, 86; THL 2023b). The consultations nurses do are for acute and chronic health conditions and in outpatient services (OECD 2021b, 10). Also, nurses' role can include care coordination in primary care and advanced roles in operating theatres (OECD 2021b, 10), limited advanced health assessment and medical tests ordering (Maier & Aiken 2016a; Maier & Aiken 2016b). Lastly, nurses who have sufficient practical experience and have completed an additional training, can prescribe for common conditions (Keskimäki et al. 2019, 86).

5.3 France

France is a country in Western Europe, which is the second most populous country in Europe with 67,571,107 inhabitants (Or et al. 2023, 5-6; World Bank 2024a). Life expectancy in France is among the highest in the EU: 82.3 years in 2020, exceeding the EU average of 80.6 years, despite the Covid-19 pandemic related reduction (OECD 2021c, 4). Gender gaps exist in the life expectancy as women's life expectancy is longer than men's – a difference of 5.8 years, greater than the EU average of 5.4 years (Or et al. 2023, 8). In France, GDP per capita³ was €31,091 in 2020, which exceeds the EU average of €29,801 (OECD 2021c, 2). The share of the population living below the poverty level was 13,6% in 2019, defined as 60% of the country's median equivalised disposable income, is lower than the EU average of 16.5% (OECD 2021c, 2).

Organization. The French healthcare system is a Social Health Insurance (SHI) model, more precisely the Etatist SHI model with financing organized by SHI system and a strong role for the state in the regulation of the system (OECD 2021c, 8; Or et al. 2023, 14-15; see also chapter 4). The French healthcare system has historically been as well close to the state-run National health services model, which is illustrated by the increasing importance of tax-based revenue for financing health care (Or et al. 2023, 12). Revenues for the healthcare system come from income taxes, other taxes including tobacco and alcohol, statutory social health insurance contributions paid by employers and employees, and a small contribution from the national government (OECD 2021c, 9; Or et al. 2023, 49).

Governance. Main governing bodies of the system are the State, the SHI and local authorities (départements) (Or et al. 2023, 14). State has the strongest role in the regulation of the health system (Or et al. 2023, 29). The parliament sets an annual national health spending target (OECD 2021c, 8; Or et al. 2023, 16), including separate targets for public and private and different care sectors within which the SHI funds are asked to maintain spending (Or et al. 2023, 61). The Ministry of Health has substantial control over the health system preparing and implementing policies regarding the health system and controlling the regulation of healthcare expenditures (Or et al. 2023, 17, 21). Under the state operate autonomous

³ Reported as purchasing power parity (PPP), which is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

regional health authorities that manage health care provision at regional level (OECD 2021c, 8; Or et al. 2023, 23).

Local authorities are responsible for implementing regional policies, supporting local actors and overseeing some non-medical care institutions and health promotion activities (Or et al. 2023, 14, 24). Planning and regulation of the healthcare system involves negotiations among healthcare provider representatives (professional organizations), the State and the SHI (Or et al. 2023, 13, 20-21, 28). The SHI schemes, in turn, are federated into a national union of health insurance funds to represent the funds in negotiations with the private and public healthcare providers of whom the services are bought (Or et al. 2023, 12, 20).

Health expenditure. France spends a high proportion of its national income on healthcare (Or et al. 2023, 43). The health spendings were accountable for 12.1% of the GDP, exceeding the EU average of 10.9% in 2020 (Eurostat 2023; table 4). Government and compulsory schemes totalled at 84.8% of the total health spending in 2020 (government spendings 5.5%, compulsory contributory health insurance 79.3%). Voluntary health insurance is a common feature in the French healthcare system (Or et al. 2023, 52); voluntary health insurance costs were 6.4% of the total health expenditure, which is more than the EU average of 4.4% in 2020. Out-of-pocket expenditure, on the contrary, is lower than the EU average; 8.8% of the total health expenditure in France, and 14.4% in the EU in 2020 (Eurostat 2023; table 4).

Health services delivery. Health services delivery in France is fragmented across providers in different care segments. The healthcare system is hospital-centric, but reforms have been made to strengthen the role of primary care and integration between primary, ambulatory and hospital care (Or et al. 2023, 115, 125).

There is a non-mandatory gatekeeping system in place. The insured are encouraged, with a notably more comprehensive reimbursement rate (70% vs. 30%), to choose a referring doctor (a GP or a specialist) before visiting a specialist doctor. However, this does not apply to children and for certain specialists (Or et al. 2023, 125). The insured have the freedom to choose their healthcare providers from private or public sector (Or et al. 2023, 125).

Primary care is predominantly provided by GPs, but also by some medical specialists and allied health professionals such as nurses, midwives and physiotherapists (Or et al. 2023, 127, 129). Primary care is delivered in private GPs and nurses' solo and group practices, public healthcare centres and in public and private hospitals' emergency walk-in centres (Or et al. 2023, 127-128, 130, 134-135). Specialized care is provided in ambulatory settings by specialist doctors' services in private group or solo practices and healthcare centres and hospitals' outpatient departments. (Or et al. 2023, 131). Inpatient care is provided in private and public hospitals (Or et al. 2023, 127, 133).

Technology-use in the French healthcare system is in the development (Or et al. 2023, 85). Recent priorities have been the integration of different eHealth systems used by different professional into one national platform, improved patient access to eHealth systems, and to

develop generalized e-prescriptions at the national level by 2024 (Or et al. 2023, 96). Covid-19 pandemic further accelerated the development: the use of teleconsultations increased during the pandemic and new regulations were introduced to support its use (OECD 2021c, 16).

Health coverage. Whole population is covered by the various health insurance schemes, coverage being based on residence (OECD 2021c, 10). A fully state-funded scheme provides access to essential care for undocumented migrants (OECD 2021c, 10). The health care benefits package covers a comprehensive range of goods and services: outpatient consultations (physicians, midwives, physician-prescribed care by allied health professionals), basic dental care, diagnostic tests, emergency care, inpatient care, rehabilitation care, palliative care and other services prescribed by doctors, such as medicines, medical devices and healthcare-related transportation (OECD 2021c, 15; Or et al. 2023, 54, 65, 78, 134, 148).

Co-payments in healthcare are considerable as user charges exist in almost all health services and goods (Or et al. 2023, 56). Hence most French people have a private complementary health insurance (Or et al. 2023, 52). Co-payments are fixed rates, same for all beneficiaries. The co-payments are 30% in ambulatory visits, around 20% in hospital care and 15-100% in medicines (Or et al. 2023, 56). Besides these, other flat rates ranging from €0,5 to €24 (medicine package and outpatient services/interventions costs above €120, consequently, in 2021 prices) apply (Or et al. 2023, 65). To limit financial costs to individuals a complex capping system with per service, per day and annual caps exists (Or et al. 2023, 65). Other protective measures are also in place which include additional insurance schemes covering costs for people with chronic illnesses and very low-income (Or et al. 2023, 57).

Health personnel. France has a relatively high number of nurses in relation to physicians (Or et al. 2023, 99). In 2020 there were 3.2 doctors per 1,000 population, compared to 3.7/1,000 across the EU. The number of nurses in France was 9.3 per 1000 in 2020 – above the EU average of 8.2 per 1000. Task-shifting from physicians to nurses is limited in France when compared to other European countries (Or et al. 2023, 129; Maier and Aiken 2016a), but actions have been made to improve it. Nurses can have a limited responsibility of a panel of patients (patients with chronic conditions) (Maier & Aiken 2016a; Maier & Aiken 2016b) and advance practice nurses (a new profession from 2018 onwards) can have a right to renew medical prescriptions to their patients and have broader tasks in primary care (Maier 2019; Or et al. 2023, 106-107). Other attempts to promote task-shifting have also been made by, for example, pilot projects where nurses are allowed to perform procedures that are typically GPs' tasks (Or et al. 2023, 106).

5.4 Hungary

Hungary is a country located in central Europe. Hungary's population consisted of 9,750,149 inhabitants in 2020 (World Bank 2024a). Life expectancy in Hungary has been growing, but it remains lower than the EU average. Life expectancy in Hungary was 75.7 years in 2020, which is nearly 5 years below the EU average of 80.6 years (OECD 2021d, 4). Gender gaps in life expectancy are significant in Hungary, as women live almost seven years longer than men, which is more than the EU average gap of around 5.5 years (OECD 2021b, 4; OECD 2021f, 4).

Gross domestic product per capita⁴ in Hungary was €22,103 in 2020, which is less than in the EU on average (€29,801) (OECD 2021f, 2). Wealth seems, however, be divided more equally in Hungary as relative poverty rate is lower than in the EU in general; in Hungary, the percentage of persons living with less than 60% of median equivalised disposable income was 12.3, whereas it was 16.5 in the EU (OECD 2021f, 2).

Organization. The Hungarian healthcare system has been classified as Reformed hybrid model with Social Health Insurance and tax-based funding (see chapter 4.3). After a reform in 2011 the Hungarian system has moved towards a state-based National Health Service model (Dózsa et al. 2019) with strong state-influence in the regulation of the system and state's role in the provision of the services (WHO 2023d). Hungary has a compulsory national SHI system funded by payroll contributions from employers and employees, and direct government transfers covering around one fifth of the public spending (OECD 2021d, 9; WHO 2023d; table 4). A single health insurance fund, administered by the government organization National Health Insurance Fund (NEAK), provides health care coverage for nearly all residents, acting as a single payer of the services (OECD 2021d, 8, 10; Egészségvonal 2022b; WHO 2023d; TEHDAS consortium 2023, 1).

Governance. The Hungarian health system is nowadays highly centralized under the state (OECD 2021d, 8). The Ministry of Interior has exclusive power for strategic planning, controlling finances, regulating and determining the benefits package of the health system (OECD 2021d, 8). The Ministry administers the health system through the National Directorate General for Hospitals (OKFŐ), whose responsibilities include maintaining and managing state-owned hospitals and medical institutions, organizing certain economic matters regarding medical institutions, and allocating medical licensing (Egészségvonal 2022a; WHO 2023d). The National Health Insurance Fund (NEAK) also operates under the direct control of the Ministry and thus the government controls the budget for each health service provider through it (OECD 2021d, 8, 10). Besides managing and coordinating financing and operating budgets, NEAK is involved in planning and developing health care and health insurance concepts (Egészségvonal 2022b).

Health expenditure. Health expenditure as a proportion of GDP is relatively low, at 7.3% compared to the EU average of 10.9% in 2020 (Eurostat 2023; table 4). This may, however, be explained in part by Hungary's relatively high rate of GDP growth in recent years (OECD 2021d, 9). Government schemes and compulsory contributions from employers and employees accounted for 70.8% of all health expenditure in Hungary in 2020, which is lower than the EU average of 81.2% (Eurostat 2023; table 4).

Gaps in public spending has led to high levels of out-of-pocket payments, which comprise over a quarter of all health expenditure (OECD 2021d, 15-16). The OOP spending totalled at 26.1% in 2020, a share larger than the EU average of 14.4%. Private health insurance, in turn, is not a common feature in the health spending in Hungary (Bíró & Prinz 2020). Voluntary

⁴ Reported as purchasing power parity (PPP), which is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

health insurance schemes totalled at 3.1% of the total health expenditure in 2020, which is below EU average of 4.4%. Lastly, informal payments exist in the Hungarian health system (Papp et al. 2019), but their share of the total health expenditure is unknown.

Services delivery. Health care services delivery remains hospital centric in Hungary despite reforms reducing its use (Dózsa et al. 2019; WHO 2023d). Hungarians are frequent users of both hospital-based care and doctor consultations compared to EU averages (OECD 2021d, 11-12), the hospital-use including also unnecessary avoidable hospitalizations (Dózsa et al. 2019; OECD 2021d, 14).

Primary care is delivered mainly through family doctors (GPs) who work as private entrepreneurs, mostly in solo practices (including assistance of one practice nurse) (Gaál et al. 2011, 132; Papp et al. 2019). From the last few years, GPs Clusters have been created, which are networks of collaborating primary care practices where at least five GP practices work together and provides not only the traditional, acute, emergency and chronic care, but preventive services and health promotion interventions as well (Ádány et al. 2013).

The beneficiaries can choose their family doctor freely (Gaál et al. 2011, 132). Specialist ambulatory care is mostly (70%) delivered in hospitals but also in other medical facilities with different levels of specialization (Gaál et al. 2011, 135, 137; WHO 2023d). Most of the facilities providing the public services are in public ownership (Gaál et al. 2011, 135, 137; Mihalyi 2017). Inpatient care is delivered in the mostly public hospitals in different levels (Gaál et al. 2011, 138; WHO 2023d). Emergency care is delivered in primary care settings' out-of-hours services, medical facilities and hospitals' special departments (Gaál et al. 2011, 134, 141-142). Beneficiaries are allowed to choose their physician in hospitals and specialist care too, but the free choice might be restrained by regulations and user charges within the system (Gaál et al. 2011, 131).

Family doctors have a gatekeeping role in the Hungarian health care system, but it is evaluated as non-effective (Gaál et al. 2011, 133). Family doctors' referrals for certain specialised care is mandatory to attain the care for free, whereas without a referral, patients are generally obliged to pay user-fees – thus creating an incentive for the beneficiaries. Referrals, however, are not needed for many specialities, such as gynaecology, urology, ear, nose and throat diseases, psychiatry and general surgery (Gaál et al. 2011, 133).

In Hungary, the implementation of e-health and digital technology systems are progressing, and digital health and data-driven health system are promoted in multiple projects in Hungary (Ćwiklicki et al. 2020; TEHDAS consortium 2023, 1). Currently, multiple electronic health records are used in healthcare facilities, and the level of their use is around the EU average (Ćwiklicki et al. 2020; TEHDAS consortium 2023, 2). An advanced health information system, the National e-health Cloud, also exists and is providing patient information including laboratory results and e-prescriptions (OECD 2021d, 21). The citizens have access to their health data and visibility on who accesses them via e-portal (TEHDAS consortium 2023, 3). Telehealth is also supported in Hungary (Ćwiklicki et al. 2020) and its use increased markedly

during the Covid-19 pandemic. During the pandemic, doctors' online healthcare services were also allowed (OECD 2021d, 3, 17).

Health coverage. The coverage of the social health insurance system is high but not universal. Around 5% of the population is uninsured, including citizens living and working abroad and people without a permanent address (OECD 2021d, 10, 15). The uninsured can access emergency care free of charge, but other services must be paid out of pocket (OECD 2021d, 15).

Benefits package for the insured is broad, but it lacks depth compared to other EU countries (OECD 2021d, 15). The citizens can access services covering all levels of healthcare (primary care and specialized care in ambulatory and inpatient settings), medicines, medical devices, dental care (OECD 2021d, 10, 15). While most hospital spending is publicly covered, the proportion of costs that are publicly covered is relatively low in outpatient care, dental care, medical devices and outpatient medicines, and the list of covered medicines is being slim. OOP spending is largely due to private outpatient medical care. (OECD 2021d, 10, 15-17) and the use of private healthcare is growing (TEHDAS consortium 2023, 2).

While most healthcare services do not require co-payments (Bíró & Prinz 2020), they exist in certain services and goods, including outpatient medicines, dental care and rehabilitation services (Laszlo et al. 2020). Co-payments in outpatient medicines are relatively high, the costs for medicines depending on the varying subsidy rate (Bíró & Prinz 2020; OECD 2021d, 15, 16). On average, patients cover slightly less than half of the price of a prescription medicine (Bíró & Prinz 2020). Besides official co-payments, informal or "gratitude" payments are a common tradition in Hungary due to low wages of healthcare personnel (Bíró & Prinz 2020; Laszlo et al. 2020). Thus, cash payments are common for a wide range of services to have access to better treatments (Bíró & Prinz 2020; Laszlo et al. 2020).

User charge exemptions for medicines, medical devices and rehabilitation services exist for certain vulnerable people such as people on social benefits and low income (Gaál et al. 2011, 86, 150-151). Diagnostic and many therapeutic services are free of charge for children, students, parents with a baby, disabled persons, pensioners, people with low income and church employees (Laszlo et al. 2020). Also, many services are free for children, including dental care, and outpatient and inpatient preventive care (Laszlo et al. 2020).

Health personnel. There were 3.1 practicing physicians per 1,000 persons in Hungary in 2020, which is below the EU average of 3.7/1,000. The number of nurses is as well below the EU average with 6.6 nurses per 1,000 persons in Hungary compared to 8.2/1,000 in the EU. Task-shifting from doctors to nurses is limited in Hungary (Maier & Aiken 2016a). Highly trained maternal and child health nurses have a responsibility of a panel of patients: pregnant women and young children, of whom they can limitedly serve as the first point of contact (Maier & Aiken 2016a; Maier & Aiken 2016b; Gaál et al. 2011, 134). These nurses can also provide preventive school health services, although together with physicians (Gaál et al. 2011, 134).

5.5 Italy

Italy is a populous southern European country, which population size was 59,438,851 in 2020 (World Bank 2024a). Life expectancy in Italy is one of the highest in the EU, being 82,4 years in 2020, when the EU average was 80.6 years, despite a drop due to the Covid-19 pandemic (OECD 2021f, 4). Gender gaps in life expectancy exist in Italy as women live over 4.5 year longer than men (de Belvis et al. 2022b, 10) – though the gap is smaller than in the EU in general (OECD 2021b, 4). Gross domestic product per capita⁵ in Italy is slightly below the EU average, totalling at €28,002 in 2020, compared to €29,801 in the EU (OECD 2021e, 2). Relative poverty is more common in Italy than in the EU, as in Italy, the percentage of people living with less than 60% of median equivalised disposable income was 20.1, whereas it was 16.5 in the EU (OECD 2021e, 2).

Organization. The health system in Italy is a universal National Health Service (NHS) with regionalized and decentralized structures of regions organising the health services (OECD 2021e, 9, 14; De Belvis et al. 2022a, 3). The system was set up at 1978 to replace an old insurance-based system, with no major changes made in the system structure for the past 15 years (Ricciardi & Tarricone 2021; De Belvis et al. 2022a, 12). The Italian system could be classified as the National Health Insurance model (see chapter 4.1.) since services are delivered in both public and private facilities (OECD 2021e, 9; De Belvis et al. 2022a, 3). Financing of the system comes from general taxation applied at both national and regional level. The pooling of funds is managed at national level and the regions get a share of funding that is based on a capitation formula considering the age structure and other epidemiological indicators of the population (OECD 2021d, 9; De Belvis et al. 2022a, 4).

Governance. The national, regional and local levels of the health care system are involved in its governance and regulation (De Belvis et al. 2022b, 15). Central government, namely the Ministry of Health, is a central actor, provides overall stewardship of the health system and defines health policy, national benefits package and per capita budget (De Belvis 2022b, 16, 20-21). In collaboration with the regions, the central government undertakes negotiations to set a specific formula to be used in the financing of the regions (De Belvis et al. 2022a, 4; De Belvis et al. 2022b, 21). Most of the legislative and executive powers are assigned to the regional level, resulting in differences in the service provision across the 20 regions (Ricciardi & Tarricone 2021; De Belvis et al. 2022b, 20). Regional governments and departments of health are responsible for financing, planning and providing the health services at the local level through local health authorities (De Belvis et al. 2022a, 3; De Belvis et al. 2022b, 18-19). The local health authorities can either deliver health services themselves or through a network of accredited private providers and hospital trusts (De Belvis et al. 2022b, 19).

Health expenditure. Public spending on healthcare in Italy has historically been lower than the EU average, but it has increased slowly (OECD 2021e, 9). The health expenditure as percentage of GDP was 9.6% in 2020, which is somewhat lower than the EU average of 10.9% (Eurostat 2023; table 4). Government and compulsory schemes totalled at 75.9% of the total

⁵ Reported as purchasing power parity (PPP), which is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

health expenditure in 2020 (of which government's share 75.8%). Voluntary health insurance's role is minor in Italian healthcare spending, accounting for 2.6% of the total health expenditure in 2020, a share lower than the EU average of 4.4%. Out-of-pocket payments account for a notable share of the total health expenditure: 21.5% in 2020, higher than the EU average of 14.4% (Eurostat 2023; table 4).

Services delivery. The services delivery in the health system in Italy is shared between public and accredited private providers in different regions. Primary care is delivered by GPs and paediatricians who work mostly in independent solo practices under the NHS, though there is a movement towards group practices (De Belvis et al. 2022a, 9-10; De Belvis et al. 2022b, 118). Patients are entitled to choose their GP or paediatrician among the contracted physicians in their municipality (De Belvis et al. 2022a, 9). Primary care is fairly effective, though patients tend to seek care unnecessarily from emergency care instead of ambulatory care (OECD 2021e, 12; De Belvis 2022a, 18).

Specialist care is delivered in outpatient care facilities and hospitals, and inpatient care in hospitals (De Belvis et al. 2022a, 10). Outpatient care facilities are mostly public, but private, mainly for-profit facilities also exist (De Belvis et al. 2022a 3-4, 10). Hospitals are public and private (mainly for-profit), complemented with hospital trusts exist in more complex care (De Belvis et al. 2022b, 126). Patients can choose their hospital and outpatient specialist care facility across regions. GPs and paediatricians act as gatekeepers to specialist care (OECD 2021e, 12, 15; De Belvis et al. 2022a, 10). A GP or a paediatrician make a referral, and the patient can choose the care facility where to be treated, but generally not the specialist (De Belvis et al. 2022b, 117).

The use of technology in Italian healthcare system is diverse and yet developing. Italy has a health information system in place, which includes information for the governance of the services and for patients such as online booking, certificates, telemedicine and e-prescriptions (De Belvis et al. 2022b, 27). E-prescriptions are widely used for medicines which allows obtaining medicines in any pharmacy in Italy, but less for referrals for outpatient visits (De Belvis et al. 2022b, 26-27). The information technology allows data and knowledge sharing, for example patient data sharing within the health system through regional electronic networks (De Belvis et al. 2022b, 119). Italy has also been implementing electronic medical records and electronic health files for the past decade, though their use remain fragmented (De Belvis et al. 2022b, 28). Future development includes modernizing the existing technological and digital healthcare structures such as information systems and electronic health records (De Belvis et al. 2022b, 29), improving data availability, developing personnel skills and enhancing the use of telemedicine and eHealth services (Filippini & Vinceti 2021; OECD 2021e, 21; De Belvis et al. 2022a, 13; De Belvis et al. 2022b, 29).

Health coverage. The Italian NHS provides universal coverage to all legal residents, whereas undocumented migrants are entitled to urgent and essential services (De Belvis et al. 2022a, 6). The basic benefits package covers a wide range of services (OECD 2021e, 14). Additionally, regions can offer services beyond the benefits package, but those must be financed themselves (De Belvis et al. 2022a, 6). The services included in the benefits package are

primary care (including family medicine, community services and mental health services), prescription medicines, outpatient specialist care, some curative dental care, diagnostics and laboratory tests, therapeutics, rehabilitation, emergency care, inpatient care and palliative care (De Belvis et al. 2022a, 3, 11; De Belvis 2022b, 69, 110, 118-137). Services are largely free of charge, including primary and inpatient care (OECD 2021e, 14-15; De Belvis et al. 2022a, 13).

The main coverage gap in the services is dental care, which is provided only to children under 14 years and clinically or socially vulnerable people. Thus, dental care is largely accessed privately and is paid out of pocket or accessed with private insurance (De Belvis et al. 2022a, 6, 11). The majority of OOP spending in Italy is to pay for services and over-the-counter medicines that are not covered by the healthcare system and to attain private healthcare because of long waiting times (De Belvis et al. 2022a, 4, 13).

Co-payments exist across several services and goods (OECD 2021e, 15; De Belvis 2022a, 19). Co-payments are applied to outpatient specialist visits, dental care, non-urgent emergency care, diagnostic and laboratory tests and outpatient medicines (OECD 2021e, 15; De Belvis et al. 2022a, 4; De Belvis 2022b, 70, 72). In medicines, regional co-payments may exist besides additional payments if the patient needs or wants more expensive brand name medicine (OECD 2021e, 15). In dental care, co-payments are also regionally defined (De Belvis et al. 2022b, 72). Several exemption categories (e.g., by age, income level, certain diseases or for maternity care) but no overall annual cap or other major financial protection mechanisms exist in Italy (De Belvis et al. 2022b, 68, 71).

Health personnel. The density of physicians in Italy is above the EU average with 4.0 physicians per 1,000 persons in 2020, compared to EU average of 3.7/1,000. The number of nurses, however, is lower than the EU average with 6.3 per 1,000 inhabitants compared to EU average 8.2/1,000. Task-shifting from doctors to nurses in Italy is limited (Maier & Aiken 2016a), though widening task-shifting is under a discussion with implementing new national recovery and resilience plans (De Belvis 2022b, 149). Advanced tasks for community, family and primary care nurses include a limited responsibility of a panel of patients under physician oversight (community hospitals led by nurses), limited referral making right, and a responsibility of being the first point of contact, though with variations across regions (Maier & Aiken 2016a; Maier & Aiken 2016b; De Belvis 2022b, 134). Task-shifting has also been used in promoting multi-professional diabetes, and qualified nurses can practice in emergency ambulance services without the presence of a physician, carrying out procedures aimed at safeguarding vital functions of the patients (Deliverable 5.3, 32). In 2020, Italy introduced family and community nurse profile, which is a new type of advanced practice nurse designed for home-based care and special units for continuity of care (OECD 2021e, 19).

5.6 Republic of Moldova

Republic of Moldova is a country located in the eastern part of Europe, which population totalled at 2,635,130 in year 2020⁶ (World Bank 2024a). Even though the life expectancy in Moldova has improved considerably, it is among the lowest in Europe. Life expectancy was 70.2 years in 2020, which is ten years less than what it is on average in the EU (World Bank 2024b). Gender gaps exist in Moldova as well as in many other countries: on average, women lived nearly 8 years longer than men, whereas the gap was around 5.5 years in the EU (OECD 2021b, 4; National bureau of statistics 2024a). The Republic of Moldova is one of the poorest countries in the European Region, and its gross domestic product per capita was \$12,324 in 2020 in Moldova, which is significantly lower than reported average of \$41,683 in the EU (WHO 2022c, 17, 20). Absolute poverty rate⁷ in Moldova was 26.8% in 2020 (National bureau of statistics 2024b).

Organization. The Moldovan health care system is a Reformed ambivalent model (see chapter 4.3), healthcare being financed by statutory health insurance contributions from employers and employees (Botnari & Copăceanu 2022; WHO 2022c, 8). In addition, the services for non-working population are funded by transfers from the state budget. These funds are pooled into one budget, managed by an autonomous public institution National Health Insurance Company (NHIC) who acts as a single purchasing and contracting agency of the services from both public and private health service providers (Petrea et al. 2020; WHO 2022b, 8; Ministry of Finance 2023).

Governance. The role of the state and other public actors is remarkable in the Moldovan health system (Petrea et al. 2020; WHO 2022c, 8). The Ministry of Health is primarily responsible for health policy and the legislation regulating health service organization and provision such as the number of health personnel in relation to the population size in an area (WHO 2022c, 8; WHO 2022c, 4). Public emergency care and tertiary level services (specialized medical care) are also under the Ministry's jurisdiction (Petrea et al. 2020; WHO 2022c, 8). Subordinated to the Ministry of Health are a few public authorities that manage, regulate and supervise health services and related issues such as medicines (WHO 2022c, 8).

The National Health Insurance Company (NHIC) is a state organization with financial autonomy with a responsibility of the health insurance and monitoring and managing the costs, volume and quality of contracted health services (WHO 2012, 45; World bank 2023, 6). Local Public Authorities are responsible for the development and maintenance of the public primary and secondary care facilities in their areas as they formally own the facilities (Petrea et al. 2020; WHO 2022c, 8). The facilities are autonomous non-profit organizations (Petrea et al. 2020; WHO 2022c, 4) but are steered through administrative councils with stakeholder representatives, which are responsible for the facilities' budgets (WHO 2022c, 4).

⁶ The information is presented without the population on districts from the left side of the river Nistru and municipality Bender.

⁷ There is no data available about relative poverty rate, hence reporting absolute poverty rate. Information is presented without population from the left side of the river Nistru and municipality Bender.

Health expenditure. Republic of Moldova spends less on health as share of GDP than the EU countries in general. Total health expenditure as a share of GDP was 6.8% in Moldova in 2020, which is lower than the EU average of 10.9% (Eurostat 2023; table 4; WHO 2024). Government and compulsory schemes totalled at 65.5% of the total health expenditure (of which compulsory contributory health insurance consisted of around 60% and government schemes around 5%).

Private spending in the form of voluntary health insurance is not a significant feature of health system financing in the Republic of Moldova (WHO 2022c, 9). It accounted for 3.6% of the total health expenditure, being a lower share than the EU average of 4.4%. Out-of-pocket payments, instead, are a remarkable share of the health spendings in Moldova. OOP expenditure accounted for 30.9% of health expenditure, which is over double the EU average of 14.4% (Eurostat 2023; table 4; WHO 2024).

Health services delivery. Health care system in the Republic of Moldova is hospital-centric, even though the past success of increasing the role of primary health care is continued (WHO 2022c, 10; WHO 2022c). Primary care services in the Republic of Moldova are family medicine centered, delivered by mostly public providers (WHO 2022c, 2). In urban areas, primary care services are delivered in large family health centres, whereas in rural areas they are delivered in family doctor offices and health offices (WHO 2022c, 8). Some private health centres and individual family doctor practices also exist, locating mostly in urban areas (WHO 2022c, 3). The beneficiaries have a free choice of primary health care provider, but with an expectation to register with a family doctor in the nearest health service facility. Families are also expected to be registered with the same family doctor (WHO 2022c, 2).

Inpatient care and specialized outpatient services are delivered by public republican, district and municipal level hospitals and tertiary hospitals for more complex services mainly in the capital (WHO 2022c, 8). In addition to public hospitals, private hospitals offer these services as well (WHO 2022c, 8). Also, the health centres in urban areas provide specialist services (WHO 2022c, 3).

In the Moldovan health system, a partial gatekeeping system by the family doctors exists as part of the growing importance of primary care (WHO 2022c, 11). First, everyone regardless of their insurance status is obliged to register with a family doctor to access statutory services (WHO 2022c, 8; WHO 2022c, 2). Second, the gatekeeping function has been strengthened with criteria for family doctor referrals to specialist and further care. Third, beneficiaries have an incentive for family doctor referrals since outpatient specialist care and inpatient care are free with the referral (WHO 2022c, 8, 11).

The use of digital technologies in healthcare is in its first stages of development in the Republic of Moldova (Gorobievski et al. 2022). Currently, family doctor registration can be done online and there is a registration database, but no automated data collection system in healthcare (WHO 2022c, 2; World bank 2022, 16). Telemedicine is a new practice that was introduced within the Covid-19 pandemic to replace some office visits, as well as diagnostic testing system to improve communication between healthcare facilities and patients

(Gorobievski et al. 2022). Two goals in the field of eHealth are the creation of a unified information system including patient information, medical statistics and health activities, and implementation of an electronic patient file and e-prescription (Gorobievski et al. 2022).

Health coverage. In the Republic of Moldova, the people covered by the public health services package are the ones paying the health insurance contributions: the share of the covered population was 87.7% in 2021 (WHO 2022c, 8). However, Moldova is committed to moving towards a universal health coverage and access to affordable healthcare (WHO 2022c, 14, 20; World bank 2023, 5). Regardless of the insurance status, primary care is free of charge for everyone, including emergency care, primary care visits, medicines for certain diseases and inpatient care for people with specific diseases (WHO 2022b, 8; World bank 2022, 5). The services and goods covered by the public insurance include outpatient and inpatient care (including inpatient medicines), certain prescribed outpatient medicines, emergency dental care and certain dental services for pregnant women and children (WHO 2022c, 8-9).

Financial protection is evaluated as underdeveloped in the Republic of Moldova (WHO 2022c, 10). Uninsured people pay the full costs of other than primary care (WHO 2022c, 8) and no co-payment exemptions exist for the insured (World bank 2022, 6). Thus, households' out-of-pocket costs are high in Moldova (WHO 2022c, 8, 10), being especially prevalent in outpatient medicines (World bank 2023, 29). In 2021, 30%, 50% and 70% co-payments applied, although the list of covered medicines have been extended recently and it now includes at least two types of free medicines in each disease group, expected to improve the financial protection (WHO 2022c, 8-10). Other remarkable co-payments exist in dental care where the patients pay the full price (WHO 2021, 8). In addition to the co-payments, informal payments especially in hospitals remain prevalent, which hinder access to services and can cause financial hardship (WHO 2022c, 8; World bank 2023, 29).

Health personnel. In 2020, the number of physicians in the Republic of Moldova was 3.8 per 1,000 persons which exceeds the EU average of 3.7/1,000. Nurses' number is, however, less than the EU average of 8.2 per 1,000 persons with Moldova's 7.3 nurses/1,000 persons. Doctors and nurses' roles are defined in Moldova (WHO 2022c, 2) but information on task-shifting from nurses to doctors is scarce. Nurses' work include basic tasks, such as health education, surveillance of patients and routine vaccinations, and they practice under the direction of physicians (WHO 2012, 89; Hoover et al. 2021). However, nurses have an important role in the provision on long-term care for older people (WHO 2022c, 12), and for example in mental health services (Petrea et al. 2020). Some nurses are registered as community nurses who have an emerging role in the treatment of non-communicable diseases (Zarbailov et al. 2019). More advanced tasks are executed by doctors, including prescriptions (WHO 2012, 92; Hoover et al. 2021).

5.7 Romania

Romania is a country in south-eastern Central Europe, whose population size was 19,265,250 in 2020 (World Bank 2024b). Life expectancy has been growing rapidly in Romania, but it remains among the lowest in the EU (OECD 2023b, 4). Covid-19 pandemic dropped life expectancy to 74.2 years in 2020 (as has been seen in other countries as well) EU average

being 80.6 years (OECD 2021f, 4). Gender gaps in life expectancy are notable in Romania, as women live almost eight years longer than men (78.4 years compared to 70.5), which is among the largest gaps in the EU (OECD 2021f, 4). Gross domestic product in Romania is lower than in the EU in general. Romanians' GDP per capita⁸ was €21,296 in 2020 (OECD 2021f, 2), whereas the EU average was €29,801. Relative poverty rate is higher than in the EU: 23.8% of the population lived with less than 60% of median equivalised disposable income in 2019, whereas in EU their share was 16.5 percent.

Organization. Romanian health care system is a Reformed Hybrid Model (see chapter 4.3.) with Social Health Insurance financing base and a strong state stewardship (OECD 2021f, 8) despite recent efforts to decentralise some regulatory functions (Petre et al. 2023). The financing of the health system comes from compulsory social health insurance contributions from employees and employers to the SHI scheme (Radu et al. 2021). The SHI system is managed by a public autonomous institution National Health Insurance House (NHIH) (Petre et al. 2023). In addition, State funds contributions for some vulnerable population groups, including unemployed and retired people and people on social benefits (OECD 2021f, 9). Healthcare services are bought by District Health Insurance Houses from healthcare providers at the local level and by the Ministry of Health under national health programmes focused on priority areas, provided by 41 districts and the capital city (OECD 2021f, 8).

Governance. The governance of the system is shared with state and other public actors. Ministry of Health has a primary responsibility for healthcare in Romania, including the general management of the health system, including the SHI scheme, health policy and regulation (OECD 2021f, 8; Petre et al. 2023). The NHIH administers and regulates both the health system and the collected funds in National Health Insurance Fund, and the financing of medical services (Petre et al. 2023). The Ministry and the NHIH, based on consultations with various entities, decide on services that are covered for the beneficiaries (OECD 2021f, 15). The Ministry and the NHIH are locally represented through District Public Health Authorities and District Health Insurance Houses (OECD 2021f, 8; Petre et al. 2023). Other public agencies such as the National Agency for Medicines and Medical Devices, and National Authority for Quality Management in Healthcare have tasks relating to medicines and their coverage and hospital accreditation (OECD 2021f, 15).

Health expenditure. Romania has significantly increased its health spending in recent years but remains one of the EU countries with the lowest health expenditure (OECD 2021f, 9). Healthcare expenditure as share of GDP was 6.2% in 2020, whereas the EU average was 10.9%. Government and compulsory financing schemes totalled at 80.3% in 2020 (government spending over 17% and compulsory contributory health insurance nearly 63%), in line with the EU average (Eurostat 2023; table 4). Out-of-pocket payments are, however, above the EU average (14.4%) totalling at 19% in Romania in 2020, which have remained relatively unchanged since 2005 (OECD 2021f, 16). Voluntary health insurance's role is nearly non-existent as it totalled at 0.7% of the total health expenditure in 2020, being below the EU

⁸ Reported as purchasing power parity (PPP), which is defined as the rate of currency conversion that equalises the purchasing power of different currencies by eliminating the differences in price levels between countries.

average of 4.4% (Eurostat 2023; table 4). Informal payments are believed to be substantial in Romania, although their full extent is unknown (OECD 2021f, 9).

Services delivery. Health services delivery in Romania is hospital-centric with a long tradition of getting medical care directly from specialists in hospitals (OECD 2021f, 10; Petre et al. 2023). Reforms such as introducing family medicine have been made to increase the role of primary care, but it continues to be underutilised (OECD 2021f, 10; Petre et al. 2023). Health services are delivered by both public and private providers. Primary care is delivered by family doctors, mainly in private solo practices of whom the beneficiaries can choose freely (Rotar Pavlič et al. 2015, 226; OECD 2021f, 11). Specialized ambulatory care is provided in mostly public hospital outpatient departments and mostly private specialist clinics, centres and solo specialist physician offices (Vlădescu et al. 2016, 96, 108). Inpatient care is provided in public and private hospitals (Vlădescu et al. 2016, 96) and emergency care in hospital emergency units (Vlădescu et al. 2016, 96).

Family doctors have a gatekeeping role as patients need a referral to access specialist care, but it is not strong (Vlădescu et al. 2016, 105; OECD 2021f, 11). Patients with certain conditions can access specialists directly, and people tend to rely on hospital emergency departments and ambulance services if they need health services, including non-urgent care. Emergency care can be accessed directly through self-referral, and thus it bypasses primary care (Vlădescu et al. 2016, 96; OECD 2021f, 11).

Romania is progressing in the use of technology and eHealth in healthcare sector even though their usage levels are lower than in the EU on average (Ćwiklicki et al 2020; OECD 2021f, 3). Currently in use are a national health insurance card containing patient data, and electronic prescribing for all reimbursed medicines (paper prescribing only under special conditions) (Vlădescu et al. 2016, 34, 78). Telemedicine system is used in emergency services, and teleconsultations were used during the Covid-19 pandemic but not as widely as in other EU countries (Vlădescu et al. 2016, 113; OECD 2021f, 3). Also, the use of information and communication technology for electronic reporting of patient information is in use (Vlădescu et al. 2016, 34), but despite investments to the technologies, data fragmentation and duplication exist (OECD 2021f, 21). Covid-19 pandemic accelerated the development with the creation of a new electronic information system to improve communication between healthcare providers, public health authorities and patients (OECD 2021f, 21).

Health coverage. The people paying the social health insurance contributions are covered by the benefits package – it is estimated that around 11% of the population are uninsured, which translates to around 89% coverage among the population (OECD 2021f, 9, 15). The people most likely to be uninsured are people in rural areas, people living and working abroad, people with informal employment arrangements, unemployed people not registered for social benefits and people lacking identity cards, particularly marginalised groups (OECD 2021f, 15). The uninsured are entitled to a minimum benefits package that covers life-threatening emergencies, infectious diseases and care during pregnancy (OECD 2021f, 9).

The benefits package for the insured is comprehensive (OECD 2021f, 15). It covers nearly all outpatient and inpatient services: prevention, outpatient, specialist and hospital care, some dental care services, additional emergency medical services, certain rehabilitation procedures and some home healthcare services, including palliative care at home (OECD 2021f, 15; Petre et al. 2023). The beneficiaries also benefit from prescribed medicines, medical devices and necessary medical transportation (OECD 2021f, 15; Petre et al. 2023).

Cost-sharing is required in many healthcare services and goods, while ambulatory care is free of charge (OECD 2021f, 11). Cost-sharing can be significant in outpatient medicines as patients need to pay a proportion of the cost: 10% for lower-priced generics, 50% for expensive generics and patented medicines and 80% for prescription drugs with low cost-effectiveness (OECD 2021f, 11). Thus, the OOP payments are dominated by pharmaceutical spending, which can limit access to essential medicines (OECD 2021f, 16). For rehabilitation and inpatient care, cost-sharing equals to about 35% per episode of care. In dental care, full coverage is only for children, war veterans and people with chronic conditions, leading to significant cost-sharing (OECD 2021f, 11, 15). Additionally, there are problems related to informal payments, such as money people give to doctors and nurses to get services faster, which distorts fair access to health services (Petre et al. 2023).

Protective measures exist in inpatient care where over 60% of the population are exempted from user charges. The exempted are children, people up to 26 years if enrolled in education, patients covered by national health programmes, pregnant women without income and pensioners (OECD 2021f, 11).

Health personnel. In 2020, there were 3.3 practicing physicians per 1,000 population, which is below the EU average 3.7. The number of nurses was 7.7 per 1,000 population, which is as well below the EU average of 8.2/1,000. Despite the relatively high number of nurses, official task-shifting from doctors to nurses in Romania does not exist, neither does prescription rights for nurses (Maier & Aiken 2016a). Indeed, exception are community nurses that can take up limited advanced roles in their work with vulnerable populations in rural areas or with persons who are not registered with a primary care physician (Maier & Aiken 2016b).

6. Sustainability of ways to mitigate medical deserts

In OASES countries' pilot studies, different actions were identified with a goal of mitigating medical deserts. More information on the pilot studies and their actions can be found in previous OASES deliverable 6.3 Reports on pilot studies. In this report, the titles of the actions have been somewhat altered to improve their clarity. This chapter will discuss each OASES country's actions to mitigate medical deserts, their sustainability, then a summary of each country taking into account the local contexts in regard to medical deserts, and finally provide an overall overview of all the countries actions' sustainability.

6.1 Cyprus

In Cyprus, eight actions were identified in the pilot study as ways to mitigate medical desertification. Medical deserts in Cyprus are understood as limited access to specialised

(paediatric) medical care and emergency services, and a lack of healthcare access in rural and isolated villages. Seven actions identified in the pilot study hence focus mainly on those areas.

Four actions have been introduced as potential solutions for the medical deserts in emergency care with goals of alleviating the strain on public emergency facilities and enhancing patient care.

First action is **Inclusion of private clinics**, which means integrating private clinics into the emergency treatment sector. This could help alleviating the burden on public hospitals and might involve creating partnerships between public and private healthcare providers to better manage patient inflow.

Second action is relating to the inclusion of private clinics, **Improving access and time access**. This includes an idea that the involvement of private hospitals in emergency care provision could enhance access to healthcare in emergency situations and offer patients more options for medical assistance.

Third action, **Hospital specialisation**, distinguishes hospitals based on the severity of medical conditions they handle. Public and specific private hospitals could focus on treating severe life-threatening issues, whereas other private hospitals or doctor clinics could manage less severe, minor health problems, thereby distributing the patient load more efficiently.

Fourth action is **Walk-in centers and Doctors on call**, which includes implementing walk-in centers and doctors-on-call services as alternative options for patients with minor health issues. This approach could help redirect non-emergency cases away from the overcrowded emergency departments.

Fifth action is **Creating a paediatric emergency department**, which addresses the urgent need for emergency services for children. The creation of an emergency department specifically tailored to paediatric care is planned at the Makarios hospital.

Sixth action, **Coordinating health data collection and evaluation** aims to improve healthcare management by establishing an independent body responsible for different types of health data management on multiple levels. This centralized and interconnected system would streamline data collection and evaluation, lead to more informed decision-making and potentially reduce bureaucracy and administrative hurdles.

The last two Cypriot actions aim to improve access to healthcare in rural areas. Seventh action is **Rural healthcare access**. The action aims to improve access to healthcare for people living in rural areas. First, developing a plan for in-home visits by healthcare professionals could ensure that medical care reaches those living in remote areas. Second, providing at-home nursing care and outpatient treatment options are considered as ways to alleviate the burden on acute care hospitals and improve healthcare access for rural residents.

Eighth and last Cypriot action is **Financial incentives for health professionals in rural areas**. The action aims addressing financial barriers and providing subsidies or incentives to

healthcare professionals serving in remote regions in order to improve healthcare accessibility for the people living in rural areas.

6.1.1 Sustainability of the ways to mitigate medical deserts

In Cyprus, all aspects of sustainability were addressed in the pilot study actions (table 5).

Actions found in pilot studies	Sustainability themes and sub-themes from the modified Framework for Action on the Health and Care Workforce 2023-2030				
	Retain and recruit	Build supply	Optimize performance	Plan	Invest
1. Inclusion of private clinics 2. Improving access and time access 3. Hospital specialisation 4. Walk-in centers and doctors on call 5. Creating a paediatric emergency department 6. Coordinating health data collection and evaluation 7. Rural healthcare access 8. Financial incentives for health professionals in rural areas	Fair and effective remuneration: 8 Recruitment and retainment: 8	Strong continuous professional development: 5, 8	Efficient services: 1, 2, 3, 4, 5, 7	Intersectoral approach to planning: 1 Strong HRH information systems: 6	Increasing public investment and optimizing the use of funds: 8

Table 5: Sustainability themes of the Cypriot initiatives to mitigate medical deserts

Retaining and recruiting health workforce

From the sustainability themes “Retaining and recruiting health workforce” is addressed by one Cypriot action aiming to mitigate medical deserts. “*Financial incentives for health professionals in rural areas*” is addressing financial barriers and providing subsidies or incentives to professionals serving in remote regions, which is **Fair and effective remuneration**. The action also addresses **Recruitment and retainment** by paying special attention to rural areas by providing the abovementioned subsidies or incentives for workforce serving in rural areas-

Building supply of proficient health and care workforce

The theme “Building supply of proficient health and care workforce” is present in two Cypriot initiatives. “*Financial incentives for health professionals in rural areas*” initiative is contributing to **Strong continuous professional development** as it recognises the need for investing in the training and retaining of healthcare professionals necessary for rural healthcare access and ensuring that expertise is available in these areas. Also, the action of “*Creating a paediatric emergency department*” is strengthening skills and competencies and giving an opportunity for acquiring new knowledge and skills throughout career by investing

in the skills and training of healthcare staff to ensure the availability of specialised healthcare professionals for high-quality paediatric (emergency) care.

Optimized performance of the health systems

From “Optimized performance of the health systems” theme of sustainability, is **Efficient services** addressed, and it is addressed by six of the actions. The action of “*Improving access and time access*” is contributing to more effective service delivery and aims to allocate more time for care by ensuring that patients receive care in a timely manner with the involvement of private clinics to the emergency care provision. With the more options for medical care for the patients and thus enhanced access, the healthcare system can reduce overcrowding in emergency departments, which could also make resource allocation more efficient. “*Inclusion of private clinics*”, strongly relating to the previous action, is a form of effective management in supporting optimal performance, more time for care and effective service delivery by the goal of alleviated burden on public hospitals.

The action of “*Hospital specialisation*” aims to improve healthcare system’s efficiency as well and reduce waste and improve the quality of care by concentrating expertise and resources where they are most needed. “*Creating a paediatric emergency department*” initiative contributes to more effective service delivery and also to the use of adequate facilities and equipment by the creation of a dedicated paediatric emergency department, which ensures that resources and facilities are used efficiently and optimally to provide specialised care for children. “*Rural healthcare access*” is also contributing to effective service delivery and adequate facilities and equipment by providing at-home nursing care and outpatient treatment options, thus delegating more time for care, with the goal of reducing the burden on acute care hospitals. Lastly, “*Walk-in centers and doctors on call*” initiative is improving the creation of adequate facilities by its doctors-on-call services and walk-in centers. These help to enable more time for care and effective service delivery, which can lead to more optimised resource allocation as well.

Planning for health and care workforce

“Planning for health and care workforce” theme of sustainability is present in two Cypriot initiatives. First, “*Inclusion of private clinics*” theme is applying **Intersectoral approach to planning** by engaging key stakeholders (private clinics) in the decision-making and implementation process of the inclusion of private clinics to the emergency care provision. It is also planned to share responsibilities and resources with the different providers.

The action of “*Coordinating health data collection and evaluation*” contributes to **Strong HRH information systems** by its implementation of an independent body responsible for health data management regarding different types of data, as it supposedly includes data of the human resources of health, too. The initiative’s aims of ensuring that data is used effectively to improve the healthcare services, their design and implementation, and contribute to decision-making, are contributing to optimizing the use of available research and data to create a picture of the whole health labour market.

Public investment in the health and care workforce

“Public investment in the health and care workforce” theme of sustainability is present in one Cypriot action, “Financial incentives for health professionals in rural areas”. The financial subsidies or incentives offered for healthcare professionals serving in rural areas is **Increasing public investment and optimizing the use of funds** in forms of innovative health and care policy increasing the professionals’ availability and a way of prioritizing investment in primary care workforce.

6.1.2 Summary

The Cypriot actions are evaluated to be sustainable as individual actions as well as a totality since the actions address all sustainability themes at least to some point. The actions are optimizing performance of the health system by creating more efficient services by redefining teams, which the most utilized main focus of the actions (table 6). The actions are also retaining and recruiting health workforce by addressing some of the health and care workers’ needs (remuneration, recruitment and retainment); planning for health and care workforce by coordinating multiple stakeholders and using better data; and increasing and making smarter public investment in the health and care workforce. These are also the main focuses of the Cypriot actions as can be seen in table 6.

Sustainability theme	Retain and recruit	Build supply	Optimize performance	Plan	Invest
Cyprus	Financial incentives for health professionals in rural areas		Inclusion of private clinics Improving access and time access Hospital specialization Walk-in centers and doctors on call Creating a paediatric emergency department Rural healthcare access	Coordinating health data collection and evaluation	Financial incentives for health professionals in rural areas

Table 6: The ways to mitigate medical desertification in Cyprus and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

By contrast, building supply of proficient health and care workforce part of sustainability is not the main focus of any of the Cypriot actions (table 6), even though strengthening health

workforce's skills and competencies is part of a few of the actions. Health workforce's training nor their numbers are, however, not recognised as key development areas in Cyprus, regardless of the low numbers of health workforce when compared to EU averages.

Same goes for other sustainability themes that are not addressed in the Cypriot actions: enhancing the use of skill-mix and digital solutions; planning for comprehensive policies regarding human resources of health; and contributing to public investment in the health and care workforce by justifying its societal benefits. Even though addressing these sustainability themes could help improving medical deserts, for example by offering better continuous professional development opportunities for the workforce, the absence of them does not seem to be an issue since the scope of the current actions address the Cypriot challenges sufficiently and in a world of limited resources, they seem to be directed sustainably to the right areas of interest. The focus of the Cypriot actions is on the topics that have been recognized as affecting medical deserts the most: specialised medical care and rural care, and these are mostly addressed with the "Optimize performance" theme of sustainability.

The challenges of emergency departments, particularly concerning accidents and trauma, include a lack of coordination and expertise in handling severe medical issues, including brain injuries, which cause significant hurdles for public emergency facilities. This is addressed with integrating private sector actors as providers of emergency care and thus relieving the burden of the public providers. Also, distributing patient loads more effectively along the care providers by giving certain types of medical conditions to certain facilities should help with this. The overcrowding, long waiting times and accumulation of cases in the current emergency departments, caused by patient visits because of minor health issues, can be alleviated with the new alternative services which the patients can use instead of the emergency services both in rural areas and in bigger cities. Another area of concern is a lack of a dedicated emergency department at the children's Makarios hospital since currently paediatric cases are assessed in the adult hospital of Nicosia before referral to Makarios – a challenge also mainly addressed with the health system's optimized performance. The actions provide a straight response to the issue by creating an emergency department specifically tailored to paediatric care at the Makarios hospital.

In Cyprus, medical deserts are also prevalent in rural areas and isolated villages with few citizens. Residents in these areas have poor access to basic healthcare services, such as physical therapists, nurses and pharmacists, and have challenges accessing acute care hospitals, leading to increased risks of death during long ambulance rides. The actions have measures that focus on optimizing the performance of the health system by improving access to health services with healthcare professionals' in-home visits, at-home nursing care and outpatient treatment options. Additionally, financial constraints of health professionals have been detected to play a significant role in perpetuating medical deserts in rural areas. This is addressed with financial incentives for health professionals in rural areas, mainly focusing on retaining and recruiting health workforce and investing in the health workforce.

Lastly, inadequate coordination in health data collection and evaluation has been identified as a challenge for healthcare management in Cyprus as there is no connectivity between the

information that is available from the statistical service and the healthcare system's IT system. Hence, the actions also include introducing an independent health data management body to streamline data collection and evaluation, mainly focusing on the “Planning for health and care workforce” sustainability theme.

6.2 Finland

In Finland, six ways to mitigate medical deserts in primary health care were identified in the pilot study. Finland faces challenges relating to insufficient number of health and care professionals in general and particularly in certain parts of the country, competition for the employees and one of the oldest populations in Europe, increasing the care needs in the future.

The first three actions are at national level. First of them, **Securing sufficient funding for the training of health and social care professionals**, directs attention to sufficient financing, which is a prerequisite for educating and training enough professionals to meet the required numbers of new professionals.

Second action is **Streamlining labour immigration and utilizing it more than currently**. The action aims at removing legal barriers and delays such as hastening the recognition and the legalisation of the immigrant's education and competences, developing identification solutions, speeding up the availability of a personal identification number and easing family members' immigration. The immigrants' integration to workplaces and learning Finnish language (already in their original countries) should be further supported, and in addition, the current qualification training processes would need to be more efficient.

In order to understand the third action, **More flexible staffing levels (the ratio between the staff and the patients)**, one must note that in Finland, health and social care form an entity in terms of workforce planning and resourcing, and one sector has effects on another. The staffing level legislation does not apply to primary health care, but it applies to certain social care services, more precisely, assisted living facilities with 24/7 services for older people. The scope of this action is thus extended to social care services. Currently there is a shortage of personnel in assisted living services and home care and nursing services, in addition to the primary health care as a whole, and as such more flexible staffing levels can be seen to benefit the whole health and social services system. The implementation of this action would mean modifying the staffing level regulation as it can cause the workforce concentrating in the assisted living facilities, while other health and care services might suffer. This reduces access to the services, although the quality of care in the assisted living services might have improved along the increased staffing levels.

Last three actions function at the organisational level. Fourth action, **Focusing the work of professionals on tasks that match their education and skills** and fifth action, **Reconsidering the division of work between professionals and job descriptions** focus on the same topic, and are thus examined together. These actions aim to improve the organisation and efficiency of work with an increased presence of assistant staff. The goal is to free up health and care professionals' time for immediate patient work and other tasks that directly match the

professionals’ education. Other means include further specifying the division of labour between administrative support services and social and healthcare professionals.

Sixth action, **Promoting service availability with digital, take-home and mobile services** aims to improve care delivery with new remote and mobile services. The increased use of these services could shorten travel times leading to more time for patients, being able to see the patients more frequently, lower the patients’ threshold to use the services, and even enable professionals to work from different location than where the services are provided. In addition, mobile care services can reduce the strain on emergency care services. Digitalization of healthcare services is one priority area: as an example, increasing the adoption of new digital solutions is part of Finland’s Sustainable Growth Programme 2022–2025.

6.2.1 Sustainability of the ways to mitigate medical deserts

All sustainability themes are addressed in the Finnish pilot study actions (table 7).

Actions found in pilot studies	Sustainability themes and sub-themes from the modified Framework for Action on the Health and Care Workforce 2023-2030				
	Retain and recruit	Build supply	Optimize performance	Plan	Invest
1. Securing sufficient funding for the training of health and social care professionals 2. Streamlining labour immigration and utilizing it more than currently 3. More flexible staffing levels (the ratio between the staff and the patients)* 4. Focusing the work of professionals on tasks that match their education and skills 5. Reconsidering the division of work between professionals and job descriptions 6. Promoting service availability with digital, take-home and mobile services	Recruitment and retainment: 2, 6	Modern education and training: 1, 2, 4, 5 Strong continuous professional development: 6	Multi-professional teams and skill mix: 4, 5 Appropriate use of digital technologies: 6 Efficient services: 4, 5, 6	Intersectoral approach to planning: 2 Strong capacity of HRH units: 1, 2 Regulated education, service delivery and professions: 3	Increasing public investment and optimizing the use of funds: 1

Table 7: Sustainability themes of the Finnish initiatives to mitigate medical deserts

Retaining and recruiting health workforce

Two Finnish actions are addressing health and care workers’ needs, as part of the “Retaining and recruiting health workforce” sustainability theme by promoting **Recruitment and**

retainment. *“Streamlining labour immigration and utilizing it more than currently”* includes recruiting new workforce to the country in general. The principles of ethical recruitment, such as the country of origin's own need for trained professionals, are recognized – though clear policies and guidelines regarding it are not in place. The action of *“Promoting service availability with digital, take-home and mobile services”* might promote recruitment in general but also especially in rural areas, as being able to work from home can attract workforce to work in remote services for example in the underserved areas where the workforce is otherwise hard to be attracted.

Building supply of proficient health and care workforce

“Building supply of proficient health and care workforce” is addressed by five Finnish actions which aim to strengthen education and training and skills and competencies of the workforce.

Modern education and training is addressed by the action of *“Securing sufficient funding for the training of health and social care professionals”* since securing sufficient and more stable funding will contribute to strengthening the teaching-capacity of health and education institutions. The actions of *“Focusing the work of professionals on tasks that match their education and skills”* and *“Reconsidering the division of work between professionals and job descriptions”* would sculpt the training of health professionals as the actions' aim of increasing the use of assistive staff would need an increase in the training of care assistants. The training would be reflecting population needs and service requirements, such as competences in working in interprofessional teams. In addition, the training of care assistants is a form of a diverse route into the field via the short vocational training to become care assistant and a later possibility for a further education by for example practical nurse apprenticeship.

The action of *“Streamlining labour immigration and utilizing it more than currently”* has measures that affect the training of health and care workforce. Some tailored training for the health personnel coming from abroad is needed to fit the Finnish legal requirements. One goal of the initiative is easing the qualification training processes of the immigrants and avoiding unnecessary work in organizing the trainings, which could help in streamlining the immigration of labour. There are also current practices of language training before coming to Finland, and improving that necessary language training further, preferably already in the home countries of the incoming professionals, is one planned measure in the toolbox. These contribute to diverse and flexible routes into health and care professions and attaining the necessary competencies through the qualification training processes.

Strong continuous professional development is addressed by one action, *“Promoting service availability with digital, take-home and mobile services”*. Implementing the new digital, take-home and mobile services will involve training for the health and care personnel in the use of the new digital tools and services and new models of care involving mobile care teams. If the tools or models are outdated or inefficient or the personnel's skills insufficient, the new services might make the work more taxing, rather than aiding it.

Optimized performance of the health systems

“Optimized performance of the health systems” theme of sustainability is addressed by three Finnish actions, which redefine teams and skill-mix and promote the use of digital solutions.

“Focusing the work of professionals on tasks that match their education and skills” and *“Reconsidering the division of work between professionals and job descriptions”* focus on **Multi-professional teams and skill mix**. Task-shifting between different health and care workers can help increase the efficiency and the performance of the health system by focusing the work of health professionals on tasks that match their skills and education. In addition, it is possible to reconsider the division of work, which includes enabling more flexible division of labour and increasing the number of assistive staff, and specifying the division of labour between administrative support services and social and health care professionals. This should free up time for immediate patient work, especially for professionals working directly with patients. and contribute to having the professionals’ skills used to best effect.

Actions *“Focusing the work of professionals on tasks that match their education and skills”* and *“Reconsidering the division of work between professionals and job descriptions”* contribute to **Efficient services** as well. The new ways to organize work may increase efficiency in the health services while avoiding increasing health and care personnel’s job demands or stress. Also, increases in assistive staff may bring financial savings if same tasks can be done safely and skill levels permitting by health professionals with smaller salaries.

“Promoting service availability with digital, take-home, and mobile services” contributes to efficient services, too. Its digital, take-home and mobile services can increase service efficiency by, for example, shortening travel times leading to more time for patients, being able to see the patients more frequently, and lowering patients’ threshold to use the services with less need for travelling. Also, the use of the digital, take-home and mobile services could lead to lowered costs of the services by demanding less health personnel. Though, it is important that these services are appropriate and that they do not increase fragmentation in the services but rather be able to treat the patient’s issues as a whole.

“Promoting service availability with digital, take-home and mobile services” action contributes also to **Appropriate use of digital technologies**. The use of digital solutions that are part of the action can contribute to optimizing the performance of the health system. A need for assessing patients’ interests when increasing the use of digital services is recognised, since it is important to recognise the patients and also the types of services to whom these digital services are suitable and in which situations more traditional services are needed.

Planning for health and care workforce

Three Finnish actions are “Planning for health and care workforce” with some HRH policies; and coordination of multiple stakeholders.

The action of *“Streamlining labour immigration and utilizing it more than currently”* has an **Intersectoral approach to planning** as the need for discussions with stakeholders is recognised. The stakeholders are policymakers in national, county and even municipality levels as streamlining labour immigration would need some changes in policies such as speeding up the legalisation of the education of the immigrants, faster recognition of the immigrant’s competence, hastening the availability of a personal identification number, developing identification solutions, and easing family members’ immigration, too. Wellbeing services counties as well as other major employers, and possibly the private recruitment companies that are recruiting workers to Finland could be acknowledged in the planning process, as well as training and education organisations as they are responsible for the qualification trainings and are important in avoiding waste in the training’s organization.

“Streamlining labour immigration and utilizing it more than currently” also contributes to **Strong capacity of HRH units** together with the action of *“Securing sufficient funding for the training of health and social care professionals”* which both contribute to strategic workforce planning. When it comes to streamlining labour immigration, a need for increasing it is recognised and some calculations have been made regarding its need. Some calculations and plans have also been made about the needs of the amounts of training of new health and care professionals, although no clear political decisions or means exist and instead the regions execute (or do not execute) their own actions regarding recruitment from abroad.

Regulated education, service delivery and professions is addressed by the action of *“More flexible staffing levels (the ratio between the staff and the patients)”*. Currently, the staffing levels in the assisted living services are set by legislation, so the implementation of the more flexible staffing levels would mean modifying the current regulation, thus contributing to regulated professions in health and social care sector. If the number of personnel was based on the service needs of the patients and not on absolute numbers, it would increase resource wisdom for example by decreasing the need for acute services if more personnel were to help the patients within strengthened home care. It is though unclear of how the personnel could be “transferred” from assisted living services to, for example, home care services and other primary care.

Public investment in the health and care workforce

“Public investment in the health and care workforce” is addressed by one Finnish action, which aims increasing or sustaining public investment in the health and care workforce.

“Securing sufficient funding for the training of health and social care professionals” is **Increasing public investment and optimizing the use of funds** as its aims to secure sufficient funding for the training of health professionals concerns public investment and it would involve discussions to decide whether investment should be made to primary care and other health workforce. Some temporary funding is allocated for the training of new professionals, but the funding needs to be constant and sufficient to enable the planned increases to the training of health workforce. Investing into the training is important in order to fill the positions of doctors and nurses. As a certain qualification is required for the health and social

care sector, it has an impact on staff recruitment and the need of increasing the number of training amounts. Though it's not only a question of funding – instead, it is difficult to fill the training positions as the image of health care has weakened and at the same time the age groups of young people have decreased in size.

6.2.2 Summary

The Finnish actions are sustainable as individual actions as well as a totality, since the actions address all sustainability themes. The actions are building supply of proficient health and care workforce by strengthening education and training, skills and competencies; and optimizing performance of the health system by redefining teams and skill-mix and using digital solutions. These two sustainability themes are also most often the main focuses of the actions (table 8). The Finnish actions are also retaining and recruiting health workforce by addressing a few of the health and care workers' needs; planning for health and care workforce with some policies regarding human resources for health and coordination of multiple stakeholders; and investing in the health and care workforce with increased or sustained public investment in the health and care workforce.

Sustainability theme	Retain and recruit	Build supply	Optimize performance	Plan	Invest
Finland	Streamlining labour immigration and utilizing it more than currently*	Securing sufficient funding for the training of health and social care professionals	Focusing the work of professionals on tasks that match their education and skills	More flexible staffing levels (the ratio between the staff and the patients*)	Securing sufficient funding for the training of health and social care professionals
		Focusing the work of professionals on tasks that match their education and skills	Reconsidering the division of work between professionals and job descriptions		
		Reconsidering the division of work between professionals and job descriptions	Promoting service availability with digital, take-home and mobile services		

Table 8: The ways to mitigate medical desertification in Finland and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

The sustainability areas that are not addressed are many health and care workers' needs from "Retain and recruit", namely, good working conditions, fair and effective remuneration, health and well-being, gender-sensitive policies and attracting students. The actions also do not promote digital health competencies in the training of new professionals ("Build supply") or promote quality interaction with patients ("Optimize performance"). Neither do the

actions contribute to planning and forecasting needs, strong HRH information systems, and public investment in the health and care workforce by justifying its societal benefits from “Plan” and “Invest”.

Finland faces challenges relating to the insufficient number of health and care professionals, competition for the employees, and one of the oldest populations in Europe, increasing the care needs in the future. The shortage of the professionals concerns registered nurses, practical nurses and physicians, and most physician shortage has been detected in Eastern Finland. One main challenge is the fact that although competent health workforce might be available, there are difficulties in retaining existing workforce. Most of the outflow from the nursing profession is due to retirement and other reasons, but also are industry changes and outmigration especially to Sweden and Norway detected among nurses. Compared to other Nordic countries, Finnish nurses earn the least. In addition, occupational health care and private care compete of the professionals, especially physicians, with the public sector, further affecting the situation negatively.

The Finnish actions aim to easing the workforce shortage in the country, but the actions’ scope is not as wide as it could be. The problem of the current shortage and growing need of workforce in the future is aimed to be eased with streamlining labour immigration, securing the funding for the training of new professionals, increasing the training of assistive staff, and making staffing levels more flexible in assisted living services. Promoting the use of digital, take-home and mobile services, and increasing the number of assistive staff to get the professionals’ skills used to their best effect aim to optimizing the services, which could help managing the service provision with less workforce.

More focus should be directed to retaining and recruiting health workforce, since the needs of the professionals are not addressed in the Finnish actions. The areas that would need attention are especially the remuneration of the workforce, especially nurses, but also physicians’ increased incomes might help in the recruitment to public sector. However, as direct notable salary increases might be difficult to achieve, could working conditions be a more realistic area of improvement. These could be useful tools to help increasing the attractiveness of the healthcare field to help both in retaining existing workforce and recruiting them in the first place.

No measures are targeted to the areas that are recognised as having the worst situation (medical deserts) in the Finnish actions. Although the digital, take-home and mobile services should help the more rural areas, some special focus would be beneficial to direct to those areas to benefit them even more. The measures could focus on retainment and especially recruitment of new workforce to truly help increasing the areas’ attractiveness among health workforce or optimizing the performance of the health system especially in those areas to being able to provide quality services with less workforce.

6.3 France

In France, a set of national and local measures are being experimented to improve the situation in medically disadvantaged areas, so the nine French ways to mitigate medical

deserts are already in implementation. A shortage of health workforce, prevalent especially in rural areas, has been recognized as a challenge in regard to medical desertification in France. The shortage mainly concerns GPs, but there are regional differences and disparities in the accessibility to (primary care) nurses, midwives, physicians and certain specialized doctors as well. The French actions are deployed to improve access to primary care providers, and the focus of them is on national measures, including evaluation materials and major local measures.

First French initiative is **Increase the overall number of physicians trained and the distribution of medical students among faculties** with an aim that the graduated professionals would stay in the area of their training. The overall supply of doctors had been regulated since 1971, regional planning for GPs began in the mid-2000s, and in 2012 the number of students trained in the regions with a shortage of physicians was raised. This initiative is deemed neither sustainable nor unsustainable by local researchers, because its effect is limited and mixed.

Second action, **Additional year of teaching at the end of the training for GPs**, is a national measure implementing an additional 4th year to the training of GPs. This additional year is intended to provide students with an opportunity to practice independently under the supervision of a University Internship mentor and to encourage future practitioners to practice in different geographical contexts. This measure has been in effect since September 2023.

Third action is **Financial incentives**, which is a national action where the state and the National Health Insurance provide different financial incentives for GPs and nurses to encourage practicing in underserved areas. For GPs, there are three contracts. First offers a set sum for GPs settling and committing to practice in a medically underserved area, second offers a capped percentage-based sum for GPs who prepare for the cessation of their activity by welcoming and committing to support a newly established doctor, and third which promotes fewer punctual exercise of doctors in medically underserved area with percentage-based capped sum. In addition, medical students can get a monthly scholarship for the duration of practicing in a medically underserved area. For nurses, there are three financial incentive contracts. First two offer a set sum for starting to practice in a medically underserved area. Third is a contract for self-employed nurses to maintain their practices in very under-resourced areas. In return for these financial aids, the nurses must commit to practice in the area and practice in a group. All the contracts are added a monthly set sum if the nurse agrees to welcome a nursing student in the practice for an end-of-study internship.

Alongside the previous action, the geographical distribution of self-employed nurses has been regulated with the fourth action, **Limitation of number of installations in overserved areas**. With this initiative, the Regional Health Agency gives agreement for the nurses to settle into the defined overserved areas. This initiative is regarded as potentially unsustainable, depending on professional context, by the local researchers, as its effectiveness for the case of other health professionals than nurses remain unknown.

Fifth action is **Improve working conditions with multiprofessional teams**. The action aims to reorganize primary care delivery by promoting multiprofessional group practices and Primary Care Teams and thus improve working conditions of the health workforce. The policy mainly focuses on healthcare centers and multidisciplinary group practices that combine at least two GPs and one other health professional. The state and the National Health Insurance offer financial support for building and renewing a Primary Care Team and for supporting integration and coordination between professionals. This payment can be used to recruit external non-healthcare professionals for organizing the coordination, cover investments or compensate health care professionals for the time spent for cooperation and skill-mix protocols.

Sixth action is **Inter-professional cooperation**. Inter-professional cooperation, skill-mix and task shifting between GPs and nurses has been slowly encouraged in the past 20 years. In the primary care sector, a voluntary pilot project Asalée, supported by the state and the NHI, has been set up since 2004 to improve care for patients with chronic conditions. Currently in the Asalée pilot, a nonprofit organization enrolls GPs and hires nurses to collaborate with one or several GPs in one or more practices. Public financing partly or wholly covers the investment and operational costs.

Seventh action is **Medical assistants**, a new health profession that was created in 2019. Medical assistants can be hired by self-employed physicians to assist with administrative tasks, organization and coordination of tasks and preparation of consultations. The medical assistants' salaries can be covered partly or wholly by a public financial support from the SHI.

Eighth action, **Increase the percentage of local students**, is a very recent and emergent policy from the county level. The aim is to increase the percentage of local medicine and other health profession students who originate from under-resourced, mainly rural, areas and thus diversify the socio-geographic origins of the students. This action is based on a 3-year experiment with delocalized location of medical education from medicine faculty. This policy concerns specifically the first year of training before the selection process and helps to increase the proximity to the original living place and to reduce costs for education.

Ninth and last French action is **Recruit foreign-trained doctors**, which is an additional response, not a formal policy, to the mitigation of medical deserts that could be mobilized locally. The measures include attracting foreign-trained doctors to remote areas through, for example, recruiting firm and French classes.

6.3.1. Sustainability of ways to mitigate medical deserts

The French actions address all sustainability themes (table 9).

Actions found in pilot studies	Sustainability themes and sub-themes from the modified Framework for Action on the Health and Care Workforce 2023-2030				
	Retain and recruit	Build supply	Optimize performance	Plan	Invest

1. Increase the overall number of physicians trained and the distribution of medical students among faculties*	Good working conditions: 5	Modern education and training: 1*, 2, 6	Multi-professional teams and skill mix: 5, 6, 7	Planning and forecasting needs: 1*, 3, 4**, 5, 6, 7, 9	Increasing public investment and optimizing the use of funds: 2, 3, 5, 6, 7
2. Additional year of teaching at the end of the training for GPs	Fair and effective remuneration: 3, 5	Strong continuous professional development: 7, 9	Quality interaction with patients: 5, 6	Intersectoral approach to planning: 2	
3. Financial incentives	Attracting students: 8		Efficient services: 5, 6	Strong capacity of HRH units: 4**	
4. Limitation of number of installations in overserved areas**	Recruitment and retention: 1*, 2, 3, 4**, 5, 7, 9			Regulated education, service delivery and professions: 7	
5. Improve working conditions with multiprofessional teams					
6. Inter-professional cooperation					
7. Medical assistants					
8. Increase the percentage of local students					
9. Recruit foreign-trained doctors					

Table 9: Sustainability themes of the French initiatives to mitigate medical deserts

* Potentially unsustainable: mixed and limited effect

**Potentially unsustainable: depends on professional context

Retaining and recruiting health workforce

“Retaining and recruiting health workforce” theme of sustainability is addressed in most (eight) of the French actions, which are addressing a few health and care workers’ needs.

Good working conditions are enhanced with the action of “*Improve working conditions with multiprofessional teams*” and its reorganization of primary care delivery to multiprofessional group practices and Primary Care Teams. Group practices have been shown to significantly improve the working conditions of GPs and increase the probability of GPs to being satisfied by their balance between professional and personal life, compared to other types of practice. This is mainly due to low weekly working hours, greater holiday weeks per year, greater flexibility to arrange week and greater possibility of having complementary professional and free time activity in multidisciplinary group practices compared to the self-employed GPs.

The action “*Improve working conditions with multiprofessional teams*” also contributes to **Fair and effective remuneration** as GPs who are experimenting a switch between standard practice to multidisciplinary group practice have been shown to significantly increase their revenue and income. Also, the action of “*Financial incentives*” contributes to effective remuneration with its financial incentives for the professionals practicing and setting up a practice in medically underserved areas.

Attracting students into health and care professions is present in the action of *“Increase the percentage of local students”*. The French 3-year experiment with delocalized location of medical education from medicine faculty seem successful in helping to increase the proximity to the original living place of the students and thus to reduce the students’ education costs. The reasoning behind this action lies in the findings from other countries (Australia, Canada, Japan, the United States) who have had some success in diversifying the socio-geographic origins of students in order to select those most inclined to practise in under-supplied areas.

Recruitment and retainment is addressed by seven initiatives. First, the action of *“Financial incentives”* is directing special attention to rural and underserved areas, as the financial incentives offered for the health personnel apply only to the ones practicing in medically underserved areas. These incentives have been shown to have a positive but modest impact to the increased number of nurse practices. GPs’ income expectancies are already high in under-served areas and it is a profession in where more professionals are retiring than new ones are replacing them, which are limiting factors to the evaluation of the measure’s effectiveness.

Second, the action of *“Medical assistants”* has been contributing to the recruitment in rural and underserved areas as well; by 2022, 3,122 medical assistant contracts were signed mainly by GPs or physicians working in underserved medical areas. Third, *“Limitation of number of installations in overserved areas”* has had a positive impact of less nurses in overserved areas between the years 2006–2016 compared to areas without limitation. The successful effect on decreasing the nurses’ settlement in overserved areas could lead to professionals’ employment in other areas, including underserved ones. The effectiveness of the initiative for other health professionals such as GPs is unknown because of the demographic trend for the high numbers of doctors’ retirement, which are on average higher than the incoming of new doctors.

Fourth and fifth, the actions of *“Improve working conditions with multiprofessional teams”* and *“Recruit foreign-trained doctors”* have been successful in increasing doctors’ practices to underserved areas, thus also directing special attention to rural and underserved areas. The former action’s multidisciplinary group practice is attractive for young GPs, and their location mainly in underserved suburban areas and rural fringes have been attracting young GPs to these areas over the period of 2004–2017. The effect has been positive in suburban areas with Primary Care Teams when compared to areas without them. Rural fringes that experiment multidisciplinary group practices settlements are also more attractive to young GPs, but the scarcity of GPs remains worrying. Considering the latter action, despite the modest flow and the greater mobility of the foreign-trained doctors, they have been shown to settle more than those trained in France in medically underserved areas, particularly in rural fringes and suburban areas. Between 2007 and 2017, 856 foreign-trained GPs have settled for the first time in France, when the number of GPs trained in France was 4 582. However, no information exists on the ethicality of the recruitment practices.

Sixth, *“Additional year of teaching at the end of the training for GPs”* somewhat contributes to recruitment and retainment in underserved areas, but its effects are not yet evaluated. It

encourages future practitioners to practice in different geographical context (i.e., in under-resourced areas) with the intended independent practicing under doctor supervision and university internship mentoring. Though, there is an open question whether there is a sufficient number of doctors to supervise the students, which is more problematic in under-resourced areas.

Seventh, *“Increase the overall number of physicians trained and the distribution of medical students among faculties”* have had limited effects on the recruitment and retainment. The raised number of students trained in the regions with a shortage of physicians since the year 2012 have increased the practitioners in the rural areas but not markedly. GPs are free to settle their practices where they want in France, and also the fidelity of physicians to their place of training is obviously not total and, above all, varies greatly from one region to another.

Building supply of proficient health and care workforce

The sustainability theme “Building supply of proficient health and care workforce” is addressed by four French initiatives which are strengthening education and training, and skills and competencies of the new professionals.

First, **Modern education and training** is addressed by two actions. First, *“Increase the overall number of physicians trained and the distribution of medical students among faculties”* has been altering the education and training of health and care workforce to be reflecting population needs by increasing the number of students in the regions with a shortage of physicians. Second, the action of *“Additional year of teaching at the end of the training for GPs”* which is contributing to a strong teaching-capacity of health and education institutions with the extra training year, consisting of independent practice under the supervision of a university internship mentor. The action *“Inter-professional cooperation”* also addresses modern education and training. The training of nurses that are to be hired to the GP practices is reflecting service requirements of working in interprofessional teams.

Strong continuous professional development, in turn, is present in the action of *“Medical assistants”* and *“Recruit foreign-trained doctors”*. Medical assistant positions are open to both people with a health professional background (such as nurses or nursing aides) and those without (such as medical secretaries), providing that they follow appropriate training. *“Recruit foreign-trained doctors”*, in turn, is attracting foreign-trained doctors with French classes. Both actions are utilizing continuous professional development by offering the professionals opportunities for acquiring new knowledge and skills throughout their careers.

Optimized performance of the health systems

“Optimized performance of the health systems” theme of sustainability is a part of three French initiatives, which are focused on redefining teams and skill-mix.

Multi-professional teams and skill mix is present in three actions, first of them being *“Improve working conditions with multiprofessional teams”*. This initiative is promoting the use of multi-professional teams and skill mix for example with more dedicated time for multiprofessional coordination and creating multiprofessional care guidelines. Its policies have supported the exponential development of multidisciplinary group practices to more than 2,000 of them in 2022, compared to fewer than 20 in 2008.

Second, the action of *“Inter-professional cooperation”* contributes to multiprofessional themes and skill-mix with its pilot program that supports the use of multiprofessional teams and task-shifting between professionals. The pilot program allows GPs to cooperate with nurses who carry out activities that are usually undertaken by GPs, such as screening, health education and technical procedures. More than 700 nurses and 3,000 GPs are enrolled in the pilot to date. Third, the action of *“Medical assistants”* aims directing tasks to medical assistants from other health workers in order to have their skills used to the best effect. The action is supporting, for example, the shift of administrative tasks, organization and coordination of tasks and preparation of the consultation (e.g., filling medical record, taking blood pressure) to the medical assistants.

The *“Improve working conditions with multiprofessional teams”* action has had positive effects on the **Quality interaction with patients** by enhancing a culture of person-centred care and empowerment. During the Covid-19 crisis, health professionals working in multidisciplinary group practices appeared to demonstrate more resilience in assuring continuity of care, with higher rates of remote consultations and patient follow-up procedures than traditional practices. The culture of person-centred care and empowerment have been improved also with the action of *“Inter-professional cooperation”*; it has been shown that the quality of care has improved for type 2 diabetes patients.

Efficient services have also been improved within the above mentioned two initiatives. The multidisciplinary group practices and their attractiveness among young GPs from the action of *“Improve working conditions with multiprofessional teams”*, have contributed to efficiency gains. Multidisciplinary group practices have proved to be efficient in improving the accessibility to general medicine in primary care for the patients with the introduction of extended opening hours, opening hours without requested appointments and information sharing via accredited electronic health records. In addition, it has been estimated that GPs in multidisciplinary group practices increased their patient list more rapidly than control GPs without increasing their provision of services (number of visits and drug prescriptions), thus contributing to efficiency. The increased GPs’ patient list and the generated efficiency gains, is also observed in the action of *“Inter-professional cooperation”* and its pilot project.

Planning for health and care workforce

“Planning for health and care workforce” is addressed by five French actions. The actions are planning comprehensive HRH policies and coordinating multiple stakeholders with changing needs.

Planning and forecasting needs is addressed by seven initiatives, which are all assessing their results. *“Increase the overall number of physicians trained and the distribution of medical students among faculties”* and *“Limitation of number of installations in overserved areas”* have evaluated their effects on the number of practitioners in the medical desert areas.

The action of *“Improve working conditions with multiprofessional teams”* have assessed the effects to GPs’ working conditions, revenues and patient list, and multidisciplinary group practices’ and doctors’ location by, for example, surveys to GPs. *“Medical assistants”* action has assessed results about the number of contracts, employers and their locations, and *“Recruit foreign-trained doctors”* assessed the numbers of foreign-trained doctors and their location. *“Inter-professional cooperation”* has conducted a quasi-experimental evaluation research on quality of care, care delivery and the numbers of professionals enrolled in the pilot. Lastly, *“Financial incentives”* is using information on the health system goals and priorities about the need for getting new practices to underserved areas besides assessing the results of its measures. The financial incentives for nurses have been evaluated, whereas for GPs, reports exist on the number of beneficiaries or the cost of this measure but without any real impact assessment.

Intersectoral approach to planning is used by the action *“Additional year of teaching at the end of the training for GPs”*, as its implementation includes engaging local community Regional health agency, medicine faculty and practitioners in the planning and implementation in each region.

Strong capacity of HRH units is present in the potentially unsustainable action of *“Limitation of number of installations in overserved areas”* since it is planning for the workforce strategically and managing the number of practices in over- and under-served areas based on information of spatial accessibility to nurses. The action is as well contributing to **Regulated education, service delivery and professions** by regulating the service delivery, as the Regional health agency gives agreement for the nurses to settle into the defined overserved areas. Another action, *“Medical assistants”*, is regulating professions, since the new medical assistant position is open to people who follow appropriate training.

Public investment in the health and care workforce

“Public investment in the health and care workforce” is addressed by five French actions which are increasing public funding to health and care workforce as well as making smarter use of the funds.

All the five actions are **Increasing public investment and optimizing the use of funds**. The action of *“Additional year of teaching at the end of the training for GPs”* can be seen as an innovative policy to increase the workforce’s availability and thus optimizing the use of funds, since the GP students’ additional year of education is a form of clinical practice. Also, as the students might get reimbursement for the internship (not decided yet), it increases the public investment as well. The action of *“Financial incentives”* is also an innovative health and care workforce policy to increase the workforce’s availability, and a form of increasing public

investment and optimizing the use of funds since the incentives for the health professionals are paid by state and the National Health Insurance.

Increasing public investment to health and care workforce is present in the action of *“Improve working conditions”*, as the National Health Insurance has dedicated 125,4 million euros only for the year 2022 to the policy of supporting the use of multiprofessional group practices, and the investment should continue because the Ministry of Health has announced in June 2023 a new plan in order to reach 4,000 Primary Care Teams by 2027. Also, the financial transfers included in the initiative are innovative health and care workforce policies to increase the workforce’s availability, accessibility and productivity.

The *“Inter-professional cooperation”* action increases public financing as the state and the National Health Insurance are partly or wholly covering the investment and operational costs, especially nurses’ salaries and payments for coordination made to GPs, as well as selecting and training the nurses. The action of *“Medical assistants”* is also increasing public investment to health and care workforce since the medical assistants’ salaries are covered partly or wholly by the Social Health Insurance. The financial aid ranges from €12,000 to €36,000 for the first year, decreases in the second and stabilizes in the third and subsequent years (from €7,000 to €21,000).

6.3.2 Summary

The French actions are mostly sustainable when investigated as individual actions. However, two of the actions are regarded as potentially unsustainable by local researchers based on the limited information about the actions’ effectiveness. *“Increase the overall number of physicians trained and the distribution of medical students among faculties”* has been deemed neither sustainable nor unsustainable, because its effect to getting the graduated professionals to stay in the area of the training is limited and mixed. *“Limitation of number of installations in overserved areas”*, in turn, is regarded as potentially unsustainable, as its effectiveness to limit the service providers in overserved areas for the case of other health professionals than nurses remain unknown. These are still addressed as part of the actions, as they have already been implemented in France, and at least some effects have been detected.

When examined as a totality, the French actions are sustainable as they address all the sustainability themes. The actions are retaining and recruiting health workforce by addressing most health and care workers’ needs (working conditions, remuneration, attracting students, recruitment and retainment), which is the main focus of the actions most often (table 10). The actions are also optimizing performance of the health system by redefining teams and skill-mix, which is the second most utilized main focus of the actions. Building supply of proficient health and care workforce by strengthening education and training, skills and competencies of the workforce is, in turn, the third most often utilized main focus. The actions are as well planning for health and care workforce with comprehensive policies regarding human resources for health and coordination of multiple stakeholders; and investing in the health and care workforce with increased, sustained and smarter public investment, which are also the main focuses of one of the actions (table 10).

Sustainability theme	Retain and recruit	Build supply	Optimize performance	Plan	Invest
French actions	Additional year of teaching at the end of the training for GPs	Increase the overall number of physicians trained and the distribution of medical students among faculties*	Improve working conditions with multiprofessional teams	Limitation of number of installations in overserved areas**	Financial incentives
	Financial incentives		Inter-professional cooperation		
	Limitation of number of installations in overserved areas**		Medical assistants		
	Improve working conditions with multiprofessional teams	Additional year of teaching at the end of the training for GPs			
	Increase the percentage of local students				
	Recruit foreign-trained doctors				

Table 10: The ways to mitigate medical desertification in France and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

* Potentially unsustainable: mixed and limited effect

**Potentially unsustainable: depends on professional context

Besides the comprehensive coverage of the sustainability themes in the French actions, the themes that are not addressed are gender sensitive policies from “Retaining and recruiting health workforce”; optimizing performance of the health systems with the use of digital solutions; using better data in the planning for health and care workforce; and contributing to public investment in the health and care workforce by justifying its societal benefits from the “Public investment in the health and care workforce” theme.

The sustainability themes are addressed comprehensively in the French actions, so no additional actions are necessarily needed. The workforce shortage in France is prevalent especially in rural areas, and the French actions aim for targeting the rural areas and regional differences with financial incentives for settling into rural areas, promoting recruitment of foreign-trained doctors to rural areas, and aiming to attract new students and professionals from the rural areas. On the contrary, the actions also limit new health service installations to overserved areas, and even though if the action targeting that would be deemed as unsustainable due to lack of effects, the incentives targeting rural areas are still ample and sufficient.

The actions focus mostly on GPs and physicians but also nurses are targeted in the actions. It is sustainable to direct resources to the professional groups with the worst shortages while also addressing the regional differences of other health professionals, since the shortage mainly concerns GPs, but there are regional differences in the accessibility to physicians and

primary care nurses and midwives as well. There is also an expectation of an increase in the numbers for nurses, midwives and physiotherapists in the near future, so it is justifiable to direct the main focus on increasing the number of GPs as similar increase is otherwise not expectable.

Disparities have also been detected to exist on the long waiting times for certain specialized doctors, for example, ophthalmologists and dermatologists. This is not addressed in the French actions. It may, however, be a wise use of resources to focus on primary care and GPs due to their shortage's severity and the potential benefits the improved primary care could have on decreased need for specialist services in the future. Obviously, though, in the future it would be useful to address the challenges concerning specialist care.

For sure, health and care workforce's needs could be addressed further, and more focus could be directed to retaining and recruiting health workforce to further help against the workforce shortage. For example, gender equality actions and raising the incomes and working conditions of the health professionals more widely beyond the medically underserved areas might be useful and worth experiencing. However, since the resources aren't abundant, when implementing all the French actions successfully and with good effectiveness, these should be a feasible and sustainable way to tackle the issue of medical desertification in the country.

6.4 Hungary

In Hungary, three actions were identified in the pilot study, which are all already being in implementation. Hungary has been identified as encountering challenges of uneven distribution of health workforce across the country, lack of certain specialist physicians, emigration of health professionals and high age of GPs. These are contributing to medical desertification, which the actions aim to mitigate.

First action is **Creation of GPs Clusters**, which are networks of collaborating primary care practices where at least five GP practices work together and provides not only the traditional, acute, emergency and chronic care but preventive services and health promotion interventions as well. The traditional one-physician/one-nurse setup is complemented with other health professionals. With the broadened primary care services and promoted teamwork, GPs can concentrate on their own medical tasks by the lower workload. The cooperation can be formalised in different levels: Collegial GPs Cluster and Closely Cooperation GPs Cluster (with three options of contractual status: Integrated GPs Cluster, United GPs Cluster and Consortium of GPs Clusters) (see Government Decree on GPs Clusters. No. 53/2021 – 53/2021. (II. 9.) Korm. rendelet a praxisközösségekről). A framework has been set by a national government decree in 2021 after testing the GPs Clusters in several pilots between 2013–2017. The National Directorate General for Hospitals is in charge of registration for new clusters.

Second initiative is **Network of Collegial Professional Leaders of GPs**, which means that there is a national collegial professional leader (a practicing physician) for GPs (one for the general paediatricians and one for the primary care dentists) and collegial professional leaders in every county for the aforementioned professionals. The network endeavours to streamline

communication across different levels of primary care, fostering a more integrated approach and enhancing communication with practicing doctors. From 2020, collegial professional leaders have been supporting GP practices at county and national level in primary care, and the system was extended to district level in January 2023, which can further enhance communication at local level.

Third and last Hungarian action is **Taking over on-call tasks by Hungarian National Ambulance Service**. The on-call tasks include care in non-acute conditions similarly as with regular GP services, such as quick and immediate prescriptions. The services are accessible outside regular office hours also on weekends and holidays and they include home visits, if justifiable. Previously, the on-call services had to be organised by GPs and paediatricians before transferring their organizing responsibility to the National Ambulance Service. The goal of the initiative was to handle the human resource problems in primary care, mainly in the rural areas. The new on-call system started in February 2023 after piloting it in Hajdú-Bihar county. The system was extended step-by-step throughout the country except Budapest.

6.4.1. Sustainability of ways to mitigate medical deserts

The Hungarian actions address four out of five sustainability themes: retain and recruit, optimize performance, plan and invest (table 11).

Actions found in pilot studies	Sustainability themes and sub-themes from the modified Framework for Action on the Health and Care Workforce 2023-2030			
	Retain and recruit	Optimize performance	Plan	Invest
1. Creation of GPs Clusters	Good working conditions: 1, 3 Recruitment and retainment: 1	Multi-professional teams and skill mix: 1	Planning and forecasting needs: 1, 3	Increasing public investment and optimizing the use of funds: 1, 3
2. Network of Collegial Professional Leaders of GPs		Quality interaction with patients: 1	Intersectoral approach to planning: 1, 2	
3. Taking over on-call tasks by Hungarian National Ambulance Service		Appropriate use of digital technologies: 1 Efficient services: 1	Regulated education, service delivery and professions: 1, 2, 3 Strong HRH information systems: 2	

Table 11: Sustainability themes of the Hungarian initiatives to mitigate medical deserts

Retaining and recruiting health workforce

The sustainability theme “Retaining and recruiting health workforce” is addressed by two actions which target improving working conditions and recruiting new workforce.

“*Creation of GPs Clusters*” action has contributed to **Recruitment and retainment** by giving financial subsidies for GPs Clusters so they could hire other health professionals to complement their services. However, the shortages of health professionals in the most deprived areas have to be handled by complex approaches and programmes, not only by

establishing GPs Clusters, so this action is not directing special attention to rural and underserved areas. Also, subsidies for the clusters were temporary and no financial incentives exist nowadays to hire the new professionals.

“*Creation of GPs Clusters*” also contributes to **Good working conditions**. Promoted teamwork and being able to concentrate more on the GPs’ own tasks along the action is thought to lower GPs’ workload. “*Taking over on-call tasks by Hungarian National Ambulance Service*” action improves **working conditions as well**, as it removed the responsibility of handling on-call tasks from the GPs. The on-call tasks required working outside regular office hours and on holidays, so by removing them, this action has positive contribution to reasonable workload and work-life balance.

Optimized performance of the health systems

“Optimized performance of the health systems” theme of sustainability is addressed by one action. The action of “*Creation of GPs Clusters*” supports **Multi-professional teams and skill mix** as the GPs Clusters can hire other health professionals with the offered financial subsidies. The GPs Clusters model includes new health professions to the primary care field to be hired by the clusters: practice nurse, public health coordinator, community nurse, public health professional, dietician, physiotherapist, health psychologist and health mediator. A pilot programme of the GPs Clusters model has also increased collaboration between primary care and secondary outpatient care. These encourage task-shifting between different health and care workers in order to have their skills used to best effect. Notable is, however, that the funding for the recruitment has not been sustained over time.

“*Creation of GPs Clusters*” has had effects on **Efficient services**. One of its pilot programmes have had to be modified several times due to the Covid-19 pandemic, but the situation provided an opportunity to create new communication channels – being an example of adequate equipment. Also, by allocating more time for care and effective service delivery the pilot project made access to new preventive and health development services easier to access for nearly one million people. The same project has also had effects on **Quality interaction with patients**, as the care has been individualised for patients with vascular disease and the health literacy of patients have been improved. “*Creation of GPs Clusters*” and the discussed pilot programme that had to be modified several times due to the Covid-19 pandemic provided an opportunity to introduce telemedicine services. This is the use of digital solutions by professionals and patients, thus contributing to **Appropriate use of digital technologies**.

Planning for health and care workforce

“Planning for health and care workforce” theme of sustainability is present in all the Hungarian actions that are using policies regarding human resources for health, utilizing better data and coordinating of multiple stakeholders.

“*Creation of GPs Clusters*” and “*Taking over on-call tasks by Hungarian National Ambulance Service*” are **Planning and forecasting needs** by assessing the actions’ results and supposedly

having used the information on the planning of the actions, perhaps contributing to strategic planning as well. One of the pilot studies results to establish GPs Clusters in Hungary have been elaborated in numerous studies, whereas the most recent GPs Clusters' outcomes have not been evaluated yet due to their novelty. *"Taking over on-call tasks by Hungarian National Ambulance Service"* included a goal of handling the human resource problems in primary care and has been assessing its results. The action had been piloted in one county before disseminating it into other areas of the country.

Intersectoral approach to planning is present in two of the Hungarian actions. Planning for the *"Creation of GPs Clusters"* initiative have engaged stakeholders: the previous development programmes were implemented with the participation of the National Directorate General for Hospitals and some of them also with the participation of Hungarian Charity Service of the Order of Malta. The action of *"Network of Collegial Professional Leaders of GPs"*, in turn, includes involving local stakeholders of the health system, thus being able to tailor solutions to the specific needs and preferences of the local population. The Collegial professional leaders at county level have also already established better communication channels towards policy makers that can support handle the challenges of medical desertification.

Regulated education, service delivery and professions is addressed by all three Hungarian actions by regulating service delivery. In the action of *"Creation of GPs Clusters"* there is the framework for establishing GPs Clusters regulated by a Government Decree (No. 53/2021). In the action of *"Network of Collegial Professional Leaders of GPs"* Decree of Ministry of Health (No. 4/2000) and Government Decree on GPs Clusters (No. 53/2021) regulate the scopes of territorial collegial professional leaders of GPs. In the action of *"Taking over on-call tasks by Hungarian National Ambulance Service"* there is the system regulated by a Decree of Ministry (No. 47/2004).

Strong HRH information systems is present in the action of *"Network of Collegial Professional Leaders of GPs"* The network is a tool for managing the communication and the interests and different problems of GP practices, and it can be regarded as a bridge between the health governance and the GP practices – a form of using available data to create a picture of the whole health labour market.

Public investment in the health and care workforce

Increasing public investment and optimizing the use of funds is part of the *"Creation of GPs Clusters"* action. The Hungarian government have supported the creation of the clusters with financial subsidies and GP practices which entered into GPs clusters received additional financial support to increase the wages of primary care physicians. However, the financial subsidies given to the clusters to hire new health professionals are temporary, and currently there are no motivations and regular targeted financial incentives for new GPs Clusters to hire new health professionals. The temporary financial aid is anyhow an investment in primary health care workforce and a form of innovative health and care workforce policy to increase

the workforce’s availability and accessibility, even though new types of financial incentives are needed.

The action of *“Taking over on-call tasks by Hungarian National Ambulance Service”* is also either increasing public investment or optimizing the use of funds since both the ambulance services and GPs (who previously took care of the on-call tasks) are paid from the public health funds. Transferring tasks from GPs to ambulance services can be seen as prioritizing investment in primary health care workforce, as workload of the GPs is decreased, which presumably includes investing somehow to the ambulance services.

6.4.2 Summary

The Hungarian actions to mitigate medical deserts are sustainable when examined as individual actions. When it comes to the actions as a totality, their sustainability leaves room for improvement since building supply of health workforce theme of sustainability (including strengthening education and training, skills and competencies of the workforce) is ignored. The actions are instead retaining and recruiting health workforce; optimizing the performance of the health system; and planning for health and care workforce, which are the main focuses of the Hungarian actions (table 12). Retaining and recruiting health workforce includes addressing good working conditions and recruitment from the health and care workers’ needs. Optimizing performance of the health systems focuses on redefining teams and skill-mix and using digital solutions. Planning includes policies regarding human resources for health, use of better data and coordination of multiple stakeholders. Increasing and optimizing public investment in the health and care workforce is also addressed in the Hungarian action, but not as main focus (table 12).

Sustainability theme	Retain and recruit	Build supply	Optimize performance	Plan	Invest
Hungarian actions	Taking over on-call tasks by Hungarian National Ambulance Service		Creation of GPs Clusters	Network of Collegial Professional Leaders of GPs	

Table 12: The ways to mitigate medical desertification in Hungary and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

The other sustainability themes that are not addressed besides “Build supply” are remuneration, health and well-being, gender sensitive policies and attracting students from “Retain and recruit” and contributing to public investment in the health and care workforce by justifying its societal benefits from “Invest”.

More focus would be beneficial to direct to building supply of health workforce to respond to the identified challenge of aging primary care doctors and possible future availability problems of them. The means could include increasing the numbers of new medical students or, for example, aiming to create routes to higher education training for current health professionals with continuous professional development. Then again, it seems reasonable to

focus first on the working conditions and optimizing the performance of the health system as it has been done, to being able to cope with the current resources and retain the current workforce, as the education processes take longer time. Also, in that way the healthcare field's attractiveness could be increased.

To tackle the challenge of workforce emigration to other EU countries due to better working environment outside Hungary, some additional actions would be recommended. The reasons for doctors' emigration include higher wages and prestige, better opportunities for career and professional development, training and participation in research, well-equipped workplaces, better working conditions and quality of living and predictability both in private life and career wise.

Previously in 2020 the government has implemented a large-scale pay rise for medical doctors in public health, step by step from 2021 to 2023, which is a response to the need for higher wages for doctors. By creating the networks of collegial professional leaders of GPs could perhaps indirectly increase the sense of prestige by connecting health professionals to collaborating clusters and enhancing communication between primary care providers.

The Hungarian actions have also potential to improve the working conditions of GPs, contributing to predictability and quality of living with promoted teamwork, being able to concentrate more on their own tasks and lower workload and working times of the GPs. More focus could also be directed to other health professionals than just GPs, but it is justifiable to have been focusing on the GPs since the shortage and developmental areas have been detected among physicians, and since the health services are for the most part provided by them.

However, what remains unaddressed in the Hungarian actions are increased opportunities for professional development – hence increasing opportunities for continuous professional development would be beneficial. Also, workforce's well-being in a more general sense and actions considering gender equality may be areas of interest regarding retaining and recruiting workforce, that could increase the willingness to work in the Hungarian health system.

Uneven distribution of health workforce across the country has also been detected as challenge in Hungary, even though the overall number of healthcare professionals has grown. The mitigating action which transfers the organizing responsibility of non-acute outside office hours on-call services from GPs to National Ambulance Service might help to ease the situation in the areas with insufficient workforce, as now some of the patient load is transferred to the national level organiser. However, targeted measures aiming to improve the geographic imbalance remain unseen within the Hungarian actions.

The actions' focus of the workforce shortage at the country level, though, might be a good strategy since no clear picture exists of where medical deserts are located. Issues with medical desertification had been identified in the north-eastern parts of the country before the OASES project, but the pilot studies could not confirm that. However, when more information on

where medical deserts will exist, targeted actions to those areas would be beneficial – either to be focusing on the recruitment and retainment of workforce or health system’s optimized performance.

Lastly, more sustained public investment would be beneficial to increase the mitigating actions’ effects. The creation of GPs Clusters should strengthen primary care by introducing new ways of providing primary care services and perhaps increasing collaboration between primary and secondary outpatient care. If disseminated and sustained, the current hospital centric system might change towards including more ambulatory care services and decrease the present unnecessary hospitalizations and high use of inpatient care services. The challenge, however, is that some of the financial investment for this action has already ended. If the available resources would allow, more sustained investment to the primary care and other health workforce would be beneficial for the mitigation of the medical deserts in Hungary.

6.5 Italy

Three actions to mitigate medical deserts were identified in the Italian pilot study, all of which are already amidst of becoming realised. The actions include contents to help to answer to the challenges the Italian health system is facing in relation to medical deserts: challenges in public sector recruitment and shortage of health personnel in rural areas.

The first action **Networks through which supply, emergency, assistance is organised** is a regional level action aiming to strengthen healthcare networks through which healthcare is provided and improve the organisation of healthcare services. This entails a reorganisation of the processes centred on greater integration between hospitals and between the hospital networks and territorial services by linking professionals, facilities and services that provide health and social interventions of different types and levels. Ministerial Decree no.77 defining new “models and standards for territorial healthcare” has been approved in 2022 and Ministerial Decree no.70 concerning “hospital networks” at national and local level is currently under review. That is supposed to be the legal and practical framework for a new complementary network approach and integration between hospital and territory.

Second action **Telemedicine** has a goal of promoting and implementing the use of telemedicine further at the local level. It aims ensuring better clinical management of the patient and eased access to healthcare services. This could entail promoting, strengthening and adapting telemedicine pathways to facilitate acute and chronic care by community-based care, promoting de-hospitalisation and enhancing and improving the quality of community-based care. There is already a dedicated funding in the National Recovery and Resilience Plan, and a policy package to implement telemedicine at national level.

Third action **Allocation of the national health fund based on the mapping of medical deserts** is a national action aiming to change the distribution of the health fund from the central government to the regions. Current criteria of allocating funds based on purely demographic elements could be extended to include criteria that better catch additional factors that are relevant in terms of medical desertification: aspects of health and deprivation. This initiative

also includes an idea of linking the disbursement of funds to the achievement of strategic and measurable objectives. Given the last developments in terms of fund management, the main ambition is to create an allocation system which is based on an integrated approach and takes into account several peculiarities in a given territory: namely, not only factors related to demography and/or unemployment rate, but also concerning healthcare quality and coverage in order to ensure the proper utilization of funds and mitigate the existing deficiencies.

6.5.1. Sustainability of ways to mitigate medical deserts

The ways to mitigate medical desertification in Italy address three sustainability themes: Optimize performance, Plan, and Invest (table 13).

Actions found in pilot studies	Sustainability themes and sub-themes from the modified Framework for Action on the Health and Care Workforce 2023-2030		
	Optimize performance	Plan	Invest
1. Networks through which supply, emergency, assistance is organised (regional)	Quality interaction with patients: 1	Planning and forecasting needs: 3	Increasing public investment and optimizing the use of funds: 3
2. Telemedicine (local)	Appropriate use of digital technologies: 2	Strong HRH information systems: 1	
3. Allocation of the national health fund based on the mapping of medical deserts (national)	Efficient services: 1, 2		

Table 13: Sustainability themes of the Italian initiatives to mitigate medical deserts

Retaining and recruiting health workforce

“Retaining and recruiting health workforce” element of sustainability is not part of the Italian initiatives. Though along with the potentially improving health and care services, could the retainment and recruitment of the workforce be enhanced as well, if the working conditions improve simultaneously with the services. However, these effects are not directly part of the initiatives so they are not addressed as fitting to this area of sustainability.

“Retaining and recruiting health workforce” element of sustainability could be strengthened as part of the Italian strategies that support underserved areas. Though along with the potentially improving health and care services, could the retainment and recruitment of the workforce be enhanced as well, if the working conditions improve simultaneously with the services. However, these effects are not systematically part of the initiatives at national and regional level, so they are not addressed as fitting to this area of sustainability.

Building supply of proficient health and care workforce

Second theme of sustainability, “Building supply of proficient health and care workforce”, may be implicitly addressed in the Italian actions. As per this theme, the first two actions may include training and skill-building for the health professionals, but information on these was not available, thus they cannot be addressed here.

Optimized performance of the health systems

“Optimized performance of the health systems” theme of sustainability is addressed by two of the Italian actions. The action of “*Telemedicine*” is contributing to the **Appropriate use of digital technologies**. Telemedicine is a digital technology, which aims promoting for example de-hospitalisation and improving the quality of community-based care – thus promoting opportunities to change the balance between ambulatory and inpatient care. The action also contributes to **Efficient services**: telemedicine is an equipment that has potential for reorganizing the healthcare services, particularly at territorial level, through the activation of digital health tools. Its use could lead to more efficient services as it has been planned to ensure better clinical management of the patient, eased access to healthcare services and improved quality of community-based care.

The action of “*Networks through which supply, emergency, assistance is organised*” contributes to efficient services as well. It promotes effective management to support optimal performance with the aimed improvements in healthcare networks and the integration of services and providers. The action also supports **Quality interaction with patients**: the reorganisation of the processes centred on greater integration of the services and service providers aims ensuring that patient assistance takes place under the conditions of appropriateness, effectiveness, efficiency, quality and safety of care.

Planning for health and care workforce

“Planning for health and care workforce” element of sustainability is addressed by two Italian actions. The action of “*Allocation of the national health fund based on the mapping of medical deserts*” is **Planning and forecasting needs**, as distributing the health funds includes information on the health and deprivation (such as mortality rate of the under-75s and socio-economic indicators considering poverty, schooling and unemployment) of the population, thus helping to understand the local contexts. The new criteria for allocating the health fund might include information on the health system by considering the deprivation of the health services and professionals.

Strong HRH information systems theme is present in the action of “*Networks through which supply, emergency, assistance is organised*”. The abovementioned Ministerial decree relating to the initiative includes a revision of hospital and care networks for specific areas (e.g., oncology), which is contributing to the use of available research and data to create a picture of the whole health labour market.

Public investment in the health and care workforce

The sustainability element of “Public investment in the health and care workforce” is addressed by one action, “*Allocation of the national health fund based on the mapping of medical deserts*”. The action is **Increasing public investment and optimizing the use of funds**. The action aims linking the disbursement of funds to the achievement of strategic and measurable objectives, which can be seen as optimizing the use of funds and investment by

emphasizing the effectiveness of the funded actions. Also, a reflection on medical deserts could offer further elements to be included in decision-making, further affecting smarter public investment.

6.5.2 Summary

The Italian actions as individual actions are evaluated as sustainable. On the contrary, as a totality, they rather lean towards being less sustainable since the actions address only three of the five sustainability themes. The actions focus on optimizing the performance of the health system by redefining teams and using digital solutions; planning for health and care workforce with policies relating to human resources of health and use of better data; and contributing to smarter public investment in the health and care workforce. When assessing which of the sustainability themes are in the main focus of the actions, is “Optimize performance” in the centre of two of the actions, whereas “Plan” and “Invest” are the main focus of one of the actions (table 14).

Sustainability theme	Retain and recruit	Build supply	Optimize performance	Plan	Invest
Italian actions			<p>Networks through which supply, emergency, assistance is organised</p> <p>Telemedicine</p>	Allocation of the national health fund based on the mapping of medical deserts	Allocation of the national health fund based on the mapping of medical deserts

Table 14: The ways to mitigate medical desertification in Italia and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

Instead, the actions neither retain and recruit health workforce by addressing the needs of the health workforce, nor build supply of proficient health and care workforce by strengthening health professionals’ education, training, skills, or competencies. The actions also do not explicitly address redefining skill-mix; coordination of multiple stakeholders in the planning process; and investing in the health and care workforce in a way which contributes to economic growth and societal cohesion.

The lack of actions in regard to strengthening health professionals’ training, education, skills and competencies is justifiable because educating health workforce has already been addressed in Italy. Education positions for nurses have been added for years 2022–2027, and the number of students admitted to medical school has increased to compensate for the current and forthcoming retirement of nurses and physicians. Some extra attention could, however, be directed to continuous professional development to increase the workers’ job satisfaction and intentions to stay in their work. Thus, the situation with competent workforce seems to be in good state, if the recruitment and retainment of the workforce is successful.

The Italian challenges of uneven distribution of patients per GP between urban and rural areas (rural areas having less physicians compared to inhabitants' needs) and challenges in public sector recruitment to permanent positions (leading to temporary work, meaning health professionals being hired from external agencies at higher expenses) might not solely be addressed with optimized performance of the services, planning better policies, and planning for health and care workforce. This applies even though all the three Italian actions may have potential for helping with the public sector recruitment if the working conditions (i.e., salaries and flexibility in shifts and working locations) are improved along the actions.

The rural areas' workforce shortage is targeted with allocating the national health funds more to identified medical desert areas. It might have indirect positive effects that can help with recruiting health workforce to rural areas – though it would depend on what would the medical desert areas do with the new additional funding. However, there is potential for that the workers' needs are taken into account and that the working conditions are improved in the rural areas along this initiative.

Other actions may have potential for improving the situation in rural areas as well, even though they are to be applied to other parts of the country than purely medical desert areas. Greater integration of service providers and improved healthcare services' organisation through new networks, re-organisation of the healthcare services, and better clinical management of the patient have the potential to alleviate the situation in rural areas by improving the services for both the patients and the workforce – thus they may help in rural areas and in public sector recruitment.

More actions or additional measures to the existing ones might, however, be needed in Italy to address the medical desert phenomenon more diversely and effectively. Measures targeted to health and care workers' needs and their retainment and recruitment might be needed to be able to increase the attractiveness of especially the public healthcare field in rural areas. Providing higher remuneration or incomes, improved working conditions, and attention to workforce's health and well-being are examples of the potential actions that could be added to the Italian toolkit. Lastly, health professionals might need some targeted incentives to work in the rural areas – whether to be related to the organisational working conditions and terms or to rural areas' possibilities in a more general sense.

6.6 Republic of Moldova

Five actions were identified in the Moldovan pilot study with goals of mitigating medical deserts (table 8). In Moldova, there are interrelated challenges with inadequate numbers of health and care workforce, due to health personnel's high mean age, outmigration and personnel leaving to work in other sectors. Also, there is an uneven geographical distribution of the health professionals with low numbers of GPs being available in rural areas, leading to medical deserts.

The first pilot study action **Attract more young persons to pursuit a career in medical specialties** is a nation-wide action with a goal of increasing the number of students in the field of healthcare. The action uses two ways, first of them being financial incentives such as

lowering costs of studying and increasing support for students by increased monthly allowances. The second way is directing positive attention to medical sector by channelling children’s attention to the healthcare segment of education.

The next four actions focus on medical desert areas. The action of **Preferential contractual conditions for health professionals in medical desert areas** would offer, for example, fixed term contracts and higher salaries for the employees in medical desert areas than in urban areas. The action is, however, evaluated to be unsustainable by local researchers because differentiated incomes for different geographical regions within Moldovan health system’s health institutions are not permitted, and a change in law in this matter seems unlikely.

The action of **Non-material benefits for health professionals in medical desert areas** would offer benefits for living and mobility costs: free of charge or with significantly lower costs a rental house in that area, lower than the market-priced mortgage rates for young professionals, and support in assuring mobility within the designated territory with car rental subventions or fuel reimbursement.

The action of **Standard financial incentive for health professionals in medical desert areas** would offer one-at-a-time or annual financial incentive for the health professionals working in medical desert areas, provided by government or local authorities. The incentive is similar to an incentive that is in place for young professionals.

Lastly, the action of **Special working conditions in medical desert areas** would offer better working conditions, such as decreased overall working hours, continuous medical and digital education courses, telemedicine, online consultations and digital solutions for HR and quality control.

6.6.1. Sustainability of ways to mitigate medical deserts

In Moldova, all sustainability themes are addressed, as can be seen in table 15.

Actions found in pilot studies	Sustainability themes and sub-themes from the modified Framework for Action on the Health and Care Workforce 2023-2030				
	Retain and recruit	Build supply	Optimize performance	Plan	Invest
1. Attract more young persons to pursuit a career in medical specialties	Good working conditions: 5	Strong continuous professional development: 5	Appropriate use of digital technologies: 5	Planning and forecasting needs: 1	Increasing public investment and optimizing the use of funds: 1, 2*, 3, 4
2. Preferential contractual conditions for health professionals in medical desert areas*	Fair and effective remuneration: 2*, 4	Digital health competencies: 5		Intersectoral approach to planning: 3, 4	
3. Non-material benefits for health professionals in medical desert areas	Attracting students: 1 Recruitment and			Strong capacity of HRH units: 4	

4. Standard financial incentive for health professionals in medical desert areas	retainment: 2*, 3, 4, 5				
5. Special working conditions in medical desert areas					

Table 15: Sustainability themes of the Moldovan initiatives to mitigate medical deserts

*=Unsustainable action due to challenges in health system

Retaining and recruiting health workforce

All Moldovan actions are addressing the “Retaining and recruiting health workforce” sustainability theme. All the actions have a goal of increasing health personnel either at country level, or in rural areas where medical deserts are mostly located, by addressing health professionals’ needs.

First, the nation-wide action of “*Attract more young persons to pursuit a career in medical specialties*” aims to, as its name would suggest, **Attracting students**. Besides the financial support and incentives for the students, the action aims to direct positive attention to medical sector and raise its attractiveness for future generations, thus proposing a long-term solution for the medical desert problem. The means for this is by channelling children’s attention to the healthcare segment of education involving schools, public media, mass-media campaigns and overall population. If successful, this action could increase the number of medical professionals in the future after the education.

Recruitment and retainment of health workforce is present in all four actions focusing on medical desert areas by channelling special attention to rural and underserved areas: “*Preferential contractual conditions for health professionals in medical desert areas*”, “*Non-material benefits for health professionals in medical desert areas*”, “*Standard financial incentive for health professionals in medical desert areas*”, and “*Special working conditions in medical desert areas*”. The actions offer versatile benefits to improve the attractiveness of the medical desert area: higher salaries (though unsustainable), fixed term contracts, financial incentives (one at a time or annual), free of charge or significantly lower costs of a rental house, lower percentage of mortgage rates, car rental subventions or fuel reimbursement, and special (positive) working conditions.

Fair and effective remuneration theme is present in the action of “*Preferential contractual conditions for health professionals in medical desert areas*” with offering an additional +10–25% higher salaries in remote and rural municipalities than in urban areas. Important to notice, however, is that this action is deemed as unsustainable. Also, the action of “*Standard financial incentive for health professionals in medical desert areas*” is using additional remuneration as an incentive to work in medical desert area and also in general improving the health workers’ remuneration.

The action of “*Special working conditions in medical desert areas*” focus on **Good working conditions**. The action supports decreased overall working hours in medical desert areas,

contributing to a reasonable workload and work-life balance. Also, new tools for HR and quality control departments for keeping record of the work and provided services could help with supportive management.

Building supply of proficient health and care workforce

One of the Moldovan actions address the sustainability theme of “Building supply of proficient health and care workforce” by strengthening professionals’ skills and competencies. **Strong continuous professional development** and **Digital health competencies** are aimed to be improved in medical desert areas with the action of “*Special working conditions in medical desert areas*”. The employees in medical desert areas would be offered continuous medical education courses in online format and additional training to help acquiring new skills that are needed in the use of the new digital health tools that the action would introduce.

Optimized performance of the health systems

The sustainability theme of “Optimized performance of the health systems” is addressed by the action of “*Special working conditions in medical desert areas*” with implementing the use of digital solutions. The introduction of telemedicine, online consultations and digital solutions for HR and quality control departments to medical desert areas are **Appropriate use of digital technologies**, which could support the health system’s more optimized performance.

Planning for health and care workforce

“Planning for health and care workforce” theme of sustainability is addressed by three Moldovan actions, which are contributing to comprehensive HRH policies, better data and coordination of multiple stakeholders. “*Attract more young persons to pursuit a career in medical specialties*” action is **Planning and forecasting needs** by assessing current and future needs of the health workforce by recognising a need for a master plan on how many students to enrol each year, based on previous acceptance trends and future needs of the health system.

Two actions are using **Intersectoral approach to planning** by engaging key stakeholders. The action of “*Non-material benefits for health professionals in medical desert areas*” recognizes the need for stakeholder involvement in assuring the benefits to rural health professionals, and “*Standard financial incentive for health professionals in medical desert areas*” recognizes the need for collaboration with policymakers to be able to develop a legal overview on the topic. **Strong capacity of HRH units** is present also in “*Standard financial incentive for health professionals in medical desert areas*”. The action does strategic workforce management since a need for keeping track of the number of current students, future health professionals and the professionals receiving the financial support is recognised in implementing the measure.

Public investment in the health and care workforce

“Public investment in the health and care workforce” theme of sustainability is addressed by four Moldovan actions, which are contributing to **Increasing public investment and optimizing the use of funds**. The action of *“Attract more young persons to pursue a career in medical specialties”* is increasing public investment to health and care workforce with the financial subsidies that have been planned to offer to the medical students.

“Preferential contractual conditions for health professionals in medical desert areas”, “Non-material benefits for health professionals in medical desert areas”, and “Standard financial incentive for health professionals in medical desert areas” contribute to increased and/or smarter public investment in the health and care workforce. Increasing salaries (if sustainable), offering versatile non-material benefits and additional financial support in medical desert areas could be seen as innovative health and care workforce policies to increase the availability of the professionals and prioritizing investment in primary health care workforce. These financial benefits for the employees would either contribute to increasing public investment or optimizing the use of funds, as most employers in the Moldovan health system are public, which makes investing to them as part of public funding.

In the last years, the use of similar allowance for young medical professionals who opt to practice in rural areas (that reached a high of €6000 for 3 years of practice in rural areas) than in the *“Standard financial incentive for health professionals in medical desert areas”* has been in gradual increase, so similar results might be expected from this action as well. Additionally, the action of *“Non-material benefits for health professionals in medical desert areas”* aims to use good examples from areas implementing the benefits, which could offer information and trigger other areas to implement the benefits as well, thus possibly contributing to discussions on the decision-making of future investments.

6.6.2 Summary

The Moldovan actions aimed at targeting medical deserts are sustainable as individual actions except for one action, *“Preferential contractual conditions for health professionals in medical desert areas”*. It was evaluated as unsustainable by local researchers because differentiated incomes for different geographical regions within Moldovan health system’s health institutions are not permitted, and a change in law in this matter seems unlikely. The action is thus excluded from the following analysis so focus could be directed more feasible actions. Otherwise, this action was evaluated to being able to have potential effectiveness to mitigate medical deserts by local stakeholders.

The Moldovan actions are sustainable when addressed together since they address all the sustainability themes. The actions’ main focus is most often on retaining and recruiting health workforce as is shown in table 16. The actions are addressing working conditions, remuneration, attracting students, and recruitment and retainment from the health and care workers’ needs. The actions are also investing in the health and care workforce with increased and smarter public investment, which is the second utilized sustainability theme, since most the actions focus simultaneously on both of these themes.

The actions are also building supply of proficient health and care workforce by strengthening professionals’ skills and competencies; optimizing performance of the health system by using digital solutions; and planning for health and care workforce with comprehensive HRH policies, better data and coordination of multiple stakeholders, even though none of these is in the main focus of the actions (table 16).

Sustainability theme	Retain and recruit	Build supply	Optimize performance	Plan	Invest
Moldovan actions	<p>Attract more young persons to pursuit a career in medical specialties</p> <p>Preferential contractual conditions for health professionals in medical desert areas*</p> <p>Non-material benefits for health professionals in medical desert areas</p> <p>Standard financial incentive for health professionals in medical desert areas</p> <p>Special working conditions in medical desert areas</p>				<p>Attract more young persons to pursuit a career in medical specialties</p> <p>Preferential contractual conditions for health professionals in medical desert areas*</p> <p>Non-material benefits for health professionals in medical desert areas</p> <p>Standard financial incentive for health professionals in medical desert areas</p>

Table 16: The ways to mitigate medical desertification in the Republic of Moldova and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

*=unsustainable action due to challenges in health system

On the contrary, the Moldovan actions are not strengthening education and training; redefining teams and skill-mix; and consciously contributing to economic growth and societal cohesion through public investment part of the actions.

Health workforce’s education and training is not identified as key challenge for Moldova, so no extra attention is necessarily needed in that area since it is wise and sustainable to concentrate resources to areas that need them the most. The main Moldovan challenges in relation to medical desertification relate to the workforce shortage both at the country level and especially in the rural areas, which can be responded with addressing health and care workers’ needs and increasing or optimizing investment to human resources of health as it has been done within the actions.

Moldovan actions focus mostly on medical desert areas, where the challenges are the most predominant. The rural areas face insufficient number of primary health care workers, a lack of doctors, and near-retirement-age health personnel. Because of the lack of doctors, they could be available on only 1–2 days per week and with long waiting times. In general, the

actions targeted on medical desert areas could improve the attractiveness of working in rural areas and ease the situation.

The actions targeted to medical desert areas are addressing the needs of the health workforce with financial incentives, better working conditions, and other support in living in remote area. Significant increase in salaries of all medical personnel has been done in years 2018-2019 and 2022-2023, which have led to an increase in the numbers of available health and care personnel in rural and remote areas – but still, bigger increases are thought to be needed. Thus, if allowed and came into realisation, the unsustainable action's additional income for remote and rural municipalities' health workers could help to mitigate medical desertification in the medical desert areas. Instead, one-at-a-time or annual financial incentives for health workforce might be more effective in attracting health personnel to the rural areas as its implementation is not restricted at least by any legal matters. This has even been evaluated by local stakeholders as being able to reach potential effectiveness in the mitigation of the medical deserts.

Other reason behind medical desertification in rural areas is that any targeted incentives towards assuring the young professionals with a permanent place to live in the area are missing in Moldova. This is targeted with non-material financial benefits for health professionals in medical desert areas that offer lower mortgage rates and rental subventions, even though not directly providing a place to live. Also, infrastructural matters, such as poor road network and bad road conditions contributing to long travel times are reasons behind medical desertification in the rural areas. The long travel times could be eased from the health personnel's side with the planned car rental subventions and fuel reimbursements. The infrastructure and road conditions are not addressed by any of the actions, but they merely need a more multidisciplinary approach and increasing investment by other authorities – the situation cannot be relieved by only health field's actions.

Other contributing factors to medical deserts in Moldova in general are inadequate working conditions, very low levels of incentives for the health personnel in the country, and a lack of strategic policies in managing human resources in health, which are addressed in the medical desert areas. First issue is addressed by the actions' proposed improved working conditions in medical desert areas, and the second issue is addressed with additional remuneration as an incentive to work in medical desert area. Planning and policies regarding human resources of health are as well addressed to some extent in the Moldovan actions, but more targeted focus on quality strategic planning and policies could support managing the human resources in health. The planning for quality strategic policies should have potential for supporting to relieve the workforce shortage and also perhaps increase the actions' sustainability.

The challenges of workforce shortage at the country level, emigration and health personnel leaving the healthcare sector in Moldova are targeted by attracting more students with both financial support for students and generally attracting the attention of young people to the healthcare segment of education. These serve as a long-term solution to the problem, because if succesful and more young people decide to pursuit a career in the health and care field, the workforce shortages could be relieved and the high mean age of physicians should

decrease in the future. Though, this action would need to be accompanied with other actions as well to being able to improve the attractiveness of working in the medical field in Moldova to prevent the outmigration and health personnel leaving to work in other sectors. The previously improved wages, and partly the actions targeted at medical desert areas also could impact the situation in general, but it remains to be seen whether they are enough to recruit and sustain the workforce, or would some additional measures be needed.

Focusing more on optimizing the performance of the health system might be one sustainability area to explore more in order to support the workforce's sufficiency in Moldova. More effective services, for example with redefined teams and skill-mix, might ease the medical desert phenomenon at least partly by being able to provide quality services with less workforce. This could be utilized both at the country level and in the medical desert areas.

6.7 Romania

In Romanian pilot study, a total of 17 actions, grouped into six categories, have been identified as mitigating strategies for medical deserts. The challenges in relation to medical deserts in Romania concern emigration of health workforce, imbalance of health workforce distribution resulting in unequal access to care and subpar medical care in the rural areas, which the actions focus on targeting.

First group of actions concerns health workforce. First action is **Increasing the number of medical personnel**. There are specialties in Romania that have too many professionals and specialties that have too little, so this initiative aims to direct the personnel increases to the specialties in need. The measures to increase the number of medical personnel include careful planning, increased education numbers and direct attention to the graduates' geographical distribution. Increasing the number of personnel is, however, not sufficient alone and more than that should be done, which is why this initiative is deemed as unsustainable by local researchers.

Second action is **Policies and measures to attract medical personnel in rural areas**. The means include offering financial and non-financial incentives for the healthcare professionals who settle to practice in the countryside and rural areas and developing programs to enhance the quality of life for the healthcare professionals settling in those areas. Among the measures are a creation of more leisure opportunities and better infrastructure.

Third action is **Legislation for financing/motivating medical personnel**, which means creating a legislation that would raise health professionals' salaries in public healthcare facilities in order to increase the motivation of the personnel. This initiative is, however, evaluated as unsustainable by local researchers in the long term due to legislative instability and the need for a more comprehensive approach to improve the healthcare system.

Fourth action, **Increasing the number of places for family medicine at the residency**, aims at increasing the number of places for residency in the family medicine field in the rural areas and to ensure the development of primary health care in the rural areas. However, this action

is deemed as unsustainable by local researchers because of the lack of effectiveness and improbability of filling the new places due to the shortage of family doctors in Romania.

Fifth action is **Improving health policies regarding human resources in health**, which aim to ensure that the goals, milestones and strategies of the health system will be reached. The means include reviewing and reforming health policies with a focus on human resource allocation in healthcare, improving working conditions and collaboration among levels of care and ensuring sufficient staffing. The means also include involving medical personnel in the decision-making process related to healthcare policies and resource allocation and establishing collaborative platforms for healthcare professionals to contribute insights and expertise in shaping healthcare strategies.

Sixth action, **Financial resources for performance-based pay for medical staff**, would entail paying the professionals based on the quality of the services they deliver, rather than a fixed salary with bonuses based on the amounts of shifts, nights and weekends worked, danger and stress levels of the work. The goal of this initiative is to increase the quality of the services delivered. The action is, however, deemed as unsustainable by local researchers due to mixed evidence about its effectiveness and effects on health outcomes and the delivered healthcare.

Second group of actions concentrates on healthcare services. Seventh action is **Expanding the primary healthcare network through funding**, which means prioritizing the development of primary health care through targeted policies and incentives. The measures would include increasing the funding in the medical field with a specific focus on allocating resources to the healthcare infrastructure and services.

Eighth action, **Community centers with integrated services**, aims at offering a comprehensive service to those in need and unburden the emergency and tertiary care services. The initiative would entail both opening new centres and expanding the current ones. The integrated services include multiple professionals from different specialties and fields. The action would encourage community engagement in preventive healthcare practices through education and outreach programs, taking the services to the community rather than waiting the community to go to the service.

Ninth action is **Prevention services for disadvantaged population**. The action aims at creating opportunities for the development of prevention services and strategies targeted especially for the disadvantaged population. This initiative would first provide an evidence base of the population needs and monitoring health inequalities. Then it would implement targeted prevention strategies, such as obesity prevention, smoking cessation and reducing drug use, and identify and capitalize opportunities for the development of the prevention services.

Third group of actions focus on regional development of the rural areas. Tenth action is **Regional development strategy for the rural environment**. The development strategies

include comprehensive actions, such as improving road infrastructure and transportation networks to enhance accessibility to healthcare facilities in remote regions.

Eleventh action, **Housing for doctors in the rural areas**, would mean offering a place to live in the rural areas for doctors that are practicing in the area. This action is however, deemed unsustainable by local researchers due to lack of assumed effectiveness because of poor living conditions in the rural areas and the action's limited ability to address Romania's healthcare system's broader challenges.

Twelfth action is **New strategies for the development of emergency structures and health transport**. The action aims at creating new strategies in order to facilitate access to medical services in time. The improvements would concern emergency care and health transport, such as better roads and better emergency structures to help to improve access to healthcare. The action, however, may be unsustainable in Romania, according to local researchers, due to limited effectiveness and sustainability challenges to respond to the broader context of the Romanian healthcare system.

Fourth group of action relates to collaborative practices with county institutions. Thirteenth action, **Development of collaborations between county institutions**, means connecting the county authorities to work together in a way that they would offer a continuum of care, planning and implementation, instead of current informal collaboration based on merely personal relationships.

Fourteenth action is **Involvement of county authorities in financing**, which would take the county authorities (District Health Insurance Houses) along in deciding about the financing of the healthcare services from the National Health Insurance Fund to the District Health Insurance Houses. This change is aimed to ensure that the finances allocated for a specific action are being used sustainably, as intended.

Fifth group of actions relates to administration and legislation, including two initiatives. Fifteenth action, **Administrative reform that takes into account the needs of communities**, would entail reforming the health system based on the needs of the population and certain medical specialties and basing decisions on a national needs analysis. The action aims to change the manner in which the services are financed, including updating the legislation of the Ministry of Health and the National Health Insurance House to being able to finance the most recurring needs with the most amount of money. This action is regarded as unsustainable by local researchers due to limited effectiveness in dealing with the challenges within the broader context of the Romanian healthcare system.

Sixteenth action, **Reducing bureaucratic requirements**, means that vain bureaucracy within the healthcare services would be reduced to enable that the time of the health workforce would be used in the most efficient manner in patient work. The bureaucracy that is aimed to be reduced concerns all the patient information that currently needs to be filled in more than once usually, with an information system that is often not working.

Last, seventeenth action is **Digitalisation**, meaning embracing digitalization in healthcare to improve remote access to medical services in underserved regions by implementing telemedicine programs to connect rural communities with healthcare professionals, including specialists. The digitalization of the health system is evaluated by local researchers as unsustainable measure to mitigate medical deserts in Romania because it may not be sufficient way on its own due to the workforce shortage in the country.

6.7.1. Sustainability of ways to mitigate medical deserts

The Romanian actions address all sustainability themes (table 17).

Actions found in pilot studies	Sustainability themes and sub-themes from the modified Framework for Action on the Health and Care Workforce 2023-2030				
	Retain and recruit	Build supply	Optimize performance	Plan	Invest
1. Increasing the number of medical personnel* 2. Policies and measures to attract medical personnel in rural areas 3. Legislation for financing/motivating medical personnel** 4. Increasing the number of places for family medicine at the residency** 5. Improving health policies regarding human resources in health 6. Financial resources for performance-based pay for medical staff* 7. Expanding the primary healthcare network through funding 8. Community centers with integrated services 9. Prevention services for disadvantaged population 10. Regional development strategy for the rural environment 11. Housing for doctors in the rural areas** 12. New strategies for the development of emergency structures and health transport* 13. Development of collaborations between county institutions 14. Involvement of county authorities in financing 15. Administrative reform that takes into account the needs of communities* 16. Reducing bureaucratic requirements 17. Digitalisation*	Fair and effective remuneration: 3** Recruitment and retainment : 2, 4**, 11**	Modern education and training : 1*	Multi-professional teams and skill mix: 8 Quality interaction with patients: 8 Appropriate use of digital technologies: 17* Efficient services: 8, 9, 16	Planning and forecasting needs: 1*, 5, 9, 15* Intersectoral approach to planning: 5, 14 Strong capacity of HRH units: 1*, 4**, 5, 13	Increasing public investment and optimizing the use of funds: 2, 3**, 6*, 7, 10, 11**, 12*, 16

Table 17: Sustainability themes of the Romanian initiatives to mitigate medical deserts

*=Unsustainable (alone) due to limited effects

**=Unsustainable due to additional challenges in health system

Retaining and recruiting health workforce

The sustainability theme “Retaining and recruiting health workforce” is addressed by four Romanian actions.

Fair and effective remuneration is addressed by the action of *“Legislation for financing/motivating medical personnel”* which would create a legislation that would raise health professionals’ salaries in public healthcare facilities. The action is, however, unsustainable because its goal is to increase the motivation of the personnel, but the additional job satisfaction brought by financial incentives seems to disappear after six months. Thus, financial motivation as a sole response to medical deserts is not sustainable, whereas it might be if implemented alongside other solutions.

Recruitment and retainment is addressed by three actions, which are all paying special attention to rural and underserved areas. *“Policies and measures to attract medical personnel in rural areas”* would offer financial and non-financial incentives and developing programs to enhance the quality of life for the healthcare professionals who settle to practice in the countryside and rural areas.

“Housing for doctors in the rural areas” would offer a place to live for doctors that are practicing in the rural areas, but it is however unsustainable due to lack of assumed effectiveness. The doctoral positions in rural areas are unmet as most family doctors are located in urban areas and the living conditions are low in some rural communities (for example, no tap water, outdoor toilets, no central heating). *“Increasing the number of places for family medicine at the residency”* would aim to increase the new family medicine places in the rural areas. It is, however, unsustainable as there are challenges in filling even the available family doctors’ residency places due to the shortage of family doctors in Romania. Therefore, simply increasing the number of residency places may not address the underlying issues contributing to the workforce shortage and recruitment challenges.

Building supply of proficient health and care workforce

“Building supply of proficient health and care workforce” theme of sustainability is addressed by one action which focuses on strengthening education and training of health and care workforce. *“Increasing the number of medical personnel”* would contribute to **Modern education and training** by reflecting population needs and service requirements with its aims to increase the numbers of medical personnel in need via increased education numbers and arranging quality and thorough education. Although increasing the number of medical personnel is not sufficient and thus sustainable action alone and more than that should be done, it could be utilized together with other initiatives.

Optimized performance of the health systems

“Optimized performance of the health systems” sustainability theme is addressed by four Romanian initiatives, which would redefine teams and skill-mix and use digital solutions.

Quality interaction with patients is addressed by the action of “*Community centers with integrated services*” which would aim to offer comprehensive services to those in need with encouraging community engagement, which is a form of person-centred care and empowerment. It would introduce preventive healthcare practices through education and outreach programs and take the services to the community to prevent healthcare issues in the community rather than waiting for the community to commute to the service. The action would also contribute to **Multi-professional teams and skill mix** by including multiple professionals from different specialties and fields into the created services.

“*Community centers with integrated services*” would contribute as well to **Efficient services**, together with two other actions. “*Community centers with integrated services*” would contribute to more effective service delivery with its adequate facilities and equipment: taking the services into the community rather than obliging commuting represents a better use of resources and it would unburden the emergency and tertiary care services by offering comprehensive services more easily to the population. “*Prevention services for disadvantaged population*” would enable more effective service delivery with the adequate facilities and equipment it would introduce. The action would implement targeted prevention strategies that are effective in improving health outcomes and reducing social and health inequalities. Providing more preventative care can reduce the demand of expensive services such as care in hospitals, thus creating more efficient services. The action “*Reducing bureaucratic requirements*” would direct more time for care and effective service delivery with its aim to reduce vain bureaucracy consisting of all the patient information that needs to be filled in more than once usually with an information system that often is not working and ends up to doubling or even tripling the number of documents to be filled in. By reducing the unnecessary bureaucracy, the time of the health workforce would be used in the most efficient manner with patient work instead of bureaucracy.

The action of “*Digitalisation*” contributes to **Appropriate use of digital technologies** by professionals and patients with the aim of implementing telemedicine programs to connect rural communities with healthcare professionals, including specialists. This would improve remote access to medical services in the underserved regions. The action is, however, unsustainable because the shortage of healthcare professionals in rural areas and the concentration of medical staff in urban areas present significant challenges that the digitalization of the health system alone may not fully address. Digitalization is, however, important and perhaps with other initiatives it might work.

Planning for health and care workforce

“Planning for health and care workforce” theme of sustainability is addressed by seven Romanian actions, which plan comprehensive HRH policies, use better data and coordinate multiple stakeholders.

Planning and forecasting needs is present in four actions, which are planning strategically, including information on current and future needs of health and care workforce, health system goals and priorities, understanding local context and assessing the results. Strategic planning utilizing all its contents (best available evidence, including information on current and future needs of health and care workforce, health system goals and priorities, understanding local context and assessing the results) is done by two actions. *“Prevention services for disadvantaged population”* aims providing evidence base of the population needs and monitoring health inequalities before implementing any strategies or services for prevention especially for the disadvantaged population. Monitoring health inequalities would also be part of the action to identify and track disadvantaged populations to provide decision-makers with an evidence base to develop programs and practices towards the progressive realization of universal health coverage. The action of *“Increasing the number of medical personnel”*, in turn, aims to direct health workforce increases to certain specialties via carefully planned and monitored education and geographical distribution. Even though unsustainable on its own, its sustainability might be increased when implemented with other measures.

“Improving health policies regarding human resources in health” would review and reform health policies with a focus on human resource allocation in healthcare, especially starting with residency programs to cope with aging and insufficient health workforce, which is a form of strategic planning using best available evidence, including information on current and future needs of health and care workforce. Also, as the action aims to ensure that the goals, milestones and strategies of the health system will be reached, are health system goals and priorities taken into account as well.

“Administrative reform that takes into account the needs of communities” includes an idea of basing decisions on a national needs analysis and reforming the health system based on the needs of the population and certain medical specialties. The reform would be based on foresight, research and trends analysis. These serve as forms of strategic planning using best available evidence, including information on current and future needs of health and care workforce and understanding local context. This action is, however, unsustainable due to limited effectiveness relating to challenges within the broader context of the Romanian healthcare system, including regional disparities, health workforce, funding and infrastructure related challenges, but perhaps if implemented with other measures, its effects could improve.

Intersectoral approach to planning is utilized by three Romanian actions, which are engaging key stakeholders in the planning process. *“Improving health policies regarding human resources in health”* would involve medical personnel in the decision-making process related to healthcare policies and resource allocation and establish collaborative platforms for healthcare professionals to contribute insights and expertise in shaping healthcare strategies. *“Involvement of county authorities in financing”* would take the District Health Insurance Houses along in deciding about the financing of the healthcare services from the National Health Insurance Fund to the District Health Insurance Houses. That change is aimed to

ensure that the finances would be used sustainably as intended, and as the county authorities would be involved in the process, the health of the community would be a shared responsibility. *“Regional development strategy for the rural environment”* would engage key stakeholders as well because the responsibility of the planning of the regional development strategy would probably be divided between Ministries of health, transport and infrastructure, development, public work and administration and agriculture, and rural development.

Four actions are contributing to **Strong capacity of HRH units**, more precisely, strategic workforce planning and management. *“Development of collaborations between county institutions”* would connect the county authorities to work together in a way that they would offer a continuum of care, planning and implementation regarding human resources of health. *“Improving health policies regarding human resources in health”* would include reviewing and reforming health policies with a focus on human resource allocation in healthcare, especially starting with residency programs to cope with aging and insufficient health workforce.

“Increasing the number of medical personnel” would contribute to strategic workforce planning and management with increasing health personnel and directing the increases to the specialties in need via careful planning and directing attention to the graduates’ geographical distribution. Increasing the number of personnel is, however, not sufficient alone and more than that should be done, which is why this initiative is unsustainable. *“Increasing the number of places for family medicine at the residency”* would increase the number of places for residency in the family medicine field in the rural areas and thus develop primary health care in the areas. This action is also unsustainable as there are challenges in filling even the available family doctors’ residency places, which indicates a mismatch between the number of available positions and the demand for them, which planning and management of the workforce will probably not be able to fix.

Public investment in the health and care workforce

Public investment in the health and care workforce is addressed by eight actions, which would contribute to increased and smarter public investment in the health and care workforce.

The actions are **Increasing public investment and optimizing the use of funds**. *“Policies and measures to attract medical personnel in rural areas”* and *“Regional development strategy for the rural environment”* would be increasing public investment and optimizing the use of funds while being forms of innovative health and care workforce policies to increase the workforce’s availability and accessibility. The actions would develop programs to enhance the quality of life for the healthcare professionals settling to practice in the countryside and rural areas with creating more leisure opportunities and better infrastructure. The regional development strategies include comprehensive actions, such as improving road infrastructure and transportation networks to enhance accessibility to healthcare facilities in remote regions.

“Reducing bureaucratic requirements” would reduce the patient information that currently needs to be filled in more than once usually, with a dysfunctional information system that often ends up doubling if not tripling the number of documents to be filled in. This would optimize the use of funds and be a policy to increase workforce’s productivity. *“Expanding the primary healthcare network through funding”* would increase public funding and prioritize investment in primary health care workforce by prioritizing the development of primary health care through targeted policies and incentives such as increasing funding in the medical field with a specific focus on allocating resources to the healthcare infrastructure and services. The action would advocate for increased funding in the medical field and explore public-private partnerships to attract additional funding for medical facilities in remote areas.

“Housing for doctors in the rural areas”, in turn, would increase public investment to HRH, utilize innovative policies to increase workforce’s availability, and prioritize investment in primary care workforce by offering a place to live in the rural areas for practicing doctors in the area. This action is, however, unsustainable because the doctoral positions in rural areas are unmet as most family doctors are located in urban areas and the living conditions are low in some rural communities (no tap water, outdoor toilets, no central heating, etc.). Simply providing housing may not have enough effectiveness to address the broader challenges related to healthcare access and workforce distribution in rural Romania.

“Legislation for financing/motivating medical personnel” would be increasing public investment or optimizing the use of funds with its innovative policies to increase the workforce’s availability. The action would create legislation that would raise health professionals’ salaries in public healthcare facilities to increase the motivation of the personnel. In order to increase salaries for health professionals in the public field, a central rolling is needed as the funding comes either from central level or county councils. This action is, however, unsustainable due to legislative instability. The Ministry of Health has one of the highest turnovers in terms of leadership, which impacts the policies implemented and causes instability. Also, health systems based on budget funding and salaried staff can lack incentives to improve quality and increase efficiency.

“Financial resources for performance-based pay for medical staff” would be optimizing the use of funds by paying the health professionals based on the quality of the services they deliver, rather than a fixed salary with bonuses based on the amounts of different shifts, danger and stress levels of the work with an aim of increasing the quality of the services delivered. This action is, though, unsustainable because even if budget funding-based health systems and salaried staff can lack incentives to improve quality, performance-based pay might have worse efficiency and higher costs. Studies also cite a lack of engagement from healthcare professionals to the performance-based pay. Overall, the effectiveness of performance-based pay for medical staff seems to depend on the specific design and amounts of the incentives and the context in which it is implemented.

Lastly, the action of *“New strategies for the development of emergency structures and health transport”* would use innovative health and care workforce policies to increase the

workforce's availability and accessibility by new strategies concerning emergency care structures. However, the action is unsustainable due to personnel shortages in emergency medicine, which impacts the effectiveness of the created emergency medical transportation services. Also, the action is not sufficient to address the broader challenges of the healthcare system, including healthcare infrastructure, regional disparities, health workforce and funding.

6.7.2 Summary

The Romanian ways to mitigate medical deserts are sustainable when addressed as a totality since they address all the sustainability themes. The situation changes when addressing them as individual actions; a total of eight actions are deemed as unsustainable by local researchers. Five of the unsustainable actions are unsustainable due to limited effectiveness of the action on its own, and the rest three of them are unsustainable because of other additional challenges in health systems than purely effectiveness-related issues.

The actions that lack effectiveness are addressed as part of the Romanian actions but the actions that have sustainability issues due to other challenges in the health system are excluded from the below analysis because probably, they would not end up being the priority actions to be implemented. Instead, this analysis will focus rather on the ways in which potential to reach effects is recognized.

The Romanian ways' main focus is on investing in health and care workforce, as can be seen in table 18 with the actions' focus on increasing public investment and optimizing the use of funds. The actions focus second most often on planning for health and care workforce by planning and forecasting needs, utilizing intersectoral approach to planning, and contributing to strong capacity of HRH units. Third most often the actions are focusing on optimizing the performance of the health system with supporting multiprofessional teams and skill mix, quality interaction with patients and appropriate use of digital technologies and contributions to efficient services. Retaining and recruiting health workforce is a focus of one action (the others are unsustainable due to health system related challenges, so they are excluded from this analysis), which focuses on recruitment and retainment. Building supply of health workforce is also in the focus of one Romanian action, which is contributing to modern education and training (table 18).

The sustainability themes that are not part of the Romanian actions are good working conditions, health and well-being, gender-sensitive policies and attracting students from the "Retain and recruit" theme; strong continuous professional development and digital health competencies from "Build supply" theme; regulated education, service delivery and professions and Strong HRH information systems from the theme "Plan"; and Making the case for investing in the health and care workforce from "Invest". Additionally, fair and effective remuneration from "Retain and recruit" is not properly addressed because of the unsustainability of the action that would contribute to that theme.

Sustainability theme	Retain and recruit	Build supply	Optimize performance	Plan	Invest	
Romanian actions	Policies and measures to attract medical personnel in rural areas	Increasing the number of medical personnel*	Community centers with integrated services	Increasing the number of medical personnel*	Policies and measures to attract medical personnel in rural areas	
	Legislation for financing/motivating medical personnel**		Prevention services for disadvantaged population	Increasing the number of places for family medicine at the residency**	Legislation for financing/motivating medical personnel**	
	Increasing the number of places for family medicine at the residency**		Reducing bureaucratic requirements	Improving health policies regarding human resources in health	Financial resources for performance-based pay for medical staff*	Expanding the primary healthcare network
	Housing for doctors in the rural areas**		Digitalisation*	Development of collaborations between county institutions	Housing for doctors in the rural areas**	Regional development strategy for the rural environment
				Involvement of county authorities in financing	New strategies for the development of emergency structures and health transport*	Reducing bureaucratic requirements
			Administrative reform that takes into account the needs of communities*			

Table 18: The ways to mitigate medical desertification in Romania and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

*=Unsustainable (alone) due to limited effects

**=Unsustainable due to additional challenges in health system

Romanian actions quite comprehensively address different sides of the medical desert phenomenon. It seems sustainable to focus mostly on both investing and planning for health and care workforce in order to comprehensively and strategically address the medical deserts that is a multifaceted phenomenon in Romania and in need for a set of comprehensive actions and overall increased investment. The shortage of health workforce, a need for new services and measures aiming to address inefficiency in the use of funds (Petre et al. 2023), remarkable out-of-pocket healthcare costs and informal payments for the patients, could be responded with the Romanian actions focused on investing. The actions aim to expand primary healthcare networks and in general invest into the health workforce to being able to address the workforce shortages. Also, the actions that focus on planning for health and care workforce should help with the challenges. They aim to increase workforce, improve health workforce related policies, develop collaborations with county institutions and involve them in financing.

More specifically, increasing public investment and planning for HRH-related policies have potential to improve the challenges relating to emigration of the health workforce, which is a remarkable challenge regarding medical deserts in Romania, creating a shortage of health professionals in the country. The identified ways to mitigate medical deserts would improve salaries, increase funding and reduce administrative tasks through reduced bureaucracy. These would be beneficial as salaries, time-consuming administrative tasks, lack of equipment and insufficient funding have been detected as reasons for emigration from Romania. Other reasons for the emigration that have been detected are better possibilities for professional and career development and general living conditions abroad, and unpleasant excessive workloads, long working hours, de-professionalization and practices run with only one physician that are present in Romania. Even though the Romanian Government has implemented measures to address the challenges, including national level strategies for addressing health workforce issues until the year 2030, better payment, opportunities for career development, improvements for working conditions and adequate equipment of healthcare facilities, more might still need to be done.

More focus would be beneficial to direct especially to retaining and recruiting health workforce to better consider their needs, as that sustainability theme is addressed quite narrowly in the Romanian actions. This could include some more measures taking care of the workers' needs at the country level besides the actions targeted at rural areas. Attention would be beneficial to direct to better working conditions to respond to the need of reducing workloads and working hours, well-being and further improved incomes of the health workforce. One of the unsustainable Romanian actions, though, would increase the health personnel's salaries, but it should be made more possible to implement, first. Actually, as the actions that do address the retainment and recruitment of the health workforce are mostly unsustainable, more realistically and sustainably implementable actions would be recommended to develop in Romania.

The Romanian actions don't concentrate their focus much on building supply of health workforce either. As a need for better possibilities for professional and career development is recognised, it should be beneficial to direct more attention to strong continuous professional development to help increase the job satisfaction of the health workforce, as that is not addressed in the Romanian actions. Anyhow, focus in improving the health workforce's education is not necessarily needed because the emigration is the only recognized education-related priority challenge in Romania. Thus, it should be a priority to address the needs of the health workforce more comprehensively.

The medical desert challenges could be improved as well with optimizing the performance of the health system, and this is somewhat addressed in the Romanian actions. For example, the challenge of practices run with only one physician is addressed in the action that supports multiprofessional teams and skill-mix with connecting different specialists into one centre. Generally, the services should be able to be arranged better with more effective services, which is needed especially as the numbers of the workforce are limited. Additional measures to improve service efficiency could be taken in the future, but again, as measures are already

planned in this area, health workforce's needs might be better priority to address more at this point.

Even though medical deserts are interpreted to be located throughout the country, there is an imbalance of health workforce distribution - both physicians and nurses - resulting in unequal access to care especially in rural and underserved areas in the southern parts of the country. The challenges concern both primary care and more specialised services. The abovementioned measures that aim to increase the numbers of health professionals in general could also help with the situation in rural areas. Besides these, there are also actions targeted especially to the rural areas. Policies and measures that aim to recruit and retain workforce into rural areas include, first, financial and non-financial incentives for the healthcare professionals who settle to practice in the countryside and rural areas. Second, they aim enhancing the quality of life for the healthcare professionals settling in those areas with more leisure opportunities and better infrastructure. Also, the unsustainable action of providing housing for doctors in rural areas could further help with their attraction, if made more feasible to implement, first. The another unsustainable action of increasing the number of places for family medicine in the rural areas, on the contrary, is not as applicable as discussed previously, due to the challenges of attracting them even to the current places.

Rural areas' challenges are exacerbated by weak transport infrastructure, leading to physical accessibility challenges. Some rural areas in the southern regions have low levels of development in terms of the number of medical units, leading the professionals having to travel between towns and villages to provide the services. All these challenges are aimed to be improved in the Romanian actions. Health transportation and access to healthcare is aimed to be improved with better roads and emergency structures. Though, this action is targeted for the whole country, it would most likely improve the situation in the rural areas due to the infrastructural challenges in there. Also, a comprehensive regional development strategy is aimed for the rural environment which includes actions relating to improved road infrastructure and transportation networks to enhance accessibility to healthcare facilities in remote regions. Lastly, digitalization of the services is targeted to rural areas that would improve remote access to medical services by implementing telemedicine programs to connect rural communities with healthcare professionals.

Furthermore, the funding provided to Romania's primary healthcare support systems in rural areas is insufficient and thus these medical facilities have subpar medical equipment. Besides the challenges related to healthcare facilities and professionals, the uninsured population (around 11% of the population) largely live in the rural areas, affecting the areas' health situation as a whole. The aims of increasing investment and funding to primary healthcare with a specific focus on healthcare infrastructure and services should help with rural areas' healthcare facilities and equipment. Also, the administrative reform that would base the funding of the health services to the needs of the population and a national needs analysis might increase the funding especially to rural areas, if the population needs in those areas are detected as remarkable.

When it comes to the services for the uninsured, the planned prevention services and community centers that are targeted for especially disadvantaged populations seem not being able to help the situation for the uninsured population since they are only covered for life-threatening emergencies, infectious diseases and care during pregnancy. Those new services are prevention services and thus they would be out of the scope of the services for the uninsured. As universal coverage is a goal for the Romanian health system, some actions could be targeted to address the issue of inaccessibility of some population groups. As stated in the beginning of the summary, more public investment seems to be needed.

6.8 Overview of the OASES countries' ways to mitigate medical deserts and their sustainability

The actions to mitigate medical deserts

The ways to mitigate medical deserts in the OASES countries are a mix of actions operating at different levels. The actions are presented in table 19, and more thorough information regarding the actions is found in the previous chapters 6.1–6.7.

First group of ways to mitigate medical deserts is related to health workforce, which includes attracting new healthcare students, attracting health workforce to medical desert areas, increasing labour immigration, and offering direct monetary incentives and other financial benefits for the health workforce. Most of these actions are targeted at areas defined as medical deserts or to areas otherwise identified as especially in need for more health personnel. The ways that focus on attracting new healthcare students aim to increase the numbers of students in general and students who are from the rural areas. Ways that are attracting workforce to rural areas aim to increase the available positions of physicians, improving working conditions in medical desert areas, and otherwise attracting health workforce to medical desert areas. Increasing labour immigration refers to attracting and hiring health personnel from abroad. Direct monetary incentives for health workforce consist of financial incentives given to health professionals serving mostly in medical desert areas, whereas financial benefits for health workforce consist of offered housing and benefits for living and mobility costs for professionals in medical desert area.

Second category of ways to mitigate medical deserts is related to service provision. The ways aim to support multiprofessional teams, which includes different measures such as promoting multiprofessional practices and increasing the number of assistive staff. New primary-level services aim to widen the scope of the healthcare services with new primary care and preventive service concepts to better meet the service needs of the population. Digital services aim to utilize technology in the service provision, either by introducing new practices or expanding current ones. Improving current service structures consists of creating new strategies to develop the services. Improving collaboration supports networks promoting increasing collaborative practices among healthcare providers and public healthcare-related institutions. Lastly, changing healthcare providers involves either new private or public providers in the provision of certain healthcare services. The changes in arranging the health services focus mostly on the healthcare services across the countries, but some of the new services are targeted to rural areas especially.

Third category of ways to mitigate medical deserts is related to policy and regulation. Regulating the health service provision includes both limiting new practices and their locations in overserved areas and easing the arrangement of the services with more flexible staff requirements. Improving data management consists of reducing bureaucracy and improving coordination of health-related data. Changing the funding of the health services aims to change the financing criteria for the service providers and increase the funding of the healthcare infrastructure and services. Changing the remuneration of the health workforce would change the salary formation logic with a goal of increasing service quality. Improving the training of new professionals aims to secure sufficient funding for and lengthening the education and training of health professionals. Assorted plans and policies to increase health workforce consist of developmental policies and strategies that aim to improve the healthcare and health workforce related policies and rural area environment, including infrastructure. To conclude, these policy and regulation related ways focus on all parts of the country, except for the rural area development policy, which targets just the rural areas (table 19).

Topic for the actions						OASES countries' ways to mitigate medical deserts					
		Retain and recruit	Build supply	Optimize performance	Plan	Invest					
Health workforce related ways to mitigate medical deserts											
Attracting new healthcare students		<p>Increase the overall number of physicians trained and the distribution of medical students among faculties* (France)</p> <p><u>Increase the percentage of local students (France)</u></p> <p>Attract more young persons to pursuit a career in medical specialties (Moldova)</p>					Attract more young persons to pursuit a career in medical specialties (Moldova)				
Attracting health workforce to medical desert areas		<p><u>Special working conditions in medical desert areas (Moldova)</u></p> <p><u>Policies and measures to attract medical personnel in rural areas (Romania)</u></p> <p><u>Increasing the number of places for family medicine at the residency** (Romania)</u></p>									
Increasing labour immigration		<p>Streamlining labour immigration and utilizing it more than currently (Finland)</p> <p>Recruit foreign-trained doctors (France)</p>									
Direct monetary incentives for health workforce		<p><u>Financial incentives for health professionals in rural areas (Cyprus)</u></p>					<u>Financial incentives for health professionals in rural areas (Cyprus)</u>				

	<p><u>Financial incentives (France)</u></p> <p><u>Standard financial incentive for health professionals in medical desert areas (Moldova)</u></p> <p><u>Preferential contractual conditions for health professionals in medical desert areas*</u> (Moldova)</p> <p>Legislation for financing/motivating medical personnel** (Romania)</p>				<p><u>Financial incentives (France)</u></p> <p><u>Standard financial incentive for health professionals in medical desert areas (Moldova)</u></p> <p><u>Preferential contractual conditions for health professionals in medical desert areas*</u> (Moldova)</p> <p>Legislation for financing/motivating medical personnel** (Romania)</p>
Financial benefits for health workforce	<p><u>Non-material benefits for health professionals in medical desert areas (Moldova)</u></p> <p><u>Housing for doctors in the rural areas**</u> (Romania)</p>				<p><u>Non-material benefits for health professionals in medical desert areas (Moldova)</u></p>
Service provision related ways to mitigate medical deserts					
Supporting multi-professional teams	<p>Improve working conditions with multiprofessional teams (France)</p>	<p>Focusing the work of professionals on tasks that match their education and skills (Finland)</p> <p>Reconsidering the division of work between professionals and job descriptions (Finland)</p>	<p>Focusing the work of professionals on tasks that match their education and skills (Finland)</p> <p>Reconsidering the division of work between professionals and job descriptions (Finland)</p> <p>Improve working conditions with multiprofessional teams (France)</p>		

			<p>Creation of GPs Cluster (Hungary)</p> <p>Inter-professional cooperation (France)</p> <p>Medical assistants (France)</p>		
New primary-level services			<p>Walk-in centers and doctors on call (Cyprus)</p> <p><u>Rural healthcare access (Cyprus)</u></p> <p>Community centers with integrated services (Romania)</p> <p>Prevention services for disadvantaged population (Romania)</p>		
Digital services			<p>Promoting service availability with digital, take-home and mobile services (Finland)</p> <p>Telemedicine (Italy)</p> <p><u>Digitalisation* (Romania)</u></p>		
Improving current service structures					New strategies for the development of emergency structures and health transport* (Romania)
Improving collaboration				Network of Collegial Professional Leaders of GPs (Hungary)	

				<p>Networks through which supply, emergency, assistance is organised (Italy)</p> <p>Development of collaborations between county institutions (Romania)</p> <p>Involvement of county authorities in financing (Romania)</p>	
Changing healthcare providers	Taking over on-call tasks by Hungarian National Ambulance Service (Hungary)		<p>Inclusion of private clinics (Cyprus)</p> <p>Improving access and time access (Cyprus)</p> <p>Hospital specialisation (Cyprus)</p> <p>Creating a paediatric emergency department (Cyprus)</p>		
Policy and regulation related ways to mitigate medical deserts					
Regulating the health service provision	Limitation of number of installations in overserved areas* (France)			<p>Limitation of number of installations in overserved areas (France)*</p> <p>More flexible staffing levels (the ratio between the staff and the patients) (Finland)</p>	

Improving data management				Coordinating health data collection and evaluation (Cyprus)	Reducing bureaucratic requirements (Romania)
Changing the funding of the health services				Allocation of the national health fund based on the mapping of medical deserts (Italy) Administrative reform that takes into account the needs of communities* (Romania)	Allocation of the national health fund based on the mapping of medical deserts (Italy) Expanding the primary healthcare network through funding (Romania)
Changing health workforce's remuneration					Financial resources for performance-based pay for medical staff* (Romania)
Improving the training of new professionals	Additional year of teaching at the end of the training for GPs (France)	Securing sufficient funding for the training of health and social care professionals (Finland) Additional year of teaching at the end of the training for GPs (France)			Securing sufficient funding for the training of health and social care professionals (Finland)
Assorted plans and policies to increase health workforce		Increasing the number of medical personnel* (Romania)		Increasing the number of medical personnel* (Romania) Improving health policies regarding human resources in health (Romania)	Regional development strategy for the rural environment (Romania)

Table 19: The ways to mitigate medical desertification in OASES countries and the sustainability theme each of them best corresponds to. If an initiative fits equally to multiple sustainability themes, it is represented in all of them.

*=Unsustainable action due to limited effectiveness

**=Unsustainable action due to challenges in health system

Sustainability of the mitigating actions

The sustainability of the mitigating actions varies between the groups and topics of the ways when analyzed based on the main focuses of the actions, as it is presented in table 19. The table shows a rough overview on what sustainability themes can be addressed with different types of actions, which can help to direct attention to the right areas of action.

Health workforce related ways to mitigate medical deserts concern attracting new healthcare students and health workforce and giving direct monetary incentives and financial benefits for health workforce (table 19). The actions focus mostly on retaining and recruiting workforce, which is logical given the need of attracting their interests and addressing their needs. The focus of the ways is also on investing in the health and care workforce, which reflects the need for directing more financial resources to the health sector to being able to recruit and retain the health professionals. Improvements to the working conditions and increased incentives to work in the less desirable (rural) regions need financial investing and might not be achieved without added or at least optimized resources (table 19).

Service provision related ways to mitigating medical deserts focus on a wider range of sustainability themes (table 19). Supporting multiprofessional teams, creating new primary-level services, and changing healthcare providers are first and foremost optimizing the performance of the health system, but they also have focus on other sustainability areas. These actions are recruiting and retaining health workforce by addressing the needs of the workforce with improved working conditions and building supply of health workforce with increasing training numbers. Service provision is as well aimed to be targeted with improved collaboration between healthcare providers and public institutions, which focus on planning for HRH policies with an intersectoral approach and contributions to creating a picture of the health sector. Lastly, improving current service structures directs attention to optimized investment for health workforce (table 19).

Policy and regulation related ways to mitigate medical deserts also focus on several sustainability themes (table 19). Most focus is, however, directed to planning for HRH policies, and investing in health and care workforce with regulating the health service provision, improving data management, changing the funding of the health services, changing health workforce's remuneration, assorted plans and policies to increase health workforce, and improving the training of new professionals. Some of the actions do as well build supply of the health workforce and retain and recruit health workforce, but with lesser extent. Improving the training of new professionals aims at strengthening the education and assorted plans and policies aim to increase health workforce by reflecting population needs and service requirements. Regulating the health service provision and improving the training of new professionals do focus on retaining and recruiting workforce with attention directed to recruiting new professionals (table 19).

The comprehensiveness of the sustainability themes in the actions

When looking at the sustainability themes while taking into account all the contents of the actions, not just the main focuses as above, the comprehensiveness of the actions in terms of addressing the sustainability themes, can be seen.

Planning for health and care workforce sustainability theme, including all its sub-themes, is comprehensively addressed in the countries' actions. Intersectoral approach to planning is part of all but one country's (Italy) actions, and planning and forecasting needs is utilized by five countries: France, Hungary, Italy, Moldova and Romania. Strong capacity of HRH units and regulated education, service delivery and professions are part of four countries' actions (Finland, France, Romania and Moldova or Hungary), whereas contribution to strong HRH information systems is done in three countries: Cyprus, Hungary and Italy.

Optimized performance of the health systems theme of sustainability is also widely addressed in the countries' actions. Contributions to efficient services are done in all but Moldova's actions. Appropriate use of digital technologies is utilized by five actions: Finland, Hungary, Italy, Moldova, Romania. Multi-professional teams and skill mix, and Quality interaction with patients, in turn, are part of four countries' actions (France, Hungary, Romania and Finland or Italy).

From **retaining and recruiting health workforce** sustainability theme, good working conditions, fair and effective remuneration, recruitment and retainment of the health workforce, and attracting students into the field are addressed within the actions. Recruitment and retainment of health workforce is addressed in all but one country (Italy), whereas the other sub-themes are addressed by two to four countries (France, Moldova and Cyprus or Hungary). However, health and well-being of the health and care workers nor gender-sensitive policies are not part of any of the actions.

All countries are contributing to **public investment in the health and care workforce** by increasing public investment and optimizing the use of funds. On the contrary, the another sub-theme of making the case for investing in the health and care workforce, is not addressed by any of the countries' actions.

From **building supply of proficient health and care workforce** sustainability theme all its sub-themes are addressed but with lesser focus from the countries. Modern education and training and strong continuous professional development are part of three countries' actions (Finland, France and Moldova or Romania), but digital health competencies are utilized in Moldova.

7. Transferability of the ways to mitigate medical desertification.

Because transferability is affected not only by the countries' situations in general, but also as an essential part by the countries' health service systems, the transferability of the mitigating ways to other European countries is discussed mainly through health service systems but also other local features of the European countries. This chapter provides a simplified picture of

the transferability by discussing the ways in the perspective of which actions best fit to the different types of health systems, based on the rough classifications of the National Health Service, Social Health Insurance and Transition models (chapter 4), or whether the action would be equally transferable despite the health service model. The mitigating ways' transferability is analyzed by using the dividing of the actions into different categories as it is presented in table 19.

7.1 Health workforce related ways to mitigate medical deserts

Attracting new healthcare students

Attracting new healthcare students could be transferable to other European countries than their origins France and the Republic of Moldova, as the challenge of a shortage of health and care workforce is generally shared in Europe (WHO 2022a, 2), only of its breadth varying.

Increasing the number of students is transferable to countries which have recognized that new health professionals are being trained too little in relation to the current or future need for health workforce in the country. The implementation of the action requires that the country has information on the number and needs of the health workforce. In addition, financial investment in organizing the education is needed – especially in countries where significantly more money is spent on education than what the students pay for their education themselves. Merely increasing the intake of students while not increasing funding will lead to lower quality of teaching. Above all, the transferability of the measure is affected by the main reason behind medical deserts: is it too low training numbers or is the reason something else, for example labour migration or poor working conditions, which causes professionals to flee the field or prospective students to not apply for education. In addition, it must be noted that there are limits to how many employees can work in the health care sector based on the size of the population and the employment in other sectors, which can eventually limit the measure's efficiency to mitigate the medical deserts.

Moldova's method of influencing the attitudes of children and young people towards the health sector may be more easily transferable to other health systems than directly increasing the number of training positions as it is done in France. Increasing the numbers of education positions does not necessarily help if prospective students are not interested in the field or leave it at some point in their career, or if the trained professionals end up working in another country. For example, there is emigration of health workforce from Moldova, Hungary and Romania, while other countries are rather the destinations of immigration, such as Germany and Italy. By influencing attitudes, it might be possible to minimize the losses that financial investment in education causes if the trained professionals do not end up in the labour market of the country. Furthermore, France's method of increasing the number of local students and training positions in rural areas could work in attracting workforce to areas of need, and thus it may help to keep the graduating professionals even in countries where emigration is otherwise a challenge.

Attracting health workforce to medical desert areas

Attracting health workforce to medical desert areas could be transferable to any country or health service system, which has enough information and data to identify where the medical

deserts are located to being able to direct the health personnel increases to the areas. Also, a prerequisite for the implementation of this action is that medical deserts are located in a few identifiable areas, and not equally across the country. Though, the former seems to be the case in Europe as at least among the EU-28 Member States, there is a shortage of GPs and nurses especially in rural areas (Deliverable 5.3, 18).

Attracting the workforce with special working conditions, such as decreased working hours, continuous training and education, and promoting the use of eHealth equipment and services, requires the health services to have the autonomy to decide about their working conditions – whether public or private facilities. Other potential measures to mitigate medical deserts are policies and measures to attract health workforce to medical desert areas with financial and non-financial incentives and developing programs to enhance the quality of life with more leisure opportunities and better infrastructure. That could be transferable to countries where medical deserts are located in the more rural, less developed parts of the country, which currently have less opportunities than, for example, bigger cities.

Increasing the number of doctor positions in the family medicine field could be transferable to other European countries, even when unsustainable in the original country (Romania), if supply of the certain workforce is sufficient in relation to the increasing demand. Also, the selected specialty should be selected based on the national need of the workforce – not necessarily family medicine but, for example, advanced practice nurses or specialist doctors.

Finally, there are financial resources needed in the implementation of the changes. These actions should be transferable to countries where country-wide prioritization can be made about directing extra funding and resources to medical desert areas to develop the areas and/or attract health workforce there. In health systems where the funding is decided in discussion with different areas, prioritizing some areas but not others might be more difficult. Thus, central steering of the health system might help in the implementation of the action prioritizing medical desert areas.

Financial benefits for health workforce

Financial benefits for cost of living, such as lower cost of mortgage, rent and fuel and offered housing for health workforce could, first, be transferable to countries where specific geographical areas are recognised as medical deserts, so the benefits and incentives could be allocated to the areas. If medical deserts are not located in certain regions or the location of them is not yet identified, the implementation of these actions might be too premature.

Second, the action might be more easily transferable to health systems that have more centralized structures when it comes to deciding about funding, if the implementation of the action in the health organisations requires additional funds. In National Health Service based systems and Transition systems (Reformed ambivalent and Quasi-Semashko model) with more centralised state influence, centralized structures and preferably population-based approach to directing funding based on the needs of the population may support the differentiated finance allocation to different areas. Conversely, decentralized system with

more autonomous regions could be able to decide themselves the possible increases in expenditure (and subsequent taxation) and increase spending on the health and care workforce in the form of various financial benefits. However, this would most likely require decentralized regions with taxation rights.

On the contrary, the action's transferability may be less optimal in some Social Health Insurance based systems, if the healthcare providers or possible multiple insurers have conflicting interests, making it more difficult to find consensus about the fund allocation – unless any new allocation of the funding is not needed and the benefits could be autonomously executed in the organisations. Lastly, the fuel reimbursements and car rental subventions are transferable to countries with long distances and/or not well developed infrastructure and public transportation, whereas in smaller countries with good transportation options this action might not be as relevant.

Direct monetary incentives for health workforce

The attraction of health personnel continues with direct monetary incentives for the health workforce, which have been planned for Western, Eastern, Southern and Middle European countries. First, direct monetary incentives can be transferable to countries which have the financial resources to implement the salary increases or other extra financial incentives for the health workforce. The implementation of the actions might be easier in systems with more state influence or centralized public structure to support the whole population needs based allocation of funding and resources, generally present in the National Health Service and some of the Transition models (Reformed ambivalent and Quasi-Semashko model). The transferability seems easier to health systems that are funded via taxation or even direct funding from the state because the allocation and amount of the funding might be more easily increased in contrast to Social Health Insurance models where the funding for the health services comes (mainly) from insurance contributions, more dependent on the incomes of the population. In the more NHS type systems, increased financial investment to health workforce is ultimately a matter of political will of prioritizing the health workforce.

Second, the direct monetary incentives for health workforce could be transferable to countries, where no legal barriers exist with different wages in different regions, or to a country where the political atmosphere is positive towards this kind of a change in law. Unlike for one country identifying this action, Moldova, where the laws do not allow differentiated incomes for different geographical regions within its health institutions and also a change in that matter seems unlikely, thus making the action not applicable. Lastly, increasing health workforce's incomes seem more difficult in countries with instable political systems. Romania has deemed its action on this topic as unsustainable due to legislative instability which hinders the implementation of the change. Thus, legislative structures should be in order to help its implementation.

Increasing labour immigration

Increasing labour immigration could be more easily transferable to countries that can offer better salaries, working conditions or general living and environmental conditions which would attract the personnel wanting to immigrate. The OASES countries planning for this

action are the more affluent Finland and France. The utilization of labour immigration comes ultimately down to the countries' resources to attract personnel and to provide orientation and help for integration to the new country. It would be important for countries that utilize this to recognize previous qualifications and organize the necessary further education and training in order to get professionals into positions corresponding to their skills.

Promotion of labour immigration for the incoming staff for example with simpler bureaucratic requirements, could be done virtually in every country, but it is a matter of prioritization whether investing resources into this measure is worthwhile. For example, the countries that are dealing with the opposite phenomenon of workforce emigration from the country, or countries already being net receiving countries of workforce may not want to invest into this action. In addition, the successfulness and thus the transferability of this measure might be affected by the challenges to find health personnel to countries with difficult to learn languages or low cultural diversity. Increasing labour immigration is also an ethical issue and its sustainability may be challenged. Immigration to certain countries may increase problems in other ones. Thus, high ethical standards are needed in increasing labour immigration.

7.2 Service provision related ways to mitigate medical deserts

Supporting multiprofessional teams

Multiprofessional teams can be transferable to other European countries than where they have been originally identified. Multiprofessional teams could consist of assistive staff to help with tasks that do not demand specific medical skills and knowledge, as it is planned in Finland and France. In addition, the action could include shifting less specific or demanding medical tasks and responsibilities from physicians to nurses, physiotherapists or psychiatric nurses. Also, social services can be integrated in multiprofessional teams.

Transferability of this measure is affected by the current state of the different health professionals' tasks and task-shifting. The introduction of assistive staff could be beneficial in health systems where health professionals' work commonly includes administrative tasks or other tasks that do not require specific medical skills or education. In that situation, the tasks could be done by other professionals to free the health professionals' time for patient work. That kind of action would require defining the job descriptions and organizing training for the new assistive staff into the healthcare field.

Promoting multiprofessional teams with supporting GPs (or other physicians) to hire nurses or other health professionals to work alongside them, is best transferable to health systems where the GP (or other physician) services are private entrepreneur based, similarly as in the original French and Hungarian actions. The independent GP or physician practices are often, but not exclusively, found in Social Health Insurance based systems. The planned financial subsidies for the practices to support the hiring of new professionals would also require sufficient financial resources from the health system.

When discussing multiprofessional teams in a more general sense, compensation systems highly affect their transferability. If the compensation is based on fee-for-service system (physicians' appointments), it is more difficult to create multiprofessional teamwork. In

addition, the transferability of multiprofessionalism could be more difficult in some Social Health Insurance models with separate health insurances to separate services as it might act as disincentive to develop the services holistically, if the increasing work elsewhere is away from other professionals. In the models with public salaried staff (National Health Service and Reformed ambivalent and Quasi-Semashko from the Transition models) or models with capitation-based compensation, hiring assistive staff or nurses could be more cost-efficient compared to hiring physicians. It might also allow the treatment of more patients when the care is not delivered by physicians alone but instead with nurses and assistive staff.

Task-shifting from physicians to nurses is widely in use in the Nordic and Baltic countries, the British Islands, Central European and Southern European countries, whereas it is less used in the Eastern European countries (Deliverable 5.3, 18), implying a greater need for improvement in those countries. Consequently, supporting task-shifting could be beneficial in the Transition system countries in some forms of supporting multiprofessionalism and task-shifting. Even though the promotion of multiprofessional work in general might be more easily transferable to National Health Service systems, it does not diminish the benefits that also the SHI systems could have of its implementation.

New primary-level services

On the one hand, new primary-level services are transferable to health systems and countries where primary care is not fully developed yet. For countries where primary care services are already accessible and cost-effective (although no system is perfect in that regard), creation of additional primary-level services might not be worthwhile. Thus, the transferability of this action might be highest for more developing systems which are still expanding primary care services, such as the countries with Transition models. On the other hand, new innovative and care integration focused primary-level services to increase access or tailor services to different groups of the population, for example complex care needs, may be needed in other health systems as well, making the action transferable to any country recognizing a need for it.

Digital services

Digital services can be transferable to both countries that are already developed in the area and countries that are in the first stages of development. In the latter case, greater investment might be required as there is more work to be done. For example, strategies concerning digitalization of the healthcare services may be needed to be created from the beginning, and the financial resources to purchase or develop the needed equipment and solutions are likely larger than in countries that already utilize digital services. Also, it should be noted that the country aiming to implement the action may need to have legal structures that enable the use of digital care registers across different professionals and allow the use of telemedicine as part of healthcare services.

Transferability of digital services is also affected by infrastructure and familiarization of digital services by the population. Digital services require sufficient internet and mobile network coverage across the country for the services to function, especially if the services are aimed to increase service availability in rural and remote areas. In addition, the population must be

familiar with digital services in general and have sufficient skills in using them, which might be a concern for example for elderly and disadvantaged populations. Lastly, it is imperative for non-digital physical services to remain sufficiently accessible and available.

Improving collaboration

First, improving collaboration between organisational-level health service providers and county authorities is transferable to health systems with more decentralized structures, which can be found in all health service models. More autonomous service provider regions, districts or service provider facilities may not necessarily collaborate with each other effectively, to which situations this action would be useful and thus transferable. Second, improving collaboration between individual service providers and healthcare system, such as in the case of Hungarian GPs, is especially transferable to health systems which have individual contracted (private) providers such as in Social Health Insurance models and possibly in some Transition models (Reformed hybrid and Loosely regulated model) but not yet functional structures for effective collaboration that would contribute positively to both the professionals' and the system's side. In systems with more centralized structures, perhaps bigger service organizations and salaried staff, communication channels might more likely be part of the health service structures already.

Changing healthcare providers

Changing healthcare providers to include private providers more in the service delivery, or on the contrary, transferring tasks from private entrepreneurs to national authorities, might be more easily transferable to health systems, where both private and public service providers are contracted as service providers in the health system. At least in traditional National Health Service models this might not be possible as most service facilities are public and the private providers' facilities may be limited. However, in most systems private service providers are used to some extent. There might also be some legal frameworks setting that certain services must be delivered by public providers instead of private ones. Transferring these to NHS models would require work altering the healthcare structures, and expanding the role of the private sector services might not be a desirable strategy in the first place – at least it would be a political debate. Instead, these measures would be easier to transfer to Social Health Insurance systems and some Transition models (Reformed Hybrid model) with perhaps more well-equipped private facilities and longer tradition of utilizing both public and private provider types.

Improving current service structures

Improving current service structures means creating better structures for the healthcare services in order to improve access to them. This action is transferable to any health system that has recognized a need for more effective services and is willing to do it by improving the structures of the system. Potentially some political will may be needed as well as dedicated funding, so those must be addressed to enable the change. However, it is important to realize that larger service structure reforms are often lengthy and costly processes, which might not immediately improve the accessibility or availability of services.

7.3 Policy and regulation related ways to mitigate medical deserts

Regulating the health service provision

Regulating health service provision with making staffing levels in the services more flexible by possibly altering laws, is transferable to countries which have, first, implemented staffing levels. Second, it is transferable to countries that have a shared will of changing the staffing levels, for example to shift the emphasis from certain service types to others across the health services.

Regulating health service provision with limiting the number of new practices in areas that have an excess from the country-wide perspective seem best transferable to Social Health Insurance based health systems or other health systems with private service providers as entrepreneurs. If the services are located excessively unevenly, further regulation or creation of incentives to affect their placements might be beneficial. This differs from the more centralized, perhaps National Health Service based, models where the public facilities may be more likely placed according to the population needs. The possible additional private services might also not be under public regulation in the first place. Thus, the action's transferability might be better for the SHI systems and the Transition model utilizing private services (Reformed hybrid model), however without excluding other models with similar kind of private service provision.

Improving data management

Improving data management is transferable to any health system with a recognized need for reducing bureaucratic workloads caused by inefficiencies in the data usage or a need to otherwise clarify or simplify health data use and management. The prerequisites for its implementation are both human and financial resources in the planning and execution of the action. Thus, financing of the healthcare provider organizations or national authorities, depending on the level of execution, must be at a sufficient level.

Changing the funding of the health services

Changing the funding of the health services based on population needs of the different regions of the country can be transferable to different health systems. The funding can be allocated from the central government to regions or other more local entities to provide the services as in National Health Service systems, or from the national Social Health Insurance funds to the regional or local SHI funds which will then purchase and arrange the services.

Although, this action might be more easily transferred to health systems where the decision-making considering the financing of the health services in different areas is centralized and/or is done by one entity. In systems with multiple insurers, it might be more difficult, though not impossible, to achieve consensus about the criteria to set the funding, since the actors might have their own incentives regarding the financing. Another key area concerning the action's transferability is that data and information are collected regarding population needs so that the funding can be needs-based. The action is easier to implement if the necessary data is already being collected.

Changing the healthcare funding by increasing investment to certain service areas, such as primary care, is transferable to any health system which have identified a need for certain developments. Its transferability might be, however, easiest to Transition models as they in general share the same need of improved primary care as the action's original identifier Romania, as investment to primary care in comparison to other types of care has shown to provide equity and efficiency gains, and has potential for financial savings (WHO 2018b, 14-15, 18).

Changing health workforce's remuneration

Changing the remuneration of the health workforce is transferable to different health systems. In Romania, where this action is originally identified, the idea is to change health workforce's salaries to be based on the quality of the services they deliver instead of a more traditional fixed salary. In health systems with autonomous organizations and less strict labour laws or agreements defining the basis for remuneration, this change could be done more easily, enabling better transferability. In systems with more limiting national regulation or larger role of (trade) unions, the transferability of the action might be lower, especially if more significant changes in the laws or agreements are needed.

Improving the training of new professionals

Improving the training of new professionals is transferable to any health system that recognizes a need for it and has resources to implement it. If the improvement considers making the funding of the training more sustainable as it is planned in Finland, its transferability would depend on the political will and possibilities to increase investment to the training. Same is for improving the training with lengthening the training for new professionals as it is done in France: longer education would translate to increased education costs and to slower graduation of new professionals, to which intent and financial resources are needed.

To help in the justification of increasing investment to the training of the health professionals, some information and data of its benefits would be ideal to support the strategic decision-making about the funding levels or the length and contents of the education. For example, the current and future numbers of health workforce and data considering their locations after graduating could be utilized. The latter applies especially if goals for the lengthening of the education is to attract new personnel to medically deserted areas as in France.

Assorted plans and policies to increase health workforce

Different plans and policies to increase health workforce could be utilized in all European countries, especially when tailoring them to local contexts. Here, however, the original plans identified in Romania are considered, and they could all be transferable to virtually any health system in Europe.

First, reforming health policies to better tackle the challenges of human resources of health, for example, by involving medical personnel in the decision-making process and resource allocation, would be transferable to any health system with enough political or decision-making will. Second, carefully planning for health professional increases so that they would

be directed to the medical specialties with the most need, would require sufficient data and information to enable the planned increases. Third, a regional development strategy is transferable to countries which have worse infrastructure and healthcare access in rural areas compared to urban areas, and willingness and financial resources to implement the actions. Developing the infrastructure, such as roads, goes beyond the responsibilities of the health sector's actions, and as such, additional political decision-making might be needed to direct the planning and funding for the developmental actions.

8. Conclusions

The purpose of this document was to describe the sustainability and the transferability of the ways to mitigate medical deserts, which had been developed in OASES countries' pilot studies with the aim of alleviating the European wide challenge of poor accessibility and availability of healthcare. Sustainability and transferability of the identified actions were analysed, while taking into account the country specific and service system related features and characteristics that can affect the scalability of the actions.

The OASES countries' ways to mitigate medical deserts can be categorized into three groups: health workforce, service provision, and policy and regulation, which are presented in chapter 6.8. The actions mostly concern whole countries or regions, but some specific ways targeting the areas identified as medical deserts are also present. The vast majority of the actions were seen as sustainable, but a few countries (France, Moldova, Romania) presented also more critical views of their actions. On one hand, the higher number of actions in those countries might have led to the inclusion of unsustainable methods as well. On the other hand, the numbers of the actions are generally smaller in the countries with no unsustainable actions, so perhaps the selected ones are thus sustainable. However, the unsustainable actions can be well transferable to other countries and thus they are discussed in the report as part of the pool of actions.

The actions aim to target the previously identified determinants of medical desertification in varying extents (Deliverable 5.3, 10; WHO 2018a; Danish et. al 2019; Asghari et. al 2020). Training or supply of health workforce, workforce planning and monitoring, and modifying some characteristics of the health organizations appear the easiest to improve with the mitigating actions, and they are intended to be addressed with different methods within the identified actions.

Training or supply of health workforce is addressed in the OASES countries' actions with investing in the training of the health workforce and increasing the intake of students in general and students from medically deserted areas. One approach is to promote rural internships, which is done in France. Aims to promote immigration of health workforce from abroad is present in France and Finland, whereas the Central and Eastern European countries (Hungary, Moldova, Romania) face challenges with their workforce emigrating abroad. Thus, ethically sound approaches are needed to ensure that more affluent countries do not excessively attract workforce trained in other countries, which would need the workforce

themselves as well. This is a topic that is, to our knowledge, not yet properly addressed as part of the medical deserts mitigating actions and strategies.

The mitigating ways address the need for health workforce planning and monitoring by utilizing information and data on current or future needs of the workforce and by using information on the characteristics of the workforce. The need for these actions depends on the state of development in the country or region in regard to well-functioning planning and monitoring systems and data usage of the human resources of health. Comprehensive planning and monitoring systems can promote efficient allocation and tracking of human resources of health to meet the healthcare system's needs, which vary country by country.

Some characteristics of the health organizations or practices are addressed in the OASES countries' identified ways to mitigate medical deserts. The ways would aim to improve the scope and size of the practices and work organization with, for example, new forms of services and service providers. These new services could introduce multiprofessional teams, increase the cooperation between service providers and increase task-shifting. E-health and digital services are also promoted in several actions. Pay systems of the health workforce, in turn, can be improved with salary or income increases or altering the salary basis of the health professionals.

On the contrary, some other characteristics of the organizations behind medical deserts are not sufficiently addressed in the OASES countries' actions. Workload and work environment, including flexibility, management, training, social support and autonomy of the workforce should be possible and practical to address as part of the mitigating strategies. They relate strongly to improving the health and care workers' needs, which could help recruit workforce into the healthcare field and retain current workers. More is recommended to be done regarding improving the management of the organizations as it can directly affect the work well-being and autonomy of the health workforce when it comes to their working times and workdays' schedules. Furthermore, it is important to pay attention to enabling social support from colleagues and supervisors or managers. Focus could be directed to career possibilities as well, for example with encouraging workforce to move up in their careers or to enter the healthcare field later on.

Larger and more structural changes considering the whole service systems appear as potential measures to mitigate medical deserts, but perhaps their planning and implementation is more difficult, as they are not a visible part of the OASES countries' actions. Low resources in primary care are aimed to be addressed in Romania, in where plans to increase investment to primary care with goals of improving facilities and equipment and thus the quality of the services are present.

Parallel service systems (such as private services or occupational health care) can affect the efficiency of resource use negatively, and thus reforming the service structures could have the potential to improve the use and allocation of the limited resources. Regardless, these actions are currently not fully utilized, even though Cyprus aimed to better employ private sector by further involving the private providers in the service provision. Hungary included an

action aiming to change the coordination of care by moving the out-of-office-hours patient cases to the responsibility of a national entity focused on emergency care instead of the private primary care providers. Further actions considering the need for coordination between primary and social care, and primary and hospital care in a bigger picture are absent. It is possible that the need for large structural actions, often requiring political will and lengthy planning, hinders their presence in the mitigating actions. However, potentially low-cost initiatives, such as increasing the coordination between health and social care services, could be further utilized in the actions, with the aim to improve the accessibility, availability and quality of care.

Lastly, actions related to personal factors of health workforce behind medical deserts appear impractical and perhaps not the first determinants to be addressed when aiming to reduce medical deserts effectively. Family-related factors, such as workplace of the possible spouse and location of the family, are factors that could affect the individual health workers' choices, but they are out of the scope of the health sector actions. Attitudes and experiences towards rural areas, and environmental factors such as preferred climate, infrastructure and available services are more underlying reasons behind the health workforce's decisions about their workplaces. To address these, it would require attitude-changing actions, which would probably not be effective in attracting workforce. Instead, potentially more probable change could relate to the possibilities the rural areas have to offer for health workers and their families, such as schools, hobbies and cultural opportunities. These factors are indeed included in Romanian actions with regional developmental policies for the rural areas.

8.1 Sustainability

Sustainability of the OASES countries' ways to mitigate medical deserts is generally in a good state. Most countries (Cyprus, Finland, France, Moldova, Romania) address the challenge of medical deserts by directing attention to all different aspects of sustainability, as presented in chapter 6. In principle, most countries are potentially able to address the many sides of the medical desert phenomenon.

The different aspects of sustainability - in other words sustainability themes - have however been addressed with varying levels of intensity in the OASES countries. By analyzing the countries' actions and the comprehensiveness of the addressed sustainability themes, an overview of the sustainability in each country was created, as well as a conclusion on which sides of sustainability are most widely taken into account in the ways to mitigate medical deserts. Simultaneously, it was possible to examine whether some sustainability themes have been left unaddressed.

The analysis revealed that all OASES countries aim to increase public investment in health workforce and/or to optimize the use of public funds by introducing innovative policies, such as increasing health workforce's availability, accessibility and/or productivity, and prioritizing investment in primary health care workforce. The countries focus often on planning policies related to human resources for health with an intersectoral approach by engaging key stakeholders, as all but Italy have measures targeting these factors. Also, all countries except Italy aim to recruit and retain more health workforce and, in many cases, direct special

attention to rural and underserved areas, where medical deserts are often identified. Lastly, optimizing the performance of the health system by contributing in some ways to more efficient services is present theme in all but Moldova's actions.

On the contrary, several aspects of sustainability are not addressed in any of the OASES countries' actions. Among those, there are some needs of the health workforce, namely, health and well-being and gender-sensitive policies. Majority of the health workforce is women (78% in the EU in 2020) (Eurostat 2021) but they work in lower-status jobs and are underrepresented in decision-making positions (WHO 2022a, 2). Thus, practices aiming to achieve gender-balance in the workforce composition, leadership positions or certain gender-sensitive practices or strategies that address for example harassment or other possible negative side aspects of the work would be beneficial. This could support the many European countries' aim of increasing the attractiveness of the healthcare field and improve retention among the workforce. Even though France, Hungary and Moldova have measures improving the working conditions of the health workforce - potentially having indirect effects on the wellbeing of the health workforce - no country directs explicit attention to the wellbeing or mental health of the workforce in a more general sense, which are part of the sustainability themes affecting the workforce's attraction, recruitment and retainment.

There is also room left to improve in actively contributing to public investment in the health and care workforce by justifying its benefits to critical funders and stakeholders. This theme was not addressed in any of the actions. Evaluating the potential ways to be implemented is important for being able to justify why investing to health workforce is important. Because only three of the OASES countries have already implemented their actions (France, Hungary, Italy), evaluative material cannot be available for all the countries yet. This may be one reason why contribution to increasing public investment to health workforce is not part of the countries' pool of actions. However, it could be a useful standpoint to pay more attention to in the future, especially as the need for increased investing in health and care workforce (and to health services in general) was present in many countries. Evidence on cost-efficient measures to prove the benefits of the actions could be helpful in attracting increasing amounts of public as well as private investment.

Lastly, the analysis presents an indicative picture of which kinds of ways could be implemented to address certain aspects of the medical desert phenomenon (chapter 6.8). Certain actions focus more on retaining and recruiting and investing in health workforce, whereas others are more useful in optimizing the performance of the health system, transforming the education and training of the health workforce, or planning in order to create comprehensive policies relating to human resources of health.

8.2 Transferability

Transferability of the OASES countries' ways to mitigate medical deserts to other European countries is generally good, as discussed in chapter 7. Most actions can be transferable and applicable to most health service systems, depending on the national needs regarding medical deserts. Some ways are more easily suitable for similar health systems to where they

were originally developed. For example, some actions tailored for Social Health Insurance based systems are best transferable to similar health systems.

The mitigation ways focusing on policy and regulation function at a more general level, enhancing their transferability to varying kinds of health systems and thus countries. Health workforce and service provision related ways, instead, are more related to the specific features of the health systems, which might somewhat limit their transferability to other systems and countries.

Analysis of the transferability of different medical desert mitigating actions is essential, as simply copying strategies from different countries and environments can lead to inefficient policies and measures, which might not improve the situation in the target country. When planning for medical desert mitigation strategies, inspiration can be gathered from the OASES countries' identified ways and the information concerning the actions' transferability can help to guide the planning process and help choosing suitable actions and strategies. Tailoring and analysis of different measures even from different health systems is encouraged, as it can enable the utilization of the vast number of different tools and actions developed in Europe to combat medical deserts.

8.3 Reliability and limitations

The sustainability and transferability analysis are done carefully based on a theoretical framework and previously gathered data about medical deserts in European countries. The data and information are of the highest quality that was possible to find within the OASES project's timeline. The guiding framework "Framework for action on the health and care workforce in the WHO European Region 2023–2030" focuses on health and care workforce, meaning that the sustainability of the mitigating actions was implemented from the perspective of the health workforce. A broader examination of sustainability, such as environmental or economic sustainability, is therefore missing from the report as the focus of the framework is mainly on topics relating closest to social sustainability.

A limitation regarding the transferability analysis is that it is based on simplified health service descriptions of the European countries. The health service system classifications that were used were aimed to address the European countries' systems in enough detail but at the same time being able to simplify the systems. This does not allow taking into account the unique features of the European countries' systems and thus the analysis and its results could provide a rather generalized picture of the topic.

Reliability of the report is affected by the data sources used, mainly previous OASES reports (Deliverable 5.3 and Deliverable 6.3). The reports might not necessarily cover all the relevant information from all the OASES countries' situations before and after the medical desert mitigating actions. However, these are feasible sources to continue the work of the OASES project, and they do provide the most comprehensive information that is available on the topic.

The sustainability analysis had a few limitations. The analysis did not manage to account for the differences between the differentiated numbers of the countries' actions and levels of implementation. Some countries identified only a few actions, while others had a wider selection, with the number of the actions varying from 3 actions in Italy to 18 in Romania. The number of the actions likely has effects on the overall coverage of the actions and thus their sustainability. This can lead to an impression that the countries with more actions appear more sustainable than the countries with fewer actions. However, this has been addressed in the report by discussing the individual countries' local contexts and their need for actions in the different sustainability areas.

Another limitation regarding the analysis of the mitigating ways was the fact that it was not possible to account for some actions already being implemented in the country and others being ideas or unfilled goals of what could be done in the country. This poses differences, for example, in the impact assessment of the actions and thus the readiness or level of realism of the actions, as more detailed information exists on the actions of some countries but not others. Also, the actions from the countries where they are already in implementation might be more realistic compared to the countries where they are on a more abstract level.

Lastly, the analysis did not consider the possible differences in the definition of medical deserts. Some countries have defined medical deserts more narrowly to apply to specific areas of the health system, whereas some countries adopted a broad view of the medical deserts. However, this likely realistically represents the unique situation and needs of each country.

In any case, the report was prepared carefully taking the health service systems and local characteristics of the OASES countries into account. Since the main author of the report comes from only one OASES country (Finland), local researchers from other OASES countries were extensively consulted during the process to ensure that local views were sufficiently taken into account. Overall, the report provides up-to-date information compiled with highest possible quality on European medical deserts and their mitigation.

8.4 Future recommendations

Based on the findings of this report - the multifacetedness of both the different challenges the European health systems face and the identified mitigating ways of the countries - it can be said that the strategies to alleviate the medical deserts should be well-rounded and specific to the local context, taking into account the features and characteristics of the health service system. Medical deserts would optimally be addressed based on a needs analysis that considers the medical desert phenomenon in the country or region as a whole, taking into account the different determinants behind the medical deserts. After careful analysis, the most important determinants should be prioritized, while considering the potential effectiveness of the actions.

Since medical deserts are unique in each country, one-size-fits-all approach is not suitable, and instead the countries should tailor their strategies and actions individually for their local contexts, challenges, needs and available resources, preferably also contributing to increased

investment to health and care workforce. In addition to financial investment, many mitigation ways require political will to make changes into the health systems and services. Consequently, successful strategies should be formulated together with important stakeholders such as ministries in charge of the health services, other policymakers, service providers, central public or societal authorities, experts in the healthcare field and funders to plan and eventually implement effective and realistic actions.

Based on this report, it is important to pay attention to both recruiting and retaining health workforce when applying the strategies for medical desert mitigation. While finding new ways to successful recruitment may be essential for increasing attractiveness of rural and remote areas, retainment might be a more prevalent issue in larger cities. Accordingly, various measures might be needed to improve both health workers' needs such as working conditions, social support and professional development possibilities, and measures altering the service organizations and working environment. Contributing to more efficient service delivery, for example via increasing multiprofessional work that could foster cross-learning and variability of the work, is important because purely the numbers of health workforce cannot be increased endlessly.

Versatile information on the medical deserts in Europe has been gathered during the last few years, and the useful information from the OASES project is available for policymakers, public officials and researchers, among others. A need for future research is recognized as currently many European countries are missing regional level data that can be used to assess the medical desert situation in different parts of the country and to make comparisons between countries. Also, EU-wide methods and statistics on medical deserts would help to contribute action, as well as research aiming to provide robust information on the effectiveness of the medical deserts mitigating actions to further help the European countries to adopt and apply cost-effective and efficient strategies. However, the current information can guide the potential strategies and ultimately viable actions to be implemented across Europe to foster positive change. To reach the shared goal of mitigating the medical deserts in Europe, time for action is now.

8.5 Action plan for European countries

Lastly, an action plan, based on the findings of the report, is proposed for European countries to assist them in addressing the challenge of medical deserts.

1. **Conduct a situational analysis** regarding the presence of medical deserts within the country:
 - a. Utilize a framework or an equivalent tool to gain an overview on the various dimensions of the medical desert phenomenon, for example the "Framework for Action on the Health and Care Workforce 2023-2030" (WHO 2023a). Carefully considering the multiple aspects and perspectives of medical deserts can support the potential success of the future strategies.

- b. Utilize available data on medical deserts, such as the numbers of the health workforce and their distribution across different regions. In cases where such data is unavailable, consider initiating efforts to gather this information.
2. **Seek inspiration and generate ideas** for mitigating medical deserts by exploring the various strategies and their contexts outlined in this report. Pay attention to their transferability, in order to enable selection of ways that are applicable to local contexts. The ways to mitigate can focus on:
 - a. **Health workforce**, for example by attracting health workforce to medical desert areas with monetary incentives and financial benefits, and attracting new healthcare students.
 - b. **Service provision**, for example by supporting multi-professional teams with new professionals and practices, improving collaboration among healthcare providers and public institutions, changing healthcare provision with new providers included in the service delivery, and creation of new primary-level services with better access to care.
 - c. **Policy and regulation**, for example by creating new financing criteria for healthcare service providers to better address population needs, increasing funding for healthcare, and creating or enhancing policies and strategies related to health workforce and rural areas.
3. **Carefully design tailored strategies** and ways to mitigate medical deserts within the country's context.
 - a. Develop solutions which are specifically tailored to the local contexts, taking into account all the relevant factors behind medical deserts.
 - b. Ensure the sustainability of the ways by assuring that all the elements (potentially) contributing to the emergence of medical deserts are addressed in the country adequately, so that the overall situation of medical deserts can be remedied.
 - c. Engage stakeholders and foster collaboration in the medical deserts' mitigation process. Many of the actions require investments and financial resources, which underscores the importance of collaboration with funders and key ministries, and policy advocacy to promote the benefits of investing in the health and care sector.
4. **Evaluate the implemented actions** and collect information to assess their possible impact on the mitigation of medical deserts.
 - a. Such information holds potential to help modify the current actions, inform subsequent initiatives and guide decision-making in the future.

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