CHPS
Center for Health Policies and Services

AHEAD
ACTION FOR HEALTH AND EQUITY ADDRESSING MEDICAL DESERTS

ROMANIAN MEDICAL DESERTS COUNTRY REPORT

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BUCHAREST - ROMANIA

This report is produced within the project Action for Health and Equity - Addressing Medical Deserts (AHEAD), funded by HaDEA.

The AHEAD project is led by a consortium of six organisations, who together are working to achieve better access to health services, especially in underserved areas, and more equitable access to sufficient, skilled and motivated health workers, in Italy, Moldova, the Netherlands, Romania and Serbia

More details on this action can be retrieved from project's website http://ahead.health.

In Romania, the project is implemented by the Foundation Center for Health Policies and Services

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In the AHEAD project Alexandra coordinates the qualitative research component and the consensus building events.

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Workers – HW4ALL and "Social inclusion through the provision of integrated services at community level" – Community-based Services for Children.

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Bogdan Voicu is a research professor with the Romanian Academy (Research Institute for Quality of Life) and professor of sociology with the Lucian Blaga University of Sibiu. He often works as consultant for various organizations including the UNDP, UNICEF, UNESCO, World Band, EBRD, various NGOs, agencies of various governments – including Romania, the UK, Moldova, etc., private companies – such as OMV-Petrom and Renault, etc. His work in the field of public policy covers policy assessment, impact assessment, and data evaluation.

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Disclaimer

The assertions in the report belong to the authors, which are responsible for the quality of the content.

CHPS, Bucharest 2022

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Executive summary

The Project *Action for Health and Equity - Addressing Medical Deserts (*AHEAD) addresses the challenge of medical deserts and medical desertification in Europe in search of viable solutions and tools to reduce health inequalities. The Project is carried out in Italy, Moldova, the Netherlands, Romania and Serbia. The countries of the project were carefully selected to highlight different manifestations of medical deserts. The approach applied in this Project will build knowledge, encourage innovation in health service delivery to improve access, and apply a participatory approach to public health policymaking. Project beneficiaries are health policymakers, patients' organizations, health professionals' organisations, health professionals and affected communities. Our ultimate impact at society and EU level is better access to health services, especially in underserved areas, and more equitable access to sufficient, skilled and motivated health workers, starting with the countries involved in the Project.

The AHEAD Project activities include literature review and desk research; participatory action research; multi-stakeholder consensus-building dialogues; high-level policy dialogues at the national and EU level. The consortium will produce several deliverables: country research and policy briefs; a set of contextualized and feasible policy solutions to address medical deserts in the countries; an improved definition and taxonomy of medical deserts; a medical deserts diagnostic tool; and a tested and replicable approach for participatory health policymaking.

The current country research report for Romania provides the results of the desk and field research (web survey and two case studies) in Romania. The field analysis was meant to identify to what extent the representation of accessing medical services fit the general setup found in the literature on medical desertification and to provide insights on how local and county level or national stakeholders relate to medical desertification concept and associate it to the realities in their localities and/or counties. In the end, we looked for potential solutions that will be further validated through the participatory health policymaking mechanism, following our consensus building methodology.

The findings of this study revealed the low awareness of the meaning, implication and elements of being a medical desert, which was visible both in the in-depth interviews and the web survey results. Whilst analysing the dimensions of a medical desert, the data suggested that distance is considered the main component, with densities and travel times being at most as secondary in importance in the opinion of the respondents. With regards to this, respondents located in medical deserts tend to adjust their expectations to the existing situation and to substantially lower thresholds of acceptability. Similarly, treatment is generally perceived as central, while prevention is seen as less essential, as many respondents opted for the proximity to hospitals rather than to GPs. The solutions provided by the respondents on how to address medical desserts included a mix of financial interventions, institutional arrangements, and arguments with respect to human capital.

Introduction

In the last decade, the term 'medical deserts' has become widely used across the European countries so as to define areas that are underserved in terms of access to medical services and disparity between healthcare supply and demand. Under the circumstances, it is crucial to investigate around the different manifestations of medical deserts in Europe in order to develop appropriate policy solutions to improve the access of health care services for all. While a pattern can be observed in the way medical deserts arise within Europe, medical desertification is not a well-studied challenge in certain region such as in the case of Romania. This is particularly true when taking into consideration the ongoing COVID-19 pandemic, through which additional pressure was placed on healthcare systems, further exacerbating pre-existing shortages, low availability and poor accessibility to healthcare workers.

This research aims to build on the findings of the thorough literature review in order to identify to what extent the representation of accessing medical services fit the general setup as well as to investigate how local, regional or national stakeholders relate to the concept of medical desertification and associate it to the realities in their areas.

The report is organised as follows: the study begins with introducing the context of Romania, summarising relevant demographic data and providing a brief review of the health status of the population, health system structure, as well as relevant initiatives within the healthcare system. Then, a definition of medical deserts is elaborated based on a thorough review of the existing literature. The methodology of the research is further outlined, presenting first the web survey approach and then the in-depth interview method used in order to conduct the research. The report carries on with a media analysis, which thoroughly examines the recent media reports on aspects related to medical desertification in Romania, so as to gain a comprehensive understanding of the subject.

The main part of the report will be divided into five major sections, presenting the respondents' awareness of desertification, criteria considered relevant to define access to medical services, the thresholds from which a locality is a medical desert, the standards for comparison and the relevance of the initial map/classification. Each section will present and analyse the views of the respondents from both in-depth interviews as well as from the web survey.

Finally, the report will provide its conclusions, synthesizing the perception of the respondents on the phenomena of medical desertification and accounting the solutions and policy implications identified in the research.

Country context

Located in South-eastern Europe and with a surface of 238,391 km^2, Romania is the twelfth-largest country in Europe. It neighbours Ukraine to the North, Republic of Moldova, Ukraine and the Black Sea to the East, Bulgaria to the South, Serbia to the South-West and Hungary to the West.

As suggested in Figure 1, Romania is divided into 4 macro regions of development, which correspond to the Nomenclature of Territorial Units for Statistics (NUTS) I level of divisions of the member states of the European Union.

According to Article 3 of the Constitution, the territory of Romania has an administrative organization by counties, towns and communes. Romania features 41 counties and the capital city of Bucharest, which has a similar status to a county. In the counties, the administrative units are the towns (urban settings) and rural units called communes, each composed of several villages. According to the Ministry for Development, Public Works and Administration (2021) there are 216 towns, of which 103 are municipalities. In addition, the country features 2,862 communes with over 12,957 villages.

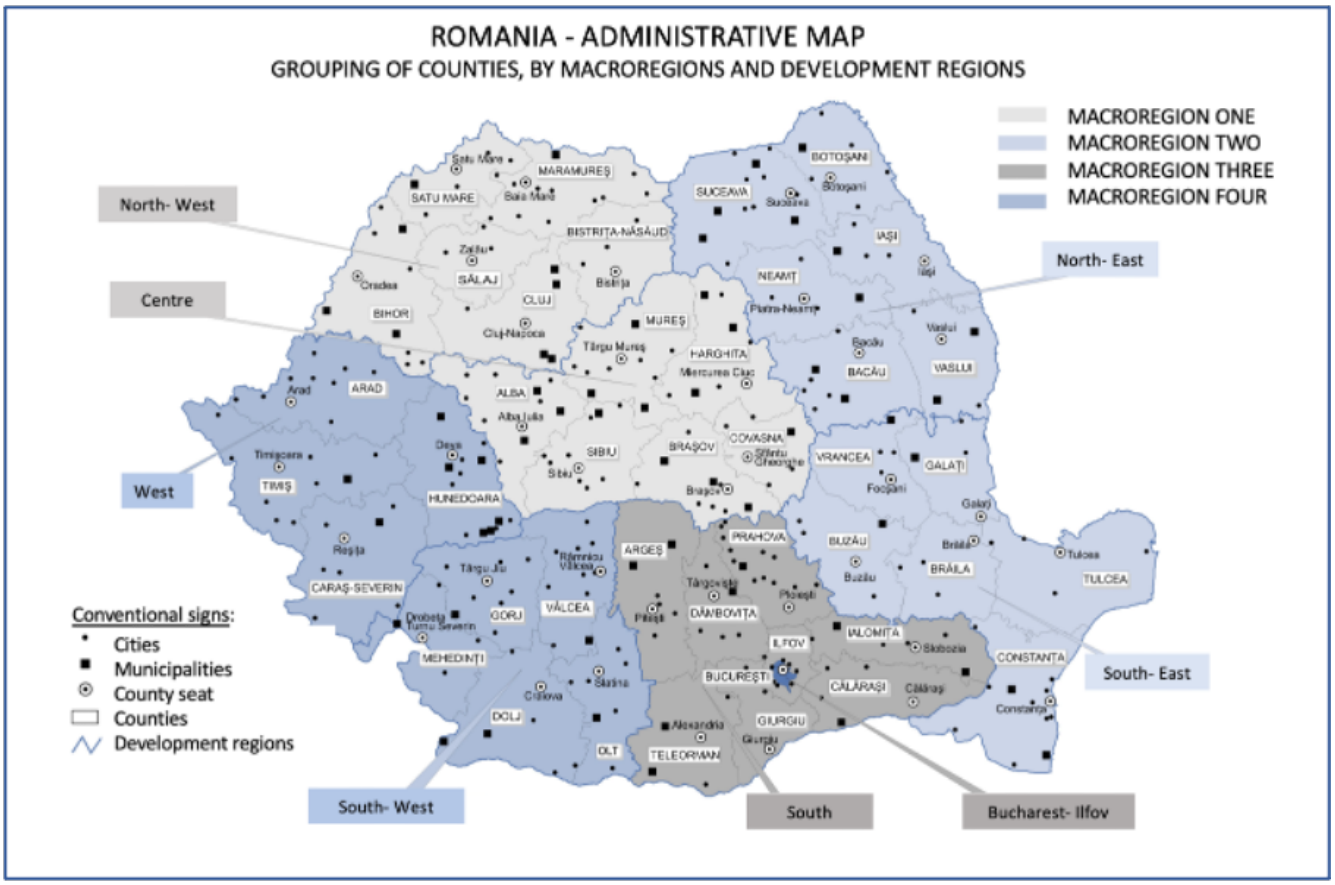


Figure 1. Administrative map of Romania

Source: National Institute of Statistics, 2017, page 6

Population

Romania is experiencing a constant decrease in population throughout the years. In 2020, the Romanian population counted for 19,261,714 inhabitants, compared to 19,375,835 in 2019. Romania's current population growth rate is -0.59%, meaning that the population decreased by about 114,121 people from 2019 to 2020

(INSSE, 2020). This decline is due to a combination of negative net migration and a fertility rate below the population replacement rate. Furthermore, since 2015, Romania encountered a steep decline of 2,83% in population.

Despite the decline in population, the migration has slightly decreased as well, as 2020 recorded a net migration of 21,031 inhabitants, compared to 26,775 in 2019 (INSSE, 2020). The decrease is also visible in terms of short-term migration, with a number of 192,631 temporary emigrants in 2020, compared to 233,736 in 2019 which can be broadly explained by the travel restrictions that were established due to the COVID-19 outbreak, limiting the mobility (INSSE, 2020).

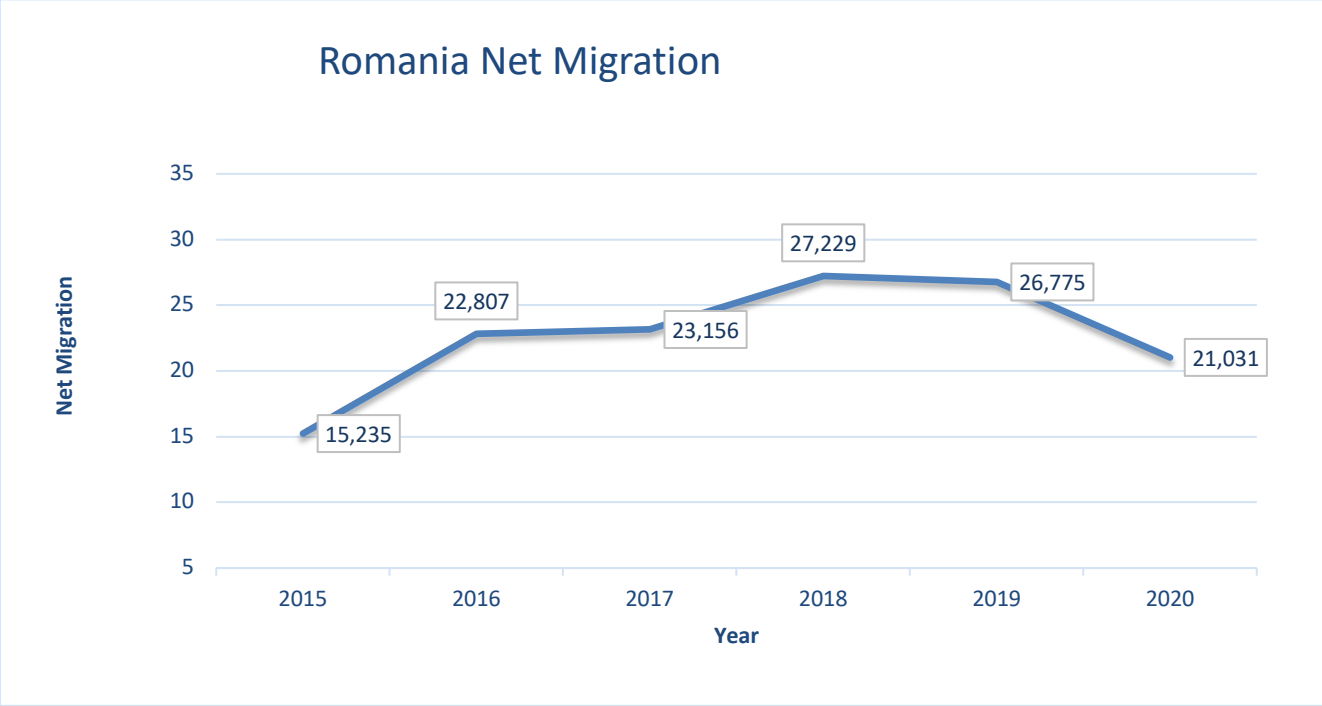


Figure 2. Dynamics of Romanian net migration

Source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table

Romania's borders encapsulate a total of 238,931 square kilometres of area. When calculated with the current population numbers, we find a population density of approximately 93 people per square kilometres (INSSE, 2020). This earns the country 96th rank in overall population density. In terms of population distribution, Romania has remained constant over the last 5 years, with 54% of the population living in urban areas and 46% living in the rural areas of the country (INSSE, 2020). This indicator suggests that Romania still has a significant part of its population living in the rural areas and is significantly above the European level of 25%. Furthermore, it is reported that Romania has the highest rural population in Europe, together with Slovak Republic.

Social aspects

An important social aspect is the striking inequalities in Romania, which affect mainly children and the population in rural areas, Roma and people with disabilities. The population in the rural environment faces a series of problems regarding the malnutrition and lack of sanitary facilities, as well as inaccessibility to medical services. The health and nutrition of children in the rural environment has deteriorated compared to previous years, with parents being forced to buy cheaper and fewer products due to financial constraints, leading to children only eating 2 meals per day (9%), going to sleep hungry (9%) and not having enough food to eat (5%). Access to

healthcare services also remains faulty, which is demonstrated by the case of pregnant women (World Vision, 2020). According to World Vision, 6% of the women were not examined once by their family doctor, 9% haven't performed any tests, 14% haven't done ultrasounds, and 20% were not subjected to any gynaecological exam during their pregnancy. Medical support is also absent in the early years of the children, as 16% of the households with children have not benefitted from any visits during the child's first 2 years of life and in the case of half of the families interviewed in the study, children aged 0 to 5 did not have any medical tests performed (World Vision, 2020).

The Roma population, which accounts for 3.3% of Romania's population, is also experiencing low living conditions. According to World Vision, 60% of Roma went to bed hungry at least once a month and 84% of Roma households have no water, sewage or electricity, which leads to high rates of ill health (World Vision, 2020).

Political and administrative framework

As far as the political framework is concerned, Romania is a parliamentary democratic republic. It has a bicameral parliamentary system comprised of the Senate (the upper house), with 136 seats, and the Chamber of Deputies (the lower house) which has 329 seats. Both are directly elected for a four-year term based on proportional representation and party lists.

As Romania has a semi-presidential political system, the Prime Minister is the Head of Government, while the President is the Head of State. Romania's President is directly elected for a five-year term with the right to one re-election. The President appoints the Prime Minister with permission from Parliament and further acts as the commander in chief of the armed forces. While the President cannot initiate legislation, he is able return bills for further debate. The current government consists of 24 ministries headed by the Prime Minister, yet the Romanian coalition governments are unstable and experience frequent change of high-level political officials (Heilmann, et al., 2019).

At the local level, the county is the administrative unit administrated by a county council and a prefect. The county council is elected to coordinate the activity of communal and city councils, with the aim of focusing interest on public services of importance at county level. The government appoints a prefect in each county to be its local representative. The town and the commune are each overseen by a local council and an elected mayor (MAE, 2018).

Economic features

Over the last decade, Romania has achieved a noticeable record of high economic growth, sustained poverty reduction, and rising household incomes. The World Bank classified Romania as a high-income country for the first time, based on the 2019 data regarding per capita income of 12,899 US dollars. The same indicator in 2015 was reportedly 8,969 US dollars, thus there was a significant 30.47% increase in the GDP per capita values. Similarly, the Gross Domestic Product (GDP) in Romania was worth 249.88 billion US dollars in 2019, according to official World Bank data, compared to 177.73 in 2015, as captured in Figure 3. The economic growth can also be demonstrated by the annual growth rate, which peaked in 2017 at 7.32%, being the EU's second highest growth rate.

However, like the rest of the world, Romania has been impacted by the COVID-19 pandemic. In 2020, GDP in Romania decreased to 248.72 billion US dollars while the annual growth rate of the GDP has contracted by 3.93 (World Bank, 2020). Yet the economy is in the midst of a rebound, with GDP returning to pre-pandemic levels and growth recovered sharply to 6.5% in the first half of 2021 (World Bank, 2020). In March 2022, European Bank

for Reconstruction and Development (EBRD) has revised downwards the advance of the Romanian economy for 2022, from +4.4% anticipated last November to +2.8%, due to the impact of the war in Ukraine.

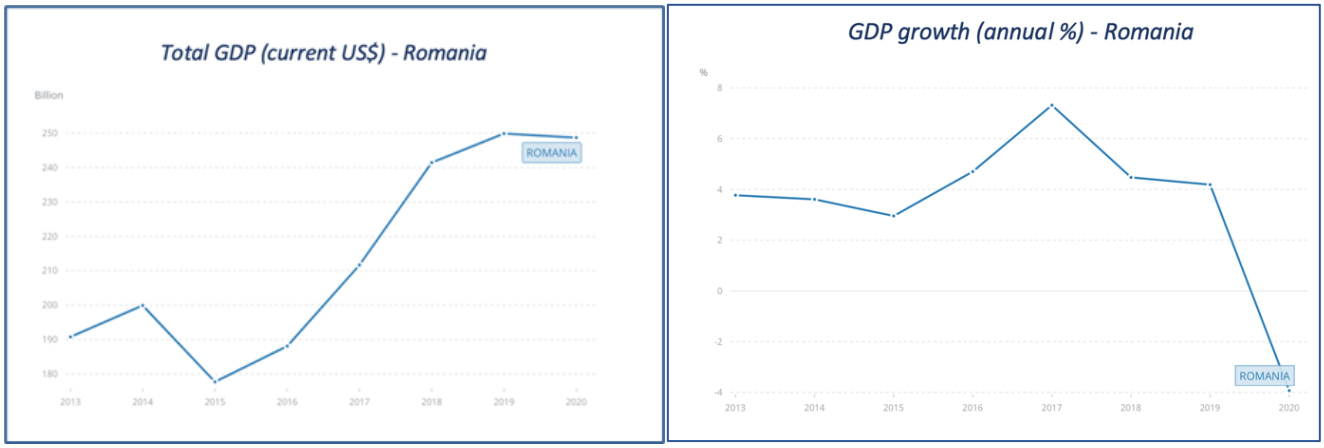


Figure 3. Dynamics of Total GDP (current US$)

Source: https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=RO

One effect of the pandemic that is still prominent is the significant increase in poverty especially among vulnerable communities such as the Roma, evidencing deep-rooted inequalities. In connection with inequality, the latest GINI coefficient available for Romania is as of 2019, when it scored 0.34. While the number has decreased since 2014, when it was 0.36, Romania's score is still among the highest in the European Union, with only Italy and Bulgaria recording a higher value (Statista, 2019).

Technological context

The technological context of Romania exhibits a very steep development in the past 5 years. Accordingly, since 2016, the access to internet has widened by 15.8%, as the coverage increased from 65% to 80.8% (INSSE, 2021). The increase throughout the years is also illustrated in Figure 4. Romania also exhibited a dramatic increase in the population who owns a smartphone, with a percentage of 67.2, as opposed to 38.7% in 2016 (Statista, 2021).

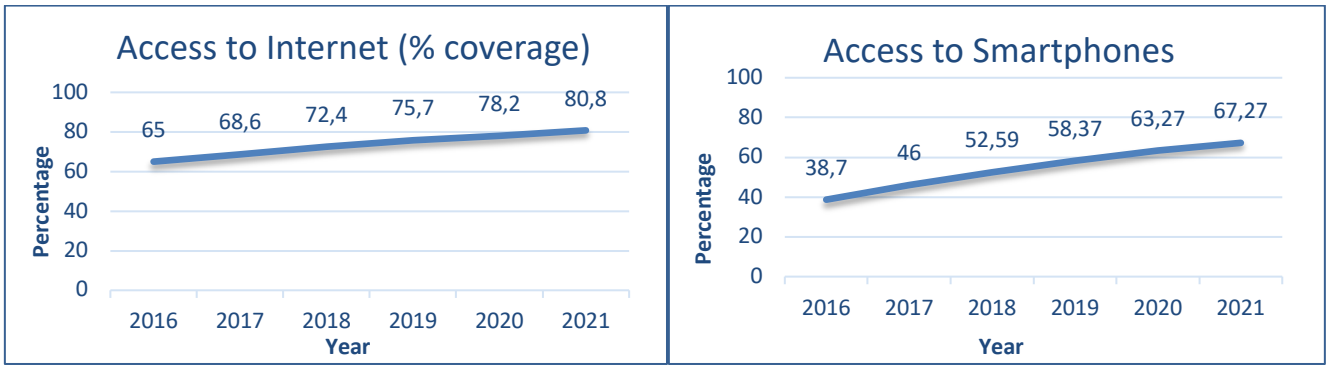


Figure 4. Access to contemporary technology

Access to internet, Source:*https://www.statista.com/statistics/568223/predicted-smartphone-user-penetration-rate-in-romania/*
Access to smartphones, Source: *https://insse.ro/cms/ro/content/accesul-populației-la-tehnologia-informațiilor-și-comunicațiilor-în-anul-2021*

However, there is still a low level of digital literacy among the user, with only 31% of the population being able to use technical skills in order to find, evaluate, create, and communicate information (Eurostat, 2019). What is more, the increase rate of the indicator is also low, with a mere 5% increase in the last 5 years, as exhibited in Figure 5.

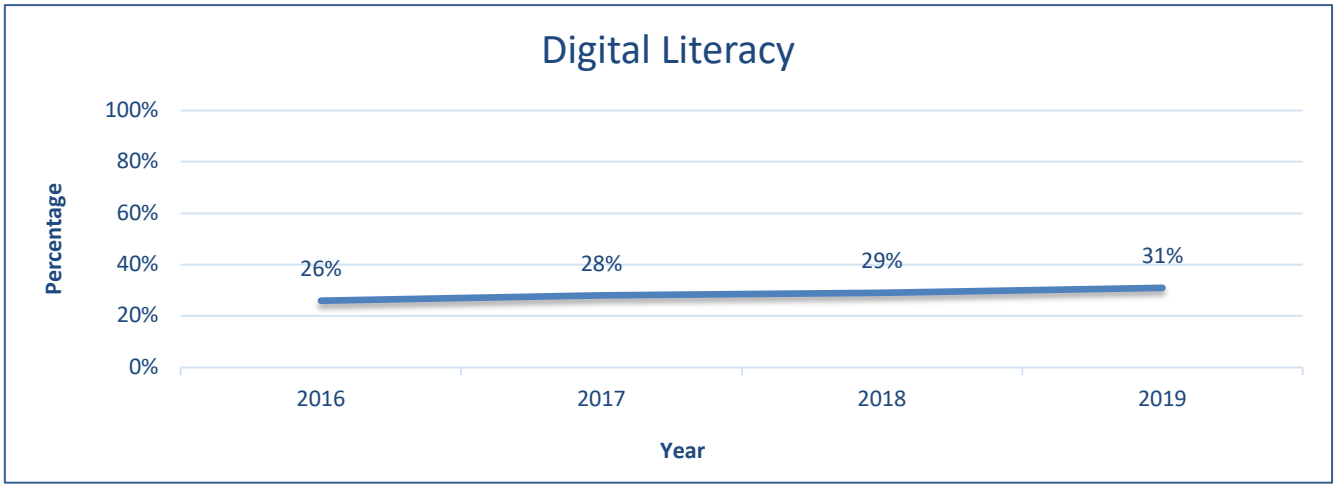


Figure 5. Digital literacy rate

Source: https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_sk_dskl_i&lang=en

From the point of view of the urban-rural typology applied in Romania, the predominantly rural regions occupy almost 60% of the territory, while the urban regions represent only 0.8% of the territory, the difference being found in the intermediate regions (Ministry for Development, Public Works and Administration, 2020).

Romanian's natural landscape, that entails a 23% of the country being covered by mountains as well as the Danube Delta situated in the south-east of the country often lead to transportation challenges related to access to healthcare services. This concern is extendedly discussed in the following sections of the report.

According to CIA Factbook (2012), in 2012 Romania had a total road network of 84,185 km, out of which 49,873 km were paved and 34,312 km unpaved. Romania's National Institute of Statistics (INS) 2019 transport report stated that total road network is 86,391 km: 38,166 km (44.2%) modernized roads with heavy asphalt pavements, 21,365 km (24.7%) with light asphalt road clothing, 17,831 km (20.6%) cobblestone roads and 9,021 km (10.5%) dirt roads.

Overall, the logistics performance index, that measures the quality of trade and transport-related infrastructure, has the value of 2.91 in Romania in 2018. The value has increased throughout the years, as in 2013, the indicator showed 2.77, showing a slight improvement in the quality of the transportation system (World Bank, 2018).

In terms of type of transport, the main use of transport is to access health care facilities in the country is the private car. Along these lines, a worrying indicator in the country is the mortality caused by road traffic injury. The number has increased from 10 per 100,000 inhabitants in 2014 to 10.3 in 2019 (World Bank, 2019). Furthermore, the rate of mortality caused by road traffic injury in Romania is by far the highest among European Union members and substantially exceeds the European Union level of 6 per 100,000 people.

Health system

Health Status of the Population

Life expectancy in Romania is among the lowest in the European Union, and the outbreak of the COVID-19 pandemic has reversed some of the progress made since 2015. The total life expectancy at birth has decreased in 2020 by 1.4 years, reaching 74.2, compared to 75.6 in 2019 (INSSE, 2020). The steep decrease can be thusly associated with the outbreak of the COVID-19 pandemic, trend which has been observed in the majority of EU member states. Nonetheless, Romania recorded one of the largest negative changes, as the reduction across EU accounted for 0.7 years (Eurostat, 2020). The gender gap has also significantly widened, with women living 7.9 years more than men in 2020, compared to a difference of 7.2 years recorded in 2015 (Table 1).

Table 1. Life expectancy at birth, Romania, 2015-2020

Life expectancy at birth	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Total	74.9	75.2	75.2	75.3	75.6	74.2
Women	78.6	79	79	79.2	79.5	78.4
Men	71.4	71.6	71.6	71.7	71.9	70.5

Source: http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table

Under-5 mortality rate continues to diminish, as in 2020 it was recorded to 1.3 deaths in 1,000 children, meaning there is a 0.4 decrease in the last five years (INSSE, 2020). Similarly, the infant mortality rate is also reportedly lowering at a similar pace, with 1.22 deaths per 1,000 children in 2019, compared to 1.63 in 2014 (0.41 decrease) (Eurostat, 2019). While the rate is diminishing, Romania still exhibits worrying numbers, remaining the country with the highest infant mortality rate in 2018 and second highest in 2019, subsequently being almost twice the EU average.

The avoidable mortality is extremely high in Romania. Romania had the highest rate of treatable mortality rate among the EU Member States in 2019, with 208.34 deaths per 100,000 population and the third highest preventable mortality rate, after Hungary and Latvia, at 295.8 deaths per 100,000 population (Eurostat, 2022). Table 2 indicates the treatable and preventable mortality in Romania in comparison to EU27 (last available data, 2017). Preventive care, delivered through the country's primary care system, can reduce all-cause mortality and premature mortality, particularly from cardiovascular diseases (WHO, 2020).

Table 2. Treatable and preventable mortality by cause and sex, Romania, 2019 (per 100,000 inhabitants)

	Preventable death rate			Treatable death rate		
	Total	Women	Men	Total	Women	Men
Romania	295.8	153.12	458.91	208.34	155.32	270.68
EU27 average	160	89.13	237.41	92.09	78.18	107.71

Source: Eurostat, updated April 2022, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=hlth_cd_apr&lang=en

Table 2 depicts the leading causes of mortality in Romania. According to the most recent data from OECD, ischemic heart disease represents the main cause of death, accounting for 19.1% of deaths (OECD, 2021). The

death rate due to ischaemic heart disease was more than double the EU average. Strokes represent the second leading cause of death, accounting for 16.3% of deaths. Lung cancer is the most frequent cause of cancer deaths, with a mortality rate that has increased by nearly 14% since 2000, mainly due to high smoking rates. Mortality rates for other types of cancer have also been rising in recent years, in particular for colorectal and breast cancers. The fourth main cause of death is represented by liver diseases and with predominance by cirrhosis of the liver, with 1,357.9 per 100,000 inhabitants, which can be closely linked to behavioural risk factors such as binge drinking and smoking. According to a European Commission report, approximately 35% of adults in Romania engage in heavy alcohol consumption, which is well above the EU level of 19%. Tobacco smoking also represents a significant concern, with approximately 20% of the population being a smoker. The statistics are particularly worrying in the case of adolescents, as one third of 15-16-year-olds reporting that they had smoked during the past month in 2019 (31 %), a share much higher than the average EU level of 21% (OECD, 2021).

Figure 6. Main causes of death in Romania in 2021

Source: State of Health in the EU; Romania Country Health Profile 2021, page 4

Other respiratory infections and pathologies such as trachea and bronchus represent a significant cause of death. Of particular concern is the continuously high number of cases of Tuberculosis reported. While the cases have decreased throughout the years with 76.5 new cases per 100 000 population, Romania still owns the highest number across Europe. Furthermore, Romania alone accounts for 25% of all reported cases in the European Union (OECD, 2020).

At present, Romania has the second highest excess mortality (Eurostat, 2022) and the second lowest COVID-19 vaccination rate among the EU Member States (European Centre for Disease Prevention and Control, April 2022). Accordingly, as of April 2022, the cumulative uptake of COVID-19 vaccination in Romania is of 42%, compared to the EU level of 72.6%. Studies assessing the causes of excess mortality are not available, but it is reasonable to correlate it with a low vaccination rate. The last COVID-19 wave caused in Romania 28.3% excess mortality in early 2022, almost four times higher compared to EU average (7.4%) (Eurostat, 2022).

Apart from the treatable diseases, other causes of death are represented by certain conditions originating in the perinatal period (479), congenital malformations, deformations and chromosomal (279), diseases of the respiratory system (277), certain infections and parasitic diseases (47) and other external causes of morbidity and mortality (36) (Eurostat, 2018).

Overall, the percentage of unmet health care needs for medical examination or treatment accounts for 3.6% in 2020. Over a period of 5 years, important improvements have been made in meeting the needs for medical services, as the percentage has decreased by 4.7%. Nonetheless, when put into perspective, Romania still faces

a high percentage of unmet health care needs, with only Albania and Greece having a higher indicator. Furthermore, the rate in Romania is well above the EU level of 1.1% (Eurostat, 2020).

Health Care Expenditure and Health Benefits

According to OECD (2021), Romania spends less on health than any other EU country, which can be visible in both per capita expenditure and as a share of GDP. The current healthcare expenditure relative to GDP was 5.77% in 2019, rising at a rate of 0.21%. Consequently, the health spending in Romania is dramatically below the European Union level, where a share of 9.91% of the GDP is committed for health spending. In fact, according to World Bank data, Romania is ranked as the second to last country in terms of health spending as a share of GDP.

As of 2019, the total health spending per capita (PPP) in Romania was 1,895 US dollars/capita. The health spending has constantly increased annually, but at a slow rate, with a 848 US dollars raise since 2015 (OECD, 2021).

The second largest source of funding is out-of-pocket payments, which contribute to 20.5% of health spending. Hence, out-of-pocket spending on health care per capita (PPP) in 2019 was reportedly 357.5 US dollars, in contrast to 323.8 US dollars reported in 2018 (OECD, 2019). The increase in out-of-pocket spending is visible all throughout the five years analysed, suggesting a total increase of 40% in spending since 2015.

As far as benefits are concerned, the Social Health Insurance (SHI) enables the insured population to access a comprehensive benefit package, which includes primary care services, outpatient medical assistance, hospital medical services such as hospital services for pathologies that require hospitalization (acute cases, chronic cases and other justified situations) as well as hospital services that do not require hospitalization, provided in day hospitalization. Paraclinical medical services (such as laboratory tests, ultrasounds, radiographs, EKG, EEG, tomography, MRI, scintigraphy, etc) are also available at the recommendation of the general practitioner (GP) and the outpatient specialist. Pregnant women and children up to the age of 18, who are insured on an optional basis, also benefit from outpatient paraclinical investigations, without co-payment, on the recommendation of the GP or the outpatient specialist. Finally, emergency medical services and medical transport is also ensured (National Health Insurance Fund - NHIH, 2021).

Among the benefits that are excluded from the basic health benefit package are medical services provided in case of occupational diseases, work and sports accidents, medical assistance at work, medical assistance of athletes, some medicines, sanitary materials and types of transport, certain recovery and physiotherapy procedures, the services provided within the occupational disease sections/clinics and the occupational medicine offices (NHIH, 2021). One substantial coverage gap is in terms of dental care, as only a small selection of dental procedures and assistance services are available. As a result, Romania reports the fifth highest level of unmet needs for dental care in the EU (5.4 % in 2017), twice the EU average (2.7%) (OECD, 2021).

Health System Setup and Service Provision

Romania has a mandatory health insurance system. The National Health Law (Law 95/2006) stipulates the way the health system is functioning in terms of organisation, financing, service delivery and benefits provided, and public health. The system remains highly centralized, the health with the national level providing administrative authority and the regulatory framework, and the district level in charge of organizing and delivering health services to the population as indicated in Figure 7.

The Ministry of Health is responsible for the overall governance of the social health insurance (SHI) system, while the National Health Insurance House administers and regulates the National Health Insurance Fund (NHIF).

The Ministry of Health (MoH) represents the central authority and is responsible for elaborating health policies, initiating legislation, planning, controlling and implementation of the National Public Health Programs as well as addressing the public health priorities and managing the funding from the state budget.

Through the decentralization process, other significant MoH responsibilities have been gradually transferred to the local public authorities (in terms of ownership and administration of public hospitals, responsibility for the provision of several public healthcare services at the local level like school medicine, community-based services delivered by the community nurses and the health mediators for the Roma communities). MoH deconcentrated bodies at the county level are the public health directorates (PHD). The 41 county PHD and Bucharest PHD manage the public health activity at the county level and are responsible for coordinating the implementation of the National Public Health Programs funded by MoH. Due to the decentralization process visible in the last years, the role of PHDs within the health system as well as their capacity to coordinate the public health activities has been reduced (with regards to human resources, financial resources, influence).

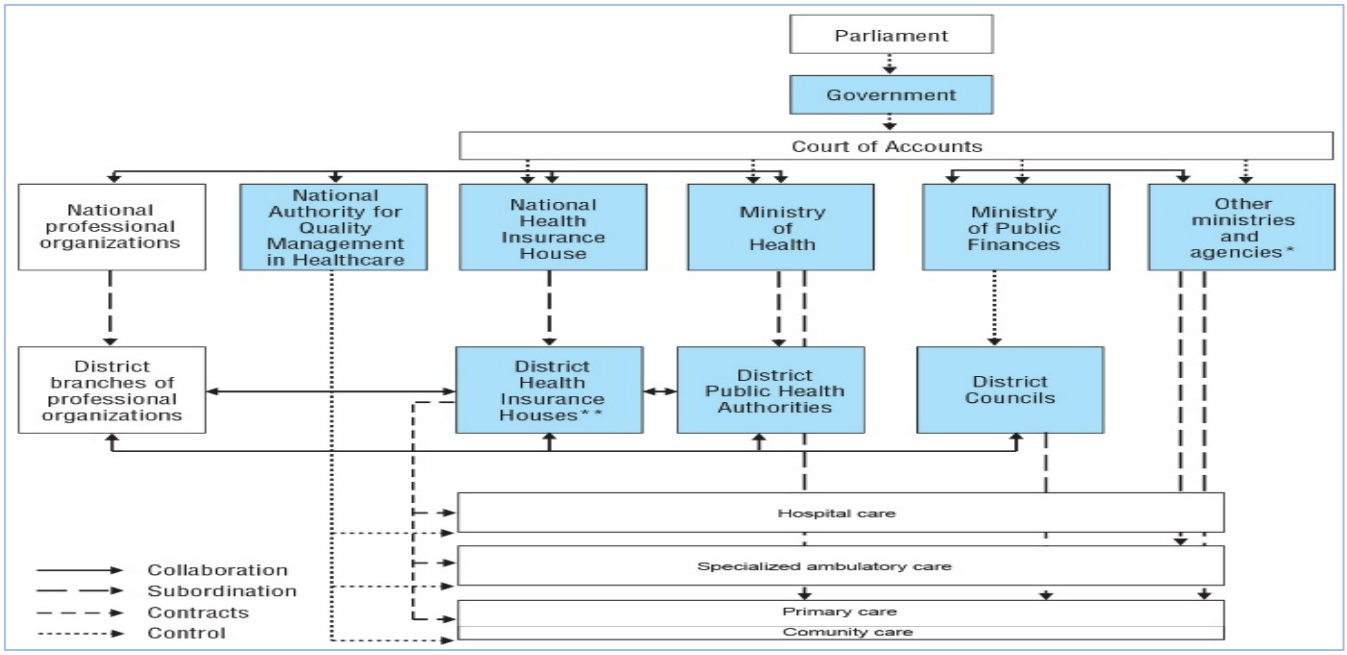


Figure 7. Romanian healthcare system

Source: Vladescu et al, 2016, page 19

The main financial source for the healthcare system is represented by the National Health Insurance Fund (NHIF), with its president appointed by the Prime Minister. NHIF is the third-party payer of the system, receiving the funds collected by the National Agency for Fiscal Administration, which belongs to the Ministry of Finance (Vladescu, et al., 2016).

Healthcare is delivered in outpatient care (by the family doctors/primary healthcare services, ambulatory specialized services, emergency pre-hospital services) and inpatient care (hospitals). Primary care physicians, called the gatekeepers of the system, are independent /private providers paid on a mix of capitation and fee for service (around 50% each). There is a considerable number of inhabitants who have not registered with a GP, with significant rural/urban disparities (College of Physicians, 2022). The outpatient specialized care is provided by private clinics (the former polyclinics transformed into independent medical facilities) and by the hospital's ambulatories, services being contracted on a fee-for-service basis; therefore, the specialists working in

outpatient clinics may be either independent healthcare providers or employees of private clinics paid on a salary basis. Specialized ambulatory services are provided through a network of hospital outpatient departments and polyclinics, specialized medical centres, centres for diagnosis and treatment, and individual specialist physician practices under contract with the County Health Insurance Fund.

Table 3 depicts the distribution of health care provision under the mandatory health insurance throughout the last four years. The number of practicing general practitioners (family doctors) in contract with the mandatory health insurance system decreased, while the number of hospitals providing services under the mandatory health insurance system increased in 2021 (due also to the COVID-19 pandemic). In terms of ambulatory care, it is noticeable a slightly increase of services reimbursed under the mandatory health insurance system, over in 2021, compared to 2018. (National Health Insurance Fund, 2022).

Table 3. Distribution of health care provision

Year / Contracts for service delivery under the mandatory health insurance	2018	2019	2020	2021
GPs (family doctors)	10,157	9,950	9,699	9,531
Ambulatory Clinical Care	3,190	3,233	3,186	3,352
Hospital Care	673	677	669	689

Source: NHIH Activity Report 2021

Romania has a low number of practising physicians (318.67 per 100,000 population) and an average number of nurses (752.58 per 100,000 population), compared to EU Member States (Eurostat 2022, data for 2019). The low coverage with medical staff is due to out-migration (mobility) to other EU Member State of the health professionals who are looking for a higher income and better working conditions. Romania continues to have one of the lowest rates of medical doctors in EU, and the uneven distribution of physicians persist, people living in rural and deprived areas being the more affected.

Table 4 illustrates the health professionals providing primary health care services in 2012. While at the time the population per family doctor (GP) seemed sufficient as a national norm of one GP per 2,000 inhabitants, there were still regional shortages of GPs (WHO, 2012). To present, the geographical disparities and the rural/urban gap deepened with the significant decrease of practicing family doctors (GPs) from 14,835 in 2012 to 12,184 in 2019 (Eurostat, 2022).

Table 4. Frontline healthcare workers 2012-2019

Active primary care providers	Number	Number of population per worker	% of all physicians, nurses, midwives
General Practitioners	14,835	1894	35.8%
PHC nurses	10,596	2,029	12.6%
PHC midwives	378	56,878	7.7%
Nurses specialized in pediatrics	935	22,995	1.1%

Source: WHO/EURO, Nivel/NL and Center for Health Policies and Services/Romania, 2012 and Eurostat database 2022

As regards the situation of other categories of health professionals acting at the level of the communities, in 2006, the number of active primary care nurses was 10,596, which accounts for 12.6% of all active nurses in the country. Merely 378 midwives have been working in primary care, representing 7.7% of the total number active in the country. Finally, 935 paediatric nurses, or 1.1% of all nurses were active in primary care (WHO, 2012).

In addition, through the Emergency Decree nr. 18 27/02/2017, the Ministry of Health has proposed the establishment and development of community health care medical services to fill the lack of medical services and patients' access to these services in the areas and regions that need them most, respectively, rural areas, isolated or where there is no dispensary or a polyclinic. The institutions that are responsible for the good unfolding of community health care services are the Ministry of Health, the county and Bucharest public health directorates and the local public administration authorities. According to the data of the Ministry of Health from 2018, in Romania, there are approximately 45 community health care centres, in which over 1500 community nurses and 470 health mediators work.

In order to conduct the activities and provide the community health care services, community mediators should perform the cartography of the population from the local community in terms of health condition and identify the households with the vulnerable population (with priority children, pregnant women, pregnant women and women of childbearing age); identify the persons not registered on the GP lists and support their registration; provide preventive health services as well as primary, secondary and tertiary prophylaxis medical services to community members (Guvernul Romaniei, 2017)

Recent health care interventions

Since the COVID-19 pandemic, a number of interventions were established, which are highly dependent on the current context. Hence, the Emergency Ordinance no. 196 of 18 November 2020 forwards the use of telemedicine in order to boost the accessibility of medical services to the rural population, less accessible geographical regions or areas with a deficit in the provision of specialist care as well as of pathological and radiological medical investigations. Telemedicine thus constitutes the secure transmission of medical data and information in the form of text, sound, images or other formats necessary for the prevention of disease, diagnosis, treatment and monitoring of patients (Romanian Government, 2020). Through the use of telemedicine, patients who live in underserved areas can have access to primary healthcare and can obtain specialty services, such as treatment or post-surgery follow up, that they otherwise might not get without traveling a large distance for an in-person visit, provided that they have access to a smartphone or any type of electronic communications.

A similar initiative which aims to enhance the accessibility to medical services is the recently adopted law regarding mobile medicine, which facilitates people's access to basic medical services in rural areas where there is a shortage of doctors through a mobile regime for prevention and prophylaxis, screening for prevalent medical conditions, regular, general and specialist medical check-ups, and home delivery of medicines from national health programs for the chronically ill as well as for the patients with acute pathologies. This intervention represents the result of the pressures made by non-profit organisations and volunteer medics which successfully implemented such mobile initiatives and observed positive outcomes in the access to medical care (G4 Media, 2022).

Medical desertification

In the initial stages of the AHEAD project, a literature review was carried out to better define the concept of "medical desertification". Based on a thorough review of more than 100 studies, we have concluded that the complex concept requires a set of definitions to understand its multidimensional perspective.

*Table 5. A step-by-step definition of medical deserts**

Summary definition
A medical desert is a geographical area where residents have inadequate access to health services.
Extended definition
Medical deserts imply the inability of a given population (and / or a population group) to access health services, or the state of isolation when it comes to receiving health services, based on three categories of quantitative and qualitative barriers (detailed below), which are interrelated and dependent on each other, in varying degrees and modalities.
Medical deserts seen through barriers to accessing medical care.
Physical access barriers such as: ▪ Limited access to trained primary health care personnel (GPs, pharmacies and pharmacists, community health centres and their personnel) is indicated by density (number of medical staff/population or number of centres/population). The access depends on the demographic composition of the population served by those HW (it is based on the assumption that age determines to a great extent the need for health services) and should be compared to national standards. ▪ Distance to primary healthcare facilities (GPs, pharmacies, community health centres). ▪ Average time to reach health facility or patient by the emergency services. **Social barriers (arising from social constructions, including the acceptability of services to patients and affordability) such as:** ▪ High cost of health care (insurance costs, extra billing, informal payments, etc) ▪ Care not covered under the statutory package ▪ Cultural sensitivity and context appropriateness of the care that is being offered **Policy barriers** that arise from policy level limitations, including inappropriate distribution of health services, health workers or inability to meet the needs. These can include but is not limited to: ▪ Lack of specialist personnel or (concentration of the specialist personnel in big cities) ▪ Lack of technology or (concentration of technology and providers of specialized medical care in the big cities) ▪ Lack of adequate training ▪ Long waiting time to reach specialist personnel ▪ Other.

**Derived from the initial reports within the AHEAD project.*

Table 6 depicts the main operational conclusions. They stress the need to consider both demand and supply. Demand is manifested by differentiations within age group of local population. 'Local' population includes both the ones living in the locality, but also the ones in the nearby, which may access the services in the locality under scrutiny. 'Supply' includes GPs, pharmacies, hospitals, other type of medical staff, but it also refers to the nearby localities. All these principles translate into computing indexes of access to medical services that are depicted in Annex 5.

Table 6. An overview of the conclusions from literature review

Main ideas:

- The term is used in the literature inconsistently, it is measured differently depending on the availability of data and or nuances in the point of view about it, and overlaps with other terms.
- The easiest way to find a definition is most likely to start from an operational one but keeping in mind the main conceptual considerations.
- Overlapping terms include rurality, rural/urban inequalities of access, isolated communities, etc.
- Measurement is also tricky. It needs deciding upon what type of indicators to consider, how to measure each of them, if one needs to combine them in a single measure or to consider a multidimensional approach, and how to combine them in a single index or in several indexes:
    - What indicators to consider. Examples:
        - Density of health care staff per patient in the catchment area of reference;
        - Distance to health care (on public roads);
        - Distance to health care expressed as time.
    - How to measure them:
        - Which is the catchment area/referral hospital/point;
        - Which levels of health care to consider (emergency, specialized, what types of specialized intervention);
        - How to compute time (e.g. what average speed we consider).
    - How to combine the indicators:
        - How one can decide about the relative importance of each indicator
        - Do they receive equal weights?
        - How we test for reliability/validity?

**The table reproduces part of the report on literature review.*

FIELD RESEACH: Data collection & sampling

In order to conduct this report, two main data sources were used:

1. On the one hand, a web survey was carried out, targeting GPs, local administration, and various stakeholders at central level (including decision makers, health insurance companies, NGOs active in the area, etc.). The web survey provides information from a various range of respondents, allowing to assess to what extent the representation of accessing medical services fit the general setup to be found in the literature on medical desertification.
2. On the other hand, two case studies were selected. They were intended to be carried out in localities that were supposed to suffer from medical desertification and provide insights on how local and regional/county level stakeholders relate to this term and associate it to the realities in their localities and/or counties.

Case studies

Sampling strategy

We have computed indexes of medical desertification at municipality level, and decided that counties like Tulcea, Botoșani, Vrancea include more medical deserts than others. In such manner, the three types of desertification indexes computed are:

- Referring to GPs
- Referring to hospitals
- Referring to pharmacies

Each index was computed in three different scenarios:

- Completely unadjusted, that is taking into consideration population of the locality and the number of health care providers (i.e. GPs, hospitals, respectively, pharmacies)
- Adjusted for demand, that is adjusting population by giving more importance to young children (pre-school) and aged population, who require more frequent and intense medical support.
- Adjusted for demand and including the supply and demand in the neighbouring localities (on an area of 20km, respectively 30km around the centre of each municipality). This means that we included in the computations all people living in this neighbouring area, adjusted for the age, and all medical suppliers; a decreasing weight was given to the neighbouring population depending on distance to the locality (see Annex 5 for full methodological details).

Then, we have counted on how many of the resulting 9 indexes each locality was in top 10% most deprived localities. The ones that received high scores (for instance 9 out of 9 indications that they are deserted) were considered as possible candidates for the case studies.

Consequently, we have selected **Păulești in Vrancea county**, and **Sfântu Gheorghe in Tulcea county**, both rural communities with a deficit of easy access to medical services.

In addition to the interviews conducted with relevant entities associated with the selected communities, we have also conducted interviews with stakeholders at national level. A total of ten interviews were conducted, as depicted in Table 7. This nested structure of the sample allowed us to comprehend how perceptions and understandings are constructed on each level, and if and how they relate to each other in any way.

Table 7. Structure of the sample of in-depth interviewees

Local level (Păulești & Sf. Gheorghe)	*County level (Vrancea & Tulcea)*	*National level*
4 interviews (2 in each community)	2 interviews (1 in each county)	4 interviews

Interview protocol

Interviews were conducted with stakeholders at local (selected localities: Păulești and Sfântu Gheorghe), regional (the counties of the selected localities: Vrancea and Tulcea), and national level. At local level, what guided our selection efforts was the idea that we should get a glimpse of the administrative perspective, as well as the medical/professional one.

Thus, we have conducted an interview with the mayors of both localities Sfântu Gheorghe and Păulești. Its legal attributes and responsibilities in the provision of medical services makes the mayor a crucial stakeholder which possesses high decision-making power in addressing medical deserts.

In terms of medical personnel, for Păulești, we interviewed the GP of the locality, which, although not based in Păulești, is responsible for covering the access to medical services in the community. On the other hand, in Sfântu Gheorghe, we interviewed the community nurse who is responsible for providing health care services. As providers of health care services, the GP and community nurse represent important local stakeholders, which possess knowledge and understanding of the current healthcare status in the localities and their aspects of medical desertification and can provide imperative support in terms of position.

Reaching the relevant respondents became more difficult as we went from the local to the national level. When it comes to the interviewed stakeholders in the two communities, things were straightforward and rather standard for every field research: we contacted the townhalls via email and we were put in contact with the proper persons, with a good knowledge of the communities (the mayors) and with medical training (community nurse; general practitioner). At county level, professional networks of the Romanian team (CPSS) were used for completing the research goal, and interviews with representatives of the county branch of the Direction for Public Health were conducted. Prior to using pre-existing social connections, this institution, as well as National Health Insurance House were contacted via email and telephone, but we were rejected, due to the lack of time and human resources at these institutions, in the context of the Ukrainian refugee crisis, especially visible in the two selected counties based on their geographical position. The same type of hardships was encountered at national level as well.

Therefore, the rest of the stakeholders are as follows: we interviewed members of the Public Health District Authority (PHDA) from both Vrancea and Tulcea. The Public Health District Authority is a public institution that carries out its activity in order to implement national public health policies and programs, preventive medicine and state health inspection, health monitoring and organization of health statistics, as well as of planning and carrying out the financial investments of the state budget for the health sector. PHDAs thus have high bargaining power in decision-making processes and therefore were considered essential stakeholders.

We conducted an interview with a member of the Romanian College of Physicians, which is a non-governmental organisation whose main objective is the control and supervision of the medical profession, the representation of the interests of the medical profession and the preservation of the prestige of this profession in the society. The Romanian College of Physicians defends and promotes the rights and interests of its members in all spheres of activity and hence they can exhibit a high interest and can be a strong supporter in terms of position. The

Romanian College of Physicians can also hold an essential role in providing us with knowledge and understanding of medical desserts and can suggest solutions to addressing medical deserts.

Our study also includes a representative of the "Coalition of Patients' Organisations with Chronic Diseases", whose mission is to protect the Romanian patient's rights regarding the access to treatment and medical services and to contribute to the development and implementation of the new healthcare policies. In spite of the lower power possessed, Civil Society Organisations (CSO) represent a key external player through their positioning and have a positive contribution to the establishment of a more open public policy dialogue.

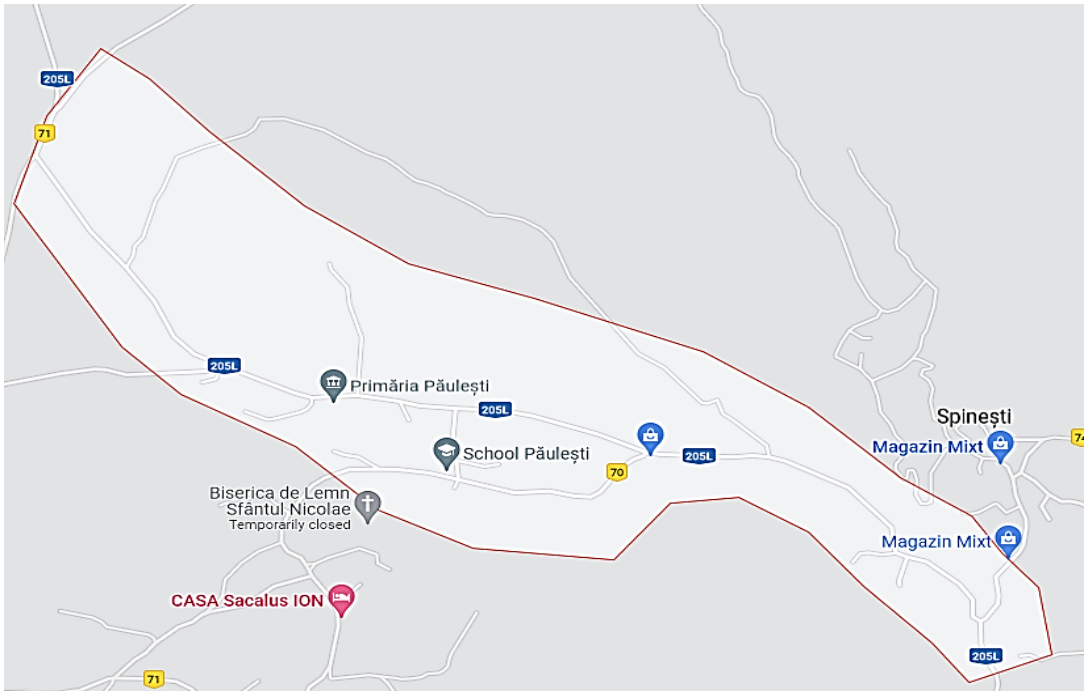
Apart from one case, in which the respondent insisted for us to discuss face to face, interviews were conducted online or via telephone. The online version, using Zoom, was the preferred one, as it allowed participants to see each other and made it possible for documents to be shared (maps with access to medical services). However, two of the participants insisted that we talk via telephone, as they lacked access to the proper infrastructure or the time to connect.

The ten interviews were all transcribed and coded with NVivo 11. The codebook is attached as Annex 6.

Selected localities

Păulești is a commune located in the North-Western part of Vrancea county in the mountainous area, approximately 60-70 kilometres away from Focșani, the county seat. Throughout its history, it has been part of several other localities, and in 2003 it has been separated from Tulnici and became an administrative unit in its own. It comprises two villages, Păulești and Hăulișca, and the latest information on the number of inhabitants places it around 2250 (https://www.paulesti.primarievn.ro/). General practitioners from Tulnici (approximately 6 kilometres away) come in Păulești four days a week (two days each GP), in a space provided by the townhall. The administrative aspect to be kept in mind is that, prior to 2003, when Păulești was a part of Tulnici, people had to come to their GPs in Tulnici, where their offices were. Thus, people from Păulești have a better access to this type of primary care, compared to the past. There is also a pharmacy in Păulești, and people also have easy access to the two pharmacies in Tulnici. As far as emergencies and different medical specialisations are concerned, the hospitals in Vidra (25 kilometres away) and Focșani are used, the first one for easy cases, for specialised triage, and the latter for rather severe cases or for specialisations that are not to be found in Vidra.

Sfântu Gheorghe is a commune comprised of only one village, with approximately 800 inhabitants, according to the 2011 census. It is situated in the Danube Delta, at its junction with the Black Sea, and it is reachable only by water - it takes about 90 minutes to get from Tulcea to Sfântu Gheorghe using a high-speed boat. In Sfântu Gheorghe there is a community nurse, whose activity (partially) makes up for the lack of constant access to primary medical care: a GP from Sulina comes in Sfântu Gheorghe once a week. Apart from the community nurse, the other constant healthcare related services are a pharmacy and a speed boat used as an ambulance – the result of the efforts put in by the townhall, in order to cut in half the necessary time to get patients to hospitals, namely to Tulcea.



↑

Context: larger urban settlements (Focșani, Mărășești – in the East, Târgu Secuiesc – in the West) are at 60-80 km distance. A large un-inhabitated area is to be found in South-West.

← Internal map of the main village.

Figure 8. Maps of Păulești, Vrancea

Source: GoogleMaps, https://www.google.com/maps/place/P%C4%83ule%C8%99ti+627371/@45.916108,26.4060144,10z/data=!4m5!3m4!1s0x40b45c89ec14b9e7:0x380c3ff3e4c11560!8m2!3d45.8923801!4d26.6888002.

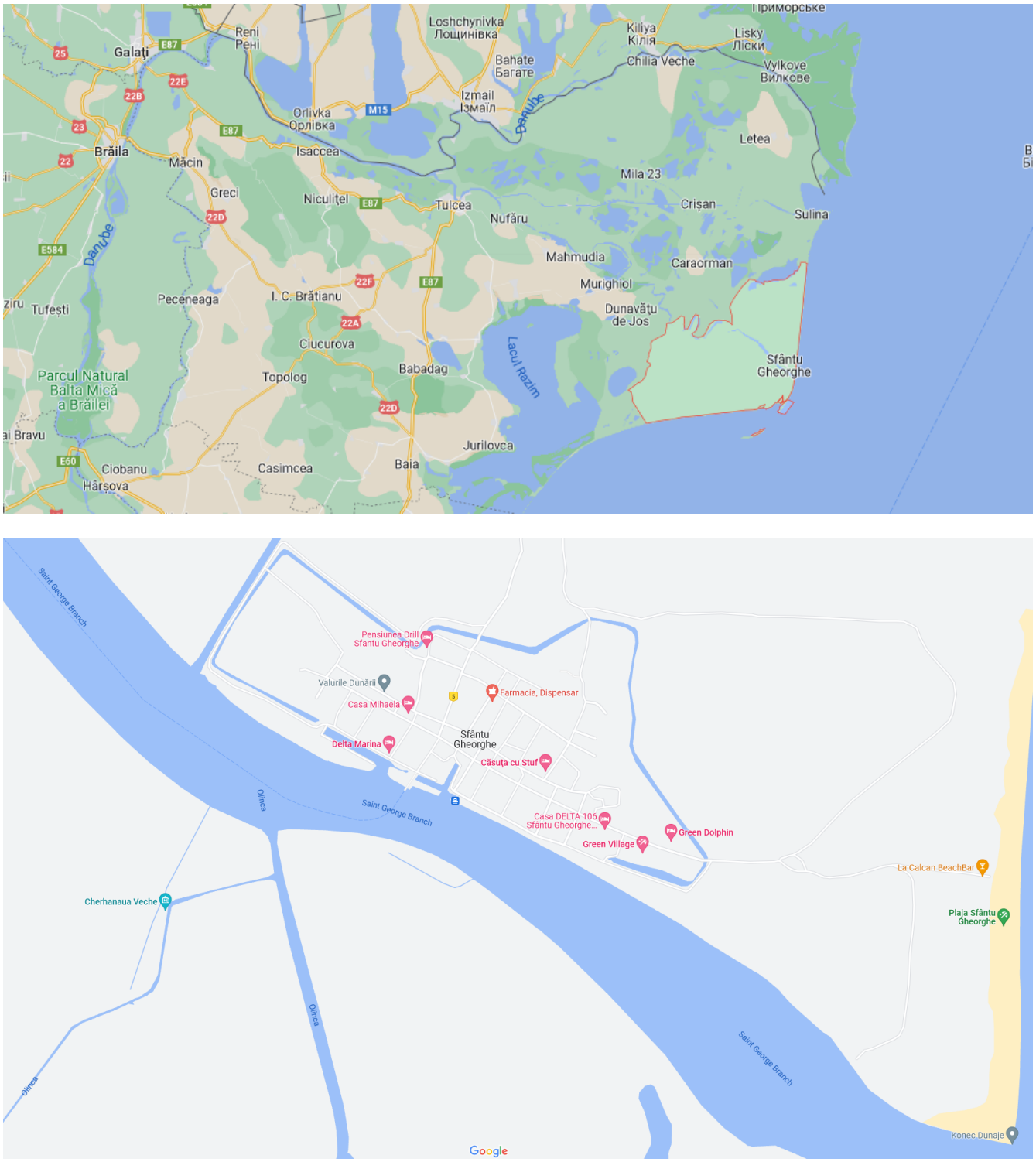


Figure 9. Location of Sfântu Gheorghe

Source: Googlemaps,
https://www.google.com/maps/place/Sf%C3%A2ntu+Gheorghe,+Tulcea/@44.9242275,29.1551073,10z/data=!3m1!4b1!4m5!3m4!1s0x40b9851cbd8cdf73:0xb8f698799db07a9a!8m2!3d44.8854676!4d29.4574276

Web survey

Reaching stakeholders

As the first step, we have collected contact addresses of Romanian GPs, using information provided by the County Health Insurance Houses and the Romanian College of Physicians. We have set up a list consisting of all Romanian GPs. For 7031 of them (roughly 80%), we had email addresses. For most of the others, phone numbers were available, while for only a few, the postal address was available. Given that the aim was not to have a representative sample, but to grasp typical reactions to the themes of interest, we decided to contact only the GPs for which email addresses were available. For some of them, the database included 2-3 email addresses, summing up to 7142 email addresses, as indicated on the first line.

A *LimeSurvey* solution was implemented: GPs were invited to answer the survey online (the questionnaire is included in Annex 4), and a few days later, reminders were sent to the ones that did not answer or opted out. Out of the total number of email addresses, about 2000 proved to be wrong. 302 GPs accessed the survey and 277 answered at least one question. The survey had 10 pages. Out of the 277 respondents, 85 stopped before page 4 (that is answered questions on page 1, 2, and 3), and 150 answered questions on page 7 or over.

Table 8. Targeted population & answers: counts

	unique targeted respondents	total email contacts	mail delivery errors (estimated)	accessed web survey	answered			
					TOTAL	1-3 pages	4-6 pages	7-10 pages
GPs	7031	7142	2000	302	**277**	85	42	**150**
Public authority/clerk	3049	4127	1000	184	**142**	21	18	**103**
other	213		20	97	**61**	16	1	**44**

In terms of public authority respondents, we have proceeded similarly. A list of 3049 email contacts within unique townhalls (roughly 90% out of the total number of municipalities) were available, and for many townhalls we had more than one contact, summing up to 4127 emails. Out of them, about 1000 proved to generate mail delivery errors. In the end, 142 public clerk or elected officials answered the survey.

A number of 61 respondents came from other categories, including health insurers, patient organizations, organizations of medical doctors, etc.

Table 9 depicts the resulting response rates. Response rates in doctors and medical staff are generally low, in particular in Eastern Europe (Pawlowska etal, 2021; Yemm et al, 2014), even in the case of medical residents (Hostiuc et al, 2011), whom are expected to be more compliant due to their dependency situation[1].

[1] Yemm, R., Bhattacharya, D., Wright, D., & Poland, F. (2014). What constitutes a high quality discharge summary? A comparison between the views of secondary and primary care doctors. International journal of medical education, 5, 125.
Pawlowska, E., Tomasik, B., Spałek, M., Chyrek, A. J., & Napieralska, A. (2021). Being a young radiation oncologist in Poland: results of a multi-institutional survey. Journal of Cancer Education, 1-7.
Hostiuc, S., Buda, O., & Hostiuc, M. (2013). Late abortion. Attitudes amongst young physicians in Romania. Archives of gynecology and obstetrics, 288(2), 431-437.

Table 9. Response rates

	estimated valid targets	accessed/ valid targets	answers/valid targets			
			TOTAL	1-3 page	4-6 page	**7-10 page**
GPs	**5231**	5,8%	**5,3%**	1,6%	0,8%	**2,9%**
Public authority/clerk	**2149**	8,6%	**6,6%**	1,0%	0,8%	**4,8%**
other	**195**	49,7%	**31,3%**	8,2%	0,5%	**22,6%**

Brief description of the resulting sample

A number of 480 valid questionnaires were collected. Our understanding of valid implies that the respondent answered at least one question. As Table 10 indicates, some respondents abandoned filling in the questionnaire quite early. A number of 67 respondents filled in their answers only on the first page, 23 gave up at page two, etc. A total of 267 respondents filled in answers on all pages.

Table 11 further details these important response patterns. It indicates that for every category (except for NGO members), there is a higher propensity to fill in all questionnaire than to drop out early.

Table 10. Unweighted counts of the last page in the questionnaire on which the respondents had filled in answers

Last page on which the respondent filled in an answer	**How many respondents filled in answer no further than the corresponding page**
1	67
2	23
3	32
4	33
5	18
6	10
7	7
8	19
9	4
10	267
Total	**480**

Table 11. Sample distribution function of occupation and dropping out from filling in the survey

	Page of last filed-in answer			
Status	1-3	4-6	7-10	**Total**
Public clerk of elected official	21	18	106	**145**
GP	85	42	150	**277**
Other doctors	6	1	14	**21**
Medical assistant	4	1	10	**15**
Community medical assistant	2	0	22	**24**
Works in an NGO	5	1	3	**9**
academic	1	1	3	**5**
Association of patients	0	0	2	**2**

Pharmacist	0	0	2	**2**
None of the above	2	0	7	**9**

Weighting strategy

There are several strategies to weight the sample in order to adjust it to the initial structure of the ones towards whom we have sent invitations to fill in the questionnaire. Three are salient:

(1) To consider only the respondents that answered most of questionnaire (they have filled in answers on page 7 or above);
(2) To consider those that have filled in answers at least on page 4;
(3) To consider all respondents, irrespective on which page they have dropped filling in the survey.

Three sets of weights were therefore produced and used for analysis addressing the items on pages 1-3, 4-6, and 7-10 correspondingly. When more items were considered in the same analysis, the most restrictive weighting system was considered.

Among these rather technical, although succinct, specifications, it is worth noting that **weighting considered only the category to which the respondent belong (GP, public authority/clerk, other) and no other specification, such as geographical location or gender.** The reason is that the **interest in this report is rather to explore potential types of reactions to the medical desertification concept, and to suggest potential policy and strategic action that would increase awareness and promote solutions to the observed problems**. In other words, we are less interested in saying exactly how many individuals think that a certain indicator is key to assessing desertification, but we are actually interested to learn how to increase legitimation of intervening to solve desertification.

Media analysis

The media analysis was conducted in order to properly understand the phenomenon of medical desserts and to investigate on how the media portrays the issue, what are the solutions and the responsible entities behind them. This aids in providing in-depth information and allows one to gain a holistic view of the phenomenon studied within its real-life context.

Table 12. Criteria used for selecting media content

	Search criteria
1	Lack of General Practitioners in certain localities
2	Decrease in the number of specialist doctors
3	Limited access or lack of access to medical services in hospitals
4	Departure (absence) of doctors from rural areas or isolated villages
5	Lack of medical services which led to illness or epidemics
6	Cases of unattended births
7	Authorities who try to hire medical staff and cannot find them
8	Contests for hiring medical staff without candidates
9	People who travel tens of miles to the doctor
10	Ambulances that cannot access patients in isolated localities
11	Lack of pharmacies

To elaborate the media analysis on the case studies, we conducted a thorough search online for any press that has been generated since 2018 regarding any aspects of medical desertification present in the selected case studies. Table 12 indicates the main criteria of selection used in the search. In the analysis, we aimed to include at least 5-6 iterations for each of the aspect mentioned below.

The media reports selected date back to 2018 and are as recent as March 2022. The media analysis used both written and video press releases from local newspapers (e.g., Monitorul de Vrancea, Tulcea Noastra), as well as from national-level news website (e.g., Digi24, TVR).

Overall, a total of 49 articles were selected for the analysis, with a number of 22 media articles collected for the case study of Vrancea and 27 articles for Tulcea. Annex 3 includes a full list of the selected articles which were used in conducting the media analysis.

Vrancea

The media reports analysed depict a clear picture of the main concerns in the health system of Romania. Of utmost importance is the **lack of general practitioners (GPs) in the Vrancea county**, which has been discussed in 8 of the 22 articles included in the analysis. As stated by the People's Advocate of Romania, the GP represents the first point of contact when encountering a health problem and they are essential to guarantee the constitutional right to healthcare (avp.ro, 2021). The lack of GPs is observed particularly **in the rural side of the county**. While in 2019 a number of 9 localities did not possess access to a GP, the number rose over the years, as 2021 recorded 13 villages with no access to the services of a GP (Europa FM, 2021). This appears to be a long-term pending concern in the county, with localities such as Andreiasu that did not benefit from a GP since 2014, and Obrejita since 2018 (Monitorul de Vrancea, 2021). Another media report emphasises that 60 GPs would be required in order to cover the deficit in the county (TeleM Iasi, 2022). As a response, in 2021 the Carol Davila University of Medicine and Pharmacy has proposed to establish an additional GP course unit and increase the number of resident coordinators for the specialisation, which they anticipate will lead to an increase in highly trained GPs (UMF Bucuresti, 2021).

The projects and initiatives that aim to provide medical services to the rural population also prove the **reluctance of GPs to practice their profession in the rural environment**. In a screening project organised in Vrancea county, only one GP has agreed to take part (Monitorul de Vrancea, 2022). **This behaviour can be explained by the current tendency of young professionals to remain in the university centres of Romania upon graduation of their studies due to the common perception that they will have access to high-quality conditions and greater opportunities**. In an attempt to address the issue of the GPs deficit in the rural areas of the country, the Advocate of the People proposed the initiation of programmes that that aim to incentivise graduates to pursue the specialisation of general practice in the country side, through financial stimulus, career advancements and educational opportunities (avp.ro, 2021). Yet **the cultural and social aspects increasingly represent important factors in the decision of young graduates, which are less attainable in the rural side**.

The lack of GPs in rural areas generates another aspect of medical desertification, namely the **long waiting time to receive medical services and rare home visits to patients**. Along these lines, five of the articles analysed emphasised the **long distances and lengthy travel time required to reach a point of action, especially in the case of mountainous localities of the county, where the ageing population have to travel tens of kilometres to receive their prescription**. Initiatives such as mobile phone applications have been developed in order to

facilitate the use of telemedicine as a mean to provide medical assistance, however the issue of technology access for the patients still stands (Wall-Street, 2021).

Another pressing concern in Vrancea county's medical system which has been widely discussed in the media is the **lack of critical medical specialisations in an extensive range of areas.** In 2019 it was recorded that the Emergency Hospital "Sf. Pantelimon" Focsani had merely 2 **internal medicine specialists** that are responsible for 48 patients (Monitorul de Vrancea, 2019). A deficit of doctors is also observed in the **cardiology, intensive care and emergency medicine wards** of the same hospital, despite the 80 million lei investments in modern technology made towards the institution in 2016 (Ziarul de Vrancea, 2019). The administration of the hospital has resorted to a number of methods to find solutions for the compelling matter such as recruiting residents from university centres as well as participating in job fairs intended for medical professionals in order to exhibit their new modern facilities (Monitorul de Vrancea, 2019). On a related note, due to the lack of **general medicine specialists**, the "Dumbraveni" Hospital was forced to close its on-call shift in 2019, against all the efforts of the hospital administration to employ new specialists (Agerpres, 2019). Amidst the COVID-19 outbreak, the Vrancea healthcare system has encountered new demanding challenges. Thus in 2020, the Focsani County Hospital has experienced a deficit in **infectious disease doctors**, recording only a number of 4 doctors out of the 12 that would have been needed in order to cover the department (TVR, 2020). The lack of specialists can also explain the multiple media reports that outline the **negative experiences of Vrancea patients, dissatisfied with the healthcare system in the county. Therefore, the limited attention given to patients, long waiting hours and "lack of empathy" can all be linked to the understaffed medical personnel and working under extreme pressure to cover all patients** (Ziarul de Vrancea, 2021).

The media analysis on the Vrancea case study clearly indicates that there is a significant deficit in the human resource of the healthcare system, which disrupts the unfolding of the medical services throughout the county. In an attempt to find solutions to the matters, the media reports propose the following recommendations:

1. **Establishing an additional GP course unit within the Faculties of Medicine and increasing the number of resident coordinators for the general practice specialisation,**
2. **Incentivising graduates to pursue the specialisation of general practice in the country side, through financial stimulus, career advancements and educational opportunities,**
3. **Offering scholarships to prospective students from the country side in order to support them in pursuing medical studies and practicing it in their communities,**
4. **Accessing European funds in order to create good working conditions for GPs in the rural side,**
5. **Simplifying the procedure to access the funds and offering support and guidance throughout the process of applying for funding,**
6. **Identifying a method to use telecommunication and telemedicine for the people who do not have access to electronics and technology,**
7. **Recruiting residents from university centres as well as participating in job fairs intended for medical professionals in order to exhibit their new modern facilities.**

Tulcea

The media reports on the Tulcea case study suggest a similar concern regarding the **lack of GPs in the county,** as 8 of the 27 articles used in the analysis examine the deficit. According to "Ziarul Delta", in 2019 reportedly 12 administrative territorial units from Tulcea county did not have access to basic medical services due to the lack of a GP, while other 6 localities which possess one GP would have required an additional one to unfold their activity properly (Ziarul Delta, 2019). The deficit appears to worsen in time, as a 2020 report indicates that approximately half of the administrative territorial units of Tulcea (i.e. 19 localities) are not covered by a GP (Ziarul Delta, 2019). This suggests that the Ministry of Health's initiative to facilitate the number of places for the specialisation of general practice in the university centres from 170 places to 598 places does not profit the **rural side of the country**. In fact, what the media reports reveal is that the problem is not the shortage of trained specialised GPs at the country level, but rather **the lack of interest in practicing the profession in the rural environment**. A 2018 article discloses the **discontent of GPs with the high renting prices for general practitioner offices set by the county administration**, which could add to the unwillingness of GPs to practice in the county (Ziarul Delta, 2018). Along these lines, it would be beneficial to take into consideration the recommendation forwarded by the Advocate of People, which urges for establishing an obligation for free use, rental, concession or sale without public auction, with priority to GPs who wish to open a medical office in the territorial administrative unit (avp.ro, 2021).

The case of Tulcea uncovers an additional concern in the healthcare system, **the absence of GPs during scheduled time**. During a control organised in June 2021, the County Health Insurance House found 3 GPs absent from the point of service during working hours (Ziarul Delta, 2018). What is more, a control in August of the same year found 8 out of the 14 GPs from Tulcea county were not present at their general practitioner offices during their scheduled time, suggesting that the matter has exacerbated despite the authorities' efforts to penalise the misconduct through the 5% sanction from the specialists' wages (Realitatea, 2021)

Another aspect of medical desertification in the Tulcea county is the **lack of specialised practitioners**, issue which has been debated in 7 of the media reports examined. According to the reports, there is an on-going **crisis of specialised physicians, with only 30-50% of the positions occupied** (Tulcea Noastra, 2019). Consequently, the County Emergency Hospital experiences a shortage in doctors specialised in **paediatric care, surgery, intensive care and anaesthesiology** (TL news, 2019; Tulcea Noastra, 2019). Of particular concern is the **Oncology ward of the hospital**, in which only one specialist doctor activates, working under extreme pressure and single-handedly examining 80 patients a day. To ease the workload of the specialist, all GPs in Tulcea county have been designated as doctors who can prescribe medication in the National Oncology Programme, when they receive a medical letter from the specialist doctor (TL news, 2019). Additional recommendations arose that aimed to enhance the occupation of the positions such as the change of legislation to allocate HCW to smaller urban settlements and rural area in order to equilibrate the situation, procurement of new advanced technology, recruitment of doctors through the means of social media channels as well as urging for a change in mentality of young doctors to consider Tulcea as a valid option.

Perhaps one of the major challenges in the healthcare system of Tulcea is represented by the **geographic context of the county, which leads to severe issues of accessibility**. The matter of access has been the most prevalent in the analysis, with 9 articles tackling the subject. The particular landscape leads **to isolated areas and long distances to the nearest points of service, accessible only by boat, making the provision of medical services difficult** (Adevarul.ro, 2022). One report presents the **case of locals from Letea, who have not received any**

medical care in 10, 20 or as long as 30 years due to the isolated position of their village (TVR, 2019). There have been a number of projects that offered free medical consultations as well as the programme carried out by military doctors from the Romanian Naval Forces and medical personnel of the National Guard through which they aimed to build resilience in the community by teaching the locals first aid measures (Subiectiv Tulcea, 2019). While these interventions greatly impact the isolated communities in the short term, they only treat the tip, not the root of the problem and therefore cannot lead to transformative, long-term changes in the communities.

The **intervention time of emergency medical services is also strongly dependent to the meteorological conditions**. Hence fog, storms with strong winds and excessive waves on the Danube cause long delays in interventions while **during wintertime, access is only possible through the SMURD helicopter** (Ziarul de Tulcea, 2020). **The delayed interventions can also be linked to the very high Infant Mortality Rate** (IMR) recorded in the county. According to the reports, **in 2019 the Infant Mortality Rate in Tulcea was 5 times higher than in Bucharest and the highest in the country (15.5‰)** (Tulcea Noastra, 2019). **While the IMR has decreased in 2022 to 10,0‰, the number is still significantly high** (Tulcea Noastra, 2022).

The media analysis of the Tulcea county reveals that **in addition to the alarming shortage of human resource, the county requires additional points of service and new naval equipment in order to ease the access to medical services**. In an attempt to find solutions to the aspects of medical desertification, the media reports present the following propositions:

1. **Establishing an obligation for free use, rental, concession or sale without public auction, with priority to GPs who wish to open a medical office in the territorial administrative unit,**
2. **Establishing a strong communication channel between the administrative authorities and the GPs in order to adequately support them in the facilitation of the medical activity in the county,**
3. **Introducing and monitoring financial and non-financial incentives to establish the practice in rural areas,**
4. **Change of legislation in order to allocate HCW to smaller urban settlements and rural area,**
5. **Urging for a change in mentality of young doctors to consider Tulcea as a valid option,**
6. **Implementing projects and programmes that can aid isolated communities,**
7. **Procurement of boats that can fasten the action time of the intervention.**

Voices of stakeholders

This chapter exploits the results from qualitative and quantitative surveys with stakeholders, attempting to set up a broad context in which the medical desertification is analysed, and to illustrate the extent to which the issue is present on the public agenda, under which form, and how is it defined by the interviewees. Our respondents are medical staff, public administration, CSO representatives.

Awareness of desertification

Accessing medical services is something desirable in any society. However, access may mean different things depending on the standards one uses. In the following section, we discuss on the subjective norms that govern representations upon standards. More exactly, we consider the opinions of the stakeholders, derived from in-depth interviews and filled-in questionnaires, and look at the extent to which desertification is considered an issue. On the one hand, we question what a decent access to medical services entails. On the other, we ask about the extent to which lack of access to hospitals, GPs, and pharmacies is considered a sign of medical desertification, defined as problematic issues in the provision of health services.

This section of the report begins by depicting anecdotic stances derived from in-depth interviews. Then, it further builds on the findings from the web survey. Lastly, a final evaluation will be provided, by reviewing the main conclusions of this section.

Results from interviews

The two communities selected as case studies provided two distinct images of the Romanian context. In the case of Sfântu Gheorghe, its geographical localisation within the Danube Delta is the most prominent aspect throughout the interviews, which makes the lives of the locals rather difficult and isolated. In the other community, Păulești, the situation is seen as rather acceptable, compared to other scattered, mountain communities, in which distances and difficulties generated by the terrain complicates access to most types of public services, such as health or education.

In the case of Păulești, local level respondents are convergent in stating that it is not a medical desert. As mentioned in the section that offers methodological details about the research, Păulești was, until 2003, part of Tulnici, and, in fact, after this separation, locals' access to the GP improved, because they are no longer forced to come to the practice in Tulnici, and instead the two GPs from Tulnici come to Păulești:

> *I think just the thing with the hospital might be considered* [as a sign of Păulești being a medical desert], *because the rest is covered. All those who come and need a doctor are taken care of in the four days* [in which a GP is in the commune], *and the access is permanent.* (local level stakeholder)

Apart from the fact that the proximity to Tulnici and the activity of the two GPs ensure people's access to primary medical care, Păulești is seen as being better off than other communities in the area. The excerpt below provides an actual example of how comparisons with others are put to work for establishing if a locality is a medical desert or not:

> *No. In my opinion, no. I mean, we are way better off than other localities which, now that I think about it, are medical deserts.* (local level stakeholder)

For Sfântu Gheorghe, we encountered three distinct discourses, for which the core statements are the following:

1. It is a medical desert, as well as all the other communities in the Danube Delta. When compared to external standards, the locality fits the profile of a medical desert, as one of the respondents pointed out. However, the excerpt below suggests that this term was not familiar for local stakeholders. In other words, the framing of the situation did not rely on this definition of severe scarcity of medical/healthcare resources:

I was thinking about medical waste [when she first heard the term medical desert; in Romanian, waste=deseu, similar to desert]. *But it still did not make sense in that sentence. And I looked for the term on the internet, it was the first time that I heard it, and I saw that an area must follow some criteria in order to be considered a medical desert. (…) Indeed, our community fits some criteria. On your map also, we are coloured red. And, at some point, there was a question about the map, if we think that it is accurate. And I said yes, because the hospital is far, the GP is far, we have a pharmacy instead, but this does not mean that it covers all medical needs. We have only one assistant pharmacist and the pharmacy is closed if he is in his time off.* (local level stakeholder)

2. Access to medical services is problematic, but it is not quite a medical desert, because there is a community nurse there. This constitutes an exemplification of the reluctance in using a term that might sound rather drastic. It might be the case that, as representatives of institutions and local authorities, respondents sometimes avoided such harsh evaluations as a consequence of feeling held accountable. But what was definitely visible in the interviews was the fact that **the term was new and, sometimes, it brought a higher degree of abstraction than usual.**

3. It is not a medical desert, because the situation is better than it used to be approximately 15 years ago and it is what it is:

> [It was a medical desert] *back then, in 2009, when we didn't have any pharmacy, or nurse or medic. At one point, we didn't even have a priest to help us. In more critical situations, you have to settle for what you have.* (local level stakeholder)

A certain level of stoicism was visible throughout one of the interviews. In it, the central idea was that people know what to expect when living in the Danube Delta, and there is not much to be done, just accept what is inevitable: a considerable amount of isolation:

> *We were born here with mobility as a given, I mean we didn't wake up after 20 years in isolation. We were born here and we would have gone to other places, had we wished for other things. But yes, in a way, life in Sfântu Gheorghe is similar to life in a locality in Râmnicu Vâlcea. After all, you man up to it. It's true that we would like to have* [public] *services but, unfortunately, we have to accept the realities of life. The fact that we are 80-90 kilometres away from Tulcea must mean something*. (local level stakeholder)

In the interviews, **central level stakeholders seem to have a broader perspective** on desertification and they seem to better relate with the term, in the sense that, if they are not already familiar with it, they internalize it quickly.

The interviews revealed broad evaluations of the Romanian healthcare system and its problems. In this perspective, desertification is an issue, and it is a consequence of faulty policies and applying economic reasoning based on profit and limiting expenses to the system. As sometimes patients' needs remain unmet, the public system leaves room for the private one, available only to those who can afford it:

> *But this situation* [not evaluating situations and patients' needs] *makes it possible for the private system to develop beautifully, because people need healthcare services and those who can pay choose to pay. Therefore, the private healthcare system is blooming, although the health insurance does not cover those services [provided in the private system].* (central level stakeholder)

Desertification is seen as being closely related to the trajectories of human resources within the system and across borders, and one issue that also appeared sharply in some interviews at the local level refers to how **many doctors are soon to be retired and they have no replacement**. As such, **medical deserts will extend in the future**:

> *Desertification didn't mean only the emigration of doctors, but also the ageing process. 48% of our doctors [GPs] are 60 years old and above, which means that in the next 5 years Romania will have a big problem. And we get to the real problem, the human resource, because the human resource in the medical system was gradually reduced by the fact that there were fewer and fewer places available in the residency programmes. So, we are talking about training, inserting, retaining and motivating the work force, and, last but not least, facilitating access to medical services for patients means having a certain culture, a culture that we should promote.* (central level stakeholder)

Apart from these general associations between Romania and medical deserts, there are areas that recurrently come up in the interviews as examples of problematic access to medical services, namely the Apuseni mountains and the Danube Delta.

In what concerns the meanings associated with desertification, one aspect that stood out is the precaution of local administrations' representatives, who mentioned that they lack the medical knowledge necessary for expressing an opinion about desertification. However, regardless of the extent to which respondents were familiar with the medical field, the majority of them associated meanings to the term based on common knowledge:

> *I figured out its meaning a bit. It refers to the lack of doctors and medical services in certain areas. And I internalized the term. Initially, it was a typo. It is a new term, or at least I haven't heard of it, maybe it is used by doctors.* (central level stakeholder)

> *With a barren, hollow thing, with hardships. Exactly like the desert, first of all something painful.* (local level stakeholder)

A thorough take on medical desertification, observed in several interviews at central level, defines it as the **lack of resources, with a focus on personnel, among other types of capital, such as education or infrastructure**. Specialists are portrayed as the central part of the medical act or, more accurately, the relation between specialists and their patients:

> *First of all, desertification means that there are no resources. In medicine, in general, there are three problems: human, educational and material resources. Human resources are the basis: you can't have anything without specialists.* (central level stakeholder)

What framed the discussions on desertification was the inequality of access to and availability of medical services. In this vein, rural areas are significantly different when compared to urban areas. One respondent, after invoking the limits of his medical knowledge, implicitly associates desertification with the absence of services, and talks about how public services, such as healthcare and education, are linked. Thus, **medical deserts and education deserts** are actually overlapping in remote areas:

> *I think there is human desertification, ultimately, because we can put things at the individual level, within zones and communes. Everybody clusters towards urban centres. If I think about it, I think that there is a correlation between the provision of education and health services. They are all related.* (local level stakeholder)

Throughout the interviews, regardless of the characteristics of respondents, remote villages constituted a recurrent theme. The fact that working in a village means cutting yourself from effervescent environments and accepting a rather narrow social life is presented as a deterrent for doctors (general practitioners). **Definitions of desertification are embedded in remarks about work environments and areas in which isolation is present**:

> *They all run from the practices in remote areas, because it is one thing to live in a city, and another to live in a village. The social life of a village GP is terrible. To be accustomed to going to the theatre, to the movies, to the opera, and to stay here all by yourself.* (local level stakeholder)

Results from the web survey

The websurvey asked three fundamental questions referring to medical desertification, that deserve being inspected.

The first question addressed asked the respondents whether they considered their locality as disadvantaged considering health care provision.

The second question asked specifically whether the locality can be labelled as a medical desert.

The third question asked the respondents whether they can identify medical desert in their county.

The answers could range from full disagreement with the statement ("very little") to full agreement ("very much"), also comprising possibility to not answer, and declaring indecision ("do not know").

The order of the question was specifically chosen in such a way to have the more difficult questions first (the ones involving the usage of 'medical desertification', which is far less common in the public debates), and then the one that refers to being 'disadvantaged' from the point of view of health care provision.

The three questions offer an overview that allows for an understanding on whether the issue is known to stakeholders as well as whether the stakeholders see it as relevant for Romania and their locality.

Figure 10 depicts the distribution of the answers. The portion illustrated in yellow depicts the share of respondents that did not have a clear idea on the issues that were under evaluation, with some of the respondents refusing to answer and some not knowing what the answer is. Both stances reveal in this case a similar positioning of **lacking awareness on the issue**. There are already 5% that did not answer the question on the locality being "disadvantaged" and 3% who said that they do not know. This means that 1 out of 13 respondents had no clear idea whether their locality could be classified as 'disadvantaged', although the term is commonly used in contemporary public debates. When transitioning to the question of "medical deserts", the number of respondents that do not have a clear opinion is flourishing, both at locality level (16% no answer, 14% do not know), and at county level (15% no answer, 33% do not know).

Since the order of questions involved initially asking the more difficult ones, it is important to note that the number of respondents who did not answer is not increasing for the questions asked later, indicating that this is

not an artifact due to dropping out the survey, but the real phenomena to be observed. In other words, the high number of “do not know” and “no answer” to the questions on medical desertification clearly show the extent to which the concept is unknown in Romania. Essentially, about a third could not express any opinion on desertification of their locality, and about half could not say anything about the county. These are extremely high numbers. The findings are backed and reinforced by the fact that the number of respondents saying that they do not know what to say increases, while the “no answers” remain unchanged when contrasting locality-level to county-level.

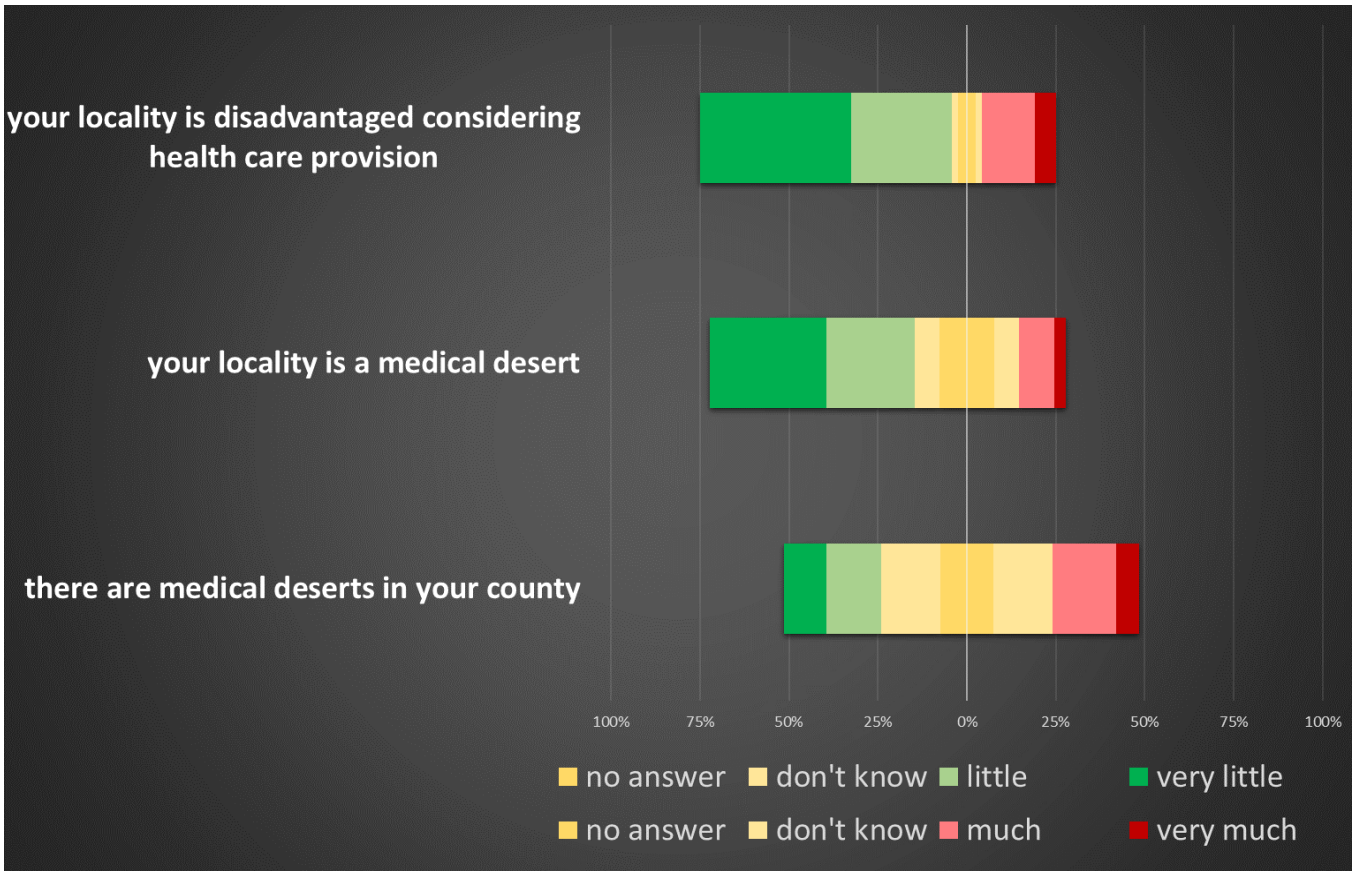


Figure 10. Representations on the existence of medical deserts in Romania

*Question order in the websurvey: “locality is medical desert”, “there are medical deserts in the county”, “locality is disadvantaged”.

Otherwise, the findings come as no surprise: more respondents perceive their locality as being disadvantaged while far less consider them to be ‘a desert’. Accordingly, out of those expressing an opinion, about a quarter see their locality as rather disadvantaged (“much” or “very much”), and one out of five see it as “medical desert”. Almost a half of the respondents state that there are medical deserts in the county.

Beyond these very general standpoints, it is important to observe whether there is any association between personal characteristics of the respondents (occupation, gender, age, having children or adults in their care) or characteristics of their localities (the indexes of access to medical services that are described in Annex 5) and their stances to the questions depicted in Figure 10.

The results[2] reveal that, for those who expressed an opinion (other than not answering or saying "do not know") the assessment depends very little on personal characteristics. Only women have a lower propensity to assess the county as including medical deserts. Considering the desertification indexes, they make little difference in the assessments. In other words, irrespective of how the medical access to GPs, pharmacies, and hospitals is, there is no difference in the assessments of locality as being disadvantaged, or as being a desert, or for the county to include deserts. The only exception is the index of availability of hospitals. When the index reveals higher accessibility, the propensity to consider the locality as a desert decrease. This happens irrespective of which type of stakeholder was investigated[3].

Furthermore, we have checked whether awareness depends on individual characteristics or on locality characteristics. In other words, we have contrasted those that expressed opinions to the three questions and those that did not (either not answering or saying that they do not know)[4]. It turns out that **having more GPs per inhabitant in the nearby** (that is the need for GPs is better satisfied by existing supply) **decreases the propensity to answer to the question on locality being disadvantaged, while a higher supply of hospitals increases the propensity to answer the same question**. No other significant association is observed.

Take home messages

The term 'medical desertification' is rather unknown in Romania, suggesting low awareness and concern with the issue. A campaign that aims to bring the issue in the public debate is necessary, particularly when comparing the indexes for Romania with the ones for Western European societies.

The **presence of hospitals in the nearby represents the only important driver for the respondents' answers**. In particular, it decreases the probability to consider the locality as a desert. This provides a first hint that **what matters in the representations of stakeholders is, in fact, <u>care</u>, not prevention.**

Data from the interviews also reveals this term as being rather unknown and difficult to relate with for the respondents at local level. Those who were more receptive were respondents with extensive medical training and experience. At local level, desertification is considered a problem in one of the studied communities, in the Danube Delta. At national level, there are **areas that are evaluated as medical desserts** throughout the interviews, such as the Danube Delta as a whole and the area in and surrounding the Apuseni Mountains, where **communities are isolated, scattered and hard to reach**.

[2] We have run multilevel models, with respondents nested into localities. The mixed procedure in Stata 16 was employed. For robustness check, the meologit procedure was used, with the same specifications, that included controls for gender, sex, year of birth, having children, taking care of adults, being public/clerk/authority, GP, or other type of stakeholder, as well as the three indexes of desertification.

[3] We have checked for interaction effects.

[4] Multilevel logit models were employed (melogit procedure in Stata 16).

Criteria considered relevant (by respondents) to define access to medical services

Based on the literature review (produced in one of the previous reports within the AHEAD project), the AHEAD team derived three main criteria to be considered in assessing access to medical services and labelling a locality as medical dessert. These three criteria include **access to GPs**, **access to hospitals**, and **access to pharmacies**.

In the following section, we discuss the extent to which Romanian stakeholders consider each of these criteria relevant.

Like the previous chapter, the first section will provide insights from in-depth interviews, followed by an analysis and interpretation of the results from the web survey. The final section aims to revisit the main aspects drawn from the research regarding the usefulness of these three criteria selected.

Results from interviews

Generally speaking, respondents were in agreement with the suggested types of medical services (GPs, public hospitals, pharmacies) as being relevant for desertification. What appeared to be the most important was access to GPs, while pharmacies were not perceived as associated with any problematic aspects related to accessibility.

Central level stakeholders sometimes refer to the medical system as a whole, while underlining disparities in types of services provided and the standards at which those services are available to the public. Disparities between counties are indicated:

> *Access to all segments of the medical system. There are counties in which there is no access to some specializations, there is no diabetes specialist, no psychiatrist. Priority services, as it were. If you give birth in Galați, the cost is 1800 Ron, if you give birth in Bucharest, the cost is 8600 Ron. Inequity of access to medical services, the inequity of access to certain conditions/standards*. (central level stakeholder)

For central level as well as for local level respondents, the most important type of medical services is that provided by the GP. Thus, what makes an area a medical desert is the absence of such a professional, or the lack of access to this primary medical care. The practice of the GP must be in the proximity of the patients, so as to minimize the risk of exclusion such as the one induced by being unable to travel, due to health conditions, poverty, etc.:

> *So, if a commune does not have at least one GP, at least to know that he comes 2-3 days a week, then it is a medical desert from the point of view of basic/primary medicine. There is a population, at least in the rural area, who cannot leave its communes. There are people so poor, that they can only get to the GP in their village.* (central level stakeholder)

In fact, when it came to providing examples of medical deserts in Romania, there were cases in which respondents immediately invoked the communes in Romania without GPs. This reinforces the idea that **GPs are seen as primary actors in the provision of healthcare services**:

> *So, this doesn't need additional descriptions [the case of localities in which there is no GP], because if there are no GPs, it is clear that the first door to the healthcare system is not open for those patients [inhabitants of that locality].* (central level stakeholder)

The **distance to the nearest public hospital is seen as important**. Being far away from hospitals, coupled with the absence of a GP, are what characterizes a medical desert. However, even though there are problems in the

healthcare system and its accessibility, respondents do not seem to be very generous in considering areas as medical deserts:

> *The distance to the first hospital, because if you are a locality next to a small town with a small hospital, you can hardly be called a medical desert. What matters is 1. The lack of a GP and 2. Distance to a hospital, for it to be a real desert. Pharmacies, I don't know what to say, there is an abundance of pharmacies, at least in towns and small towns.* (central level stakeholder)

Apart from the presence and accessibility to a GP, the role of the patient is also mentioned. In other words, **the access to medical services can be problematic only if there are patients who are interested in their own health and are willing to cultivate their relation to their GP**:

> *First of all, to have a GP, second, to be close to the GP, third, to understand the importance of programming a consultation, because it is a matter of mutual respect, fourth, not to abuse the services that are provided to you. And fifth, to be thorough and to understand that you are part of your own healthcare plan. So, basically, if you want to receive medical care, you should be interested in the relation with your GP.* (central level stakeholder)

The discourses of local level respondents tend to be less elaborated compared to the ones of central level stakeholders. The three types of services mentioned in the template of the research usually generate compliance, with emphasis put on GPs and their role:

> *I think by far the most important is the access to GPs. But I think that these three, the ones you mentioned, pretty much cover it*. (local level stakeholder)

GPs are seen as an important part of the community. Regardless of the status/training/specialization of the respondents, they appear as essential when it comes to primary medical services that must be accessible to people. For them to live in the community where their patients are is deemed as necessary: it enables them to be there, in the close proximity, at all times and it strengthens their bonds with their patients. It is seen as essential for the role of a GP and for proper care being provided to the patients:

> *The most relevant is having a GP in the community at all times. And for the GP to allocate the time to be present here, and to offer medical care by going to the patients who are less mobile and have trouble reaching the dispensaries.* (local level stakeholder)

It was often the case that operationalizing the term medical desert was quite hard, as it came with substantial determinants of what is moral or what should be done for the good of the population. Areas in which emergency services are called for basic things, because communities lack medical professionals who can provide first aid and primary care, are seen as clearly being medical deserts. In the discourses of persons who live in their proximity, the fact that there isn't an official evaluation and definition/labelling is problematic:

> *When it comes to the medical services for the population, we must not look for lots of motives. At least this is what I think. In this age, with so much technology, there are areas in which the emergency services are called for delivering a painkiller (Algocalmin). What are we waiting for, before declaring that area a medical desert? I don't think that there should be that many criteria*. (local level stakeholder)

What the excerpt above provides is a primary reaction to carrying elaborate discussions of what medical deserts should look like, in theory, when there are pieces of reality that go far beyond what is hypothesized.

Results from the web survey

Are elements included in the desertification indexes relevant for stakeholders?

In the quantitative survey, desertification was approached firstly by asking respondents about how the access to health services could include in its assessment several elements. The elements were chosen in such a manner as to be part of how medical deserts are typically defined, but respondents where not informed that this is the case.

More exactly, we have asked the respondents “For each of the following criteria, please indicate to which extent do you consider it appropriate to define access to medical services”. The list of elements is provided in Figure 11, which also depicts the results for the entire sample.

One may observe from the start that there are not so many refuses to answer or “do not know”. This means that the topic was familiar to respondents.

Second, most GP-related indicators tend to be rather ignored as defining for accessing medical services. Number of GPs, waiting times, travel times, or distance to GPs are rather considered of little or very little importance.

What seems to matter is the presence of pharmacies, both in locality and in the nearby, the waiting times in hospitals, population size in nearby localities, and travel times to hospitals.

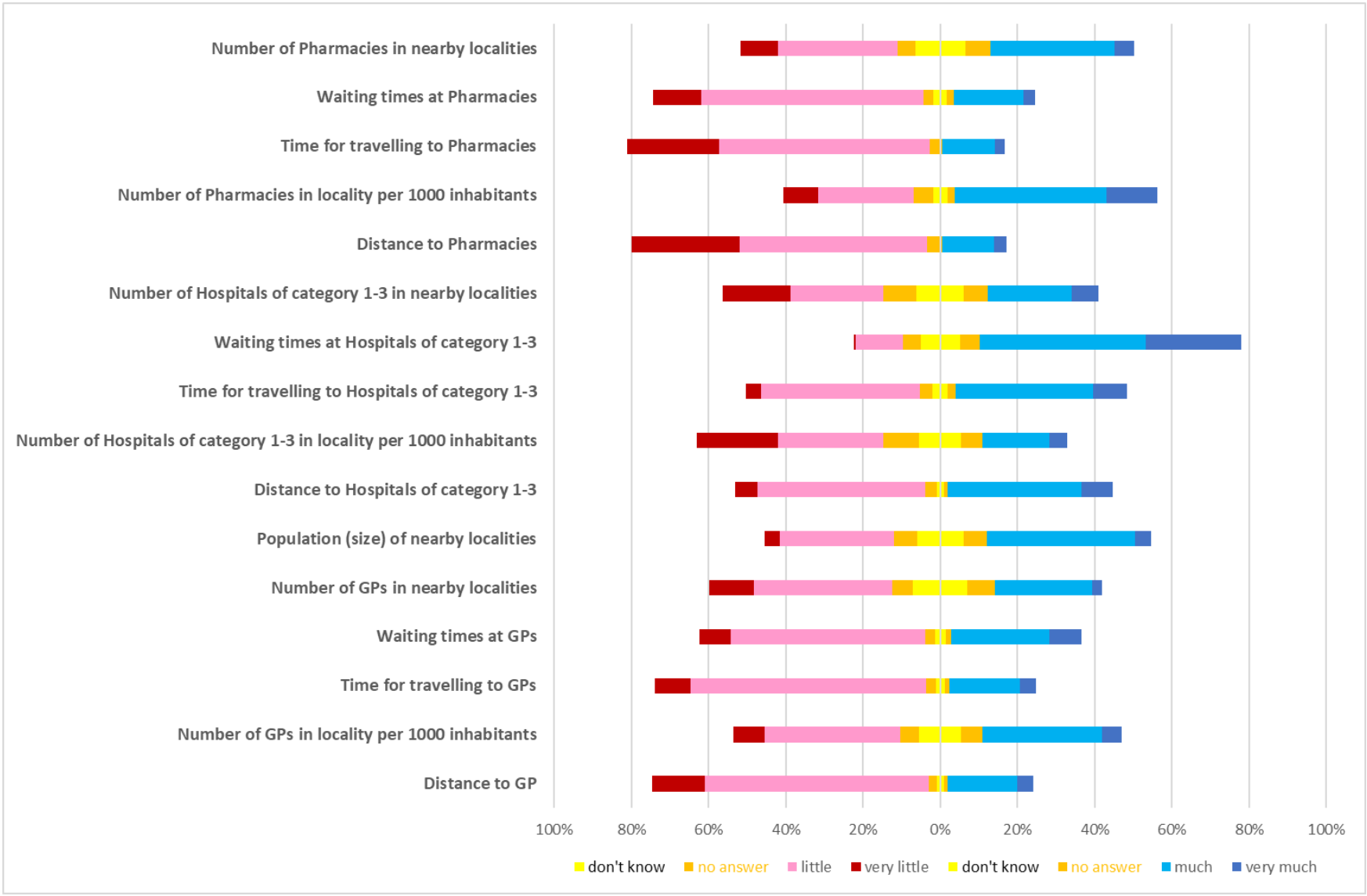


Figure 11. Representations of stakeholders: importance of various elements of desertification in defining access to medical services

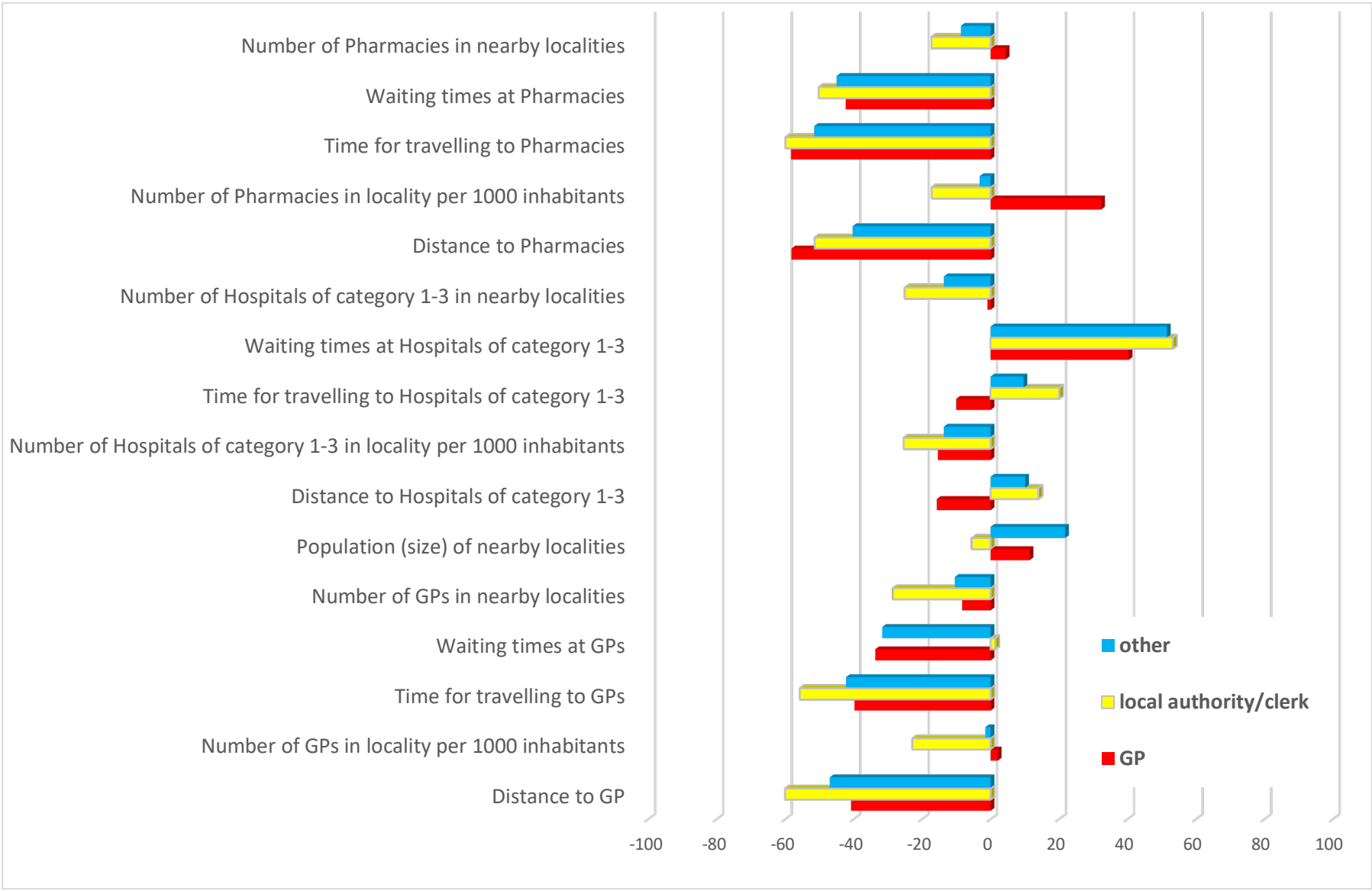


Figure 12. Representations of stakeholders: importance of various elements of desertification in defining access to medical services by category of stakeholder: the higher the value of an indicator, the more important the corresponding dimension for access to health services (see text for details)

It is important to depict the results based on categories of respondents, as was elaborated Figure 12. This method provides a more concise way of looking at the data.

To simplify the information in Figure 11, we have computed an indicator which shows the importance of each element for each category of respondents. Each indicator ranges from -100 (no importance at all) to +100 (indubitably important) and it is computed as follows: let R be the number of those rejecting the element as being important ("very little" or "little" importance). Let P be the number of those in favour of the element as being important ("very much" and "much"). P+R is the number of respondents that are not neutral. Now we can compute the index as (P-R) * (P+R) * 100 / T^2, where T is the total number of cases. If R=T (meaning that all respondents indicated that the element is not important), this implicitly means that P=0, and the indicator takes the value -100. In the mirrored case, if P=T (and R=0), the indicator becomes +100.

Inspecting Table 13, it becomes clear that **prevention lacks importance for all stakeholders**, as even respondents who are GPs were less tempted to consider themselves as important. **GPs do consider pharmacies as important to exist in locality, but are less interested in waiting times, density, or distance to pharmacies**.

The **overall consensus is related to waiting times to hospitals. Distance to hospitals and population of nearby localities are also important aspects for a part of the stakeholders**.

Table 13 further investigates whether density of population and connections to neighbouring localities are important. Let note that, when directly asking about these issues, the number of people that avoid answering dramatically increases, reaching 12-14% of those that offered an answer. This indicates, again, that the issue is very low on public agenda, being unknown to many of the respondents. One may also expect that those that answered the survey are more likely to be in contact with the topic of desertification, which makes an even stronger argument on **the need to raise awareness with respect to quality of accessing medical services, hence desertification.**

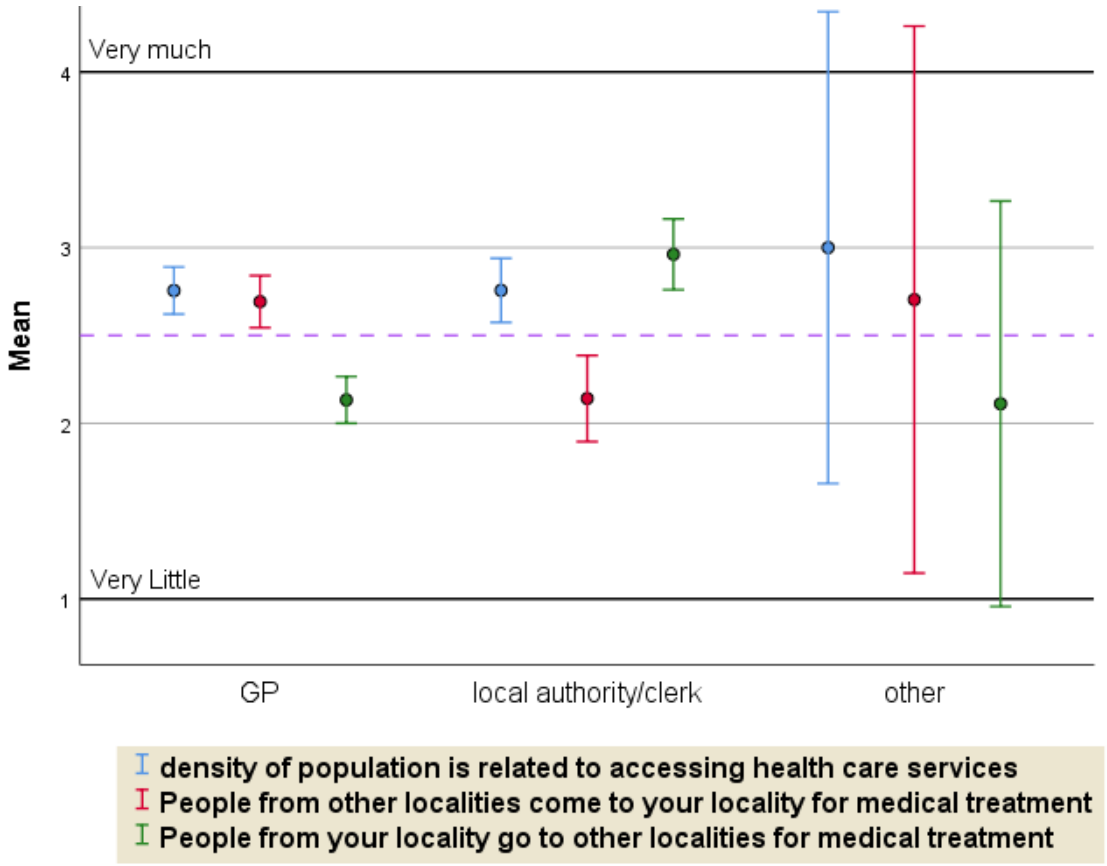
Table 13. Representations about elements to be considered when assessing the access to health care services

▪ **Density of population is related to accessing health care services**	10%	15%	47%	14%	7%	7%	*100%*
▪ **People from other localities come to your locality for medical treatment**	18%	22%	30%	17%	8%	5%	*100%*
▪ **People from your locality go to other localities for medical treatment**	18%	27%	32%	12%	9%	3%	*100%*

DK=don't know; NA=no answer

Figure 13 explores the issue by category of stakeholders, providing a much clearer picture regarding the differences. The points depicted in the figure are mean values for the respective category of stakeholders with respect to the answers to the corresponding item. The whiskers are error bars. In other words, if the sample would have been probabilistic (i.e. "representative"), and we would have extracted 100 samples, in 95 out of these 100 samples we should expect the mean values to be placed in the interval defined by these whiskers. The interval defined by these whiskers is called "95% confidence interval". If the 95% CI includes the line that splits in two equal halves the interval of possible answers, it is highly unlikely that the mean is significantly different

from this half value[5]. In our case, each respondent could answer from 1 (very little) to 2 (little) to 3 (much) to 4 (very much). Therefore, the mid-value is 2.5. When a 95% CI is entirely below the violet line that corresponds to 2.5, the average opinions are rather opposed to the assessed statement. When the interval is fully above, the respondents tend to rather agree with the corresponding statement.



Error bars: 95% CI.

Figure 13. Representations about elements to be considered when assessing the access to health care services, by type of stakeholder

The graph shows average values of three categories of respondents (GPs, Local Authority/Clerk, and Other) with respect to three elements (density of population, incoming patients, outgoing local inhabitants)

On the right side of Figure 13, there are very large confidence intervals for the category "others". They indicate that the opinions in this category are too spread (and the number of cases rather low) to be able to interpret the mean value.

On the contrary, for GPs and local public clerk/elected authorities, one can use the estimates. By doing so, one can observe that both GPs and public clerk consider that density of population matters. GPs believe that people from other localities come to their locality for medical services, but do not expect people from their locality to

[5] The usage of „significant" depends on the sample being probabilistic. Since the sample is not probabilistic, we use the term here as indicative of potential significant difference.

go elsewhere. Representatives of public administration believe the exact opposite: they think that people from their locality go elsewhere, and people from other localities do not come to their localities. Nevertheless, these results should be treated with careful consideration, since the geographical structure of the sample of public administration may be different than the one for GPs. For instance, it might be the case that the GPs that answered the survey are rather located in medical deserts, while the public administration is not. This would not mean that the opinions of GPs and public administration are different, but they would actually hide the difference in localisation of the two categories of stakeholders. Furthermore, it might be the case that personal characteristics play a role. For instance, those having kids may have different opinions as compared to childless respondents or those with mature children.

To solve such unclarities and to avoid assuming correlations where they do not actually exist, multiple regression have been employed, in a multilevel environment. In other words, such effects have been eliminated by using statistical methods[6].

The results confirm that local authorities/clerk consider to a higher extent that people go to other localities searching for medical care. GPs consider to a slightly higher extent that people are coming to their localities searching for help. Again, let us underline that this is irrespective of where someone is located or what is one's personal situation. Such contrast between GPs and public authorities/clerk indicates a **different view to the problem** and suggests that, in fact, **there are both incoming and outgoing flows of people searching for medical care.**

Let also note that the analysis does not reveal any dependency between such opinions and the indexes of desertification that had been computed.

Relative importance of each criterion

We have also investigated how one should consider each of the criteria. More exactly, we have first inspected whether stakeholders consider more important the distance to the health care providers, the travel time, the waiting time, or the density of provision (number of service providers per inhabitants). Second, we have specifically asked which are more important: the GPs, the hospitals, or the pharmacies.

Table 14 and Table 15 exhibit that in the options of the majority, all criteria are to be considered, but distance prevails, with half of the respondents indicating it on the first or the second position (see Table 15). A quarter of the respondents avoid answering the question (the first cell in the upper-left side of Table 14), and only two thirds provided at least the second place as importance. 10% said that all criteria were equally important (but some added a criterion in the second or third position).

Density of service provision as divided by demand is the second in importance. Travel time and waiting time were seen as equally important when considering the majoritarian position.

[6] More precisely, we treat respondents as nested in the localities where they are active, and we control for the degree of desertification computed for these localities (with respect to GPs, hospitals, and pharmacies), and for various personal characteristics, including gender, age, having children, taking care of an adult person. The last two mentioned characteristics count for the need to have fast access to medical care.

Table 14. Choosing between distance to provider, travel time, waiting time, and density of provision in assessing access to medical services

Considering medical desertification, please indicate for each of the following criteria, which is the most important, which is the second in importance etc.	NA	DK/equal importance	Distance to provider	Travel time	Waiting time	Density*	TOTAL
Most important	24%	10%	29%	8%	9%	20%	100%
Second place	33%	1%	15%	19%	19%	13%	100%
Third place	47%	1%	12%	15%	14%	11%	100%
Fourth place	61%	3%	3%	8%	14%	10%	100%

*Number of inhabitants per provider
NA=no answer; DK=do not know.

Table 15. Choosing between distance to provider, travel time, waiting time, and density in assessing access to medical services (2)

	rank 1	rank 2	rank 3	rank 4	DK/equal	NA	TOTAL
distance	**32%**	17%	13%	4%	8%	26%	100%
travel time	10%	23%	18%	10%	9%	29%	100%
waiting time	11%	22%	16%	16%	9%	27%	100%
density	23%	15%	13%	12%	9%	28%	100%

*NA=no answer; DK=do not know.

As the previous chapters and sections have done, this section aims to outline which personal characteristics or locality traits lead to considering a criterion or another more relevant[7]. The results reveal that:

- The higher the density of GPs is, the more important is considered the distance to service providers
- When density of GPs is higher, the importance of travel time is slightly higher
- When more pharmacies are available in the area, distances and travel times comes on lower positions
- Presence of hospitals does not change representations with respect to choosing between criteria
- GPs perceive waiting times, travel times, and distances as less important as compared to public authorities/clerk, and even less as compared to other stakeholders.
- For older stakeholders, travel times matter less.

[7] Multilevel ordered logit models were run, with similar specifications as in the previous section.

Table 16. Choosing between GPs, Hospitals, and Pharmacies in assessing access to medical services

	GP in locality	Hospital level 1-3 in the nearby	Pharmacy in the nearby	DK/equal importance	NA	TOTAL
Most important	**57%**	20%	3%	8%	12%	100%
Second	14%	15%	**44%**	1%	26%	100%
Third	3%	**32%**	22%	2%	42%	100%

*NA=no answer; DK=do not know.

Table 17. Choosing between GPs, Hospitals, and Pharmacies in assessing access to medical services (2)

Importance \ Criteria ➔	GP	Hospital	Pharmacy
➔ Rank 1	57%	20%	3%
➔ Rank 2	14%	15%	44%
➔ Rank 3	3%	32%	22%
Don't know/equal importance	8%	2%	1%
No answer	19%	30%	30%
Total	**100%**	**100%**	**100%**

Table 16 and Table 17 exhibit statistics related to specifically choosing between the importance of GPs, pharmacies, and hospitals. In such instance of specifically choosing between the three, GPs are the ones to appear being the most important. However, *this proves to be just an artifact due to the structure of the sample*. When considering other respondents than GPs, hospitals become the most important by far. It is only for GPs that GPs are important. Beyond such distinction, let note that **desertification indexes play no role in determining the choices between GPs, hospitals and pharmacies. In other words, irrespective of objective desertification of the locality, the respondents choose hospitals as more important, except for GPs that tend to favour their own position.**

Number of criteria to be considered

The respondents were given the possibility to choose how many out of three desertification criteria (GPs, hospitals, pharmacies) should be used. Figure 14 depicts the results, showing very little differentiation across types of stakeholders, and indicating that, according to the majority, one may consider desertification starting with the lack of proper standard on two out of three criteria.

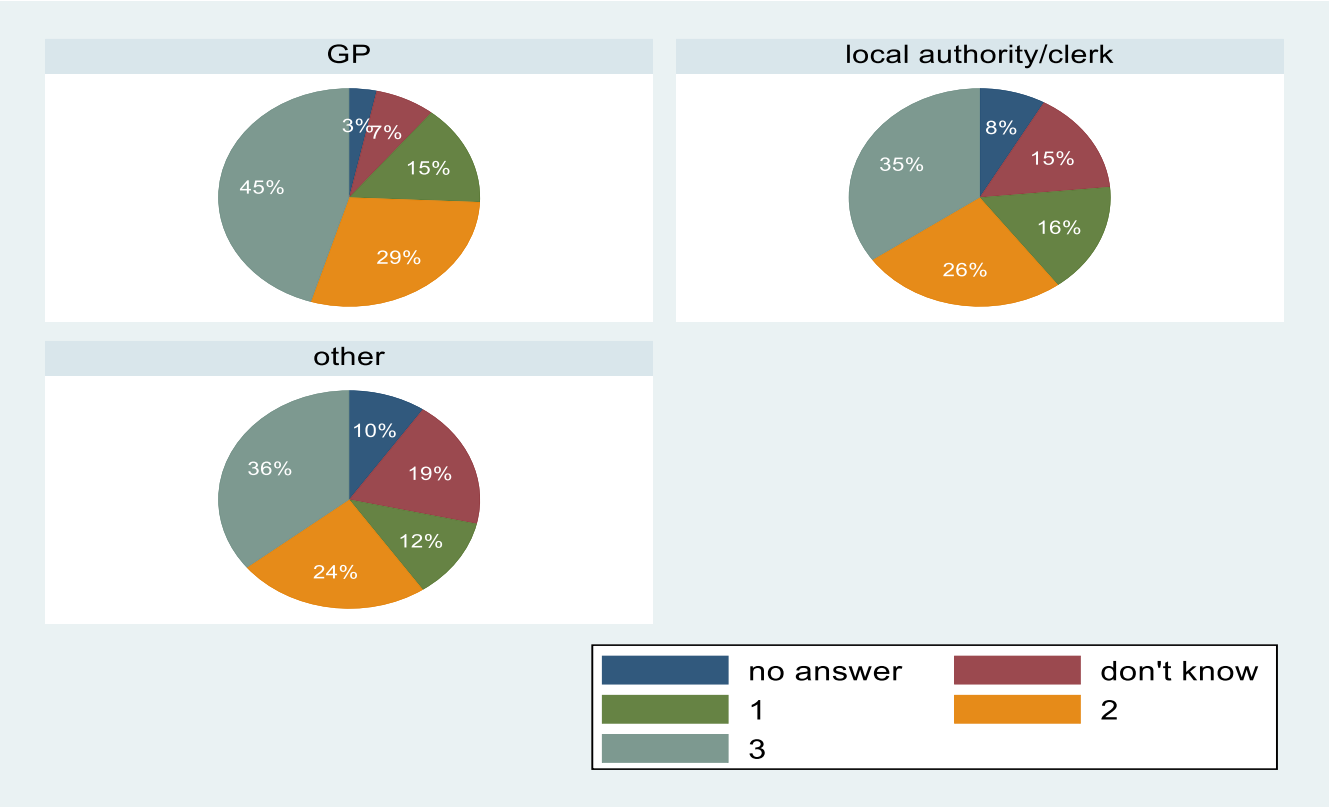


Figure 14. Opinions of respondents to web survey on how many criteria out of 3 (GPs, Hospitals, Pharmacies) should be used in order to assess desertification

Take home messages

The fact that medical desertification is a new term, most often unknown to the respondents, is visible in this section, as well. In the in-depth interviews, it was difficult to obtain straightforward answers on topics such as criteria to be considered, thresholds and so on. But apart from the fact that significant work was necessary on behalf of the respondents for complying to the requests formulated in the questions, there were some aspects that stood out.

First of all, **the most important type of service to be considered by the respondents to in-depth interviews is by far that provided by the GPs**. They are seen as key actors, and **their relationship with their patients** is placed at the core of every discussion. However, it seems that the relevance is related mainly to **chronic illness**, not prevention. **GPs become important when they are likely to cure, not to prevent health issues**. Second, **pharmacies are rather overlooked or considered unproblematic: what appeared throughout the interviews was the idea that pharmacies are everywhere**, and, consequently, it is almost impossible to imagine a scenario in which they would be missing. Third, **access to public hospitals is also considered relevant and there is a distinction operated by the respondents between small town hospitals and large county hospitals**. The first should act as gatekeepers and filter cases in order to make sure that the more serious ones go to bigger hospitals and the others receive the necessary treatment without going any further.

The web survey revealed that, when not being specifically asked to choose between types of services, the focus on assessing access to medical services is on care, not on prevention. What matters are hospitals, not access to

GPs. Pharmacies are labelled as important only by GPs, and even the GPs are concerned mainly with the existence of pharmacies not with waiting times and distances to beneficiaries.

Overall, there is a clear need for communication with stakeholders on essential aspects of desertification, and to boost awareness regarding the importance of travel times, distances, and densities of health service providers, as contrasted to the size of population that they serve, including the nearby localities.

Let also note that GPs are unlikely to think that people from their locality go to another locality for medical services, while they say that people from *other* localities come to their locality. Local authorities and public clerk are exactly on the opposite positions, believing that people from different localities do not come to their locality, and people from their locality go elsewhere. This means that **an awareness campaign should also promote the importance to consider the locality *and* its surroundings, not as an island, isolated from others**.

With respect to **which aspects should be included in desertification indexes**, **distance** is the one that attracted the most attention. Density is the second, while travel times and waiting times are of lesser importance. The importance of distance increases when density of GPs is higher and decreases with the number of pharmacies. This suggests that **pharmacies may play a substitution role as compared to GPs**.

The situation is not different when asking the respondents to specifically choose between GPs, hospitals, and pharmacies. For all stakeholders except for GPs, **hospitals are the most important**. GPs, as an exception, favor their own importance.

Thresholds from which a locality is a medical desert

Beyond which criteria to choose, one should decide starting at what point does a certain place become a desert.

In this chapter we discuss about distances to service providers. The previous analysis discovered that, in the view of stakeholders, exceeding travel times, waiting times, density of service provision and especially exceeding travel times represent the main aspects when factoring the desertification indexes. Building on this, it is crucial to identify what is the minimum distance to the nearest GP, hospital or pharmacy from the perspective of the stakeholders.

Results from interviews

Consensus is reached when it comes to defining medical deserts as areas where there is no access to primary care, including that provided by the GPs, hospitals with different/multiple specializations/wards and pharmacies (the latter being rather in the background than in the spotlight). However, the acceptable distance from potential patients to the location of these services is not a matter of convergence among the respondents.

Sometimes, in evaluating an area as medical desert, distinct medical services, such as those provided by GPs, hospitals or pharmacies come together. In this perspective, a medical desert is lacking all of them. For patients, being 100 kilometers from these services would mean living in a medical desert:

> (…) *I would say that about 100 kilometers. I mean, if in an area of 100 kilometers you don't have anything, what is there to hope?* (local level stakeholder)

The excerpt above provides an example of how medical desert constitutes a tag not easily attributed. This might be a result of working/living/having experience in areas in which geographical aspects or aspects pertaining to how communities are structured and placed in the territory (scattered), where the scarcity of such resources as public services is a given, treated as such by individuals.

General practitioners

For GPs, the ideal situation is to live and work in the same community, as to develop a good relationship with their patients and reach a holistic knowledge of them and of the context they live in. As this is not always possible, what remains is the principle that GPs must be easy to reach for all their patients, within walking distance, if possible:

> *If we talk about 20-25 kilometers, this gets difficult because it becomes a problem for you to get to your GP. And the GP must be reachable without mobilizing significant amounts of resources.* (central level stakeholder)

Another "take" on distances relates them to the time necessary to get from one place to another. In this perspective, the trip from the patient to the GP or the other way around must not exceed one hour. This means approximately 5 kilometers by foot, for example. Referring to the time it takes to get to the GP, instead of the distance, makes it possible to capture nuances and contextual specificities, such as access to cars or public transportation, living in a city or in rural areas:

> *Distance, as access, should probably be no more than 2-3-5 kilometers, for the GP to be able to reach you within the hour. About 5 kilometers, to be travelled by foot. When the GP uses a car, it can be even more than 5 kilometers. In Bucharest, the distances are between 5 and 10 kilometers, but this is a major city. But the ideal distance for the GP to be accessible is no more than 3-5 kilometers. Of course, there are rural areas in which this distance goes up to even 50 kilometers, and these situations are dramatic*. (central level stakeholder)

Specific contexts call for specific measures, and where access to hospitals is not easy, such as the case of the Danube Delta, the medical services provided by the GPs are even more important. Distances to different healthcare services are closely related, as one type of service can make up for the absence of others, at least to some extent:

> *They are a little different. We are talking about 5 kilometers to a hospital. To a place where you have access to a more complex medical service, taking care of an emergency, helping you out of a pressing matter. For a pharmacy, 5 kilometers are not necessarily problematic. Because, when I get to the pharmacy, I have already been seen and received treatment, and I can even hold on for a longer period of time. So, we can extend these 5 kilometers. For the GP, 5 kilometers is a lot. I'm referring to our geographical area, where there is no land access and where you don't have the possibility to call a taxi and you don't have access to other means of transportation.* (local level stakeholder)

Hospitals

The level of the hospital and, thus, its capacity and infrastructure, determine the acceptable distance above which things become difficult for patients:

I would say that about 25-30 kilometers to a level 1 hospital and about 15 kilometers to a level 2 hospital. (local level stakeholder)

Another respondent places the distance to a level 2 hospital at 20-30 kilometers, and sees it as important, with a function in providing primary care to those in need, allowing the severe cases to be directed to bigger, better equipped hospitals:

20-30 kilometers I think that it is the proper model, from where I grew up. The intermediary town, with its small hospital, with 3 rooms and 4 doctors can really make a difference. (central level stakeholder)

Pharmacies

Pharmacies are not a matter of concern for the respondents. A recurrent depiction of pharmacies is that they are everywhere:

In general, each commune has a pharmacy. The problem is if the medication is known. Because if there is no doctor, there is no one to prescribe the proper medication. (local level stakeholder)

Given this perspective on the situation in Romania nowadays regarding pharmacies, it was hard for the respondents to formulate answers to hypothetical or abstract questions/items. In general, for all three types of services under debate, obtaining estimates on distances and thresholds for desertification was quite difficult and not always accomplished. Moreover, items relating to the acceptable distance from patients to services seemed to be more efficient in leading to pertinent answers than items centered on medical deserts and their characteristics or criteria for defining them.

Results from the web survey

The respondents were asked to think about distance to doctors/practices/health care provision. They were required to indicate whether there is a certain maximal distance that should be considered as minimal standard. For each of the three types of elements to be considered (GPs, pharmacies, hospitals), roughly 3-4% of the respondents indicated that they do not know, and 2-3% did not answer the question. For GPs and pharmacies, almost a quarter of the respondents indicated that a minimal standard should not be considered. For hospitals, the number of those that see no need for a standard decreased to 9%.

Figure 15 illustrates the answers of those that mentioned a certain maximal distance at which a service provider could be located for a locality not to be a medical desert. The mentioned distance to GP recorded an average of 3.6 km. Distance to pharmacies was on average 2.8 km, while the corresponding figure for distance to hospitals was 16.3 km.

As the figure shows, there is no significant variation across types of respondents. However, in the case of GPs, the maximal distance to pharmacies is lower than the one to GPs.

We have analyzed the differences between respondents considering their personal characteristics and desertification indexes for their localities[8]. The findings reveal a strong association between estimated standards

[8] Like in the other chapters, we run multilevel models, with respondents nested into localities, and controlling for personal traits and desertification indexes.

and the local context. The higher the density of GPs in the locality, the lower the acceptable distance to a GP is, and also the lower the acceptable distance to level 1-3 hospitals. When density of pharmacies is higher, the lower is the acceptable distance to pharmacies. The same applies to density of hospitals in the area, but the connection is weaker. In other words, when better conditions are in place, the acceptable standard implies that they have medical services closer to the patient. This also implies a continuous search for improvement and increasing the standards.

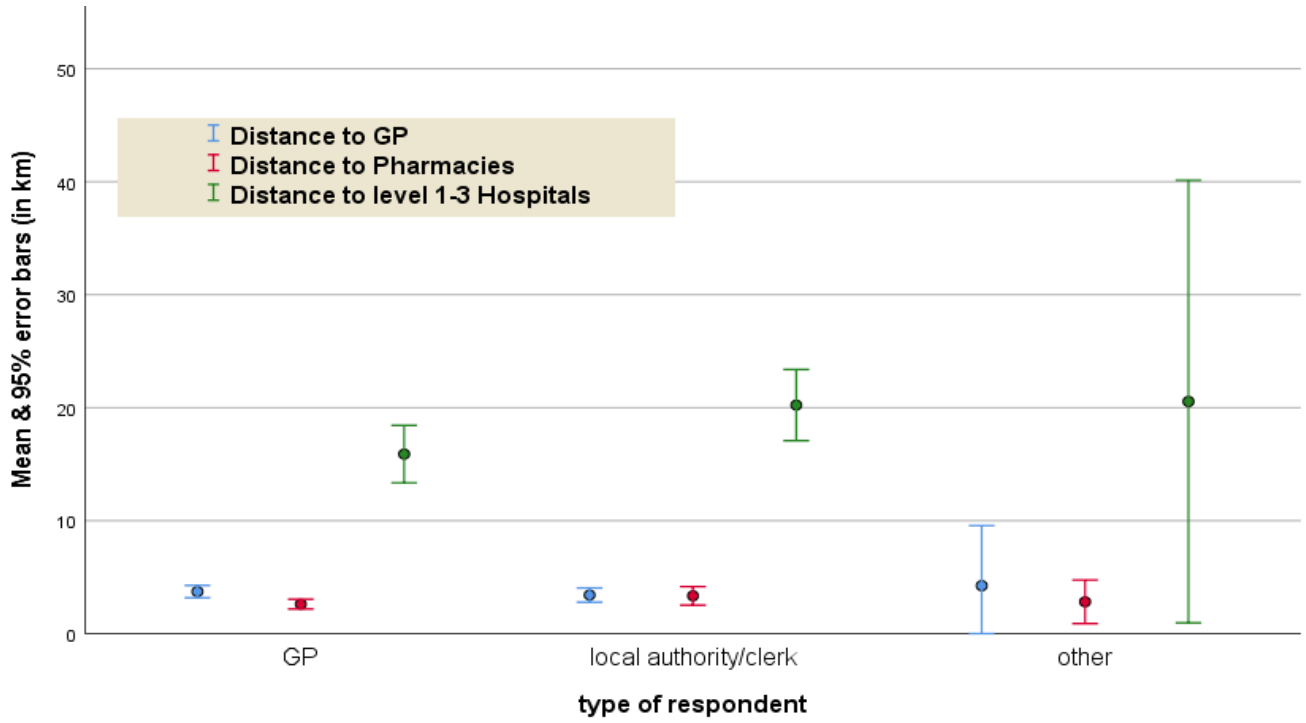


Figure 15. Average maximal distances to service providers considered as standard by type of respondent

Note: the points indicate the average values. The whiskers show the interval where these means would be placed in 95 out of 100 similar samples, if our sample would be probabilistic.

While Figure 15 gave the respondents the freedom to choose acceptable distances, Figure 16 switches the perspective. Distance ranges have been imposed to see how important it is to have a medical provider at such distance. The green bars in the figure indicate the percentages of people that are in favor to consider medical practices at the respective distance as being relevant. Such opinions create a social norm that define what people do expect from the health system. The bars show a peak for GPs at 10 kilometers distance, but the decrease at 20 and 30 km thresholds is almost null, indicating that representations about which distance to be considered as relevant are not excluding GPs at these distances when computing desertification indexes. The same applies to pharmacies. For hospitals, the subjective standard indicates that even larger distances could be considered.

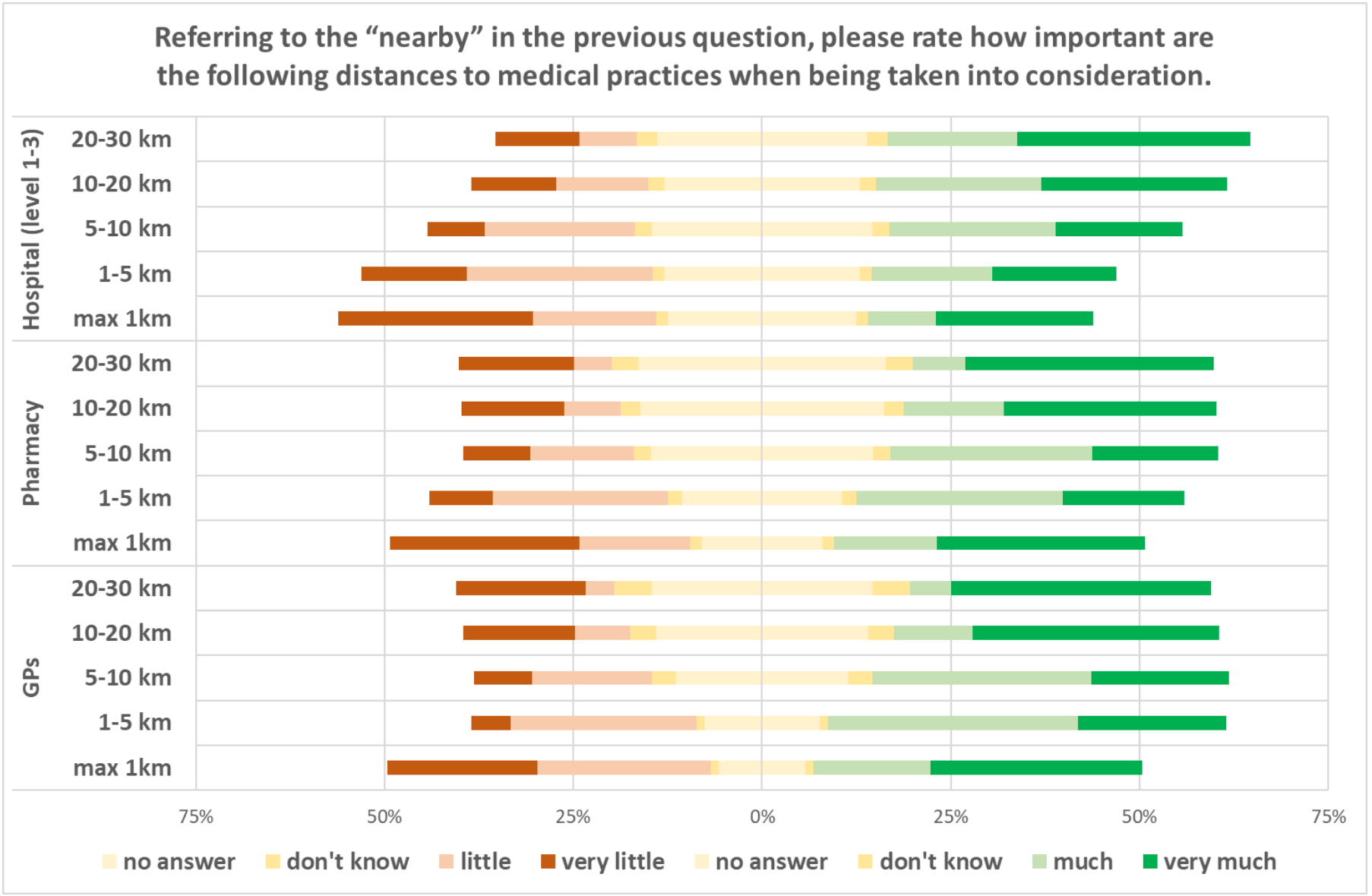


Figure 16. Opinions about potential thresholds referring to distances to service providers considered when assessing desertification (websurvey)

In other words, the expectations related to pharmacies, GPs, and hospitals include considering a 30 km distance as still viable. For hospitals, this could be extended even further. From a different perspective, referring to GPs and pharmacies, the ones in a 5 km radius are important, but not essential. 5km, 10 km, 20 km, 30 km distance are likely to become thresholds almost identical in importance. For hospitals, these thresholds appear to be more differentiated.

Finally, let note once more the **high number of no answers, again an indication of low awareness and lack of previous reflection on the topic.**

Take home messages

Qualitative interviews suggest that there are differences between the types of medical services, in terms of threshold for defining areas as medical deserts. Although formulating answers containing actual distances was quite hard for the respondents, consensus was apparent when it came to GPs living in the communities where they practice and, thus, being reachable by their patients and making house calls whenever necessary. Overall, respondents consider that **GPs should ideally be within 5 kilometers, while hospitals should be within approximately 25-30 kilometers**.

Quantitative analysis reveals more refined figures. The average acceptable distances to service providers are **3.6 km for GPs, 2.8 km for pharmacies, and 16 km for hospitals**. However, in localities where people live closer to such services, stakeholders tend to assess lower distances as standard. Pharmacies and GPs located at 30 km from household seem to still be relevant in the subjective standard. Hospitals may be located even farther.

Standards for comparison

When setting up a standard, one may opt for normativity, relativity, consensuality, or subjectivity. The terms are borrowed from the literature on poverty measurement (Voicu, 2006). Normativity means that normative thresholds are imposed, assuming that an undoubtable truth exists, and experts could decide unequivocally about where the thresholds should be set up. Relativity means that such thresholds are actually depending on certain frameworks of reference. Relative thresholds may be set up depending on resources (existing providers, existing financial resources, etc.) or on how other people proceed (e.g. standards in other EU countries). Consensual thresholds are defined according to widespread expectations manifested by the collectivity to which such thresholds apply. In other words, consensual thresholds are expressing the existing social norms, and are the ones that were actually referred in the previous chapters. Finally, one may refer instead of consensual options to personal ones, prioritizing subjectivity, and aiming to tailored policies.

Nevertheless, such strictly defined approaches to setting thresholds are rarely found in practice. They are rather ideal types, in Max Weber's classic terms (Aspalter, 2020; Heckman, 1983), meaning that in practice, each approach is a combination of such ideal types. Any combination will, however, favour some ideal types and pay less attention to others.

In the following, we refer to which types of thresholds do Romanian stakeholder prefer when it comes to setting up indexes of medical desertification. Do they prefer **normative or relative thresholds**? Do they favour **subjectivity or consensually** against **normativity** or **vice versa**? Do they prefer **relative standards**, and which are the frameworks of reference?

Results from interviews

The discussion about how to determine if an area is a medical desert, either by comparing it to other communities or to predefined standards, revealed a complex understanding of the matter among the respondents, especially at local level. The central level stakeholders were all involved, one way or another, in the provision of medical services to beneficiaries, while local level relevant actors sometimes were outside the medical system. In addition, the impact of local contexts was visible in the case of local respondents, who sometimes tended to favour, implicitly or explicitly, the comparison between localities as tool for attributing the status of medical desert and, consequently, for catalysing improvements when it comes to access to medical services.

In these interviews, the term 'standards' was sometimes understood as referring to conditions in localities, similar to 'standard of living'. Additional explanations or questions were required for reaching an understanding of the concept as exterior points of comparison, used in evaluation:

> *Of course, they are important [the standards]. The infrastructure of a community. There are communities in which improving the infrastructure is a yearly task, and this leads to a better access, or a GP might even come to that locality if some conditions are created and the possibility of living there is given.* (local level stakeholder)

Alternatively, 'standards' were seen as 'standards of care' – a variant of 'quality as being more important than quantity':

> *In my opinion, standards are more important than the desertification you talk about. I was abroad, and there are situations where people are tens of kilometres away from a hospital. But the way in which they [the hospitals] are managed, modernised, built and made to work, all this system matters a great deal.* (local level stakeholder)

Sometimes, comparisons with other localities are simply gateways for reaching some implicit standards, such as the minimum level of care. And comparing localities between them is merely a way to reveal contextual particularities:

> *I don't think that we should look at other communes or communities. We should look at the needs that are over there, what are the needs and what we can do to at least offer the minimum, basic services there.* (local level stakeholder)

Or comparing different communities, as leading to knowledge about the situation at national level and, thus, taking the proper measures in order to solve the problems. And comparing communities as acknowledgement that solutions cannot be left solely in the responsibility of local actors:

> *Yes, it would be good to look to other localities, because the problem might not be contained to a community, it can be the problem of a whole region, of a county. I think that a community is too small to solve the problems on its own. And there are many problems for which the solutions depend on the collaboration with county or even national authorities. There are many things that can be solved through a law, and then we go beyond localities and we are looking at a national problem.* (local level stakeholder)

There were also cases in which local actors, especially those with medical training and extensive experience, provided straightforward answers and referred to the term 'standards' as was the preconception of the researchers. For them, comparing localities is not relevant, because of the essential differences between them, and standards are mechanisms of objectifying and rationalizing situations, as to make them intelligible:

> *I don't think that we should make comparisons with other localities. I think some standards must be followed. Because you can never compare an isolated mountain locality with a locality in the Danube Delta. There isn't even the slightest resemblance. So, standards would be very important. They are hard to reach, but you know what to work for. Otherwise you could never compare localities. There are specifics to each of them.* (local level stakeholders)

For them, national standards would show what is desirable and would give purpose to eventual measures and changes to be implemented. The lack of such national standards is yet another of the many problems of the Romanian medical system:

> *It should be a national standard, something you can compare with. And after that, each county, according to their respective situations, must try to rise up to that standard, because every county has its specificities, but its situation must be known, overall. And I have no knowledge of any national standard.* (local level stakeholder)

For central level respondents, this item regarding how to determine if a certain area is a medical desert, proved to be more straightforward than in the case of local level respondents. Standards are what the situations of localities should be compared to in order to classify them as medical deserts. And, for standards, the more universal, the better, as they actually formalise a basic right of individuals:

> *In my opinion, the right to medical care should be defined, at least as a standard, as a wishing list. As a minimum of access to services. But, of course, each country can define its own standards according to the capacities of its medical system.* (central level stakeholder).

Apart from developing some specific, distance/access related standards to be used in classifying localities and assigning the attribute of medical deserts, when necessary, an input received from the central level referred to using already established standards referring to the state of health, the already defined and computed health indicators. This idea is the result of a reversed thinking process, going from empirically discovered consequences to the conditions that determined them, the latter being realities to be amended/changed for the better:

> *A medical desert is best seen in the health indicators for a certain population which, due to the lack of access to medical services, has a higher death rate or a lot of cases discovered in advanced stages (...). This is what I understand by medical desert, a deteriorated state of health of the population.* (central level stakeholder)

Results from the web survey

The web survey provides a battery in which the respondents were asked to indicate to which extent several frameworks of reference or types of approaches should be used when assessing medical desertification.

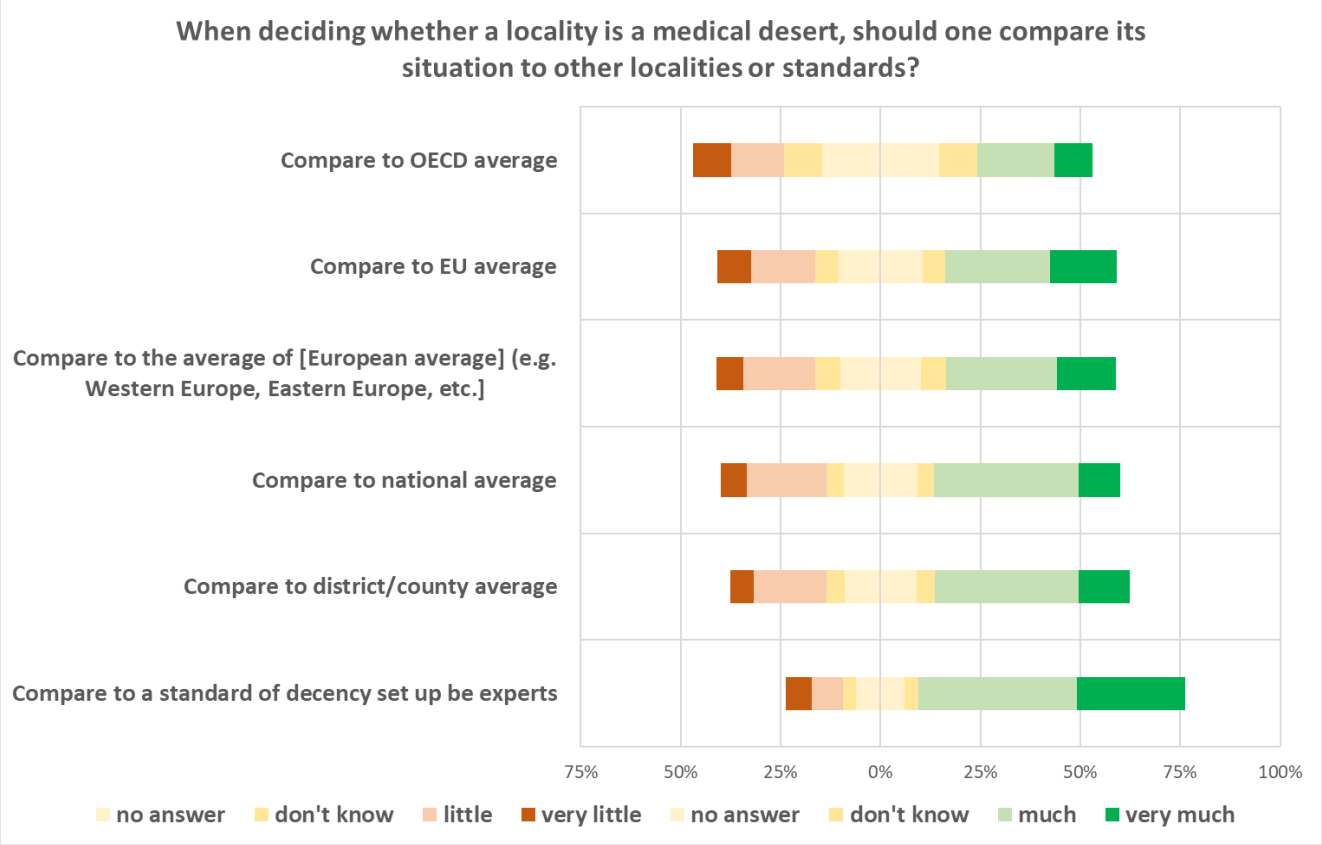


Figure 17. Frameworks of reference or normative approaches? Raw data from the websurvey

Figure 17 shows the preferences of the entire sample. The strongest consensus is around the opinion that experts should make this decision. Relative thresholds are less supported, but one should also factor in the large number of "do not know" and refuses to answer. Once more, they testify upon lack of debate about the topic, which is not present on public agenda. They also make interpretation more difficult.

To overcome such difficulty, Figure 18 introduces the Indexes of Dominant Public Opinion for each item. They are computed in the following way: for the first item (the standard set up by experts), each of the answers "very much" and "much" are considered to indicate agreement and counted as one point for 'Acceptance'. The answers "little" and "very little" indicated rejection and led to one point for 'Rejection'. With this in mind, the difference between Acceptance and Rejection can be computed. Then the total number of non-neutral answers (that is: Acceptance+Rejection) is weighted and each figure is then divided by the number of cases (N), make the product, and multiply everything by 100: [(Acceptance-Rejection)/N]*[(Acceptance+Rejection)/N]*100. If all respondents reject the item, the Index take the value of -100. If all accept the statement postulated by the item, the index becomes +100. The calculations are repeated for each item.

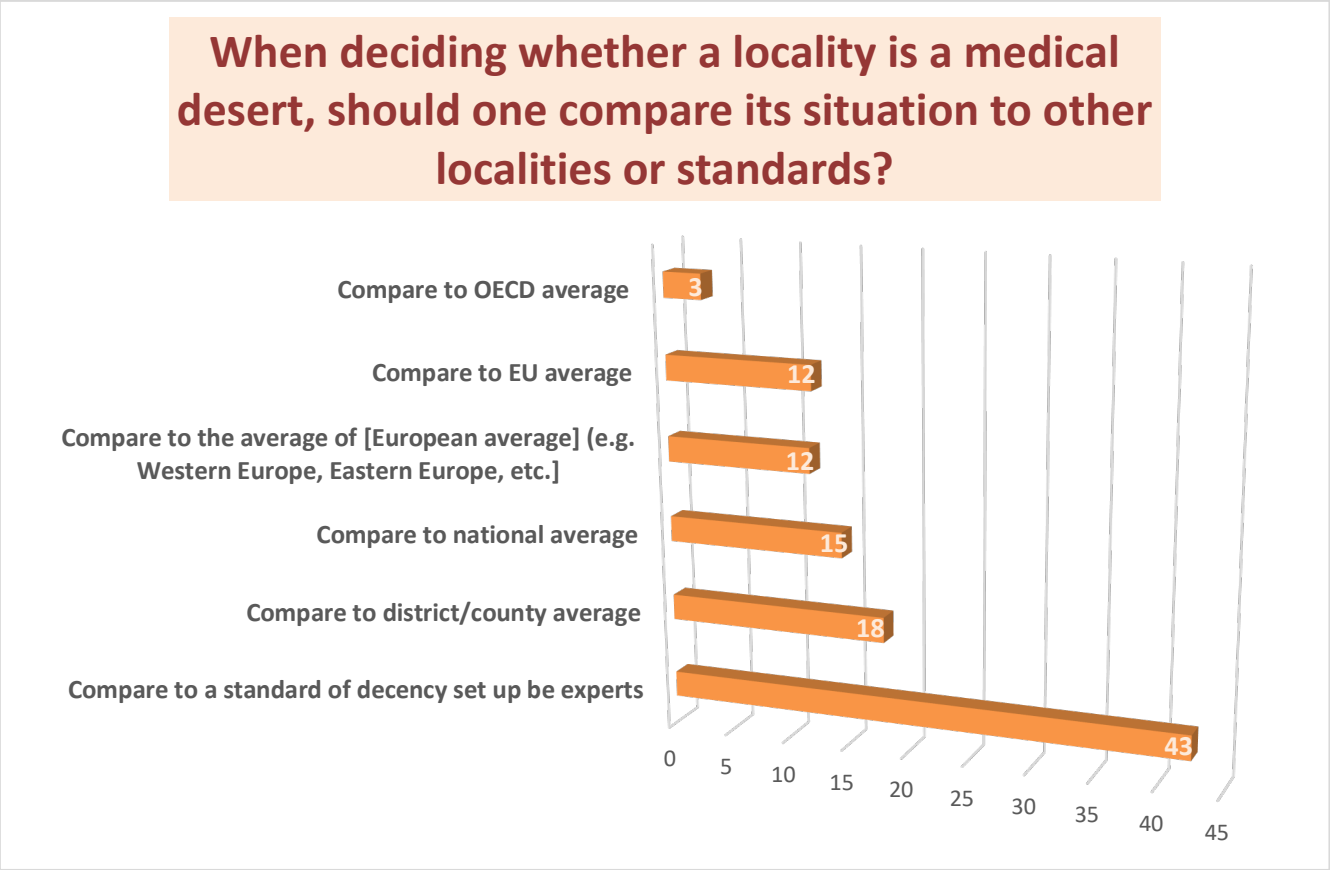


Figure 18. Frameworks of reference or normative approaches? Dominant Public Opinion Indexes, based on the websurvey

Figures represent Indexes of Dominant Public Opinion. They range from -100 (total rejection of the statement) to +100 (total approval of the statement)

It turns out that the stakeholders clearly favour a **normative approach**. There is little support for relativity, and such relative measures should rather refer to county level than to national, while international comparison are not rejected, but they seem rather irrelevant. The situation is in many ways similar to the well-established Romanian cliché of "original democracy" (reinventing everything from scratch, or almost from scratch).

Considering opinions of different types of stakeholders[9], one may observe that GPs are slightly less prone to consider international comparisons as contrasted to any other type of stakeholder. The situation of locality from the point of view of desertification indexes is not associated to differences in opinions expressed by stakeholders.

Take home messages

In some cases, respondents of the in-depth interviews seemed to relate to the term 'standards' in unexpected ways: level of comfort or infrastructure, quality of the medical act. This item proved to be challenging, as the choice between the normative and the relative approach was not an easy or a visible one. Data from the

[9] In multilevel models similar to the ones in previous chapters.

interviews provides mixed interpretations, especially at the local level. What can be said is that comparisons with other localities, one way or another, seems to be unavoidable.

Quantitative data suggests that the normative approach is favoured: experts should decide how to properly assess whether a locality is a medical desert or not. Relative approaches (comparisons to county, national, or international averages) are neither rejected, nor supported, in particular when it comes to international comparisons in order to set up thresholds for desertification.

Combined, the two results lead to the need to stress expert opinions and provide particular examples during the communication campaigns.

Relevance of the initial map/classification

As explained, we have produced several maps of desertification based on existing data. We have shown such maps to respondents, both during the interviews, and in the web survey. Their reactions are explained in the following.

Results from interviews

Respondents did not have a very strong reaction to the maps. Some of them, who were participants in the quantitative part of the research as well, had already seen them during the completion of the questionnaire, while for the others the interview constituted the first exposure to these documents. However, their reactions did not seem to differ fundamentally. What was special in the interviews with local level stakeholders is that they were more interested in their counties/communities and they referred especially to them.

> *I don't think that it surprises me, because most of our GPs are located in Tulcea, and those in the communes are established in one community and go to others, as well. And thus, there are less of them* [in rural areas]. (local level stakeholder)

The general opinion is that the maps are rather accurate or, in any case, do not offer an image significantly different than the respondents already had:

> *I think so* [the maps are accurate]. *This red area near this part of the Carpathians is more in Buzău, where I told you that there are problems with access.* (local level stakeholder)

Here, too, pharmacies seem to be outliers: some respondents are surprised that there appear to be administrative units without pharmacies, because this clashes with the seemingly wide spread idea that pharmacies are everywhere. At the same time, the short supply of GPs and hospitals is presented as a well-known characteristic of the Romanian situation:

> *It surprises me a bit in the case of pharmacies, not GPs, because I don't think that there are that many localities without a pharmacy. Apart from that, it is a known fact about [the lack of] GPs. Our country has problems with medical professionals, it is a known fact. Also, with hospitals and services provided in hospitals.* (local level stakeholder)

The objections that appeared are related to underestimating the number of pharmacies and overestimating the number of GPs and public hospitals: while the pharmacy map should contain less, if any, red areas, the GPs and hospitals maps should contain more.

> *Things are a bit more complicated; you know. In the part towards the Apuseni mountains, there should be more red. It is also similar for Vaslui-Vrancea and, after that, in the Danube Delta there is an area where things are very difficult. And, interestingly, not in the central areas of Bucharest but in the near suburbs, in the areas just outside Bucharest there are problems as well. Access to pharmacies is the least of our problems.* (central level stakeholder)

Results from the web survey

Respondents to web survey validated all aspects of the map. Majorities larger than two thirds were rather in agreement with what the proposed maps showed, as illustrated in Figure 19. There is little difference in the sample due to personal traits[10], but it deserves being observed two exceptions:

- Older respondents were less prone to positively assess the map with respect to fitting previous knowledge about Romania.
- GPs were more inclined to find misclassified localities, both the ones wrongly labelled as deserts, and those that were wrongly labelled as non-deserts.

Take home messages

Web survey revealed a general support for how the proposed map reflects reality. GPs were slightly more critical, indicating that they might need a more persuasive communication campaign on the topic.

The interviews revealed a general convergence between respondents' opinions and the maps, as well. As an instrument, they provided a general overview of the situation in Romania, and they were not read in great detail by the participants in the qualitative part of the research.

[10] Again, we use multilevel models similar to the ones in the previous chapters.

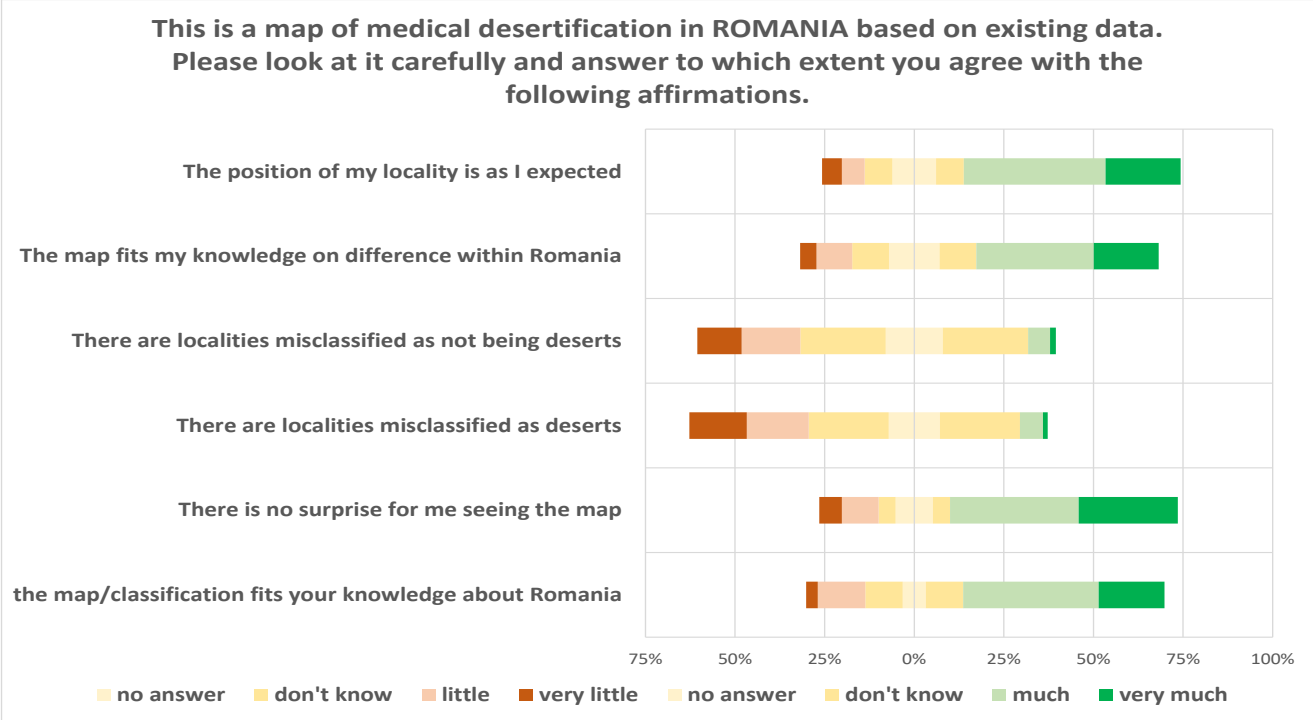


Figure 19. Validation of proposed maps by respondents in web survey

Potential solutions to desertification

It is important to see how respondents conceive potential solutions to alleviate desertification. They allow to better identify the perspective that Romanian stakeholders develop, to understand which are the factors they "blame" for desertification, and who they think that should be responsible for intervention. Such solutions are not necessarily correct, optimal, or feasible. However, they provide information about which anchors should be addressed during communication campaigns that precede and accompany policy implementation, and about the triggers that can be used to determine their active involvement in policy implementation.

Results from interviews

Apart from the measures and interventions suggested by the respondents listed below, that are national in scope, in the interviews with locals from Tulcea/Sfântu Gheorghe, the respondents stressed that opening the land road between Sfântu Gheorghe and Sulina would be of great help. This would make it possible for them to cut distances and to become more mobile.

The broad measures/interventions that can address medical desertification are defined by the respondents in relation to both central and local authorities. On the one hand, matters such as financing (related, for example, to wages), rethinking the activity of residents or implementing reforms pertain to central authorities, including the Government/Parliament, the Ministry of Health or the National Health Insurance House. On the other hand, local authorities are seen as responsible for improving the local infrastructure for GPs and for offering facilities to specialists who establish their practice in the communities.

The possible solutions that came up during interviews can be summed up as follows:

- Improving the existing infrastructure, as to provide specialists with adequate spaces and tools for doing their jobs – including by making use of old dispensaries, when possible.
- Offering housing and other facilities to healthcare professionals in order to make working in remote areas more attractive for them.
- Increasing the number of GPs, as to determine a decrease in the number of patients per specialist.
- Increasing the number of community nurses, who can provide some basic medical care in localities without GPs, following the example of most localities in the Danube Delta.
- Providing healthcare services through caravans, in areas in which there is a deficit of access.
- Catalyzing interinstitutional communication and collaboration, necessary in all measures that can be designed and implemented. For example, becoming aware of the need of a community nurse is a matter of collaboration between the Department for Public Health and local authorities.
- Obligation of doctors to spend time upon graduating, working outside big cities, in counties/localities/areas where there is a deficit of access to medical care.
- Restructuring the activity of GPs, cutting back on the bureaucratic requirements, as to give them time to see and interact with their patients. This would, in turn, improve and tighten the relation between the two.
- Making use of the knowledge and training of residents who did not complete their stage (by failing the exam) and allowing them to provide medical services in problematic areas, as a temporary means of covering the deficit.
- Community centers with integrated services, that would address the problems in communities and the needs of the marginalized.
- Increasing the income of GPs, by introducing substantial payment benefits for working in remote areas.
- Implementing an administrative reform that would reveal and take into consideration the needs of communities;
- Implementing changes that would make it easy for patients to access the services provided by the closest public institutions, such as hospitals, whether they are in the same county or not. This would, in some cases, reduce the time necessary to reach the medical facility.
- In order to fit the provision of medical services to the needs of the population, it is essential to obtain knowledge for each community/locality when it comes to its inhabitants and their medical needs/requirements.

The overarching matter is that of having/building/promoting a certain type of culture with regards to a specific relation between healthcare specialists and their patients:

> (…) *facilitating the access to medical services for patients means a having certain type of culture, one that we should promote.* (central level stakeholder)

Investments in the medical system, mostly given by an increase in public financing should allow for doctors to work in proper conditions and to eliminate absurd situations that might arise:

> (…) *having a 3000 Euros salary is pointless when you don't have surgical thread when closing up a surgery*. (central level stakeholder)

But what might come as important somewhere along the way is exploring what the strategy is, in the field of medical care. In other words, apart from designing more or less grassroots changes and improvements, it should be clear that central authorities, those who govern the field, support the changes and that medical desertification is acknowledged as a problem:

> *First of all, I would look at the strategy and policies of the Ministry of Health. Is it an objective or not to have medical professionals in all localities*? (local level stakeholder)

Results from the web survey

Respondents were asked to answer two open questions, being required to indicate who and how should intervene to combat medical desertification.

Being open-ended questions in a web survey, we did not expect many answers. Indeed, when asked to indicate who should take action, one third (32%) did not answer anything, and 5% declare that they do not know. With respect to which action to be taken, the situation is similar.

Table 18 summarizes the list of agents that are seen as responsible for taking action. Representations of all types of stakeholders converge towards defining the Ministry of Health as the main agent in the area. However, for GPs, the Ministry of Health shares the responsibility with the Health Insurance House and the central-level entities, including the Government as a whole, the Parliament, the "State" as generic agent, etc. Local authorities come with a slightly different view, with the Health Insurance House being overpassed in this mix of responsibilities by county-level entities, including the County Health Authorities, the Prefects, and the County Councils.

Table 18. Representations upon agents that could take action for combating desertification by type of respondent.

*In your opinion, which organization/institution could solve the problem of medical desertification? **

	GP	local authority/clerk	other
Ministry of Health	**66%**	**58%**	**44%**
central-level administration (general)	**24%**	**26%**	**16%**
National Health Insurance Agencies	**21%**	**11%**	**12%**
local administration	**18%**	**11%**	**20%**
county-level administration	**10%**	**19%**	**8%**
Professional associations (medical)	**6%**	**4%**	**8%**
Ministry of Finance	**4%**	**1%**	**0%**
Universities	**4%**	**6%**	**4%**
NGOs	**2%**	**4%**	**8%**
Ministry of Environment	**1%**	**0%**	**0%**
other ministries	**1%**	**0%**	**4%**
GPs	**1%**	**0%**	**8%**
Pharmacies	**1%**	**0%**	**0%**
Private business	**1%**	**1%**	**0%**
Hospitals	**0%**	**1%**	**0%**
Doctors	**0%**	**1%**	**0%**
various others	**1%**	**0%**	**0%**
do not know	**8%**	**4%**	**20%**
TOTAL	**169%**	**147%**	**152%**

** Open-ended question, coded afterwards. The percentages are out of total number of respondents that answered the question. Since some respondents indicated several agents that could take action, the column totals exceed 100%. Row totals are irrelevant.*

The responsibilities become different for other stakeholders, who brought on frontline the local authorities, and decreased the salience of the Ministry of Health.

It is interesting to observe that GPs are more centralist in their views, while all other stakeholders tend to also look for agents that may shape tailored policies.

When it comes to potential solutions, GPs are less prone to declare that they do not know, while those stakeholders that are not GPs or part of local administration are more likely to say that they had no knowledge of which solutions should be undertaken.

There are six main categories of solutions, and a few others that are less frequent to be observed, as depicted in Table 19 and Table 20. More specifically, Table 19 provides details about narrower categories under which one may categorize the solutions proposed by respondents. Table 20 regroups these solutions under the most frequent six broad categories.

Table 19. Representations upon agents that could take action for combating desertification by type of respondent.

*In your opinion, what actions could be taken to solve the problem of medical desertification? **

	GP	local authority/clerk	other
Extra benefits for deserted areas	22%	11%	8%
Support from municipality	7%	1%	8%
Hospitals/other medical units in deserted areas	3%	11%	20%
More hospitals / reopening of closed facilities	6%	8%	12%
Investment in infrastructure of medical practices	11%	16%	8%
Medium/large scale investments, European funding	2%	1%	4%
Recognition/respect for GPs/doctors	6%	0%	0%
More money	30%	12%	4%
Better training for doctors	3%	5%	0%
More medical staff	6%	8%	12%
Stop brain drain	4%	1%	0%
Regulations, standards, policy	13%	13%	4%
Clear division of roles between GPs and specialists	4%	3%	16%
Need assessment	3%	5%	0%
Stop bureaucracy	4%	0%	0%
Obligation for young doctors to work in deserted areas	5%	1%	4%
Ethical approach to patients / patient-centred medicine (responsibilities for medical staff)	1%	1%	0%
Education for health	2%	0%	0%
Awareness campaigns	0%	1%	0%
Telemedicine, mobile caravan	2%	1%	4%
Development (non-medical)	1%	1%	4%
Other [rather naïve or very general]	8%	14%	8%
"There is no solution"	2%	0%	0%
DK	6%	11%	20%
TOTAL	**144%**	**130%**	**132%**

** Open-ended question, coded afterwards. The percentages are out of total number of respondents that answered the question. Since some respondents indicated several agents that could take action, the column totals exceed 100%. Row totals are irrelevant.*

Table 20. Representations upon agents that could take action for combating desertification (main categories, recoded) by type of respondent.

	GP	Local authority/clerk	Other	Total
Facilities for provision in medical deserts	26%	12%	16%	21%
Investments in infrastructure	18%	32%	36%	24%
Increased privileges for medical staff	34%	12%	4%	25%
Human capital policies	13%	15%	12%	13%
Regulations	22%	22%	16%	22%
Imposing mandatory stages for graduates	5%	1%	4%	4%

* *Open-ended question, coded afterwards. The percentages are out of total number of respondents that answered the question. Since some respondents indicated several agents that could take action, the resulting column totals may exceed 100%. Since not all categories were displayed in the table, the resulting column totals may be lower than 100%. Row totals are irrelevant.*

The first set of solutions include facilities for provision of medical services in localities close to medical desertification. These solutions are mostly related to financial incentives, such as additional bonuses for practitioners, ranging from wage bonuses, to accommodation, money for commuting, maintenance costs paid by local authorities, free rental for practices, fiscal facilities, etc.

The second set of solutions refers to various types of investments in infrastructure. They include building new facilities, reopening the ones that were closed-down, facilitating access to European funding for practitioners, interest-free credits, free equipment, free buildings for practice provided by local authorities, etc. Within this block of solutions, GPs are more concerned with investments in existing facilities (e.g. their own practices), while the other two categories of stakeholders are rather interested in establishing new ones.

The third block of solutions shed light to increased privileges for medical staff. With few exceptions, all respondents that indicated such solutions referred to doctors. The privileges include increasing wages (irrespective of location) as well as displaying a higher degree of respect to doctors.

Human capital policies, the fourth block, refer to better education in health universities, increasing the number of graduates, and preventing brain drain related to emigration of medical staff, in particular of young graduates. GPs are more concerned with the quality of education, while those from public administration also bring into attention the number of graduates.

Regulations and laws were invoked in the fifth block, with GPs and local administration paying more attention to general regulations, while the “other stakeholders” focusing on a clearer division between the tasks and the role of GPs and the ones of specialists.

A particular policy stands alone as the sixth block. It involves the imposing of mandatory stages (of different duration) of young graduates from public universities in places that lack proper human resource specialised in supplying medical services. The idea is far from being new. It was employed during the royal dictatorship (in the 1930s) with respect to all university graduates. During the communist dictatorship it was repeated in various ways and to different extents with respect to graduates of medical studies. Its populist rationale states that since graduates’ benefit from “free” education, they should give something in return to the country.

Several other types of solutions were offered, but none reached the extent of these six main blocks. Their variation across categories is un-essential, and their labels in the lower part of Table 19 are self-explanatory.

Table 21. Which type of respondent supports the main types of solutions

	Accepts more than others	Supports less than others
Facilities for provision in medical deserts	GP (local administration) (community medical assistant)	-
Investments in infrastructure	-	(GP)
Increased privileges for medical staff	GP Local administration Considers locality as medical desert Computed medical desertification: low	Women
Human capital policies	Younger "other stakeholders"	Older GPs
Regulations	(GP), (Local administration), (medical assistant), (community medical assistant)	Takes care of an adult
Imposing mandatory stages for graduates	Considers locality as medical desert Low provision of hospital services	-

* The associations mentioned in cells are significant at p<.05 (or at p<.10 if in brackets).

Table 20 allowed comparing the main blocks of solutions. We comment it in the following, also using results from analyses that are not shown, but they consider the effects of respondents' personal traits and associations with the desertification indexes[11]. Table 21 depicts such associations. It reveals that the variations across categories are not actually substantial. GPs are the ones to be more interested in support in medical deserts, as well as financial increases and privileges for medical staff (other doctors do not show such propensity to support more than other categories these two types of solutions). When controlling for other characteristics, local administration is no different than others in supporting investment solutions, while GPs have a slight inclination to be less interested in investing in new facilities. The situation of locality plays little importance, if any.

Take home messages

The web survey places the bulk of representations about solutions in the court of Ministry of Health. Most of the solutions deal with increasing payments and privileges, as well as with (free/subsidized) provision of various facilities, including equipment or buildings. GPs are more akin to such solutions.

Interviews also reveal the Ministry of Health as a key agent in addressing the matter of medical deserts. What also stands out is the importance placed on local authorities, actors who can provide facilities that might persuade healthcare professionals to settle in remote areas and thus to somewhat alleviate the current deficit.

Solutions cluster around increasing the public funds directed towards health, getting to know the needs of communities and educating patients for being interested in their own state of health.

[11] We use multilevel logit models, for each block of solutions, with respondents nested in localities, similar to the analyses done in the previous chapters.

Conclusions and policy implications

The country context indicated that, in the past years, the economy of Romania has recorded an unprecedentedly high economic growth, rising household incomes as well as a sustained poverty reduction. The economic expansion is also visible in terms of the technological factors, as access to smartphones and access to internet has considerably increased over the last 5 years, yet with a much smaller increase in the rate of digital literacy. Despite the economic growth, health spending has remained very low, which is reflected in the health status of the population and in the dramatically low life expectancy compared to the EU level.

Throughout the media analysis, the focus revolved around the alarming deficit of human resource in both Tulcea and Vrancea, which impedes access to medical services in the counties. In addition, the media analysis explores the geographical factor in the provision of medical services, pointing out the severe issues of accessibility existent in Tulcea county, where many localities are only accessible by boat or helicopter.

The findings of this study point to a low awareness on the meaning and implication of being a medical desert. Th term in itself raises confusion, but beyond the label, there is also confusion in addressing medical desertification. Two localities that were labelled as medical deserts according to existing data were selected for case studies. They offer contrasting views in terms of consistency between classification and representations of local stakeholders. Despite being far from what current standards indicate as proper health care, the stakeholders in Păulești do not label their locality as medical desert simply because it is better than it used to be. The power of the framework of reference is obvious. The stakeholders in Sfântu Gheorghe confirm the classification of their locality as medical desert. In fact, they define their entire area as a medical desert.

The mere definition of medical deserts is not enough. It needs specifications with regard to what elements to be included in the debate (what type of medical services) and how (in terms of distances, densities, and populations that are relevant for computations). The opposing instances in the two localities reveal lack of public discussion on the topic, and the low access to different models of health care provision. One actually needs to understand how health provision can be organized and how the regulators can intervene in the process.

Throughout the report, one may find indications that health care is central, while prevention is seen as less essential. Exceptions are to be found among GPs (where pro domo stances stress their own role), and for more deserted localities. GPs were clearly mentioned in the in-depth interviews as gatekeepers, those who help individuals access the healthcare system. In what concerns the distinction between prevention and treatment, it is seldom used by respondents. In more elaborate discourses, the relation between patients and their GPs are seen as the core of the whole healthcare system. Moreover, an important part of the culture that should be promoted health wise rests on patients nurturing the relation with their GPs and acknowledging their importance.

When better conditions are available at locality level, one tends to raise expectations. Irrespective of their position within the system, and whether they are medical staff, activists, decision makers, etc., when located in medical deserts, stakeholders tend to adjust expectations to the existing situation and to substantially lower thresholds of acceptability. This leaves space for central regulations of thresholds, and for establishing higher standards.

Relevant distances are in the range of 3-5 kilometres for GPs, and 20-30 kilometres for hospitals. Even when located farther, hospitals might be seen as relevant. Distance is the single main component to be considered, with densities and travel times being at most as secondary in importance in the representations of stakeholders.

However, it seems that the approach of stakeholders is rather dependent on lacking knowledge on the issue. Their dominant claim is that 'standards' (which are nevertheless quite confusingly defined as a term) should be established in a normative way, by 'experts'. Relative approaches that suppose comparisons with regional or national levels are neither rejected nor supported, while the use of international standards as framework of reference is rather rejected. The immediate consequence for communication campaigns is that they should refer on one side to opinions formulated by experts in health policy. On the other side, it would be useful to provide clear examples, in particular of localities in similar situations, but with enhanced access to medical services.

The representations of stakeholders revealed six main types of solutions that may receive legitimacy from their part. They include:

1. Facilities for provision in medical deserts
2. Investments in infrastructure
3. Increased privileges for medical staff
4. Human capital policies
5. Regulations
6. Imposing mandatory stages for graduates

Nevertheless, some of these proposals are unfeasible, such as the one referring to imposing mandatory work of fresh graduates in medical deserts, a measure that would probably be at the same time unethical and derogatory, both with respect to citizens in medical deserts and fresh graduates.

However, the listed solutions in the devoted chapter underline that the respondents, both during in-depth interviews and the web survey, included in their answers a mix of financial interventions, institutional arrangements, and arguments with respect to human capital. The latter is seen in terms of size of medical staff, skills, and ethics of the medical staff.

Central authorities are seen as the main agent in the field, in many cases important roles being allotted to central bodies that have less responsibilities with respect to the topic under debate.

Overall, the main conclusion leads to the need of a three-folded debate:

- Increasing the awareness on the topic, invoking the voice of experts and providing models of medical intervention. The communication campaigns should be directed to all types of stakeholders, but they need to be tailored considering details that are to be found in this entire report.
- The common part remains however the focus on why distance is not the only element to be considered, on how to finance the health provision, and what equity of access means in action. An honest discussion on wages in the context of Romanian society, taxation, and regional disparities is also required.
- One may consider a discussion on responsibilities of local authorities that have citizens accessing medical services outside the locality and on local authorities that have incoming health service consumers. For instance, if one locality finances a pharmacy that is accessed by inhabitants of other localities, in fact benefits from these incoming customers, since they lead to a higher volume of sales in the respective pharmacy, which in turn reduces variables costs and increases efficiency. The drawback is reflected in increasing waiting times in case of too little supply as contrasted to existing demand.

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Annexes

Annex 1: Romania Country Fiche

ROMANIA COUNTRY FICHE											
INDICATOR	Most recent data	Year of the most recent data/ Change in last 5 years (+/-/=)									Source URL
		2022	2021	2020	2019	2018	2017	2016	2015	2014	
Country Context											
Total Population	19,261,714			19,261,714	19,375,835	19,483,840	19,592,933	19,706,424	19,822,250	-	http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
Population density (people per square km2)	93p/km2	-	-	-	93p/km2	83p/km2	82.4p/km2	79.88p/km2	93.5p/km2	-	https://insse.ro/cms/sites/default/files/field/publicatii/tendinte_sociale.pdf
Distribution of population	10,373,366 urban	-	-	10,373,366 urban- 54%	10,458,061 urban- 54%	10,487,094 urban- 54%	10,521,118 urban- 54%	10,586,210 urban-54%	10,671,868 urban-54%	-	http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
	8,888,348 rural	-	-	8,888,348 rural- 46%	8,917,774 rural- 46%	8,996,746 rural- 46%	9,071,815 rural- 46%	9,120,214 rural- 46%	9,150,382 rural- 46%	-	
Net migration	21,031	-	-	21,031	26,775	27,229	23,156	22,807	15,235	-	http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
Temporary emigrants	192,631	-	-	192,631	233,736	231,661	242,193	207,578	194,718	-	http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
Economic context											
Total GDP (current US$)	248.716 billion US dollars	-	-	248.716 billion US dollars	249.882 billion US dollars	241.457 billion US dollars	211.695 billion US dollars	188.129 billion US dollars	177.729 billion US dollars	-	https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2020&locations=RO&start=2011
GDP growth (annual %)	-3.930	-	-	-3.930	4.188	4.475	7.319	4.703	2.954	-	https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2020&locations=RO&start=2011
GDP per capita (current US$)	12,896.089 USD	-	-	12,896.089	12,899.346	12,398.982	10,807.009	9,548.587	8,969.149	-	https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=RO
GINI coefficient score	0.34	-	-	-	0.34	0.33	0.36	0.34	0.36	0.36	https://www.statista.com/statistics/873389/gini-index-score-of-romania/
Technological context											
Access to internet (% coverage)	80.8%	-	80.8%	78.2%	75.7%	72.4%	68.6%	65%	-	-	https://insse.ro/cms/ro/content/accesul-populației-la-tehnologia-informațiilor-și-comunicațiilor-în-anul-2021
% of people with smartphones	67.27%	-	67.27%	63.27%	58.37%	52.59%	46%	38.7%	-	-	https://www.statista.com/statistics/568223/predicted-smartphone-user-penetration-rate-in-romania/
Digital skills/literacy	31%	-	-	-	31%	29%	28%	26%	-	-	https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=isoc_sk_dskl_i&lang=en
Environmental context											
Mortality caused by road traffic injury (per 100,000 population)	10.3	-	-	-	10.3	10. 2	10. 6	10.3	10	10	https://data.worldbank.org/indicator/SH.STA.TRAF.P5?locations=RO
Logistics performance index: Quality of trade and transport-related infrastructure (1=low to 5=high)	2.910	-	-	-	-	2.910	-	2.882	-	2.773	https://data.worldbank.org/indicator/LP.LPI.INFR.XQ?locations=RO

INDICATOR	Most recent data	Year of the most recent data/ Change in last 5 years (+/-/=)									Source URL
		2022	2021	2020	2019	2018	2017	2016	2015	2014	
Country Context											
Health System Context											
Health Status and Disease Rates											
Life expectancy at birth - **total**	74.2	-	-	74.2	75.6	75.3	75.2	75.2	74.9	-	https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do
Life expectancy at birth - **women**	79.5	-	-	78.4	79.5	79,2	79	79	78.6	-	
Life expectancy at birth - **men**	70.5	-	-	70.5	71.9	71.7	71.6	71.6	71.4	-	
Under-5 mortality rate (per 1000 live births)	1.3	-	-	1.3	1.3	1.5	1.6	1.6	1.7	-	http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
Infant mortality rate (per 1000 live births)	1.22	-	-	-	-	1.22	1.37	1.41	1.51	1.63	https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=hlth_cd_ainfr&lang=en
Covid-19 (total number of cases per 100,000 population)	14,456	14,456	-	-	-	-	-	-	-	-	https://www.ecdc.europa.eu/en/cases-2019-ncov-eueea
Covid-19 (total number of deaths per 100,000)	333.43	333.43	-	-	-	-	-	-	-	-	https://www.ecdc.europa.eu/en/cases-2019-ncov-eueea
Unmet health care needs for medical examination or treatment (%)	3.6	-	-	3.6	3.5	3.4	3.5	5.3	8.3	-	https://ec.europa.eu/eurostat/databrowser/view/hlth_silc_08/default/table?lang=en
Healthcare expenditure and benefits											
Health spending as % of GDP	5.77%	-	-	-	5.77%	5.56%	5.15%	5%	4.94%	5.02%	https://data.oecd.org/healthres/health-spending.htm
Total health spending per capita (PPP)	1,895 US dollars/capita	-	-	-	1,895	1,664.3	1,413.9	1,251	1,087.3	1,047.8	https://data.oecd.org/healthres/health-spending.htm
Health spending per sector of health care (eg. primary care)	1,895 US dollars/capita	-	-	-	1,895	1,664.3	1,413.9	1,251	1,087.3	1,047.8	https://data.oecd.org/healthres/health-spending.htm
Out of pocket spending on health care per capita (Current $US)	357.5	-	-	-	357.5	323.8	289.7	289.7	231.4	212.8	https://data.oecd.org/healthres/health-spending.htm
Health System Structure											
Percentage distribution of health care provision - **public**											
GP	1,453	-	-	1,453	1,050	886	844	813	824	-	http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
Ambulatory Care (daily care):	9,956	-	-	-	9,956	6,322	-	-	-	-	https://insse.ro/cms/ro/tags/activitatea-unităților-sanitare
Hospital beds	125,165	-	-	125,165	125,144	125,034	125,265	125,294	125,482	-	
Percentage distribution of health care provision - **private**											
GP	10,971	-	-	10,971	11,137	11,141	11,341	11,521	11,509	-	http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table
Ambulatory Care (daily care):	3,355	-	-	-	3,355	1,179	-	-	-	-	
Hospital beds	9,518	-	-	9,518	9,063	8,147	7,215	6,983	6,667	-	

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Annex 3 List of articles considered in media analysis

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Annex 4. Questionnaire for websurvey

Sondaj despre deșertificare medicală în România

Vă invităm să participați la o cercetare care analizează provocările în a accesa serviciile medicale în anumite localități din România, având în vedere rolul instituțional și expertiza dumneavoastră.

Pentru aceasta este suficient să răspundeți la câteva întrebări, într-un chestionar a cărui completare durează aproximativ 15 minute.

Cercetarea este partea a proiectului „Acțiune pentru sănătate și echitate”(***Action for Health and Equity***)*. Scopul nostru este să obținem feedback de la specialiști și practicieni, pentru a dezvolta recomandări privind politici de sănătate adecvate nevoilor existente. Prin urmare, orice opinie este binevenită.

Vă mulțumim anticipat pentru răspunsuri**!

Echipa proiectului

* Wemos (Olanda) coordonează proiectul *Action for Health and Equity* în care mai sunt implicate Fundația Centrul pentru Politici și Servicii de Sănătate (cpss.ro), Athena Institute - Vrije Universiteit Amsterdam și o serie de alți parteneri din Italia, Serbia și Republica Moldova. Colectarea datelor este sprijinită de Romanian Quantitative Studies Association.

** Menționăm că răspunsurile dvs. sunt anonime, urmând a fi prelucrate statistic. Chiar dacă link-ul pe care l-ați primit poate fi personalizat (software-ul pe care îl folosim nu menține in același loc răspunsurile și invitațiile de a răspunde).

Sondajul conține 97 întrebări.

Professional Occupation & County

Vă rugăm pentru început să ne spuneți ce ocupație aveți și din ce județ proveniți, pentru a ști din ce perspectivă priviți domeniul.

În ce județ vă exercitați profesia?

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- Alba
- Buzău
- Caraș-Severin
- Călărași
- Cluj
- Constanța
- Covasna
- Dâmbovița
- Dolj
- Galați
- Giurgiu
- Arad
- Gorj
- Harghita
- Hunedoara
- Ialomița
- Iași
- Ilfov
- Maramureș
- Mehedinți
- Mureș
- Neamț
- Argeș
- Olt
- Prahova
- Satu Mare
- Sălaj
- Sibiu
- Suceava
- Teleorman
- Timiș
- Tulcea
- Vaslui
- Bacău
- Vâlcea
- Vrancea
- București
- Bihor
- Bistrița-Năsăud
- Botoșani
- Brașov
- Brăila

Dacă sunt mai multe județe, vă rugăm să îl indicați pe cel pe care îl considerați principalul. Dacă nu doriți să răspundeți, puteți lăsa liber acest câmp.

Dvs. sunteți ...

Vă rugăm să selectați de la 1 până la 9 răspunsuri. Vă rugăm selectați **toate variantele** care corespund:

- Funcționar public sau Primar/Consilier Local/Consilier Județean etc.
- nu răspund
- Niciuna dintre cele de mai sus
- Farmacist
- Membru al unei asociații a pacienților
- Lucrați în mediul academic
- Lucrați într-un ONG
- Medic de familie
- Medic
- Asistent medical
- Asistent medical comunitar

Definition

Pentru fiecare dintre următoarele criterii, vă rugăm să indicați în ce măsură considerați adecvată definirea accesului la servicii medicale prin:

Va rugam sa alegeți răspunsul potrivit pentru fiecare item:

	nu știu	Foarte mică	Mică	Mare	Foarte mare
Distanța până la medicul de familie					
Numărul de farmacii din localitățile limitrofe					
Timp de așteptare în farmacie					
Timpul de deplasare până la cea mai apropiată farmacie					
Numărul de farmacii din localitate raportat la 1000 de locuitori					
Distanța până la cea mai apropiată farmacie					
Numărul de servicii de tip spital de nivel 1-3 în localitățile limitrofe					
Timp de așteptare in spitalul de nivel 1-3					
Timpul de deplasare până la cel mai apropiat spital de nivel 1-3					
Numărul de spitale de nivel 1-3 în localitate raportat la 1000 de locuitori					
Distanța până la cel mai apropiat spital de nivel 1-3					
Populația (numărul) din localitățile limitrofe					
Numărul de medici de familie din localitățile limitrofe					
Timpul de așteptare la cabinetul medicului de familie					
Timpul de deplasare până la cabinetul medicului de familie					
Numărul de medici de familie din localitate raportat la 1000 de locuitori					

În tot acest chestionar nu există "răspunsuri bune" și "răspunsuri greșite", ci doar opinii. Ne interesează ce gândesc oamenii despre aceste lucruri.

Distance

Dacă vă gândiți la distanța față de un cabinet de medicină de familie / un spital de nivel 1-3*** / o farmacie, există o anumită distanță maximă care ar trebui considerată standard minim?
(adică orice persoană să aibă un astfel de ofertant de servicii medicale la o distanță mai mică decât cea maximă)

Va rugam sa alegeti raspunsul potrivit pentru fiecare item:

	nu știu	nu este necesară o distanță minimă	1 km	10 km	11 km	12 km	13 km	14 km	15 km	16 km	17 km	18 km	19 km	2 km	20 km	21 km	22 km	23 km	24 km	25 km	26 km	27 km	28 km	29 km	3 km	30 km	31-40 km	4 km	41-50 km	5 km	51-60 km	6 km	61-70 km	7 km	peste 70 km	8 km	9 km
Distanța până la medicul de familie																																					
Distanța până la cel mai apropiat spital de nivel 1-3																																					
Distanța până la cea mai apropiată farmacie																																					

***nivel 1- 3 se refera la spitale de la categoria I (nivel de competenţă foarte înalt), până la categoria III (nivel de competenţă mediu);

Criteria

În ce măsură sunteți de acord cu fiecare dintre următoarele afirmații ...

Vă rugăm să alegeți răspunsul potrivit pentru fiecare item:

	Nu știu	În foarte mică măsură	În mică măsură	În mare măsură	În foarte mare măsură
densitatea populației are legătură cu accesul la serviciile de sănătate					
Oamenii din localitatea dumneavoastră merg în alte localități pentru tratament medical					
Oameni din alte localități vin în localitatea dumneavoastră pentru tratament medical					
Localitatea dvs. este dezavantajată din punct de vedere al asistenței medicale					
Există deșerturi medicale în județul dvs.					
localitatea dvs este un deșert medical?					

Dacă aveți în vedere deșertificarea medicală, vă rugăm să indicați pentru fiecare dintre următoarele 4 criterii, care este cel mai important, care este al doilea ca importanţă etc.

Toate răspunsurile trebuie să fie diferite și clasate.

Vă rugăm să selectați cel mult 4 răspunsuri

Va rugam sa numerotati fiecare casuta in ordinea preferintelor, de la 1 la 6

- Nu știu/Criteriile sunt la fel de importante
- Nu doresc să răspund
- Distanța până la furnizorii de servicii medicale
- Timpul de deplasare până la furnizorii de servicii medicale
- Timpul de așteptare
- Numărul de locuitori per medic

In the nearby ...

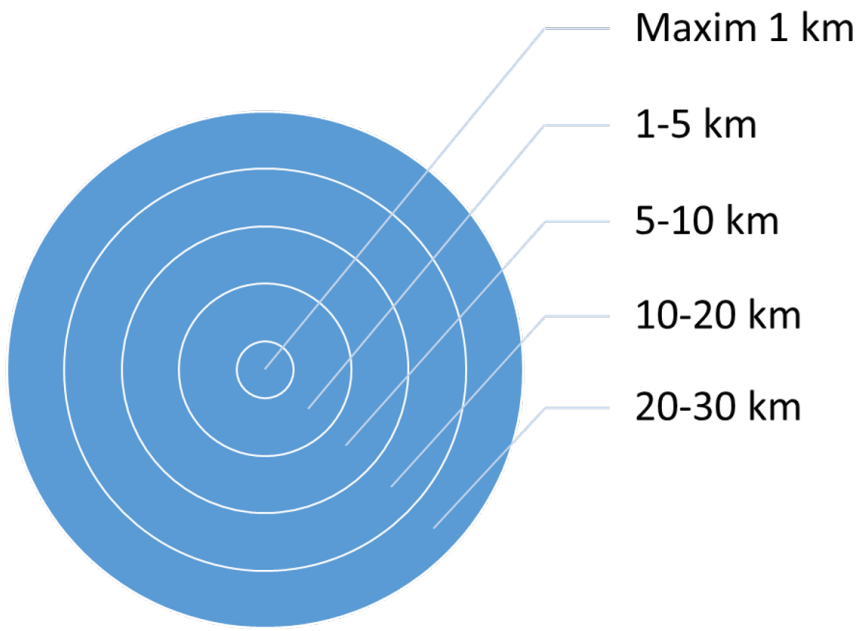
Dacă vă gândiți la deșertificarea medical (accesul dificil la servicii medicale), vă rugăm să indicați pentru fiecare dintre următoarele 3 criterii care este cel mai important, care este al doilea ca importanță etc.

Vă rugăm să selectați cel mult 3 răspunsuri. Va rugam sa numerotați fiecare căsuță in ordinea preferințelor, de la 1 la 5

- Nu știu/Criteriile sunt la fel de importante
- Nu doresc să răspund
- Existența unui medic de familie în localitate (apropiere)
- Existența unui spital de nivel 1-3 în apropiere
- Existența unei farmacii în apropiere

Referitor la termenul „în apropiere" din întrebarea anterioară, vă rugăm să evaluați cât de importanți pentru deșertificarea medicală sunt următorii indicatori:

	Nu știu	foarte puțin	puțin	mult	foarte mult
Medicii de familie aflați la maxim 1 km față de gospodărie					
Medicii de familie aflați la distanță de 1-5 km față de gospodărie					
Medicii de familie aflați la 5-10 km față de gospodărie					
Medicii de familie aflați la 10-20 km față de gospodărie					
Medicii de familie aflați la 20-30 km față de gospodărie					



Referitor la termenul „în apropiere” din întrebarea anterioară, vă rugăm să evaluați cât de importanți pentru deșertificarea medicală sunt următorii indicatori:

Vă rugăm să alegeți răspunsul potrivit pentru fiecare item:

	Nu știu	foarte puțin	puțin	mult	foarte mult
Farmacii aflate la maxim 1 km față de gospodărie					
Farmacii aflate la 20-30 km față de gospodărie					
Farmacii la 10-20 km față de gospodărie					
Farmacii la 5-10 km față de gospodărie					
Farmacii la distanță de 1-5 km față de gospodărie					

Referitor la termenul „în apropiere” din întrebarea anterioară, vă rugăm să evaluați cât de importanți pentru deșertificarea medicală sunt următorii indicatori:

Vă rugăm să alegeți răspunsul potrivit pentru fiecare item:

	Nu știu	foarte puțin	puțin	mult	foarte mult
Spitalele aflate la maxim 1 km față de gospodărie					
Spitalele aflate la 1-5 km față de gospodărie					
Spitalele aflate la 5-10 km față de gospodărie					
Spitalele aflate la 10-20 km față de gospodărie					
Spitalele aflate la 20-30 km față de gospodărie					

Dimensions

Să presupunem că vom clasifica toate localităţile din România ca pe un deşert cu trei dimensiuni, accesul la medicii de familie, accesul la spitalele de nivel 1-3, accesul la farmacii.

Pe câte dintre aceste 3 dimensiuni (indicatori) ai deşertificării ar trebui o localitate să se regăsească pentru a fi considerată un deşert real?

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- nu știu
- 1 din 3
- 2 din 3
- 3 din 3

Dacă vă gândiți la anumite localități din țara noastră, puteți numi una sau mai multe care pot fi considerate deșerturi medicale?

Vă rugăm să alegeți doar un răspuns dintre următoarele:

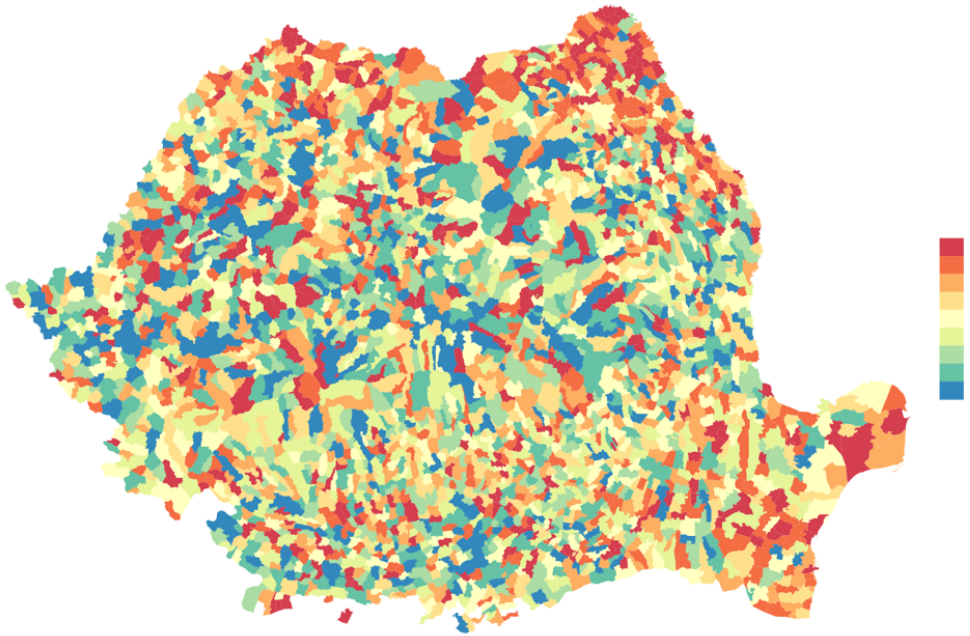
- nu știu
- nu, nu îmi vine vreuna în minte
- Altele

Atunci când decideți dacă o localitate este un deșert medical, ar trebui să comparați situația sa cu alte localități sau cu anumite standarde?

	Nu știu	În foarte mică măsură	În mică măsură	În mare măsură	În foarte mare măsură
Comparația trebuie făcută cu un standard de referință stabilit de experți					
Comparația trebuie făcută cu media la nivelul județului/țării					
Comparația trebuie făcută cu media națională					
Comparația trebuie făcută cu media regională (de exemplu, Europa de Vest, Europa de Est etc.)					
Comparația trebuie făcută cu media UE					
Comparația trebuie făcută cu media OCDE					

A possible mapping

Aceasta este o hartă a deșertificării medicale în România pe baza datelor existente. Zonele marcate cu roșu indică o deșertificare mai ridicată. Albastru și verde indică o situație mai bună. Priviți-o cu atenție și răspundeți în ce măsură sunteți de acord cu următoarele afirmații



	Nu știu	În foarte mică măsură	În mică măsură	În mare măsură	În foarte mare măsură
Clasificarea din hartă se potrivește cunoștințelor dvs. despre România					
Poziția localității mele este așa cum mă așteptam					
Harta se potrivește cunoștințelor mele despre diferențele din România					
Există localități clasificate greșit ca nefiind deșerturi					
Există localități clasificate greșit drept deșerturi					
Nu este nicio surpriză pentru mine să văd harta					

Solutions

În opinia dvs., ce acţiuni s-ar putea intreprinde pentru a rezolva problema deşerturilor medicale?

Vă rugăm să scrieți răspunsul aici:_____

În opinia dvs., care sunt instituțiile/organizațiile care ar putea rezolva problema deserturilor medicale?

Vă rugăm să scrieți răspunsul aici:_____

Status

În cele ce urmează vă punem câteva întrebări despre dvs. Răspunsurile vor fi folosite exclusiv pentru a face clasificări, statistici, etc., fără a permite legarea opiniilor exprimate de persoana care le-a exprimat.

Dvs. sunteți ...

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- Bărbat
- Femeie
- Altă situație

Anul nașterii

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- 1960-1969
- 1970-1979
- 1980-1989
- 1990-1999
- înainte de 1950
- 2000 sau mai recent
- 1950-1959

Care este nivelul cel mai avansat de studii pe care l-ați atins?

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- fără studii
- studii primare
- 10 clase sau școala de ucenici
- liceu sau școala profesională
- postliceal sau școală de maiștri
- studii universitare - nivel licență
- master
- doctorat

Câți copii aveți?

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- niciunul
- 1
- 2
- 3
- 4
- 5 sau mai mulți

Câți dintre copii au sub 18 ani?

Răspundeți la această întrebare doar dacă următoarele condiții sunt îndeplinite: Răspunsul a fost mai mare decât sau egal cu '1' la întrebarea ' [copii]' (Câți copii aveți?)

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- niciunul
- 1
- 2
- 3
- 4
- 5 sau mai mulți

Aveți în îngrijire un bătrân sau o persoană cu dizabilități?

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- nu
- da

Sunteți născut în Romania?

Vă rugăm să alegeți doar un răspuns dintre următoarele:

- nu știu
- nu
- da

Geographical location

În ce localitate/localități vă exercitați profesia?

Va rugam sa scrieti raspunsul aici:

Dacă nu doriți să răspundeți, puteți lăsa liber acest câmp. Dacă sunt mai multe localități, vă rugăm să folosiți și răspunsurile la următoarele două întrebări.

În ce localitate/localități vă exercitați profesia? [LOCALITATEA 2, dacă este cazul]

Va rugam sa scrieti raspunsul aici:

Vă mulțumim pentru participare!

Mai multe despre proiectul nostru puteți regăsi pe site-ul proiectului: https://ahead.health.

Annex 5. Computing the medical desertification indicators: Methodological specifications

As explained in our report on literature review and how to compute medical desertification indexes, one needs to consider on one hand at least three types of providers of medical services (GPs, Pharmacies, and Hospitals), along with the population adjusted by its structure, and the context given by the nearby localities. In the following, we address all these elements and explain how the indexes were computed for Romania.

Steps in computation

Step 1. Adjusting population by demand

Principle: some population groups need more frequently medical care. Such groups include infants, preschool children, elderly. Therefore, they should receive higher weight when considering demand for medical service.

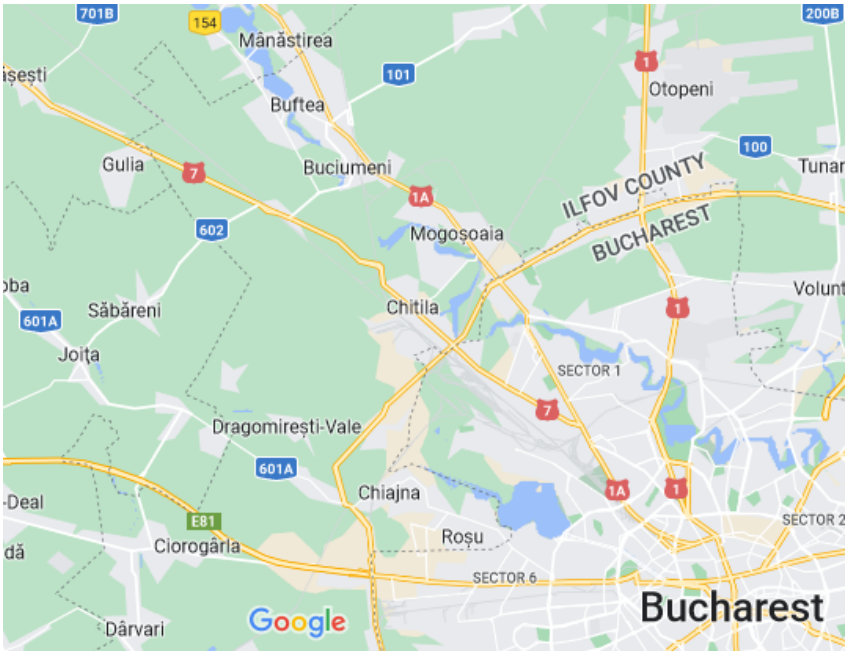
We have used the following formula:

$$AdjPop = pop0004*1.27 + pop0509*0.65 + pop1014*0.55 + pop1519*0.51 + pop2024*0.54 + pop2544*0.695 + pop4564*1.08 + pop6579*1.775 + pop8000*2.77$$

where *popXXYY* is total population with ages between XX and YY, and *AdjPop* stands for "adjusted population".

For each locality, population is adjusted according to the above formula.

Step 2. Adjusting population by distance



Let imagine that we have a GP working in Buftea. Look at the map. The GP will serve those in Buftea and some of those in the neighboring localities, such as Săbăreni, for instance. Therefore, the population that should be considered when assessing whom the GP serves, should also include those in Săbăreni. Let note that the road distance between Săbăreni and Buftea is 11.4 km.

Therefore, when considering the population in Buftea, we will sum up the adjusted Buftea population with the one in Săbăreni and other neighboring localities (such as Mogoșoaia, Gulia, Crevedia etc.).

Nevertheless, those in Săbăreni are less likely to go to a GP in Buftea (in particular if they have another GP closer to home). However, think at someone living in Săbăreni, and working in Buftea, where kids are also going to

school: they will have enough incentives to choose a GP in Buftea. The same applies to any provider of medical-related services, including pharmacies and hospitals.

Consequently, when summing up the reference population for Buftea, the ones in Săbăreni will count less.

The population of each locality was adjusted in two scenarios:

- considering a 20 km catchment area
- considering a 30 km catchment area

In the first scenario, for each locality, all people that were living in the locality or in a 5 km area received the same weight (1), each living between 5 and 10 km outside the locality (in other localities) received the weight of 0.7, and each living between 10 and 20 km outside the locality counted for 0.5.

If considering a 30 km catchment area, means that:

- an individual that lives in the locality or in another locality at maximum 10 km distance is counted as such (he/she/ze receives the weight of 1)
- an individual living in another locality located between 10 and 20 km distance from the center of the locality for which we compute the adjusted population receives the weight of 0.7 (he/she/ze is seen as being 0.7 persons)
- if living at 20 to 30 km from locality the weight is 0.5
- if living more than 30 km away, the weight is 0 (that person is not taken into consideration)

Step 3. Adjusting the number service providers

GPs, Hospitals, and Pharmacies are estimated using the same formula as in Step 3.

Reasons:

- a service located in another locality at some reasonable distance, can provide service to those in the surrounding area as well, not only to those residing in the locality where the practice is located.
- The probability to serve those at higher distance is decreasing with the distance.

Step 4. Final computation

The adjusted number of service providers is divided by adjusted population.

Four indexes were computed for each type of medical service (GPs, Pharmacies, Hospitals), as described in Table 22.

Table 22. Types of indexes depicting access to medical services

Completely unadjusted: Providers/Population	estimated number of providers by unadjusted population (this index does not take into consideration the differences in demand by age, and the existence of neighboring localities)
Adjusted for local demand: Providers/Population adjusted by age	estimated number of providers by population adjusted by age (this index does not take into consideration the existence of neighboring localities)
Adjusted for demand and supply in 30 km catchment area Providers/Population adjusted by age (both adjusted with figures for neighboring localities)	This index considers both the providers and population in a surrounding area of 30 km, and adjusts the figures according to distance
Adjusted for demand and supply in 20 km catchment area Providers/Population adjusted by age (both adjusted with figures for neighboring localities)	This index considers both the providers and population in a surrounding area of 20 km, and adjusts the figures according to distance

Results

GPs

Legal provision indicates some normative for the minimal number of GPs. They indicate an optimal number of patients per GP equal to 1800 (the piece of legislation is: HG 140/2018, Anexa 2, Art. 4 - (2)).

One can start from this normative threshold and derive a naïve classification:

- If there are less than 1800 patients per GP in a certain locality ➔ we can label that locality as not deserted.
- More than 1800 patients but less than double the normative (3600) ➔ we can label that locality as being deserted
- Over 3600 patients per GP ➔ one can say it is a severe medical desert.

Using such categories, we can show how localities distribute on the indexes computed for medical desertification based on numbers of GPs, as illustrated in Table 23.

For each locality we have three indexes. The first one does not adjust for population structure and for the context provided by the nearby localities (unadjusted, no neighbors); the second adjusts population like in “Step 1” but does not take into consideration the neighboring localities; the third one adds population and GPs from localities on a radius of 30 km distance, as explained in Step 5.

Table 23. Simulated distribution of localities starting from the normative GP threshold.

		index		
		unadjusted index, no neighbors	adjusted demand, no neighbors	fully adjusted index
category	no medical desertification	31%	31%	0%
	normative, but not severe	54%	55%	62%
	severe medical desertification	15%	14%	38%
	Total	100%	100%	100%

One can observe that the number of severe medical deserts changes when changing the type of measurement.

To solve the imprecision, we have decided to consider as medical desert the localities that sum up low scores (meaning high desertification) on every single index. That is, we consider the stance of desertification as being grave when reverse Matthew effect is observed, that is when cumulative disadvantages manifest through being labeled as deserted by all the measures that we have encompassed in the analysis.

Table 24 shows the resulting distribution. Considering the principle stated in the previous paragraph, the 249 localities in the bottom-left corner are the ones that are the most deserted considering the presence of GPs in the locality or in the nearby.

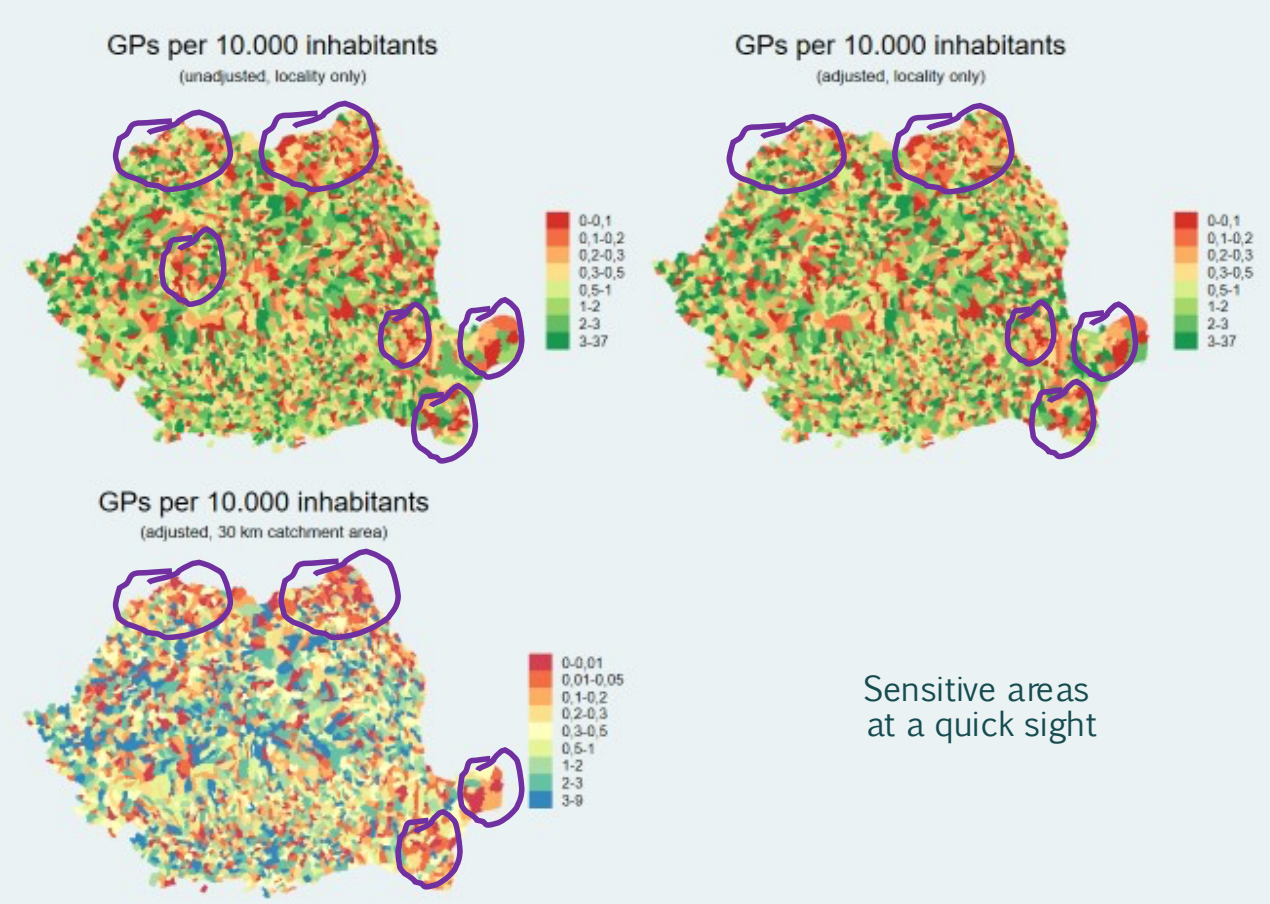
Table 24. Distribution of Romanian localities depending on how often (out of three GP-related indexes) they were labelled as "medical deserts", respectively "severe medical deserts"

		Number of labeling as „desert", but not „severe"				
		0	1	2	3	Total
How many times the locality was labeled as „severe desert"	0	6	728	104	929	1767
	1	181	49	727	0	957
	2	2	211	0	0	213
	3	249	0	0	0	249
Total		438	988	831	929	3186

Figure 20 goes further and combines all this information by county. Figure 21 illustrates the variation across country of the desertification indexes. One may see that, irrespective of which indexes we choose, the regional concentration of deserts remains almost the same.

Figure 20. Distribution of counties depending on severity of desertification by locality, considering GPs

Figure 21. Desertification maps for GPs.



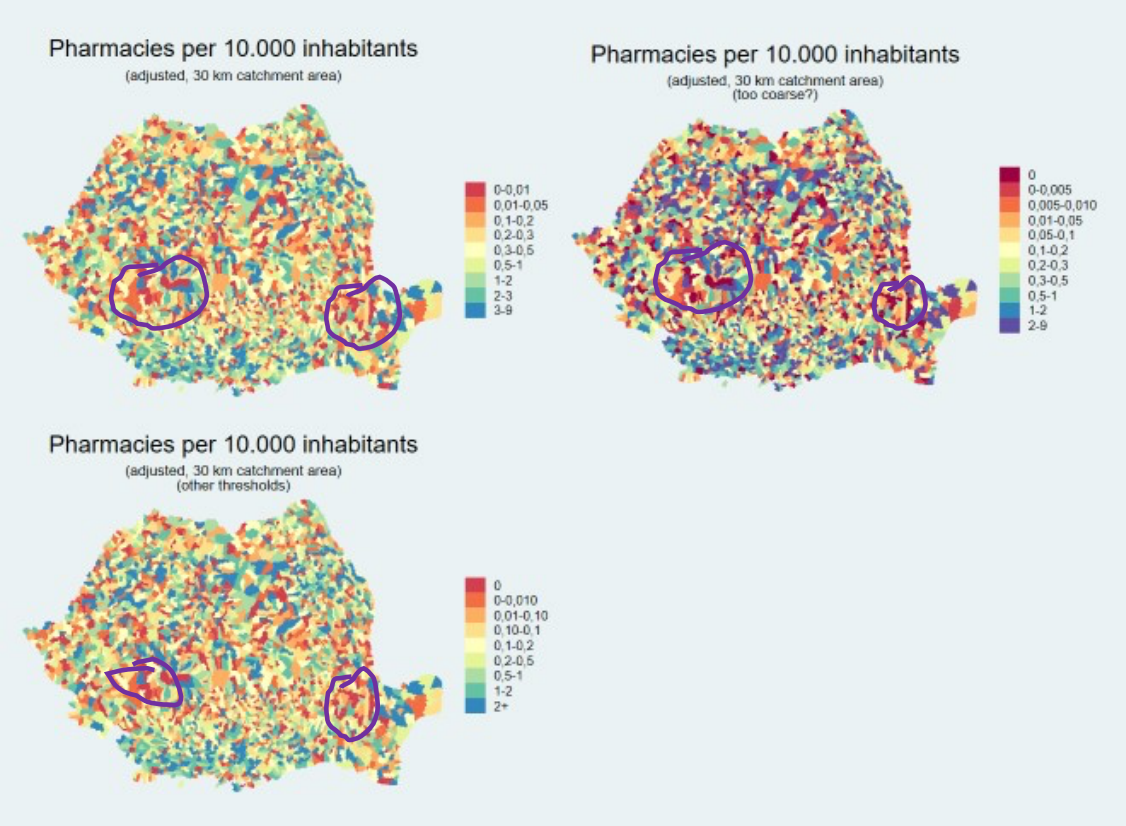
Pharmacies

A similar regulation states the optimal number of pharmacies at one for 4000 inhabitants. Following a similar logic as in the case of GPs, we set up a threshold for severe desertification at 4000×2=8000, and we derive the figures from Table 25. They led to the map depicted in Figure 22, which has quite a good overlapping with the corresponding map for desertification based on numbers of GPs (Figure 21).

Table 25. Distribution of Romanian localities based on Pharmacy-based medical desertification

	unadjusted index, no neighbors	adjusted demand, no neighbors	fully adjusted index
no medical desertification	20%	20%	0%
normative, but not severe	30%	31%	24%
severe medical desertification	50%	49%	75%
Total	100%	100%	100%

Figure 22. Desertification maps for Pharmacies.



Hospitals

Hospitals are rare and located mainly in urban areas. We decided to focus on rural areas and to take into consideration only GPs and Pharmacies.

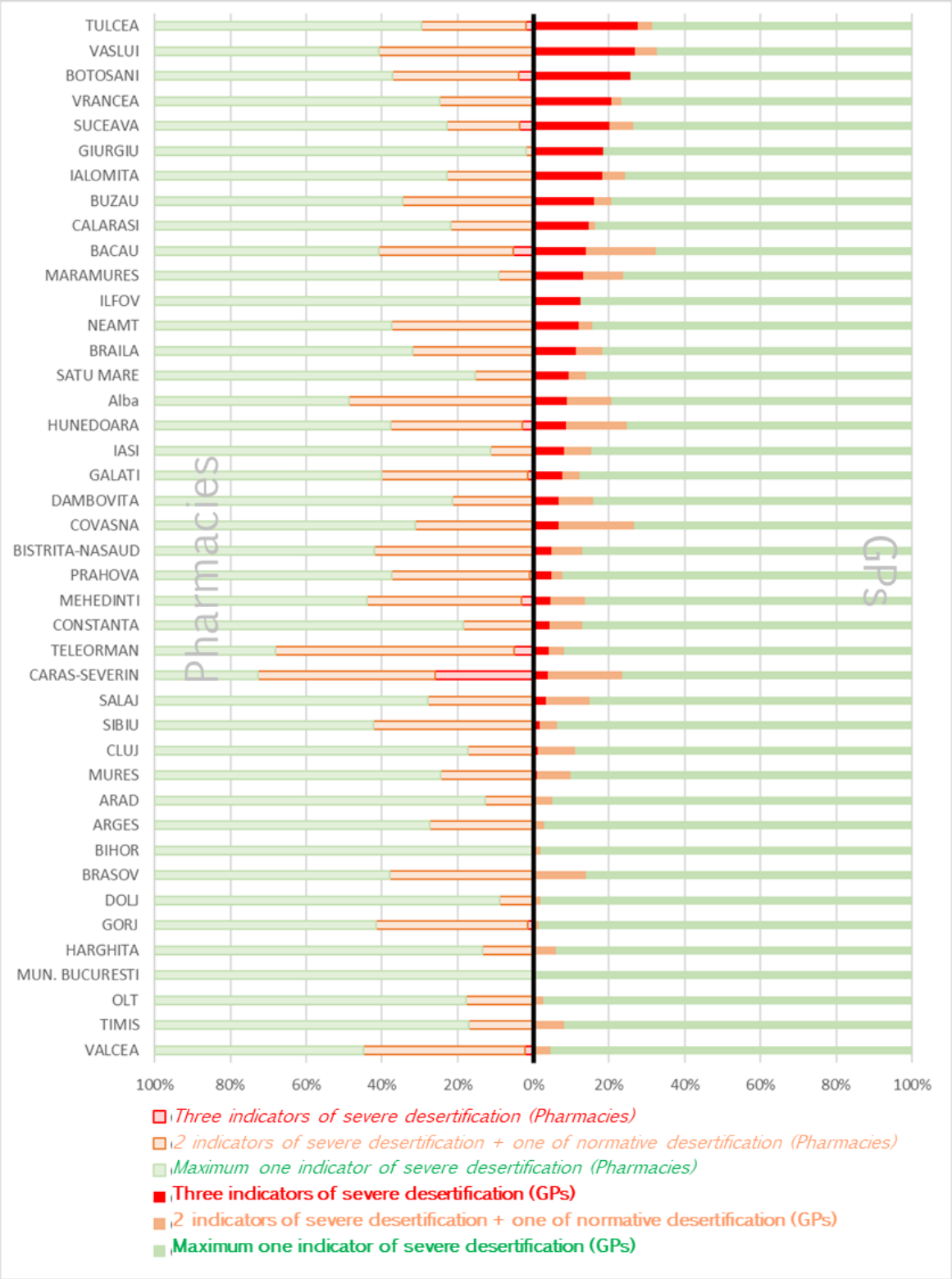
Overall desertification

Figure 23 shows distribution of counties depending on how many localities are deserted. The left pane shows the desertification considering pharmacies. The right pane shows it based on general practitioners.

We decided to look for the most deserted counties.

In order to do so, we have considered the proportion by county of the localities that have either 3+3 indicators of severe desertification (that is they have three „severe desertification" indicators for GPs and 3 for Pharmacies), or have any combination of 3 indicators of severe desertification and (2 "severe" +1 "normative") desertification. In other words, to be considered deserted, a locality should have at least 5 out of 6 indicators stating that it is in a severe medical desert, while the last indicator states either "severe desertification", or at least "normative desertification".

Figure 23. Distribution of localities within counties depending on GP and Pharmacy desertification



Under such provision, the Tulcea county has 16% of its localities in a situation that could be labeled as medical desert. It is followed by Caraș-Severin (12%), Buzău (12%), Vrancea (11%), Vaslui (11%), Botoșani (9%), Hunedoara (9%). In all other counties, this sui generis desertification rate is under 8%.

Tulcea becomes the main target for selecting case studies. Among the other four counties in top 5 counties by desertification rate, three (Buzău, Vaslui, and Vrancea) are part of the Romanian South-East NUTS-2 Region, a region that also includes Tulcea. For reasons related to the severity of desertification related to GPs, Vrancea was chosen for being the second county in which to select case studies.

Annex 6. Codebook for analysing in-depth interviews

Code name	Additional details (when needed)
Access to medical services	**Types of services, accessibility, distance**
Acceptable distance	
Criteria	
Patients' needs	Relevance of the patients' profile
Population density	Correlation between access to medical services and size/density of population
Types of patients	Patient characteristics impacting access
Local level_Paulesti	
Evolution in time	How conditions changed in the community
Healthcare providers	
Local conditions	Context, life circumstances
Medical desert or not	
People's perceptions	
The process of becoming a medical desert	
Local level_Sfantu Gheorghe	**Details about Sfantu Gheorghe**
Evolution in time	How condition changed in the community
Healthcare providers	
Local conditions	Context, life circumstances
Medical desert or not	
People's perceptions	Focused on matters of access to medical care
The process of becoming a medical desert	
Medical desertification	**Definitions, understandings, evaluations of the term, correlation with situations/communities/areas in Romania**
Criteria to be considered	When defining medical deserts
Examples of MD in Romania	
GP_threshold	Maximum distance, above which a locality can be deemed a medical desert
Hospitals_threshold	Maximum distance, above which a locality can be deemed a medical desert
Measures and interventions	To be taken for improving access to medical services
Pharmacy_threshold	Maximum distance, above which a locality can be deemed a medical desert
Relevant institutions	For solving the problem of medical deserts
Standards	Medical deserts: Comparing the situations in localities with what is to be found in other localities or with standards.
What is associated with desertification	
Opinions about maps	**Reactions prompted by showing the maps to the respondents**
Romanian medical system	**Evaluations of the system that appeared throughout the interviews**

Annex 7. Interview guide

THEMES TO BE ADDRESSED IN THE INTERVIEW

Which are the criteria that you consider when you think about access to medical services?

[the aim is to see whether they spontaneously discuss about access to health care provision (primary medical care, pharmacies, hospitals, policlinic) in terms of density of services, distance to practices, waiting time, etc.]

If you think about distance to doctors/practices/health care provision, is there a certain maximal distance that should be considered as minimal standard?

Is density of population related in any way to accessing health care services?

What do you associate the term 'medical desertification' with?

Let's refer to medical desertification as the lack of access to various types of medical care in a given area.

If considering medical desertification, on each of the following criteria [access to the GP], [access to a pharmacy], [access to a public hospital], starting with which threshold would you say that a locality is a medical desert?

- *These criteria are mentioned based on the indicators available for each country.*

The question is specifically asked for each indicator.

On how many of these dimensions (indicators) should a locality be a desert in order to be considered an actual desert? How many indicators should be taken into consideration when determining if a locality is a medical desert? (all 3, others)

If you think about specific localities in our country, can you name one or several? Which ones?

When deciding whether a locality is a medical desert, should one compare its situation to other localities or to standards? Which standards?

Should one consider county-level standards, national standards, regional-standards (regions within Europe, such as Western Balkans or Western-Europe, or CEE]), European standards, world-wide standards?

Which are the institutions that can solve the problem of medical deserts? For example, your institution could be involved?

What actions could be taken by your institution for solving the problem of medical deserts? How about other institutions? Could you provide examples of such interventions?

[only for local level]

Is [your locality] a medical desert? Why? (Why not?)

IF YES: How did the locality become a medical desert in the first place?

Do people here think at the locality as disadvantaged from health care provision? Why? (Why not?)

Do people access only health care providers in the locality or also from neighbouring areas?

[The interviewee is shown the desertification map/classification that was created based on STEP 1]

This is a map/classification that we have been created based on existing information. We are interested to know whether your professional opinion corresponds to these findings. Would you say that the map/classification fits what you know about Romania?

(Additional questions, which should be asked only if the interviewees do not address them spontaneously: is anything that surprises you? Why? Would you say that you trust such results? If not – show them partial maps. Do they correspond to what you expected? Is there a locality that could be considered desert and it is not? What makes THAT locality desert? Is there a locality that is not a desert in your opinion and in the map is desert or close to desertification? Which are the particularities of that locality)

For each theme, the interviewee is expected to elaborate more than a yes/no answer. If not doing it, the interviewer can determine the interviewee to be more specific by asking one or several of the following questions:

Can you elaborate, please?

Which are the arguments for your opinion?

Can you provide examples?