AHEAD

ACTION FOR HEALTH AND EQUITY
ADDRESSING MEDICAL DESERTS

Country report
The Netherlands

June 2022

Executive summary

While the health system in the Netherlands is known and praised internationally for being efficient and of good quality, health inequalities among certain population groups still exist. The difference in life expectancy between people with low and high educational attainment is six years. Sixty percent of the people in the lowest income quintile state to be in good health versus 87% of the people in the highest quintile. Also, immigrants from outside the EU struggle with poorer health. And a study by the Netherlands Institute for Health Services Research (NIVEL) found that 7% of respondents in a survey avoided seeking a diagnosis, 6% did not seek treatment and 3% did not collect medication prescribed by their doctor because of the associated costs. Inequity has been aggravated by the COVID-19 pandemic as the relative mortality risk was twice as high among households in the lowest income group compared to those in the highest.

There is a large and increasing shortage of several categories of health workers, especially general-practitioners (GPs). Also, their uneven distribution over the country is of growing concern, as it leaves pockets of populations, in both urban and rural areas, with sub-par access to GP care. Since the GP is the gatekeeper and first point of referral in the Dutch health system, a lack of availability of, or difficult access to, a GP means that people cannot enter the health system to seek treatment for their ailment.

As prescribed by the AHEAD methodology, the mapping of medical deserts in the Netherlands consisted of several phases, employing different instruments, each collecting new data to inform 1) the identification and definition of medical deserts and 2) the identification of stakeholders affected by or having a position to influence medical desertification. The working definition as formulated by the short review of literature was the starting point for the mapping of medical deserts.

The research in the Netherlands was executed in roughly the following order, but with important reiterations on the basis of new findings in later stages of the research:

- desk review
- contextual and health system analysis
- media content analysis
- statistical data collection and computation of indexes
- stakeholder analysis, informed by the survey and media content analysis
- survey
- in-depth interviews

These research activities resulted in the following:

- literature review completed
- statistics collected for seven maps for the Medical Deserts Diagnostic Tool

- 5 official reports used for contextual and health system analysis
- 44 media articles read and analysed
- 10 in-depth interviews conducted and analysed (3 national, 7 local)
- 30 surveys returned and analysed

Findings indicate that both the survey respondents and the interviewed key informants are well aware of the problems caused by GP shortages. They perceive them as increasingly serious, and the most affected regions and challenges are well known. Data on numbers of GPs, full-time equivalent of GPs, also per population, are collected on a routine basis, available on public websites and visualised in graphs and infographics.

In addition, there is quite a lot of knowledge and awareness of issues related to quality of care (in general, not GPs per se) that affect especially vulnerable socio-economic groups, people in socially vulnerable areas, and people with low (health) literacy, in urban as well as rural areas. However, the extent of these problems, their impact and their development over time is not known exactly, because no data are systematically collected or monitored by the Dutch government.

The perceived level of medical desertification in the Netherlands is relatively low. However, the general consensus is that a certain erosion or impoverishment regarding the accessibility and quality of care can be observed, in specific areas and for specific population groups. If adequate indicators for healthcare access and quality can be identified, time series of these indicators, visualised on (a) map(s), could provide insight in the speed and direction of change over time, and function as an adequate monitoring tool, in addition to already existing static graphs and visualisations on Dutch websites.

Table of contents

1. Country health system overview

The Netherlands

On February 11th 2022, the Netherlands had 17.601.362 inhabitants; five years ago this was 17.083.783 (CBS, n.d.). The population density has increased from 504 people per square km in 2016 to a rate of 519 in 2021. This is also linked to an increasing net migration of 68.359 in 2020, as in 2015, the net migration totalled 55.106 persons (CBS, n.d.). The number of people living in rural areas seems to be decreasing, as in 2020 7.76% of the population lived in rural areas, whilst in 2015, 9.83% did (World Bank, n.d.). Access to internet is high as 97% of the population was covered, and 92.1% of the population owned a smartphone in 2019 (World Bank, n.d.; CBS, 2020). However, having digital skills is negatively associated with increase in age and the elderly also face mobility challenges when obtaining health care. The individuals in age groups 55-65-75 and 75+ years old have difficulty with attending healthcare facilities such as general practice, hospital and pharmacies independently and this increases with age (CBS, 2020). The GINI-coefficient has improved from 0.305 in 2014 to 0.296 in 2019 (0 being perfect income equality and 1 perfect income inequality) (Organisation for Economic Co-operation and Development (OECD), 2022).

Health status of the Dutch

The life expectancy at birth for men and women in 2020 was, respectively, 79.67 and 83.08 years. However, in 2019 the values were 80.46 and 83.56 years which can be explained by the mortality and morbidity caused by the COVID-19 pandemic (CBS, 2021a; OECD, 2021a). The most recent data on the under-five-mortality rate stems from 2019 and shows that the rate has remained stable at 4 deaths per 1000 live births over the last 5 years (World Bank, n.d.). The infant mortality rate has decreased from 4 deaths per 1000 live births in 2014 to 3.4 in 2019 (World Bank, n.d.). The following five diseases, in chronological order of magnitude, caused the highest burden of disease (disability-adjusted life years) in 2018: coronary heart diseases, stroke, diabetes mellitus, COPD and lung cancer (RIVM, n.d.). In the period 2020-2021, 11.535 COVID-19 cases per 100.000 people were registered (OECD, 2021) and in May 2022, 86.4% of people 18 years and older had received two COVID-19 vaccinations (Coronadashboard, n.d.).

Health inequities exist as 60% of the people in the lowest income quintile state to be in good health versus 87% of the people in the highest quintile (OECD, 2021a). Inequity has been aggravated by the COVID-19 pandemic as the relative mortality risk was twice as high among households in the lowest income group compared to those in the highest (CBS, 2021b). Also, life expectancy between people with low and high educational attainment differs six years, with the former group being disadvantaged. Lastly, immigrants from outside the EU also struggle with poorer health (OECD, 2021b). Research on foregone health (care) indicated that 0.2% of the population does not seek diagnosis or treatment. However, another study by the Netherlands

Institute for Health Services Research (NIVEL) found that 7% of survey respondents avoided seeking diagnosis, 6% did not seek treatment and 3% did not collect medication prescribed by their doctor because of the associated costs (Van der Schors et al., 2016).

The Dutch healthcare system

The Dutch healthcare system reform of 2006 is globally renowned and until this day the results, lessons and prospects are still of high interest for publications (EOHSP, 2021). The system scores well on reviews of the US Commonwealth Fund think tank and of scholars such as Emanuel (2020) and performs well on aspects such as universal access and competitiveness of the market, and the growth of healthcare expenditure has been rising less steeply in comparison to other OECD countries (EOHSP, 2021).

The main policy goals that were entrenched in the 2006 reform - and thus the current healthcare system - are quality of care (effective, safe and patient-centered), universal accessibility (reasonable costs for individuals, travel distance and waiting times) and affordability (meaning financial sustainability and overall cost containment) (EOHSP, 2021; Kroneman et al., 2016). The reform introduced a single mandatory health insurance system scheme with free consumer choice of insurer. Healthcare insurers have the obligation to accept all clients for the statutory basic health insurance package, irrespective of (i.e.: not adjusting premiums for) patients with known risk factors. Healthcare for people aged under 18 is free of charge and there is a health insurance allowance for people from low-income groups (EOHSP, 2021; MHWS, 2018).

The 2006 reform triggered market competition between insurers as well as between healthcare providers. Insurers are obligated to reimburse all healthcare services included in the statutory basic health insurance package to everyone, but can compete in several ways: in their supplementary packages; in the extent to which the insured person can freely choose their health care provider or are bound to specific providers contracted by the insurance company, and therefore also in the extra costs involved when not opting for the contracted party; and in extra services and flexibilities provided to their clients. Healthcare providers provide cost-effective healthcare services and compete in quality, accessibility (such as waiting lists) and price. The role envisioned for the consumers is that of well-informed persons taking conscious decisions about their insurance companies (De Jong, Groenewegen & Schee, 2006). Consumers are obligated to purchase the basic health insurance package and allowed to switch healthcare insurance annually (EOSHP, 2021; Kroneman et al., 2016). Depending on the insurance package offered by their insurance company, they may be able to choose freely between healthcare providers, thus stimulating competition between the providers. The general-practitioners (GPs) are part of the primary healthcare services and are the gatekeepers in the Dutch healthcare system, as patients need their referral to obtain specialized (hospital) care. This policy safeguards the financial sustainability of the system. Therefore, GPs are important healthcare providers, and their services are covered entirely through the basic health insurance package (MHWS, 2018).

The goals, values and rules of the 2006 reform have been laid down in five acts: the Health Insurance act (Zorgverzekeringswet), the Long-Term Care act (Wet langdurige zorg), the Social Support act (Wet maatschappelijke ondersteuning), the Public Health act (Wet publieke gezondheid) and the Youth act (Jeugdwet) (MHWS, 2018). The responsibilities for the latter three are shared between the central government and local authorities. The main responsibility for the Long-Term Care act lies with the healthcare administration offices (zorgkantoren). The Health Insurance act captures mainly responsibilities for the central government and other governmental bodies. The central government decides annually what is covered in the statutory basic health insurance package and which healthcare services will demand co-payments, and it sets the height of the deductible excess threshold. This deductible excess implies that when the client starts to incur health care costs, they need to pay the first amount (the 'deductible excess') out of their own pocket; when healthcare costs exceed this amount, the health insurer will reimburse the exceeding amount. The height of the deductible excess has risen significantly since its inception, from 150 EUR in 2008, to 385 EUR in 2016, remaining stable since then through to 2022, with the steepest increase from 2012-2013 (MHWS, 2018; Zorgwijzer, n.d.). People can choose to increase their mandatory policy excess to a maximum of 885 EUR accompanied by a reduction of their monthly premium (MHWS, 2018). It should be noted that several forms of healthcare (including GP care, district nursing, and pregnancy and maternal care) are excluded from this deductible excess – these services are always free of charge to the patient. Co-payments are necessary for some healthcare services provided through the basic health insurance package, such as glasses (Rijksoverheid, n.d.). Governmental bodies play a controlling role in order to protect the public interest, such as the National Healthcare Institute (NZA) monitoring the affordability and accessibility of health care, and the Health and Youth care Inspectorate (IGJ) monitoring quality and safety of health care (MHWS, 2018).

Other sources of financing of health expenditures are income-dependent contributions paid by the employer, out-of-pocket payments and voluntary/supplementary insurance schemes (MHWS, 2018). The distribution of healthcare financing schemes and expenses for type of services/providers are presented in Table 1 below. It shows that in comparison to the average of all OECD countries, the Netherlands has a high health expenditure and much of the financing is spent on care provided in hospitals. Out-of-pocket payments are considered low in comparison to the OECD average (OECD, 2021b). Lastly, in 2020, of the total public financing resources (compulsory schemes), more were distributed to hospital care providers (30.6%) than to ambulatory care providers (12.1%), whereas regarding the private financing resources (voluntary schemes and out-of-pocket payments), this was the reversed (2.5% vs. 4.8%) (OECD, n.d.).

Table 1: Health expenditure indicators

Health expenditure (2019)	the Netherlands	OECD average
Per capita	5739	4087
as % of GDP	10.2%	8.8%
By government schemes as % of total	6%	35%
By compulsory health insurance as % of total	76%	39%
By voluntary health insurance as % of total	5%	5%
By out-of-pocket as % of total	11%	20%
On primary healthcare services as % of total	10%	13%
By hospitals as % of total	34%	39%
By LTC facilities as % of total	28%	9%
By ambulatory providers as % of total	18%	26%
By retailers as % of total	11%	17%

Source: Health at a Glance 2021 (OECD). https://www.oecd-ilibrary.org/docserver/ae3016b9-en.pdf?expires=1646643271&id=id&accname=ocid194724&checksum=050AAFEF3B181A56E12157E4EAEB00F0

Health disparities are monitored by the National Institute for Public Health and Environment which is part of the Ministry of Health, Welfare and Sport (VWS). However, there are no specific policies in place to address the existing differences in health outcomes: the highest reported difference in life expectancy between the highest and lowest socioeconomic group is seven years (Wammes, Stadhouders & Westert, 2020). Policies specifically addressing inequities and socioeconomic inequalities include e.g. lifestyle-related programmes aimed at preventing or changing unhealthy behavior (e.g. smoking and alcohol use). Examples are the national programmes “The Healthy District Approach” or “Health in the City” which both focus on the local level and are part of the Prevention Agreement (Kroneman et al., 2016; OECD, 2017). In 2013, the government decided that consultations on weight loss and smoking cessation programs would be covered by the statutory benefit package (Wammes, Stadhouders & Westert, 2020).

2. Mapping medical deserts in the Netherlands

Contextualised methodology

The methodology for mapping medical deserts in the Netherlands consisted of several phases, employing different instruments, each collecting new data to inform 1) the identification and definition of medical deserts and 2) the identification of stakeholders affected by or having a position to influence medical desertification. The working definition as formulated by the short review of literature was the starting point for the mapping of medical deserts. The research in the Netherlands was executed in roughly the following order, but with important reiterations on the basis of new findings in later stages of the research:

- desk review

- contextual and health system analysis
- media content analysis
- survey
- in-depth interviews
- stakeholder analysis, informed by the survey and media content analysis

Contextualised desk review

A desk review of scientific and grey literature, and (inter)national databases informed both the contextual and the health system analysis (annex 1). Both analyses consisted of policies relating to the current political/health system as well as macro-indicators (e.g. economic and demographic factors) influencing the Dutch context in which medical desertification takes place. When an indicator could be found in both international and national databases, we decided use the national data as these were based on national reporting tools used by established national statistics agencies. For the Netherlands, we mainly used Statistics Netherlands (CBS) and VZinfo as national databases (unless reported otherwise); international databases included World Bank, OECD, Eurostat and World Health Organization (WHO). In addition, several reports were identified through Google Scholar which contained valuable information supporting these analyses. They included country reports published by the EU, WHO and OECD, and public governmental reports.

- Analysis of main policies affecting and addressing medical deserts (may include main results of the national articles included in the literature review, and the "grey literature") - process and results

As medical desertification is a complex phenomenon with different manifestations and thus different contributing factors and circumstances – and just as many entry points for mitigation – unravelling the policies that affect its various manifestations is rather complicated.

Based on the statistical data we used and the findings of our survey, in-depth interviews and literature review (including grey literature), we have been able to identify the following manifestations of medical desertification in the Netherlands and the policies that have contributed to it.

Increased distance to appropriate specialised care

- Caused by central decision about concentration of certain specialized care centres, e.g. paediatric cardiac care.

Increased financial barrier to access appropriate care

- Caused by the increase in the deductible excess threshold.

Growing waiting lists for complex psychiatric care

- At least partly caused by the 2006 reform, which introduced (managed) market competition in health care, with the aim to achieve higher quality and lower prices. In some fields, such as psychiatry, this has resulted in health insurers and mental healthcare providers agreeing on contracts on rather low average prices per treatment. This incentivizes the provider to only accept clients with relatively less complex care needs; should the clients need more complex care, this would lead to higher costs, that would not be reimbursed by the insurance company.
- Other causes for these waiting lists include capacity problems (reduction of number of beds) in inpatient facilities (instigated by a desire to cut costs), and shortage of personnel.

Growing waiting lists for youth care

- Since the 2006, municipalities are responsible for organising and sub-contracting youth care. The devolution of this responsibility was accompanied by a budget cut, in an attempt to reduce overall Dutch health care expenditure. The budget ceilings, in combination with an increased number of youths seeking and needing more complex care, has led to waiting lists of on average 10 months.

Obstacles to access health care for non-Dutch speaking citizens

- Discontinuation of the financial reimbursement of interpreters for patients with no adequate command of the Dutch language (2012).

Other (independent) developments that have a negative influence on access to care include the tendency of young GPs to want to work part-time instead of full-time, and their preference to work in more urban areas, where their spouses have better job opportunities than in rural areas. Also, the generally accepted standard for the number of patients per full-time equivalent GP (whereby good quality care is still ensured) has been reduced from 2350 patients to 2095 in 2018, resulting in an increased demand for GPs – who are not available, thus leading to (temporary) waiting lists and 'patient stops'. The extent of the 'patient stop' phenomenon is difficult to monitor as these data are not systematically collected.

At the same time, several policies and decisions have been made that are aimed towards **mitigating** medical desertification, or access to care issues in general, such as:

- Policies directed at the supply side of healthcare services to ensure sustainability of healthcare provision by addressing shortages of healthcare personnel. Such labour market policies include allocating primary care professionals in larger organizational settings (primary healthcare centers) and in multidisciplinary teams, community pharmacists who

increasingly collaborate with GPs in their catchment area, task shifting leading to new occupations such as physician assistants and a tendency in transferring treatment for chronic or low-risk care from secondary to primary care (Marselis, 2015; OECD, 2017).

- Task shifting as well as the creation of new positions in GP care, as a strategy to make optimal use of existing (limited) human resources, in order to improve patient care, both in quantity and quality:
    - Wet- en regelgeving | V&VN VS (venvnvs.nl) (task shifting in the nursing profession)
    - Staatsblad 2018, 130 | Overheid.nl > Officiële bekendmakingen (officielebekendmakingen.nl) (task shifting, physician assistant)
    - wetten.nl - Regeling - Besluit aanwijzing generalistische basis geestelijke gezondheidszorg en praktijkondersteuner huisartsenzorg geestelijke gezondheidszorg - BWBR0033676 (overheid.nl) (mental health GP support practitioner, since 2013)

- Expanded possibilities for reimbursement of the costs of digital consultation (stimulated by the Covid-19 pandemic)
    - Wegwijzer bekostiging digitale zorg 2022 – Nederlandse Zorgautoriteit (overheid.nl)

- Mandatory electronic portals in GP practices (as per 1 July 2020), where patients can consult their personal medical files, request an e-consultation and repeat prescription, with the aim to decrease the workload in the GP practice.
    - Persoonlijke Gezondheidsomgeving | Digitale gegevens in de zorg | Rijksoverheid.nl

In addition, many initiatives are being undertaken in specific regions or cities, initiated by interest groups, healthcare providers, regional or local governments and health insurance companies.

National statistical data collection and analysis *(using the definition resulting from the literature review / the first version of the medical desert identification/diagnostic tool to identify medical deserts)*

Several analyses were conducted in order to finalize a valid data set for identification of a case study area of a medical desert in the Dutch context. It was an iterative process including brainstorm sessions with the AHEAD country team about whether the data results matched our own knowledge and ongoing observations of national reporting on some indicators to validate the relevance and applicability of these indicators for the Dutch context.

The finalized data set includes the following indicators (please see annex 2 for information on the

data set):

- total population
- adjusted population, taking into consideration the different intensity of GP care needed for different age categories
- number of GPs in a catchment area of 5 km (density)
- average distance to the closest GP
- GP index, which is a composite index based on demand (the adjusted population) and supply (density of and distance to GP care)
- number of hospitals in a catchment area of 20 km
- average distance to the closest type of hospital care

Please refer to the AHEAD website for a visualisation of the Dutch data.

All the pharmacy indicators (distance to and density of pharmacies) were excluded from the data set, as it was found that all type of pharmacies (excluding hospital pharmacies) can be reached by most Dutch residents within 15 minutes from their homes. These types of pharmacies are public pharmacies, outpatient hospital pharmacies and GP pharmacies (VZinfo, n.d.).

The indicators providing insight into emergency care (distance to and density of emergency care) were deleted from the data set as well as for all the domains within emergency care as national reporting showed that the norms that are set for each are acceptably reached. Those norms within emergency care in the Netherlands include 1) ambulances need to reach the emergency location in 15 minutes after notification, 2) ambulances need to arrive at an emergency care ward in 45 minutes after having left the emergency location (including acute obstetric care), 3) patients need to be able to reach emergency care posts in 30 minutes, 4) patients need to be able to reach emergency GP care in 30 minutes and 5) patients need to be able reach acute obstetric care wards in 30 minutes (VZinfo, n.d.).

Lastly, the catchment areas of 20 and 30 km for GP care was excluded as through discussions by the country team it was concluded that in the Netherlands it is not very likely that people visit GPs this far away from their homes because the distance to the closest GP and catchment of 5 km indicate that GPs are present at a much closer distance.

3. Tools used for the in-depth quantitative and qualitative research in a medical desert area

Methodology

Process of contextualisation of the tools

For the in-depth quantitative and qualitative research of medical desertification in the Netherlands and in the case study area, we developed a survey tool (annex 7), a national-level interview guide (annex 4) and a local-level interview guide (annex 5). The topics addressed in the survey and national interviews were prescribed by the approved methodology developed for the AHEAD project. The aim of these research tools was to collect data on stakeholders' perceptions of the existence of medical deserts, causal factors of medical deserts and indicators for comparison and identification of medical deserts. Both tools were translated and adapted on the basis of our professional knowledge of the Dutch context. Specific elements were added to the survey to allow for a more thorough stakeholder analysis of the national arena regarding medical desertification and the national and local interview guides were adjusted based on the interviewee's stakeholder group specifics. Both interview guides were semi-structured, meaning that they allowed for space to divert from the guide if the interviewer felt this was relevant. The development of the tools was an iterative process, moving back and forth between design table and testing with team members and colleagues from other Wemos teams (not working on the AHEAD project).

Methodology of media content analysis

The media articles, published no longer than 3 years ago, were collected through Lexis Nexis, a database storing news articles of various (inter)national media outlets. We conducted the search on April 18th 2022. The keywords deemed useful for collecting news articles related to medical desertification in the municipalities were identified prior to the search and consisted of a combination of "Hollands Kroon" with a concept. These concepts have been identified through a preliminary literature review, the initial indicator set for the national statistical data analysis and conversations about medical deserts with consortium members. The concepts included were used separately or in combination: health care ("gezondheidszorg"), accessibility ("toegang"), quality ("kwaliteit"), decentralisation ("decentralisatie"), availability ("beschikbaarheid"), reachability ("bereikbaarheid"), costs ("kosten"), cuts ("bezuinigingen"), shortages ("tekorten"), general practitioner ("huisarts"), pharmacist ("apotheker"), midwife ("verloskundige"), home care ("thuiszorg"), informal care ("mantelzorg"), youth care ("jeugdzorg"), hospital ("ziekenhuis"), outpatient clinic ("polikliniek"), travel time ("reistijd"), waiting time ("wachttijd"), ambulance ("ambulance"), emergency care ("spoedeisende hulp"), first aid ("eerste hulp"), acute care ("acute zorg"), primary care ("eerstelijns zorg") and secondary care ("tweedelijns zorg"). Annex 6 shows the final list of articles for media analysis.

Methodology of the survey

We developed the survey with the online survey tool Qualtrics and submitted it to potential respondents by an invitation e-mail with a link. It consisted of questions and statements (see annex 7) aiming at collecting answers illustrating respondents' perspectives on the current situation of access to healthcare in the Netherlands, the causal factors of suboptimal access to health care, the importance of (the consequences of) medical desertification and (expectations of) potential of influence and responsibilities of stakeholders. This data was analyzed by employing descriptive statistics and was also used as input for the national stakeholder analysis. Since the research methodology as agreed upon by the AHEAD consortium partners prescribed that the survey should be offered to both local and central level stakeholders, this allowed for an analysis of multi-level governance stakeholders.

A thorough desktop review, experiential knowledge and personal networks, led to the identification of the central stakeholders. As in the Netherlands several types of health care services or partnerships are organized in regional organizations, these regional level stakeholders were also included. Of the bottom 10% municipalities - in terms of access to healthcare - as calculated by the AHEAD project for identification of the case study area, the following entities received the survey: GPs in these municipalities, and civil servants/public clerks of municipalities. The full list of stakeholders who received the survey e-mail invitation is shown in Table 2. The reach of and response to the survey was dependent of the ability to identify email addresses (or phone numbers), the interest of the stakeholders and the time constraints. If, after two weeks the potential respondents had not yet responded to the e-mail, we sent a reminder.

Table 2. Identified stakeholders for survey

Entities who received an e-mail invite for the survey per governmental level	Number of entities
Central	
Health care insurance agencies (the Healthcare Insurers Association, Zilveren Kruis Achmea, ONZC)	3
Bureacratic agencies (Dutch Healthcare Authority, Dutch Health Care Instituut, Health and Youth care Inspectorate)	3
Knowledge/research institutes (Jan van Es instiuut, Nivel, Pharos, Knowledge Network Shrinking Areas)	4
Health care professionals interest groups (national general practitioners association, national association for hospitals)	2
Branch organizations (Ineen, NLZVE)	2
Patient interest groups (Patients Federation, KBO-PCOB, ANBO, national associations for small towns)	4
Regional	
Regional support structure organizations (Samergo, Mura zorgadvies, Robuust, ZEL, Reos, "Proscoop", Lijn 1 Haaglanden, SGZ, ROS Friesland, Raedelijn, ROS Groningen, ZONH, ROSET, Ela)	14
Municipal health services (of Groningen, Drenthe, IJsselland, Regio Twente, Noord- en Oost-Gelderland, Gelderland-Zuid, Flevoland, Regio Utrecht, Hollands-Noorden, Kennemerland, Amsterdam, Gooi en Vechtstreek, Hollands-Midden, Rotterdam-Rijnmond, Zeeland, Hart voor Brabant, Limburg-Noord, Zuid-Limburg, Haaglanden, Fryslân, Zaanstreek/Waterland)	20
Regional partnership organizations (Transvorm, RegioPlus, Zorgbelang Drenthe, Zorgbelang Groningen, Zorgbelang Overijssel, Zorgbelang Inclusief, Zorgbelang Nederland, Zorgbelang Fryslân)	8
Municipality	
General Practices	12
Municipalities (Tytsjerksteradiel, Achtkarspelen, Noardeast-Fryslân, Loppersum, Grave, Bergen (L.), Midden-Drenthe, Reimerswaal, Westerveld, Hollands Kroon)	11

Methodology of the stakeholder analyses

The national stakeholder analysis of the Dutch health care system was conducted in order to capture stakeholders' knowledge, interest, position and power regarding medical desertification and provided insight into potential resources of power influencing the project. Plus, perceptions of each other's degree of power and of importance of inclusion when developing solutions for addressing medical deserts gave an initial idea of the potential power dynamics influencing the organization of the consensus-building methods. The analysis was performed by executing desk research (identifying tasks and responsibilities of the stakeholders as laid down in laws or statutes) and the survey findings were sent to both local and central stakeholders. The local stakeholder analysis focused on identification of key stakeholders in the GP accessibility issue(s) in Hollands Kroon (the medical desert case study area – see section A-4), and their position towards and influence on (developing solutions for) addressing medical deserts. Through a media analysis the (key) stakeholders were identified with whom interviews were conducted to gain insight into the characteristics of the medical desert manifestation in Hollands Kroon.

The goal of the stakeholder analyses was to inform the organization of consensus-building sessions and the training of facilitators, though this analysis will not provide advice per se on which stakeholders to invite to consensus-building sessions. However, it could be used as a guide to make decisions based on information of knowledge, interest, position and power of each stakeholder.

Methodology of the interviews

Based on the in-depth interview methodology developed for Work Package 4, the goal was to interview at least two individuals per stakeholder group for both central and local level. At central level these were: representatives of patient associations, representatives of public authorities, and representatives of non-governmental organisations. For the local level, we aimed to interview the following stakeholders: (representatives of) general-practitioners, representatives of the local preferent health care insurance agency, and representatives of local public authorities (such as public clerks in charge of health issues, mayor/vice-mayor or a local counsellor). Subsequently, the process of central level stakeholders selecting and approaching the relevant individuals and organizations was shaped by the personal professional network of one of the country team members, and complemented by an internet search. In both interviews, the participants were asked to share their perspectives on and experiences with medical desertification and to reflect on their own and others' potential role in and attitude towards (solutions) addressing medical desertification. In addition, we asked them whom they felt should be interviewed for more insight into these issues (snowballing method).

The number of interviews that were conducted with central and local stakeholders was also influenced by the interest in and willingness to cooperate in the project. In the end, we succeeded

in completing interviews with three key informants from central stakeholders: a representative of the National GP Association, a professor in Rural Sociology, and a professor in Health Inequalities and policy advisor for the Dutch Knowledge Centre on Health Inequalities. In addition, seven interviews were conducted with local stakeholders: one GP, two representatives of GPs (HKN organization), two members of the municipal council, one representative of the senior citizens' association (LSBO Hollands Kroon), and a health care purchaser of the preferent local health care insurance agency (VGZ).

The interviews lasted approximately 45 minutes to an hour and took place online through Microsoft Teams. Permission was asked to record the interviews and confirmed when the recording had started. The participants were informed beforehand that the recordings will be deleted after transcription of the interviews, that the transcripts will be deleted after finalizing the project and that the data will be processed anonymously in accordance with the General Data Protection Regulation. The participants were sent a summary of interviews with most important take-away messages formulated by the interviewer, to validate whether the interviewer had interpreted the interview accurately. This allowed the participants to comment on the interviewer's interpretation and on whether any nuances were missing or statements were misinterpreted.

4. Results of the survey

Introduction

The survey tool was developed by two members of the country research team and the data collection and selection were executed by one researcher. Another team member joined to conduct the analysis of data, to interpret the results together and to mitigate the risk of subjectivity. It yielded insights into (not all) stakeholders' perceptions on the (needed) priority of solving, personal impact of and the urgency of medical desertification. Plus, it highlighted how stakeholders perceived their own and others' ability to influence the situation and which organizations (should) focus on solving the issue. Lastly, the survey brought forward the importance of each stakeholder to be included in solving medical desertification according to the different stakeholders.

The survey was sent to various Dutch institutions operating on central, regional and local level to collect perceptions and experiences regarding medical deserts from a wider audience. The last required question was answered by 20 people, therefore the survey was fully completed by 20 respondents, of whom the mean age is 48 years (between 29-62 years). However, the survey's first question received 39 responses, but the counts of responses decreases whilst the survey proceeds. This last required question captured on which governance level the respondents worked: 20% locally, 35% regionally, 15% provincially and 30% nationally.

Those (n=4) working for/in municipalities were located in Friesland (2), Limburg or Noord-Brabant. The respondents working regionally were located in Zuid-Limburg (2), Agglomeratie 's-Gravenhage (1), Kop van Noord-Holland (1), Noord-Oost Gelderland (1), Noord-Friesland (1) and Noord-Overijssel (1). Half of the respondents had about 0-5 years of work experience, 30% had 5-15 years and the remaining 20% had been working for longer than 15 years in this sector. The current job positions were with different types of organizations (at different levels): healthcare providers (10%), patient organizations/interest groups (15%), (national) branch/professional association (15%), local government (20%), national government (5%) and 25% said to be working in a different type of organization, those being ROS (regional collaborative organization, 3), Municipal Health Service (1), and an independent administrative body (1).

Aspects of accessibility to health care

The respondents attach great value to (in order of importance): waiting time for an appointment with a health care provider, travel time to health care provider and distance to healthcare provider. The ranking of these aspects is also mirrored in the individual assessment of each aspect in relation to general practice, emergency care and specialised care. For accessibility of pharmacy, travel time is deemed the most important indicator, followed by waiting time and distance. Interestingly, 15% of the respondents think that the distance to a pharmacy is unimportant, and 20% thinks so of waiting times. Less responses were collected when requesting estimations of maximum permissible values of distances to different types of health care, which might indicate that these values by themselves are not very elucidating.

A vast majority (80%) states that waiting times in general have increased in the Netherlands, caused by pressure on the health care system due to shortages of health care personnel, higher demand of services (induced by ageing, medicalization and the COVID-19 pandemic) and higher expectations of services, constraints of the financial system, bureaucratic processes, availability of (trained) health care personnel, inefficiencies in the system, more part-timers and more female workers.

Less respondents (64%) think that the travel time is increasing: the main explanation is the concentration, scaling up and clustering of services leading to smaller medical centres being closed. Other reasons are traffic congestions and shortages of health care personnel, leading to longer waiting times and which makes people travel larger distances to obtain health care. Many respondents mention that, to them, travel time is highly correlated with distance to health care provider, and therefore the explanations are similar.

A vast majority (80%) also believes that the physical distance between patient and health care provider has increased. Apart from concentration of services and health care personnel shortages, innovative delivery of services (digital consults), efficiency objectives, willingness to travel for good health care, increased number of specialized services and decreased willingness of GPs to establish their practice in certain municipalities are given as reasons for the increase of physical distance between patient and health care provider.

Concentration of care is explained in the context of specialized health care services mostly delivered in hospitals but also with reference to the rise of regional GP practices. Shortages of health care personnel is indicated often through discussions on the decreasing number of GPs and closing of practices due to failure of finding a successor.

Maximum permissible values for criteria of accessibility to health care

The respondents shared what they perceive to be the maximum permissible value for distance to, travel time to and waiting for an appointment with (different) health care providers. The values differ for the type of health care providers, not meaning that some services are more important than others nor that some aspects of accessibility are not important for health care services. Interestingly, comparing values for distance and travel time to health care provider shows that the maximum permissible value for distance to GP is the lowest among the types of health care providers, but the travel time in minutes is third in place. The respondents seem to be more in agreement about the values for GP care as the standard deviation is the lowest for 2 out of the 3 values.

The distance to health care providers in kilometers differs for the different health care services showing that the average maximum permissible value for distance to GP care is the lowest (6.5 km) followed by pharmacy (9.7 km), emergency care (16.5 km) and hospital care (34.7 km).

Table 3. Maximum permissible distance to health care provider (in km)

Distance (KM)	Number of observations	Mean	Std. Dev.	Min.	Max.
General Practitioner	16	6.5	3.7	2	15
Emergency care	15	16.5	6.8	5	30
Pharmacy	15	9.7	8.7	2	30
Hospital care	15	34.7	18.2	10	60

The travel time to health care providers in minutes shows a slightly different picture than expected, based on the above table, as distance and travel time are correlated. The average maximum permissible value for travel time is the lowest for pharmacies (15,3 minutes), followed by emergency care (19,2 minutes), GP (23,7 minutes) and hospital care (40,6 minutes).

Table 4. Maximum permissible travel time to health care provider (in minutes)

Travel time (minutes)	Number of observations	Mean	Std. Dev.	Min.	Max.
General Practitioner	19	23.7	3.7	5	20
Emergency care	19	19.2	6.5	10	30
Pharmacy	16	15.3	4.3	10	25
Hospital care	18	40.6	14.1	20	60

The waiting time for an appointment with a health care provider (in days) indicates that respondents were more in agreement on these values in comparison with the higher standard deviations of the other aspects. The average maximum permissible value for waiting time for an appointment with a health care provider is the lowest for emergency care, on which respondents are in consensus that waiting time should be less than one day.

Table 5. Maximum permissible waiting time for appointment with health care services (in days)

Waiting time (days)	Number of observations	Mean	Std. Dev.	Min.	Max.
General Practitioner	19	1.6	1.0	1	5
Emergency care	18	0	0	0	0
Pharmacy	19	0.9	0.8	0	3
Hospital care	16	8.4	4.6	1	14

Perceptions on consequences of medical deserts

The perceived consequences of medical deserts indicated by the level of concern, personal impact and needed priority of addressing them, are experienced on a large scale, are worrying and require priority to be addressed. Although more than half of the respondents perceive the existence and development of medical deserts as alarming (or extremely worrying) and judge believe that addressing medical deserts deserves some priority, not all feel they are personally impacted by medical deserts.

The urgency of the existence and development of medical deserts

The level of concern about existence and development of medical deserts ranged from “of limited concern” to “extremely worrying”, meaning that everyone experienced some level of concern. Most respondents (45.83%) evaluate it to be “alarming”.

Table 6. The level of concern about existence and development of medical deserts

	%	Count
Not worrying	0.00%	0
Of limited concern	20.83%	5
Alarming	45.83%	11
Extremely worrying	25.00%	6
Don't know/ no opinion	4.17%	1
No answer	4.17%	1
Total	100%	24

The personal impact of medical desertification differed from being absent to a considerable amount, with most respondents (36%) experiencing to some extent the consequences personally, meaning that it influenced their daily life.

Table 7. Personal impact of medical desertification

	%	Count
Not at all	8.00%	2
To a limited extent	20.00%	5
To some extent	36.00%	9
To a considerable extent	24.00%	6
Don't know/ no opinion	12.00%	3
No answer	0.00%	0
Total	100%	25

Respondents judged that addressing medical desertification should receive average to high priority, with most respondents (60%) indicating the priority to be high, and no respondents judging that there was no or low priority.

Table 8. Priority of addressing medical deserts in the Netherlands

	%	Count
No priority	0.00%	0
Low priority	0.00%	0
Average	32.00%	8
High priority	60.00%	15
Don't know/ no opinion	4.00%	1
No answer	4.00%	1
Total	100%	25

Influencing and/or addressing medical desertification

The majority (76%) of the respondents feels that they/their organization are able to contribute to addressing problems related to accessibility of health care. An equal percentage of respondents also experiences that they/their organization are involved in doing so and different examples are given, including legal obligations and mandates, collaborative efforts, policy making, participation in or implementation of pilots, advocacy, strategic advice and by consultation of the residents/patients/clients. About half of the respondents mention other organizations which are specifically focussing on solving problems related to medical desertification. Examples range from national institutes such as Pharos (a knowledge institute focussing on addressing health inequalities) to local efforts, e.g. neighbourhood teams focussing on people with a migration background.

More than half (64%) state they have an idea of whom they feel should specifically focus on solving access issues to health care. The respondents feel that the national institutes such as VWS, the National Healthcare Institute (NZA), the Health and Youth Care Inspectorate (IGJ) and health care insurers should focus on these issues. Other more lower governance organizations are mentioned once, such as municipalities and ROS networks (regionally organised support structures for first line care).

There is no clear consensus among the respondents on the ability of different stakeholders to influence medical desertification. When comparing central stakeholders to local stakeholders, one can observe that more respondents deem the central stakeholder groups to have average or major influence in comparison to local stakeholder groups. More than half of the respondents (59.09%) evaluated the influence of patients to be negligible or limited, making this group the most powerless in their opinion. The health care insurers are the group with the most (perceived) power: 90,91% of the respondents state that health insurers have major ability to influence medical desertification, versus 9.09% voting for average.

Table 9. Perception of stakeholders' ability to influence medical desertification

	Neglegible		Limited		Average		Major		Don't know/ no opinion		No answer		Total
Patients	40.91%	9	18.18%	4	27.27%	6	13.64%	3	0.00%	0	0.00%	0	22
Patients organizations	9.09%	2	36.36%	8	22.73%	5	31.82%	7	0.00%	0	0.00%	0	22
Health care professionals	0.00%	0	22.73%	5	54.55%	12	22.73%	5	0.00%	0	0.00%	0	22
Professional associations	0.00%	0	9.09%	2	45.45%	10	45.45%	10	0.00%	0	0.00%	0	22
Health care insurers	0.00%	0	0.00%	0	9.09%	2	90.91%	20	0.00%	0	0.00%	0	22
Local and/or citizen groups	4.55%	1	40.91%	9	40.91%	9	9.09%	2	4.55%	1	0.00%	0	22
Local political parties	4.55%	1	31.82%	7	50.00%	11	9.09%	2	4.55%	1	0.00%	0	22
National political parties	0.00%	0	18.18%	4	13.64%	3	63.64%	14	4.55%	1	0.00%	0	22
Local government	4.55%	1	31.82%	7	50.00%	11	13.64%	3	0.00%	0	0.00%	0	22
Central government	0.00%	0	4.55%	1	13.64%	3	81.82%	18	0.00%	0	0.00%	0	22
Own organizations	0.00%	0	45.45%	10	36.36%	8	4.55%	1	4.55%	1	9.09%	2	22
Otherwise:	0.00%	0	0.00%	0	9.09%	2	9.09%	2	13.64%	3	68.18%	15	22

The importance of inclusion of stakeholders when developing solutions to address medical desertification is judged differently by the different respondents. No stakeholder groups are deemed 'unimportant', except besides local and national political parties. Interestingly, patients (organizations) are perceived to be (almost) equally important as some central stakeholders.

Table 10. Importance of inclusion of stakeholders in addressing medical desertification

	Unimportant		Limited importance		Important		Very important		Don't know/ no opinion		No answer		Total
Patients	0.00%	0	5.00%	1	35.00%	7	55.00%	11	0.00%	0	5.00%	1	20
Patients organizations	0.00%	0	0.00%	0	30.00%	6	65.00%	13	0.00%	0	5.00%	1	20
Health care professionals	0.00%	0	5.00%	1	15.00%	3	75.00%	15	0.00%	0	5.00%	1	20
Professional associations	0.00%	0	0.00%	0	30.00%	6	65.00%	13	0.00%	0	5.00%	1	20
Health care insurers	0.00%	0	0.00%	0	25.00%	5	70.00%	14	0.00%	0	5.00%	1	20
Local and/or citizen groups	0.00%	0	15.00%	3	50.00%	10	25.00%	5	5.00%	1	5.00%	1	20
Local political parties	5.00%	1	20.00%	4	40.00%	8	25.00%	5	5.00%	1	5.00%	1	20
National political parties	5.00%	1	5.00%	1	40.00%	8	40.00%	8	5.00%	1	5.00%	1	20
Local government	0.00%	0	15.00%	3	40.00%	8	40.00%	8	0.00%	0	5.00%	1	20
Central government	0.00%	0	0.00%	0	35.00%	7	60.00%	12	0.00%	0	5.00%	1	20
Own organizations	0.00%	0	5.00%	1	40.00%	8	25.00%	5	10.00%	2	20.00%	4	20
Otherwise:	0.00%	0	0.00%	0	10.00%	2	0.00%	0	25.00%	5	65.00%	13	20

When looking at how much the different stakeholders can influence addressing medical desertification, an interesting picture emerges. The national players are deemed most influential and the patients as the least influential. The more local institutions are also not expected to be able to exert much influence and one's own organization is second last on the scale of influence. The table displaying the importance of each stakeholder participating in addressing medical desertification is an interesting addition to the previous findings as it shows that the patient (organizations) becomes almost equally important to the national government.

The concept 'medical desert'

Most of the respondents (89%) think that the term 'medical desert' is a relative concept as some of them argue that access to health care or determining what 'health' means, is different for every person. Other respondents emphasise that compared to other regions or other countries in Europe, health care provision in the Netherlands is good. The respondents who declare 'medical desert' to be an absolute term or have absolute aspects, mention the increasing numbers of health care avoiders, absolute standards and norms like ambulance arrival times, and take the ideological position that it should be an absolute concept because everybody should have equal access.

5. Medical deserts in the Netherlands

About the same proportion of respondents (approx. 80%) expresses that there are specific areas in the Netherlands (i.e. deprived areas (n=4), urban areas (n=3) or rural areas (n=11)), and specific population groups (e.g. having a migrant background, illegal migrants, uninsured, homeless, refugees, illiterates, elderly and people with a mild-intellectual disability), that experience suboptimal access to health care. However, examples given for both situations are mostly related to socio-economic status such as income or educational level and other demographic factors such as age, which is mostly linked to the lack of (sensitivity to) digital skills. For the depopulating rural areas, the shortages of GP and emergency care absence are referred to (n=6) and for the specific population groups health system illiteracy (i.e. having difficulty navigating the health care system) and low Dutch or health literacy are given as main reasons why people forego health care (n=6).

Mental health care is another domain of health services which was mentioned when discussing population groups with suboptimal access to health care (n=4) and often in relation to the observation that appropriate care has become complex due to the change in care needs. Some respondents feel that treatment choices are sometimes poor as current health care provision is not well suited to the needs of specific groups such as digital health services or focuses on diagnosis and treatment instead of patients' interests. The system itself is also not considered to be sufficiently patient-centred/personalized. Other system deficiencies are discussed such as bureaucracy, inefficiency, wrong financial incentives, financial unsustainability, fragmentation of care, inequity and healthcare personnel shortages leading to lower quality and availability of care. A higher demand of healthcare is seen to be correlated to the ageing population and unhealthy lifestyles. According to respondents, the consequences of these demand and supply trends are that patients experience greater distances to, longer waiting times for and higher costs of health care.

Benchmarks for comparison of medical deserts

In the survey, respondents were asked to reflect on several benchmarks to identify and compare medical deserts. Standards informed by national experts as well as national or provincial averages were preferred over international standards. A relatively high percentage (30%) has no opinion about using the OECD average as a potential benchmark, indicating they may be unfamiliar with this average or feel insufficiently knowledgeable about it.

Table 11. Suitability of benchmarks for comparison of medical deserts

	Unsuitable		Not very suitable		Suitable		Very suitable		Don't know/ no opinion		No answer		Total
Standards defined by national experts	3.33%	1	6.67%	2	43.33%	13	26.67%	8	10.00%	3	10.00%	3	30
The national average	0.00%	0	10.00%	3	46.67%	14	20.00%	6	13.33%	4	10.00%	3	30
The provincial average	10.00%	3	6.67%	2	43.33%	13	20.00%	6	10.00%	3	10.00%	3	30
Standards defined by international experts	3.33%	1	30.00%	9	33.33%	10	6.67%	2	16.67%	5	10.00%	3	30
The average in European Union	6.67%	2	33.33%	10	33.33%	10	0.00%	0	16.67%	5	10.00%	3	30
OECD average	3.33%	1	20.00%	6	20.00%	6	0.00%	0	30.00%	9	26.67%	8	30
Otherwise:	3.33%	1	0.00%	0	6.67%	2	13.33%	4	16.67%	5	60.00%	18	30

The term 'medical desert'

The term 'medical desert' itself received mixed feedback, as a couple of respondents (n=4) state that they do not have a suggestion for substitution, and only two respondents state clearly that the term is appropriate. Others think the term is vague, trendy or could be a bit more nuanced (n=4). Some alternative terms are suggested, such as "health care poverty" (zorgarmoede) (n=3) and "health care impoverishment" (zorgverschraling) (n=3). When asked whether they can identify any medical deserts in the Netherlands, some (n=4) also argue that the term is too heavy for the situation in the Netherlands, especially in comparison to other countries. They also find the

term difficult to apply because they argue that they do know regions where (access to) health care is suboptimal but do not know which sites qualify as a medical desert.

6. Medical desert maps

More than half of the respondents said that the maps correspond to their knowledge about the situation in the Netherlands. Additionally, more than half also felt that maps did not, or only to a limited extent, bring them surprising and/or new information. In addition, half of the respondents confirmed the innovativeness of the maps, but the other half did not judge these maps to be innovative. Furthermore, the maps were found to be easy to interpret, intuitive and clear and helpful instruments when studying medical desertification. Lastly, more than half of the respondents think that the maps together give a valid representation of medical desertification in the Netherlands.

Table 12. Perception of suitability and innovativeness of the individual maps

	Map 1: Number of GPs within 5km						Map 2: Distance to the nearest GP practice in KM						Map 3: Number of hospital within 20 km (incl. outpatient clinics)					
	Not true	To a limited extent true	To a big extent true	True	know / no opinion	No answer	Not true	To a limited extent true	To a big extent true	True	know / no opinion	No answer	Not true	To a limited extent true	To a big extent true	True	Don't know / no opinion	No answer
This map fits well with what I know about the situation in the Netherlands	5% (1)	10% (2)	40% (8)	25% (5)	10% (2)	10% (2)	10% (2)	10% (2)	50% (10)	15% (3)	10% (2)	5% (1)	0% (0)	10% (2)	65% (13)	15% (3)	5% (1)	5% (1)
This map contains surprising new information for me	35% (7)	25% (5)	30% (6)	0% (0)	5% (1)	5% (1)	30% (6)	20% (4)	35% (7)	0% (0)	10% (2)	5% (1)	45% (9)	25% (5)	15% (3)	5% (1)	5% (1)	5% (1)

Table 13. Perception on ease of use, suitability and innovativeness of the maps

	Not true		To a limited extent true		To a large extent true		True		Don't know/ no opinion		No answer		Total
The maps are easy to interpret.	0.00%	0	10.00%	2	60.00%	12	30.00%	6	0.00%	0	0.00%	0	20
The legends for these maps are clear and intuitive.	0.00%	0	15.00%	3	55.00%	11	30.00%	6	0.00%	0	0.00%	0	20
The descriptions for these maps are clear and enlightening.	0.00%	0	5.00%	1	65.00%	13	25.00%	5	5.00%	1	0.00%	0	20
These maps are a useful tool when studying the problem.	0.00%	0	5.00%	1	60.00%	12	35.00%	7	0.00%	0	0.00%	0	20
I find these cards innovative.	5.00%	1	35.00%	7	40.00%	8	10.00%	2	10.00%	2	0.00%	0	20
These 3 maps together give a good picture of the existence of 'care deserts' in the Netherlands.	0.00%	0	30.00%	6	45.00%	9	20.00%	4	5.00%	1	0.00%	0	20

Other indicators that respondents think are worth visualizing are:

- (specialised care for) GGZ (mental health care) (2)

- patients' experiences
- population size (2)
- demand for health care services
- use of health care services (2)
- waiting times for specific population groups or type of health care services (2)
- distribution of income, availability of digital care (2)
- whether people actually choose for the nearest health care provider
- number of inhabitants of an area that use health care services
- accessibility (by public transport, bicycle or on foot)
- distribution of poverty, illiteracy and socio-economic status.

7. The national stakeholder analysis

The central level responses were collected from individuals working at knowledge or research institutes (2), branch organizations (3), patient interest groups (3), and central governmental organizations (2). The regional arena respondents comprised the regional support structures for primary care (ROS) (3). Lastly, on a local governance level, respondents were working in health care (3) or for the municipality (4). These different entities entail the stakeholder groups included in the national stakeholder analysis. Several entities working (for associations) in primary health care replied that completing the survey did not have their priority as they (and their members) were very much preoccupied with their (daily) business. This was interpreted as a sign that the primary health care is experiencing a high workload. These entities included a branch organization for primary care organizations (Ineen), two partnerships of regional health care interest groups (Zorgbelang-organisaties), an organization providing regional structural support for primary care organizations (ROS) and a partnership of regional employers' organizations in health care and welfare (RegioPlus).

Not all (types of) organizations have filled in the survey, which means non-respondents did not have their say on their own influence and power or the importance of inclusion and perceived influence/power of others, whereas the others (the respondents) could assess the non-responders. This may result in a biased emerging picture.

Also, this survey collected no responses from patients, even though we sent it to four patients/citizens interest groups who were asked to disseminate it among their members. This might be explained by the fact that the survey only asked where the respondents were employed, and may not have left room to indicate which organization respondents were a member of, or affiliated with. Table 14 displays the values for the concepts and perceptions for the different stakeholders.

Table 14. National stakeholder analysis

Stakeholders	Knowledge (0-3)	Interest (0-3)	Postition (0-5)	Influence/power		Importance of inclusion	
				judged by oneself	judged by others	judged by oneself	judged by others
Health care insurance agencies					3 (high)		3 (high)
National political parties					3 (high)		2 (medium)
Local poltical parties					2 (medium)		2 (medium)
Local citizen/patients initiatives					1 (limited)		2 (medium)
Patients					1 (limited)		3 (high)
Knowledge/research institutes	1 (limited)	1 (limited)	4 (moderate support)	1 (limited)		2 (medium)	
Regional partnerships	3 (extensive)	2 (general)	5 (strong support)	2 (medium)		3 (high)	
Central government	1 (limited)	3 (high)	4 (moderate support)	3 (high)	3 (high)	3 (high)	3 (high)
Branch organizations	3 (extensive)	3 (high)	4 (moderate support)	2 (medium)	3 (high)	3 (high)	3 (high)
Patient interest groups	3 (extensive)	3 (high)	5 (strong support)	1 (low)	2 (medium)	3 (high)	3 (high)
Health care professionals	2 (general)	2 (general)	4 (moderate support)	1 (low)	2 (medium)	3 (high)	3 (high)
Local government	2 (general)	2 (general)	4 (moderate support)	1 (low)	2 (medium)	3 (high)	3 (high)

The stakeholder groups of whom one or multiple representative(s) filled in the survey showed they all have some knowledge and interest and have a supportive position towards addressing medical desertification. They perceive themselves and other stakeholders to have influence on/power over addressing medical desertification and to be of importance for inclusion when developing solutions to address medical desertification. Interestingly, although patient organizations are only to a limited extent perceived to be *able* to influence medical desertification, they are thought to be of high *importance* in the development of solutions addressing medical desertification.

8. Results of the national in-depth interviews

Three in-depth interviews were held with key informants at national level:

- One representative of the national GP association – to capture the GP perspective on GP shortages (*N1*)
- One professor in rural sociology - to capture urban-rural inequalities in a more general way (*N2*)
- One professor in health inequalities – to capture a non-geographical perspective on 'medical desertification' (*N3*)

Associations with the term and definition of 'medical desert' in the Dutch context

All three respondents mention the association with regions where there is a shortage of GPs, or where there is 'insufficient GP care' (N1). Respondent N1 states explicitly that the term 'desert' implies that there is nothing, which makes it unrelatable to the situation in the Netherlands. The other two respondents also state, in slightly different terms, that the terms 'desert' and 'desertification' are relative, and that the phenomenon is probably less seriously prevalent in the Netherlands than in the other project countries.

Respondent N3 mentions that in addition to geographical distance issues to healthcare (such as GPs, hospitals, midwives), there is a large group of Dutch citizens who experience financial and

practical obstacles or quality of care issues. Financial barriers play a role for e.g. those who (wrongly) assume they need to pay for GP care; cannot afford co-payments for medicines, glasses, walkers, crutches and other supporting equipment; or are uninsured (a.o. homeless people, undocumented people). Practical obstacles are experienced by persons who are functionally illiterate and cannot read or fully understand medical information, including about what their treatment entails and what is expected of them, or about the correct use of their medicines. Quality of care issues play a role when healthcare providers do not take into sufficient consideration what the patient needs in order to contribute to their own treatment: double-checking if the patient has understood the information that has been conveyed to them; speaking in their native language or in simple Dutch terms; and ensuring that somatic problems do not have psycho-social root causes that would require a different (medical or social) intervention. According to N3, up to 25% of the Dutch population could be affected by these obstacles. A more exact percentage cannot be given because these indicators are not systematically monitored.

On indicators for the description or definition of the Dutch context

Indicators that could be used to describe medical deserts include: distance and travel time to healthcare provider, waiting times, waiting lists, 'patient stops' (when the number of 2095 patients in the practice is achieved). Two of the three respondents also mention that it is equally important to look at more qualitative indicators, such as patient satisfaction, 'subjective [perceived] accessibility', and the capability of patients to obtain (medical) care. One respondent suggests using the number of 'care avoiders' (i.e. people who refrain from seeking care) as an indicator to monitor healthcare access issues in the Netherlands. Another mentions possible indicators on the level of healthcare providers, such as: is your practice accessible for people with little knowledge of the Dutch language? (there is a specific checklist for this); do you routinely use the 'ask-back'-method to ensure your patient has understood what you have said?; are equity checklists used to verify that new healthcare interventions help decrease health inequalities? The use of an 'unmet medical needs' indicator could also be considered but has its methodological challenges: it is a population-based indicator, with no direct relevance to specific (groups of) healthcare providers, and its measurement typically does not include members of population subgroups who are difficult to reach and would be of most relevance (such as the homeless and the uninsured).

On benchmarks/standards for these indicators

There are a few benchmarks, developed by healthcare professional associations and/or prescribed by law, such as:

- Ambulance arrival time of 45 minutes
- Waiting time to be seen by your GP is max. 2 days
- Travel time to GP is variable – in more rural areas, 15 minutes by care is normal, in a city the travel time would depend on the traffic situation

- Norm size of GP practice of 2095 patients, although this could be more if there is sufficient support staff and a variety of health care workers in the facility (e.g. nurse physicians and diabetes nurses).
- Each patient has max. 2 GPs (in the same practice), to ensure the 'family doctor' intention.

There are no benchmarks for qualitative indicators, because they are not yet being used or monitored systematically (N3).

On geographical areas experiencing 'medical desertification' in the Netherlands

All respondents mention regions like Eastern Groningen, the north of North-Holland, border areas in general, areas with a declining population (so-called 'shrinking areas') and/or with an ageing population (the two often go hand in hand), and other socially vulnerable regions. One of the three (N2) adds that certain urban neighborhoods also experience these vulnerabilities (declining population, ageing population, socially vulnerable) and mentions Rotterdam-South as an example.

On population groups experiencing access to care issues in the Netherlands

All three respondents mention the socially vulnerable, persons with lower socio-economic status, or neighborhoods where the socio-economic structure changes rapidly, and they mention the fact that not being able to access GP care could have disproportionate negative consequences for these groups. Respondent N1 mentions persons who need psychiatric care as an additional vulnerable group.

On recent development and trends in relation to 'medical desertification'

The situation regarding GP shortages is increasingly worrying but has had a lead time of at least 10 years, according to two respondents. It is becoming especially precarious now that many GPs are reaching pensionable age, and younger GPs prefer to work part-time. In that sense, even though the Netherlands can hardly be identified as a 'medical desert', GP coverage is not what it used to be, with more and more patients who need to travel farther to see a GP or have difficulty finding a GP practice who will register them.

On root causes of medical desertification

Respondents mentioned many different (root) causes for 'medical desertification' in the Netherlands.

In general, they mentioned the ageing population and their corresponding increasing healthcare needs, as is the insufficient investment in prevention, health lifestyles, and social and livelihood security. Also, the tendency to concentrate specialty care (such as neonatology

and paediatric cardiac care) results in longer travel times, especially for patients in the periphery ("specialized centres are never located in Maastricht or Enschede", two cities far from the Randstad, and close to the borders with Germany and/or Belgium).

When it comes to GP care in particular, the following causes were mentioned:

- GPs get to perform an increasing number of tasks, as a result of the attempt to relieve the more expensive second line care (especially hospital care), and reduce health expenditure overall.
- GPs see many patients who do not necessarily need GP care, but would in fact rather benefit more from social interventions that would relieve (chronic) stress, loneliness, precariousness. However, many patients cannot find or access that type of care, and turn to their GPs instead.
- The GP profession is not perceived as very attractive anymore. It has an aura of much administration and hassle with insurance companies, thus reducing the available time to spend with patients, which is the core of the GP's work.
- There is too little support staff available for GP practices.

One respondent specifically mentions the neo-liberal governments of the last 20 years, and their lack of interest in equal opportunities and relieving social precariousness (contributing to chronic stress and unhealthy lifestyles), as well as their emphasis on individual responsibility instead of targeting specific interventions at vulnerable groups.

Respondent N1 marks the 2006 health care reform as an 'instrumental driver' for the current problems. The focus on market competition prohibited cooperation between healthcare providers, to the extent that the Dutch Competition Authority ("Nederlandse Mededingingsautoriteit", NMa) issued fines to healthcare providers who tried to tackle healthcare challenges by working together. By now (2022), all stakeholders acknowledge that cooperation is the best way forward: more task shifting, more referrals, better division of tasks and responsibilities between healthcare facilities and health professions, and better distribution of patients. The NMa has become more lenient, but the spirit of market competition is still anchored in laws and regulations.

On possible solutions

The respondents raised many possible solutions to current problems.

When it comes to GP care in particular, the following possibilities were mentioned:

- Increase the number of GPs, by increasing the number of training places. This has occurred to some extent, as there are 850 places available for 2022 (up from 750).
- Make the GP profession more attractive, for example by teaching new GPs how to run a practice, and supporting GPs in the management of their practice, or by expanding task shifting possibilities and possibilities to hire more support staff. The attractiveness of the GP profession is essential, as other health professions are also experiencing shortages and also attempt to attract new trainees.
    - One of the respondents specifically mentions the need to show new GPs the attraction of working in more rural areas.

- Facilitate better housing for integrated care centres that include a GP practice but also other health and social care providers. The high, and ever-rising, costs of real estate hinder this development in many parts of the country, maintaining the status quo of fragmented care delivery.

Related to this, care innovation in general is seen by all respondents as a way forward. Health and social care needs should be addressed by the most indicated care provider; this means that disciplines should be working together more closely for better co-ordination and referral of patients/clients, contrary to the market competition aims of the 2006 reform. Accessing social care services should become easier for clients (practically and financially), which respondents see as a way to relieve the workload of GPs.

Such combinations of health and social care could also support the implementation of integrated prevention programmes, a course of action that all three respondents feel is necessary, in order to address root causes of unhealthy lifestyles and chronic stress. One respondent adds that individuals should also become more aware of their own possibilities to address simple health care questions; he refers to the online platform www.thuisarts.nl, which contains simple information on the most common ailments, as well as a tool that helps patients decide if they really need to consult their GP or can solve their issue through self-care.

All respondents also mention expanding the possibilities for digital consultation and implementing a uniform electronic patient file system as (part of) a solution, but the effectiveness of digital innovations should not be overestimated and care should be taken to decrease (at the very least: not increase) the 'digital divide' (N2, N3). "We have had good experiences, but there is no great enthusiasm" (N1). GPs prefer to see their patients in person, this is crucial for a correct anamnesis and for monitoring 'the whole person'. Also, there are too many different modalities of digital innovations being piloted or implemented. "Everybody can do their own thing. Apparently, there is enough money going around to allow us to not make choices." This respondent points to Estonia as a good example of a central government that took the decision on which digital innovations to implement (and which not).

All three respondents speak of the need for new financing modalities, as current modalities are based on market competition and siloed care provision. At the same time, respondents are wary of yet another health care reform.

Additional remarks

All respondents point out that the Ministry of Health is responsible for the health system as a whole, but that the Ministry does not consider it as its task to solve localized challenges: most access challenges are very context-specific and localized and require context-specific solutions. This also implies that the initiative to actually address localized challenges (or not) is left to the stakeholders, and the decision on the required course of action is also left to the local stakeholders. All three respondents speak of up to 10 local (i.e. regional or municipal) initiatives that they have knowledge of, that address health care challenges.

9. Selection of medical desert case study area

Selection of medical desert case study area – Hollands Kroon

The medical desert locality was selected by combining the findings of the quantitative analysis of national statistical data and the media analysis. Through discussions with the country team a final decision was made on the selection of a municipality experiencing medical desertification. The research methodology for identification of medical deserts based on the national statistical data analysis helped us identify the 10% worst performing municipalities (annexe 3) with regards to accessibility to GP and hospital care. These municipalities are scattered over the Netherlands, and some are situated near the border with either Belgium or Germany. Because of the rule of free movement of patients in the EU, patients from the EU can obtain health care, under the same terms as in their country of residence, across borders in other EU member states. As the statistical data set only included national data, an accurate analysis of distances to and densities of these type of cares could not be made. Therefore, it was decided to exclude these municipalities on the national borders (Baarle-Nassau, Reimerswaal, Bergen (Limburg) and Westerwolde) from the selection procedure as these residents can obtain GP and hospital care across the border.

The next step was to decide how to move forward with the selection procedure. An analysis of the local media was perceived to be an adequate method to investigate more thoroughly the extent to which medical desertification is experienced in these localities and can give insight into its most prevalent elements and stakeholders. Plus, it was expected that an assessment could be made of the interest shown by the different stakeholders in the problem at hand. For one municipality (Grave) it was impossible to collect news articles as the name itself was interpreted by the media outlet database as the Dutch verb used for "digging" ("graven"). Those searches led to thousands of articles, and it was not feasible to read them all or adjust the search method. Therefore, this municipality was also excluded from the selection process.

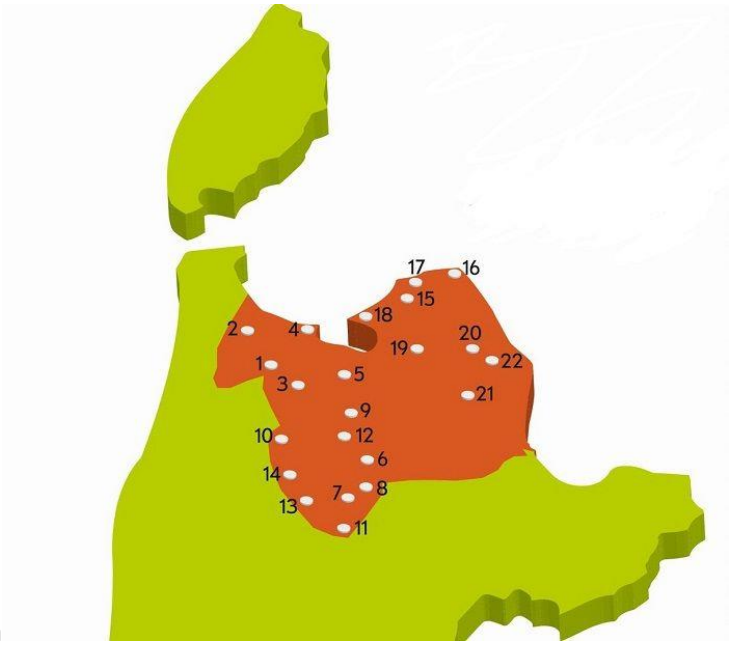
Finally, a thorough media analysis of seven municipalities took place (annexe 3) which allowed for a description of the specific situation in relation to medical desertification for every municipality. These situation descriptions were presented to and discussed with the country team and based on their judgment the municipality of Hollands Kroon was chosen as the case study area of medical desertification in the Netherlands. Reasons for this decision were that media coverage on signs of medical desertification was greater than for the other municipalities, issues with GP care accessibility have been a long-standing issue, several stakeholders have shown interest or have been informed (both central and local stakeholders), initiatives to address the issues did not yield the desired results, and citizens of the locality have not been involved in the decision-making.

10. Results: the case study of a medical desert

See annex 5 for the Interview guide

Hollands Kroon – general information

Hollands Kroon is a municipality in the northern part of the province of North-Holland and consists of 22 neighbourhoods.



1. Anna Paulowna
2. Breezand
3. Wieringerwaard
4. van Ewijcksluis
5. Nieuwesluis
6. Winkel
7. 't Veld
8. Nieuwe Niedorp
9. Kolhorn
10. Barsingerhorn
11. Oude Niedorp
12. Lutjewinkel
13. Zijdewind
14. Haringhuizen
15. Hippolytushoef
16. Den Oever
17. Oosterland
18. Westerland
19. Slootdorp
20. Wieringerwerf
21. Middenmeer
22. Kreileroord

Figure 1: Hollands Kroon and its neighbourhoods

Hollands Kroon is partly reclaimed land ('polder'), and has a rural character, with an agrarian community revolving around agriculture, animal husbandry, floriculture and greenhouses.

Basic demographics

Table 15: Basic demographics of Hollands Kroon

	Hollands Kroon	The Netherlands	Data source / Retrieved from
Inhabitants (April 2022)	48.988	17,675,187	Hollands Kroon, CBS
Expected population growth in 2050 (compared to 2020)	3,6%	11,9%	Hollands Kroon
Expected proportion of people 75+ yrs in 2050	15,6%	15,1%	Hollands Kroon

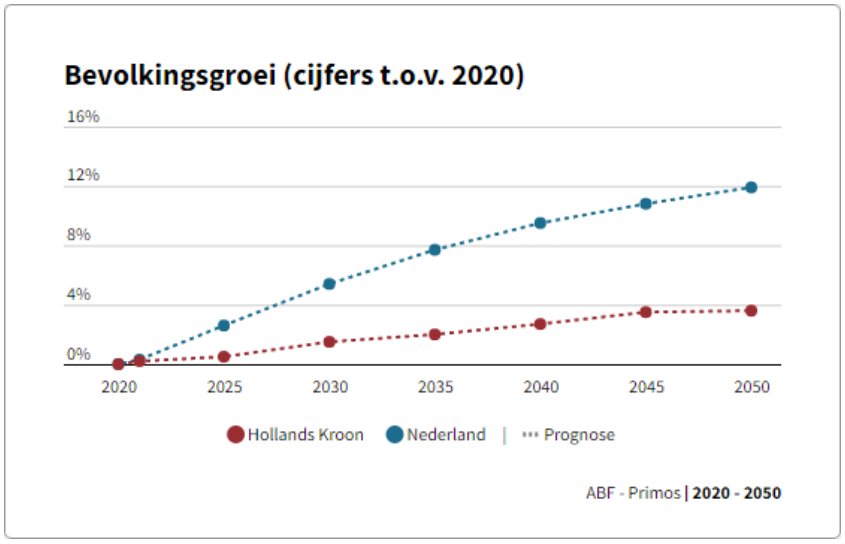


Figure 1: Projected population growth in Hollands Kroon and The Netherlands, 2050 compared to 2020 (source: Hollands Kroon)

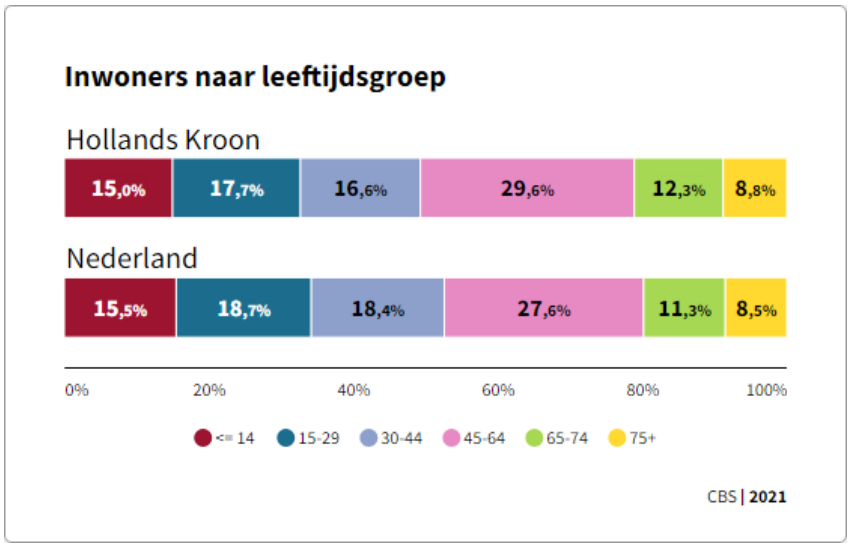


Figure 2: Inhabitants per age group, Hollands Kroon vs. Netherlands, 2021 (source: Hollands Kroon)

Figure 3 depicts the presence of population of 65 years and above in all the neighbourhoods ("buurten") of Hollands Kroon.

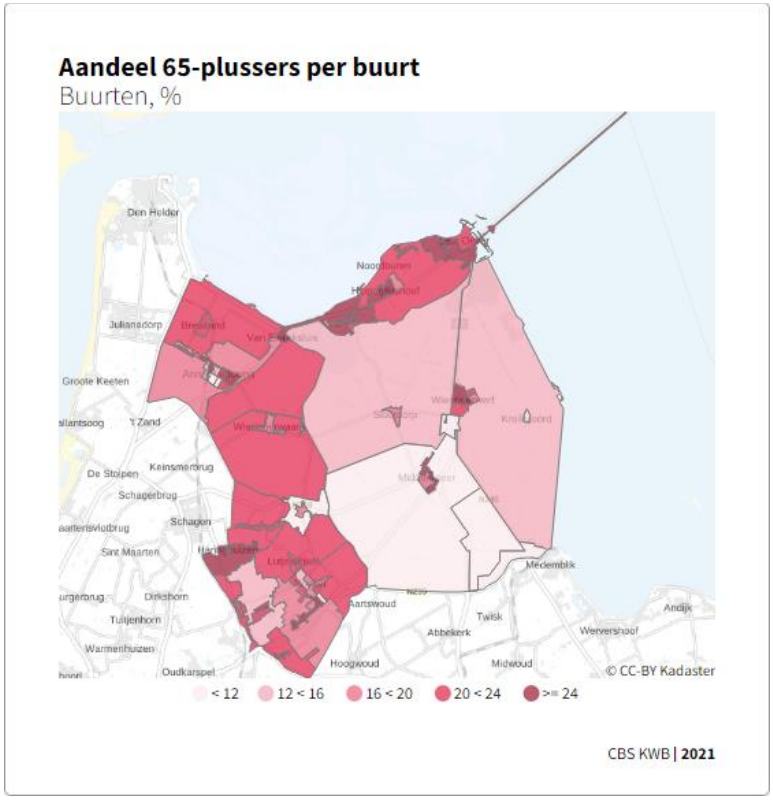


Figure 3: Proportion of population 65+ yrs old, per neighbourhood ("buurt"), in %-age, 2021 (source: Hollands Kroon)

Health

Table 16. health status overview of the selected medical desert vs national

	Hollands Kroon	The Netherlands	Data source / Retrieved from
Life expectancy at birth (2016-2019)[1] Women Men	 84 81	 83,4 80,2	VZ Info
Life expectancy at 65 yrs (2020)[1] Women Men	 21 19	 21,2 18,8	VZ Info
Cause of death – cancers (2020)	31,8%	27,9%	Hollands Kroon
Cause of death – cardiovascular disease (2020)	21,3%	21,7%	Hollands Kroon
Cause of death – respiratory disease (2020)	7,1%	6,2%	Hollands Kroon
(Childhood) Vaccination coverage	92,6%	90.8%	Hollands Kroon
No vaccinations at all	5,0%	4,4%	Hollands Kroon
Distance to nearest hospital (average) (2020)	20 km	7,1	(AHEAD Project - own calculation)
Number of hospitals within 20 km (average) (2020)	0,5	4,4	(AHEAD Project - own calculation)
Distance to nearest pharmacy (average) (2020)	3,3 km	1,2 km	(AHEAD Project - own calculation)
Distance to nearest GP practice (average) (2021)	1,9 km	1,0 km	CBS
Number of GP practices within 5 km (average) (2021)	1,5	17,6	CBS

Local stakeholder analysis

The media collection and analysis was used for the local stakeholder analysis with the purpose to identify the key stakeholders to be interviewed. These interviews enabled a more in-depth understanding of the Hollands Kroon study area.

[1] Life expectancy data are only available at the level of Municipal Health Services. For Hollands Kroon, this means we used data from GGD Hollands Noorden, via VZ Info, https://vzinfo.nl/.

The media analysis of local news articles relating to the GP care accessibility issues enabled the identification of stakeholders of medical desertification in the chosen locality, as well as an assessment of key stakeholders' degree of knowledge, interest, position and power. The final selection for the interviews included: the municipality, health care insurer (VGZ) and GP interest group (HKN). As the GP care accessibility is also experienced by both patients/citizens and GPs, these stakeholders are considered to be essential as well. An additional goal of the media analysis was to allow for the construction of a more in-depth picture of the characteristics of the medical desert manifestation (GP accessibility issues) in Hollands Kroon.

Inviting key stakeholders for an interview

A search on Google and LinkedIn provided some contact details of organisations and/or individuals. If we had no prior relations with these stakeholders, we sent an e-mail invitation to the general e-mail address of the organizations. A second approach was to call potential participants if a (general) telephone number was found. The stakeholder analysis (i.e. stakeholders' knowledge, interest, position and power) was validated by the local in-depth interviews with two representatives of GPs (working with a GP interest group), a GP, a healthcare insurer representative and two members of the municipality council. In the interviews, we asked the participants to explain what medical desertification and the GP problem means to them, what the importance of the challenges is for their organization, their position in the situation so far and their ability to change the situation. Initially, the alderman for the social domain (well-being) replied to the interview invitation, indicating that their response to the survey should give an adequate impression of the municipality's position towards medical desertification and that they had no interest in participating in the project. However, after we sent a more in-depth e-mail elaborating the purpose of the project and interviews, they replied that they were willing to participate. Unfortunately, due to time constraints no interview could be conducted with the alderman for the social domain, but they were invited to participate in the consensus-building sessions, and they (provisionally) accepted the invitation.

11. Media analysis

Based on the most recent media reports about medical situations in the case study area

The objectives of the media analysis were:

- to see how access to medical services (primary and specialized) are covered (or not). More specifically we studied if elements for medical desertification can be identified in the text (limited number of health care workers, high distance to the nearest point of service, long waiting time, lack of certain critical medical specializations in the area, etc.).
- to understand the most prevalent elements for medical desertification as indicated by these articles.

In addition, we looked for:

- (possible) solutions to medical desertification, and
- responsible entities to implement (or implementing) those solutions.

The media analysis - results

The collection of news articles through Lexis Nexus led to the selection of 44 articles (annex 6) of which the analysis allowed for a description of the GP accessibility issue(s) as indicated by these articles. Plus, it gave insight into the duration of the problems and the responsible entities involved and their role so far. If any potential or implemented solutions were mentioned, these were noted as well.

The media reports included in the analysis depict a clear picture of the accessibility issue(s) to GP care in Hollands Kroon showing manifestations of medical desertification since 2019. Most issues encountered relate to a commercial provider of GP care (Co-med) and these media reports described the lived experience of some citizens in Hollands Kroon. Although the outlined situation was not the general experience in Hollands Kroon, it was clear from the articles that throughout Hollands Kroon there is the (future) threat of deteriorated accessibility to GP care and therefore citizens throughout Hollands Kroon are concerned. The alderman of social domain emphasized that there are consistently new GPs coming to Hollands Kroon just as there are consistently GPs retiring meaning that nothing changes (De Groene Amsterdammer, 2022). This seems typical for Hollands Kroon: manifestations of inaccessibility of GP care are addressed but only for the short-term and not with sustainable structural solutions. What also arises from the articles is that it is difficult to hold entities accountable for their responsibilities as they continuously point to one another. It is also evident from the media analysis that the GP shortage is a national problem for which solutions do not seem so evident.

In the summer of 2019, for about a month, patients of two GP practices in Anna Paulowna and Breezand (two towns of Hollands Kroon) could not, except for emergency care, make appointments with a GP, due to the shortage of GPs in these practices. This led to many concerns and unrest amongst the citizens of these small towns (Noordhollands Dagblad, 2019a). The GPs owning these practices felt that another option would be to close their practice altogether. For monitoring of (cardiovascular and respiratory) chronic diseases patients could still come in for a consultation with practice support workers. The health care insurer (VGZ), NZA, MVWS and IGJ were all informed of these circumstances by the municipality, and complaints were filed by patients (Noordhollands Dagblad, 2019b)

The minister of Medical care at the time (Bruins) had contact with the municipality, VGZ and HKN, and he concluded that all entities were doing everything in their power to address this situation by coming up with structural solutions to safeguard the accessibility to GP care (Noordhollands Dagblad, 2019c).

On the short-term VGZ provided care mediation for their members in order to secure continuity of care which means that patients are being referred to other GPs or directly to second line health care providers (hospitals, for example) contracted by them (Noordhollands Dagblad, 2019b). On the long-term, and upon request from the municipality, VGZ sought for collaboration with the GP association (HKN) and with a commercial provider of GP care (Co-med) (Noordhollands Dagblad, 2019a). HKN started a new GP practice in Anna Paulowna and they explained that the main goals of HKN is to support their members (GPs), but there is a societal decency standard which prescribes that one needs to act in case of need, by which they obey (Noordhollands Dagblad, 2019c).

Co-med buys GP practices of GPs who are about to retire or who for other reasons want to leave their job, and is currently the fastest growing GP chain in the Netherlands. Their concept is to re-organize the GP practice and hire GPs on payroll who only support patients with medical advice but are not responsible for the bureaucratic requirements of running a general practice. The aim is to be more efficient through this large-scale and business approach (De Groene Amsterdammer, 2022). The collaboration with Co-med focussed on the potential of hybrid GP practices in which through piloting the combination of physical and digital provision of health care was researched in the spring of 2021. Nevertheless, in the summer of 2021, new manifestations of the GP shortage became visible as Co-med struggled with finding physicians as replacement for their GPs who fell ill or had holiday plans (Noordhollands Dagblad, 2021a). The GPs were consulted digitally by GPs in other practices as this was the only solution to this problem at the time according to the CEO, as otherwise people would have encountered longer distances to their GPs (Noordhollands Dagblad, 2021a).

The IGJ was informed, and they responded that this problem rose from the overarching national long-term problem of GP shortages, but that they will collect factual information, which might then lead to actions (Noordhollands Dagblad, 2021a).

From the end November of 2021 onwards, in order to safeguard the continuity of GP care the patient groups of the practices of Co-med in Anna Paulowna and Breezand were merged. Throughout the week GPs are physically present in Breezand and for three days a week in Anna Paulowna. The latter consultation hours are for people with mobility issues and/or patients in need of daily support such as those suffering from a chronic disease. On the remaining days assistants will be present for support (Noordhollands Dagblad, 2021b).

These organizational changes have not led to the envisioned results as the alderman of social domain of Hollands Kroon since February 2022 again has been receiving weekly calls from concerned citizens about the absence of available GPs and assistants, and the telephone being left unanswered in Anna Paulowna en Breezand (De Groene Amsterdammer, 2022). This was a result

of the resignation of one GP leading to the closure of the GP practice in Anna Paulowna. Co-med has hired a new GP so there will be a GP physically present in the practices in Anna Paulowna and Breezand, but e-consults will also continue to be used (Noordhollands Dagblad, 2022).

In these circumstances the NZA and the health care insurer both consider this as a situation which is beyond their control, which renders the filing of complaints useless. Instead, citizens discuss on a Facebook-group page what to do when Co-med seems like the only option for GP care. One respondent mentions that they call the hospital immediately when they want medical advice. However, VGZ states that they have not received signals of their inability to fulfill their duty of care. The NZA has never reprimanded VGZ because of GP care being not sufficiently accessible for patients. They refer to the IGJ as the entity which is responsible for the control of quality of care. In turn, IGJ explains that the shortage of GPs is part of a wider shortage of health care personnel. Additionally, they point to the duty of care of health care insurers and responsibility of the NZA to monitor the accessibility to health care (De Groene Amsterdammer, 2022).

Another manifestation of the medical desertification related to the limited availability of GPs in the Co-med GP practices was when palliative care could only be provided on a limited, non-daily basis. In response, the GP at that time registered all the seriously ill patients at the HKN GP practice which is nearby (De Groene Amsterdammer, 2022). However, VGZ sees in Co-med a solution for sudden threats to their ability to safeguard their duty of care. They also are optimistic about the large-scale approach as it stimulates the GP being allocated flexibly and thereby efficiently (De Groene Amsterdammer, 2022).

A trend related to the GP profession is that many (more than in the past) chose to become a self-employed substitute doctor instead of owning their own GP practice. This new generation prefers to work part-time, with flexibility and without the responsibilities for a patient population or the administrative duties of running a practice (De Groene Amsterdammer, 2022).

In Wieringen, another small town of Hollands Kroon, in 2021 several GPs agreed on who would add which patients to their patient population which is against the competition law and is an infringement to the freedom of choice of citizens. Nevertheless, the national association of GPs and the Netherlands Authority of Consumer markets have given permission for this because the situation is so precarious. The GP whose patient population was divided between several colleagues, had been looking for a successor for two years without any success. In addition, this particular GP had a license for rendering pharmacy services (which is quite common in rural areas in the Netherlands), but because Co-med only works with substitute physicians without such a license, if Co-med would take over then the license would expire, and the patients would have to go to a public pharmacy. This additional service was perceived to be too important for the patients in this area, so Co-med did not take over this practice (Noordhollands Dagblad, 2021c).

Implemented solutions

1. As of the 1st of July 2021, an electronic portal was implemented to enable patients to access their files, request an e-consultation and order medication (Noordhollands Dagblad, 2021a).
2. Through self-selection, patients can decide whether a visit to the GP is necessary or if they can take action themselves (Noordhollands Dagblad, 2021a).
3. 'Wellbeing on prescription' (Welzijn op recept) is a collaboration between a GP association, a provider of mental health care, a provider of social care and services, and a home care organization. Patients with minor psychological symptoms who consult their GP are referred to a social counsellor who is connected to a neighborhood team. This team will aim to prevent the symptoms becoming worse and thereby the need for specialized care. The patient will be advised to engage in wellbeing activities in the neighborhood (Noordhollands Dagblad, 2020a). Those with vague physical complains will be referred to a social counsellor as well or a remedial educationalist. They will assess whether other (non-physical) causes such as the presence of debts are leading to physical symptoms. This form of care provision allows for more time to investigate the patients' symptoms which cannot be accurately assessed in GP consultations of 10 minutes (Noordhollands Dagblad, 2020b).

Potential solutions

1. Establish (more) training locations for GP students in rural areas to spark their interest in working in rural areas. Nevertheless, a training facility in Schagen (a municipality bordering Hollands Kroon) did not yield any results thus far (Noordhollands Dagblad, 2022).

12. Results from in-depth interviews in Hollands Kroon

Seven in-depth interviews were held with key stakeholders at local level:

- Two representatives of the local GP association – to capture the GP perspective on GP shortages (*L1 + L2*)
- One GP located in Hollands Kroon - to capture personal perceptions on and experiences with the GP shortage (*L3*)
- One representative of the preferent health care insurance agency – to capture the health care insurer perspective on the GP shortage (*L4)*
- Two representatives, from different local parties, of the municipality council – to capture the municipality's perspective on the GP shortage (*L5 + L6*)
- One representative of the senior citizens' association *(L7)*

Associations with the term and definition of 'medical desert' in Hollands Kroon

When asked to define a medical desert or suboptimal accessibility to health care in their own words most respondents answered with a description of the GP accessibility issue in Hollands Kroon. This could be interpreted as an inability to define the term itself or that the term is vague and therefore a contextualization of the term is needed. The term might also be a bit unnuanced as respondent L6 felt like they could not recall witnessing a medical desert as it is something that stretches very widely or has big implications. This respondent also stated to associate a medical desert with deteriorated accessibility. The term itself was interpreted more broadly by respondent L7 as they envisioned a medical desert as a place in which the provision of (public) services in general becomes less, which decreases its livability. Respondent L5 defined optimal accessibility as the situation in which citizens can navigate themselves in the health care system and that they feel confident demanding (in being provided with) health care services. Several respondents (L3-L6) mention that certain aspects of a locality like distance can be experienced differently for different population groups (such as the elderly vs. youngsters) which makes the concept relative in nature as well. Plus, another respondent (L1) used a comparison of municipalities in their argument for the indicators for the definition of medical deserts in Hollands Kroon. Lastly, respondent L3 stresses 'suboptimality' instead of medical desertification in their answers and explained this as the health care system being under high pressure as more is expected of the available resources.

On indicators for the description or definition based on Hollands Kroon

The predominant feature of medical desertification apart from GP shortages in Hollands Kroon seems to be (physical or travel) distance to the GP care. Respondent L1 elaborates that this municipality has the largest surface and therefore (public) transport networks are especially important, next to autonomy or being mobile. This respondent also explains their interest in having data on people's age in combination with the distance to their GP. Plus, knowing whether they have access to public transport services, or transport services offered by volunteers, would be welcome as well. Waiting times for seeing a GP is brought up as well (L4 + L6).

Other indicators that could be useful for describing a medical desert in Hollands Kroon are related to health care service delivery. Respondent L1 explains that the intensity (the amount) of health care provision per registered patient has increased (due to secondary care services being transferred to the primary care domain), mirrored in the current norm size for general practices which has lowered over the years, while the actual number of registered patients in general practices has risen. A second indicator recommended by respondent L2 would be to monitor how many people get treated through emergency GP care while they could have been treated by general GP care. This indicator would illustrate foregone health care which could be extended as well by mapping the number of people who avoid going to a general practitioner. A quality indicator is mentioned as well: patients' experience of service delivery (L4). Furthermore, respondent L7 explains that due to the workload the time a GP has available to spend on a consultation has decreased, resulting in fewer home visits. An indicator measuring the number of patient visits per GP per age group could give an indication of the areas where patients might be experiencing more accessibility issues than others (considering the size of the age groups). Lastly, the level of digital skills of different age groups would be interesting to respondent L1 in combination with having information on the extent to which (and in which situations) GPs use eHealth solutions.

Another type of indicator for limited availability of health care providers would be monitoring the demand for health workers - i.e., the number of vacancies and their duration; not only for supporting professions to general practices such as (physician) assistants, nurse practitioners and general practice support workers, but also for substitute GPs as this indicates limited 'supply', as mentioned by respondent L3.

Furthermore, indicators for measuring suboptimal accessibility for those who cannot register at a general practice currently are mentioned by respondents L3 and L6 and could be a (combination of) waiting lists (hinting at patients stops) and new residents remaining registered with their former GP.

On benchmarks/standards for these indicators

Not many benchmarks/standards were discussed with the interviewees as these were not specifically asked for during the interview.

However, some indications about acceptable values for distance could be identified from the interview with respondent L3 + L4. L3 shares that in situations where registered patients must be transferred to another GP (in case of lack of a successor for a retiring GP), the situation might arise where they will be transferred to a more distant GP being 5 km away. However, being relocated to a GP 10 km away is argued to be too far by that same respondent. The other respondent describes how a distance of 3 or 4 km is manageable for young people, which may indicate that this person considers this is not the case for elderly people.

On population groups experiencing access to care issues in Hollands Kroon

Several population groups were brought forward by the respondents (L2, L4, L5 & L6) who might be (potentially in the future) experiencing GP access issues in Hollands Kroon. They are: elderly, people with chronical illnesses, people in need of emergency care, migrant workers (there are many seasonal migrant workers in the area), people with limited digital skills, people with mobility issues and care avoiders. However, respondent L6 feels that as there is still social cohesion in Hollands Kroon, mobility issues are most likely less of a problem. Respondent L5 counters that although people can rely on one another for health care appointments such as GP visits, blood clinics and medication pick-up, they all take place at different points in time and this could make it a burden for both patient and companion.

Respondent 4 highlights that the proportion of the population that owns and frequently uses a car is higher in rural areas than urban areas which improves mobility to some extent. However, older people tend to stop driving and as the standing policy is to live at home until you need access to immediate assistance, older people can become isolated from all sorts of facilities. To respondent L7, the population above the age of 75 years old is most (at risk of being) disadvantaged as they have more difficulty with digital services, and they try to stay self-sustainable and not complain as this is how they were brought up. This group consists of about 10% of the total population of

Hollands Kroon.

On recent development and trends in relation to 'medical desertification'

Several respondents (L5, L6) brought forward that although Hollands Kroon once was expected to become a shrinking area, this prediction did not become reality, and even an increase in population numbers has been measured (L1). This leads to development projects being carried out in Hollands Kroon to accommodate these new and future citizens, however, planning and developing additional health care is not happening at the same speed (L1, L7). At the same time, there is the (threat of) imbalance between outflux of GPs who (are about to) retire and influx of new GPs in Hollands Kroon (L1). In addition, the demand of health care is also expected to increase as a result of the ageing population, and this is already difficult to counter, due to the current numbers of trained GPs and annual influx of new GPs (L2, L7).

The new generation of GPs does not seem eager to locate to Hollands Kroon when they have done their training in cities in the Randstad (region of Amsterdam-Utrecht-Rotterdam), which is acknowledged by all respondents. However, with the tension on the housing market respondent L2 and L6 expect that due to lower house prices some GPs might be pushed to Hollands Kroon. Nevertheless, respondents L2 and L3 think that the composition of the new generation of GPs also decreases the availability of GP care as more than half of them is female who on average prefer to work part-time, in group practices, especially if they would want to start a family. On the other hand, L6 states that this was anticipated in the past as well, but has not become reality.

All respondents mention reasons why the GP profession or owning a general practice might not be as attractive (as it used to be). They seem to be related to the expectation that owning a general practice is complex, with a lot of responsibilities for which they received little training which renders it (or the thought of it) overwhelming. Specific aspects are the big sizes of the current general practices (i.e. large patient population), the many rules and regulations causing an administrative burden, and the costs of taking over or starting a new general practice, along with buying a house with the additional burden of high study loan debts. However, respondent 6 highly doubts whether financing can be such a big obstacle as they expect that the bank is more than willing to offer loans and mortgages.

More graduates seem to prefer the option of becoming a substitute physician as this job pays well, is in high demand, and comes with close contact with patients, but without the responsibilities of owning a practice. Respondent L6 mentions that in the past every graduate would be a substitute physician for a couple of years before taking over an existing practice or starting a new GP practice. Nowadays, the switch to owning your own practice is not made as commonly anymore, and since substitutes are in high demand, they can bargain relatively high fees.

On root causes of medical desertification

Respondents mentioned a variety of root causes:

- Transfer of healthcare services from the secondary care to the primary care domain. As a result, more health services have become the responsibility of GPs, physical therapists and dieticians, for whom the intensity of health care provision has increased as a result.
- Discrepancy between interests of new generation of GPs and current average practice conditions of the generation of GPs that will soon retire.
- The work pressure of GPs, leaving them with no time, space and energy to think creatively/innovatively about how they want to organize themselves or what they (as GPs or for their patients) need in the future. They are occupied with daily management of their practices, including looking for substitute physicians and other sorts of personnel replacements.
- Wrong financial incentives in the health care system leading to unnecessary prescription of certain brand drugs and much administration for the GPs. The latter leads to reduced time during consultations.
- The lack of appropriate or adequate supervision on accessibility, quality and safety of care by IGJ and NZA as they are complaints-driven and have ineffective approaches to estimating quality, safety and accessibility. Consequently, the duty of care of health care insurers is not adequately evaluated. Furthermore, these entities point at one another when an alarming situation calls for a responsible entity to intervene and address the situation. The health care insurer also points to the local partners such as the associations of GPs as responsible actors. And when they are being called out for action or help from GPs or municipalities, they refer to other regions who are coping with the same GP accessibility issues, but still seem to somehow manage.
- The rigid legal system resulting in siloed financial streams per discipline, thereby hampering any reallocation of health care services in domains or innovation.

On possible solutions

The respondents all shared their visions for potential solutions to address the GP accessibility issues in Hollands Kroon. The following (ideas for) solutions were suggested:

- Extended task shifting: in most GP practices, some support from for example physician assistants or nurse practitioners is present, but this could be expanded.
- Rethinking the roles of substitute physicians and the permanent GPs: dividing tasks and type of health care services.
- Increasing the maximum number of students to start the GP training annually.
- Support self-sufficiency of citizens: the population of Hollands Kroon is recognized for being independent and complaining little and this attitude could be stimulated by empowering them with knowledge and training on medical services like first aid training.

This is mentioned along with “positive health” which aims to enable patients to contribute to their own health in an empowering manner.

- Related to the above solution is increasing the self-management of patients.
- E-Health was touched upon by all respondents but with different perspectives. GP associations felt like many (not all of) their members are a bit hesitant about using it to its fullest potential. A possible explanation is the conservative nature of the GPs in this municipality. This is experienced by the health care insurer as well. Additionally, some patients’ groups also experience difficulty using digital services. This is especially pressed by respondent L7, who perceives these solutions to hold positive outcomes on the long-term and for future generations but that (some of) the elderly currently either do not want to or are not able to use it and benefit from it. These people might even be feeling lonelier as personal/in-person contact between patient and health care provider decreases.
- Supporting and motivating patients/citizens to accept new GPs and/or being provided with different forms of GP care.
- Coached leadership/practice management: delegating organizational tasks to a professional employed at the GP practice or to a central management agency.
- Increasing and/or promoting the attractiveness of the region: in order to attract new GPs, Hollands Kroon should be marketed more as a municipality in which living and working is satisfactory.
- Financially supporting professionals interested in taking over or starting a GP practice.

Additional remarks

Some of the local stakeholders feel limited in their influence as central players such as health care insurance agencies and the ministry of Health (VWS) manage the funding streams. They do feel that in their local area they are able to mitigate the consequences of medical desertification through collaborations with municipalities and health and social care providers. However, the health care insurer representative pointed out that the attitude of some GPs (unwillingness to cooperate) is difficult to work with as they oppose change. Additionally, acceptance of and ability to adapt to changing circumstances of patients and GPs is one of the main challenges for them. A clear value that came forward during the interviews with the representatives of the senior citizens’ association, GP (representatives) and municipality council members was that the trust relationship between GPs and their patients should be safeguarded, which to them means that patients want to see predominantly familiar faces in the GP practices.

13. Overall findings

The findings of the research indicate that both the survey respondents and the interviewed key informants are well aware of the problems caused by GP shortages. They perceive them as increasingly serious, and the most affected regions and challenges are well known. Data on numbers of GPs, full-time equivalent of GPs, also per population, are collected on a routine basis,

available on public websites and visualised in graphs and infographics, so there are many sources of reliable and good quality data. The respondents also show a certain degree of consensus on the indicators that can be used to identify a medical desert in terms of GP access issues, such as distance, travel time, number of GPs per population, even if their opinions on maximum permissible values for these indicators vary somewhat.

In addition, the respondents demonstrate quite a lot of knowledge and awareness of issues related to quality of care (in general, not GPs per se), affecting especially vulnerable socio-economic groups, people in socially vulnerable areas, and people with low (health) literacy, in urban as well as rural areas. However, the extent of these problems, their impact and their development over time is not known exactly, because no data are systematically collected, monitored and shared publicly.

As to the question who is responsible for solving / mitigating medical deserts, the opinions of our respondents vary, and no straightforward picture emerges from our research. Duty bearers at national (central), regional and local level are all attributed part of the responsibility. References are being made, especially by interviewed persons, to localised initiatives to improve access to health and social care and alleviating the challenges people encounter, demonstrating a certain degree of self-sufficiency of the communities involved, either or not supported (financially) by their regional health insurer or municipal authorities.

14. Preliminary conclusions

To be validated during consensus building dialogues and national and EU level policy dialogues

The results are fairly consistent between the survey respondents, the interviewed key informants and the literature. However, it is clear that the respondents dealing with access to health care challenges professionally, are more aware of, and tend to speak more about the root causes of the phenomenon. Other respondents will share more information and viewpoints on the different manifestations of medical deserts, and the lived experiences of the communities affected. But they all share the same feeling of urgency to address the phenomenon, and recognise the phenomenon has both quantitative aspects (distance, travel time, waiting time, unmet medical needs) and qualitative aspects (perceived quality of care). Similarly, they see a role for many different stakeholders in addressing the problems, in line with the general tendency of broad political and stakeholder consultation in the Netherlands (‘polderen’). Even so, questions are raised about which entity is ultimately responsible and should be held to account and/or is key in addressing, mitigating and/or solving the problems.

The perceived level of medical desertification in the Netherlands is relatively low. However, the general consensus is that a certain erosion or impoverishment regarding the accessibility and quality of care can be observed, in specific areas and for specific population groups. If adequate indicators for healthcare access and quality can be identified, time series of these indicators, visualised on (a) map(s), could provide insight in the speed and direction of change over time, and function as an adequate monitoring tool, in addition to already existing static graphs and visualisations on Dutch websites.

15. Discussion

Points of discussion have also emerged from the research:

- Distance or travel time to a health care facility is irrelevant if there is no information on waiting lists and patient stops in that facility.
- The fact that there are many media reports on certain regions and their healthcare access challenges may indicate that these regions are already undertaking action to address those challenges. The number of media reports on a certain region alone is therefore not an indication of their suitability to be selected as a case study area.
- There seems to be no clearcut answer to the question if quantitative and qualitative indicators are equally important, what these indicators are or should be, and who should be responsible for collecting them.

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Annexe 2. Excel file with the data at municipality level

(The excel sheets with the data on the different indicators for all 345 Municipalities in the Netherlands can be provided upon request – they are too long to be included in this report)

Annexe 3. List of municipalities which qualify for being a medical desert

1. Tytsjerksteradiel (province of Friesland)
2. Loppersum (province of Groningen)
3. Achtkarspelen (province of Friesland)
4. Midden-Drenthe (province of Drenthe)
5. Westerveld (province of Gelderland)
6. Hollands Kroon (province of Noord-Holland)
7. Noardeast-Fryslân (pronvice of Friesland)

Annexe 4. National interview guide

1. *Which are the criteria that you consider when you think about access to medical services?*
2. *If you think about distance to doctors/practices/health care provision, is there a certain maximal distance that should be considered as minimal standard?*
3. *Is density of population related in any way to accessing health care services?*
4. *If considering medical desertification, on each of the following criteria [###], starting with which threshold would you say that a locality is a medical desert?*

   [###] criteria are mentioned based on the indicators available for each country.
5. 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?

6. *If you think about specific localities in our country, can you name one or several? Which ones?*
7. *When deciding whether a locality is a medical desert, should one compare its situation to other localities or standards? Which ones?*
8. *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?*

Annexe 5. Local Interview guide

This interview series is one of the data collection instruments of the AHEAD project which is an acronym for Action for Health Equity: Addressing Medical Deserts. In the project we aim to define the concept medical deserts with stakeholders which thus far has been formulated as a situation wherein specific population groups or people living in certain geographical areas face a suboptimal access to healthcare. Another objective is the development of policy options/solutions which are developed through a participatory approach to address medical deserts in Hollands Kroon but potentially other regions as well. This interview focusses on your perceptions and experiences with aspects of medical desertification in Hollands Kroon. Plus, I would like to reflect with you on the roles of different stakeholders in solving medical deserts and developing solutions in addressing medical desertification in Hollands Kroon. Do you have any questions about the project or the conduct of the interview before we start?
Then I would like to ask you if I may record this interview for research analysis purposes. I will delete the recording after I have transcribed it and the transcriptions will be deleted after the project has been finished (April 2023). I will process the interview data anonymously.

Okay, thank you. I will now start the recording.

Welcome today is [date] and I will ask once more for your permission to have this interview recorded. Am I allowed to record this interview?

X

Thank you. Then I will now start with the interview.

1. *To what extent do you have experience of living in an area with limited access to health services?*
2. *Can you explain what the term medical deserts means to you?*
3. *How would you describe your level of knowledge* about medical deserts?*
4. *Is the locality to you a medical desert? Why (not)?*
5. *Which are the criteria that you consider when you think about access to medical services?*
6. *Who is mainly affected by a lack of access to healthcare in this area?*
7. *How did it become a medical desert? / Why is this the case?*
8. *Do people living in Hollands Kroon think they are disadvantaged from healthcare provision?*
9. *How important are health care access challenges/medical desertification for your organisation or livelihood?*
10. *How interested are you in seeing medical deserts addressed? Why?*
11. *How would you rate your /your organisation's level of interest in addressing medical deserts?*
12. *What actions have you / your organisation taken to address medical deserts in Hollands Kroon?*
13. *What suggested solutions for addressing medical deserts does your organisation oppose to or have resisted in the past?*

14. *What could be your role / the role of your organisation in addressing medical deserts?*
15. *How much potential influence/power to you think you / your organisation has in [locality] to address a medical desert?*
16. *Which do you think are other important stakeholders to involve in addressing medical deserts in Hollands Kroon? Please explain why.*

Annexe 6. Full list of selected articles

Title	Media outlet	Date	In-tekst citation
Zorg in Hollands Kroon twee miljoen euro duurder	Noordhollands Dagblad	09/12/2020	
Gemeenten laten commercieel bedrijf zorg regelen: 'Maar wie echt professionele zorg nodig heeft, krijgt het. We laten niemand stikken'	De Gelderlander	02/10/2021	
'Een hoop jeugd voelt zich nu klemgezet';GGZ Een Ridder die zijn hart verloor aan de psychiatrie	Noordhollands Dagblad	28/01/2021	
De kosten voor huishoudelijke hulp zijn vorig jaar verzesvoudigd in Hollands Kroon. Bezuinigen dus? 'Het gaat om mensen, niet om een zak aardappels'	Noordhollands Dagblad	08/01/2021	
Welkom bij 't leed dat Incluzio heet	Noordhollands Dagblad	20/11/2019	
Wat als spreekuur van de dokter stopt?	Noordhollands Dagblad	29/06/2019	
Vage lichamelijke klachten? De huisartsen in Hollands Kroon sturen je door naar een coach die op zoek gaat naar de werkelijke oorzaak van je probleem	Noordhollands Dagblad	03/07/2020	(Noordhollands Dagblad, 2020b)
Stormloop op artsenpraktijk	Noordhollands Dagblad	17/07/2019	
Raad akkoord met proef om kosten huishoudelijke hulp te drukken	Noordhollands Dagblad	19/02/2021	
Op deze tien plekken in de Noordkop zijn nog AED's nodig om snel te kunnen helpen bij een hartstilstand	Noordhollands Dagblad	06/07/2020	
Onderzoek naar rol Incluzio in WMO	Leeuwarder Courant	18/12/2019	
Onderbezetting van artsenpraktijk leidt tot onderzoek; gezondheidszorg	Noordhollands Dagblad	22/09/2021	

Vaker arts via beeldscherm			
Nieuwe aanpak straten in Middenmeer; herontwikkelen Wijk gericht op 'inclusieve samenleving' - waar iedereen meedoet	Noordhollands Dagblad	22/12/2021	
Nauwelijks stijgende lasten in Hollands Kroon en een begroting in de plus. 'Het kan nog steeds in Hollands Kroon', aldus wethouder financiën Theo Groot	Noordhollands Dagblad	13/10/2020	
Jeugdzorg en WMO blijven flinke happen nemen uit het budget van Hollands Kroon, maar per saldo is de rekening te betalen	Noordhollands Dagblad	13/04/2021	
Je zieke partner krijgt een spoedopname, de broodnodige huishoudelijke hulp stopt daarom meteen. Hoe red je het dan als tachtig-plusser?	Noordhollands Dagblad	28/10/2020	
Jongeren in touw voor leeftijdsgenoten met psychische problemen. 'Je zit in dezelfde belevingswereld', verklaart De Hoofdzaak de kracht	Noordhollands Dagblad	09/09/2021	
Kinderen uit huis plaatsen? Als het even kan niet. Dus gaan Incluzio Hollands Kroon en Parlan samenwerken om dat te voorkomen	Noordhollands Dagblad	26/10/2020	
Kinderopvang en zorg onder één dak	Noordhollands Dagblad	23/05/2019	
Honderden vluchtelingen uit Oekraïne worden in de Noordkopgemeenten opgevangen. Maar hoe is bijvoorbeeld de medische zorg geregeld? 'We moeten de huisartsen een beetje delen'; Hoe is het gesteld met de zorg aan vluchtelingen uit Oekraïne?	Noordhollands Dagblad	22/06/2021	
Lichte psychische klachten? In Anna Paulowna verwijst de huisarts je door naar een sociaal makelaar om erger te voorkomen	Noordhollands Dagblad	25/03/2022	(Noordhollands Dagblad, 2020a)
Huisartsenpraktijken in Anna Paulowna en Breezand door Co-Med samengevoegd, na klachten over beperkte aanwezigheid van artsen	Noordhollands Dagblad	19/11/2021	(Noordhollands Dagblad, 2021b)
Huisartsenpraktijk samen	Noordhollands Dagblad	23/11/2021	
Huisarts uit praktijk zetten, dat doe je niet	Noordhollands Dagblad	19/07/2019	

Huisarts Verhuizers halen praktijkruimte van Van Heusden leeg	Noordhollands Dagblad	18/07/2019	
Hulpmiddelen helft duurder	Noordhollands Dagblad	14/08/2019	
Huurconflict zet zorg patiënten onder druk	Noordhollands Dagblad	25/05/2019	
Improviseren om patiënten aan medicijnen te helpen;reportage Apothekers importeren slecht verkrijgbare medicijnen nu uit België of Duitsland	Noordhollands Dagblad	23/01/2021	
Incluzio mag door met miljoenen extra	Noordhollands Dagblad	28/09/2019	
'Jaarlijks waren we vierduizend uur kwijt aan administratie'. Minder rompslomp voor gemeente na 'houten huwelijk' met Incluzio	Noordhollands Dagblad	06/08/2021	
Gemeente zet arts op straat	Noordhollands Dagblad	13/07/2019	(Noordhollands Dagblad, 2019a)
Goede jeugdzorg? Elke gemeente heeft zo zijn eigen idee	Trouw	04/12/2019	
Help! De dokter verdwijnt; Onderzoek De laatste huisarts	De Groene Amsterdammer	10/02/2022	(De Groene Amsterdammer, 2022)
Het 'houten huwelijk' van Hollands Kroon en Incluzio;interview Minder administratie, daardoor kan er dus meer geld naar de zorg, aldus wethouder	Noordhollands Dagblad	07/07/2021	
HKN: 'Niet wegkijken bij ontstaan knelpunten'	Noordhollands Dagblad	20/07/2019	(Noordhollands Dagblad, 2019c)
24-uurs noodopvang voor kinderen van ouders in zorg	Noordhollands Dagblad	31/03/2020	
40 procent meer AED's in Noord-Holland Noord	Noordhollands Dagblad	05/12/2019	
Alle zorg bij een bedrijf, maar wie controleert dat?	Noordhollands Dagblad	04/04/2020	
Artsenpaar in Anna Paulowna stopt, 'werkdruk te hoog'	Noordhollands Dagblad	29/05/2019	
Bezorgde telefoontjes richting de wethouder over bereikbaarheid Co-Med huisartsen. Als antwoord stuurt Hollands Kroon een brief naar de inspectie	Noordhollands Dagblad	06/03/2022	(Noordhollands Dagblad, 2022)
Huisartsen op Wieringen krijgen toestemming voor eigenlijk verboden oplossing: 'Anders ontstaat er een groot probleem'	Noordhollands Dagblad	10/10/2021	(Noordhollands Dagblad, 2021c)

Spreekuur artsen Anna Paulowna en Breezand stopt door huisartsentekort, zorgverzekeraar zorgt voor alternatief	Noordhollands Dagblad	28/06/2019	(Noordhollands Dagblad, 2019b)
Twee artsen ziek, twee op vakantie en geen waarnemer te vinden. En zo rest er soms even niets anders dan een arts via een beeldscherm Twee artsen ziek, twee op vakantie en geen waarnemer te vinden. En zo rest er soms even niets anders dan een arts via een beeldscherm	Noordhollands Dagblad	21/09/2021	(Noordhollands Dagblad, 2021a)

Annexe 7. Survey

1. What do you think of when you think of suboptimal care? (what is called care desertification in this survey)
2. Do you think there are areas in the Netherlands that you would consider 'care desert'? If so, what areas are they?
3. What criteria do you use for this?
4. When did these areas become care deserts?
    a. They always were
    b. During last plm. 5-15 years
    c. During last plm. 0-5 years
    d. I don't know
5. In your opinion, what are the causes of this problem?
6. Do you think there are (population) groups in the Netherlands that have suboptimal access to care? If so, which ones?
7. What criteria do you use for this?
8. When did these areas become care deserts?
    a. They always were
    b. During last plm. 5-15 years
    c. During last plm. 0-5 years
    d. I don't know
9. In your opinion, what are the causes of this problem?
10. Do you consider (sub)optimal access to care to be an absolute concept or a relative concept? Can you explain that?
11. What do you think are appropriate benchmarks to compare care deserts with?

	Unsuitable	Not very suitable	Suitable	Very suitable	I don't know / no opinion	No answer
Standards defined by experts in your own country	•	•	•	•	•	•
The national average	•	•	•	•	•	•
The provincial average	•	•	•	•	•	•
Standards defined by international experts	•	•	•	•	•	•
The EU average	•	•	•	•	•	•
OECD average	•	•	•	•	•	•
Otherwis	•	•	•	•	•	•

e, namely:						

12. What do you think is important for optimal access to general practitioner care?

	Very unimportant	Unimportant	Important	Very important	I don't know/ no opinion	No answer
Distance to GP	•	•	•	•	•	•
Number of GPs per 1000 citizens	•	•	•	•	•	•
Travel time to GP	•	•	•	•	•	•
Waiting time for a GP appointment	•	•	•	•	•	•

13. What do you think is important for optimal access to emergency care?

	Very unimportant	Unimportant	Important	Very important	I don't know/ no opinion	No answer
Distance to emergency care	•	•	•	•	•	•
Number of emergency care providers per 1000 citizens	•	•	•	•	•	•
Travel time to emergency care ward	•	•	•	•	•	•
Waiting time at emergency care ward	•	•	•	•	•	•

14. What do you think is important for optimal access to pharmacies?

	Very unimportant	Unimportant	Important	Very important	I don't know/ no opinion	No answer
Distance	•	•	•	•	•	•

to pharmacy						
Number of pharmacists per 1000 citizens	•	•	•	•	•	•
Travel time to pharmacy	•	•	•	•	•	•
Waiting time for a pharmacy appointment	•	•	•	•	•	•

15. What do you think is important for optimal access to hospital care?

	Very unimportant	Unimportant	Important	Very important	I don't know/ no opinion	No answer
Distance to hospital	•	•	•	•	•	•
Number of hospital care providers per 1000 citizens	•	•	•	•	•	•
Travel time to hospital	•	•	•	•	•	•
Waiting time for a hospital appointment	•	•	•	•	•	•
Ambulance arrival time	•	•	•	•	•	•

16. What do you think are the maximum permissible values of the following aspects of access to care?

	*If you do not know or do not have an opinion, fill in an X and if you do not want to give an answer then a /		
	Distance (KM)	Travel time (minutes)	Waiting time (days)
GP			
Emergency care			
Pharmacy			

Hospital care			
Other type of health care service:			
Any explanation of your answers:			

17. How important do you think the following aspects of access to care are? Drag the topics to indicate your priorities, with the most important aspect at the top of the list (No. 1).

_____ Distance (KM) to care provider
_____ Travel time to health care (provider)
_____ Waiting time (for appointment with healthcare provider)
_____ Additional criterion, namely:

18. In general, do you see the geographical distance between patient and care provider increasing in the Netherlands? If so, what do you think are the causes of this?

19. In general, do you see an increase in the waiting time for an appointment with a healthcare provider in the Netherlands? If so, what do you think are the causes of this?

20. In general, do you see an increase in the travel time to an appointment with a healthcare provider in the Netherlands? If so, what do you think are the causes of this?

21. How worrying do you find the existence and emergence of care deserts?

o Not worrying
o Of limited concern
o Worrying
o Extremely worrying
o Don't know / no opinion
o No answer

22. To what extent do you have to deal with care desertification and/or its consequences in your work?

o Not at all
o To a limited extent
o To some extent
o To a considerable extent
o Don't know / no opinion
o No answer

23. What priority should solving care deserts have in the Netherlands?

o No priority
o Low priority
o Average priority
o High priority
o Don't know / no opinion
o No answer

24. Do you/your organization feel able to contribute to solving problems in terms of access to care?

25. Do you know of any organisations in the Netherlands that are specifically concerned with solving problems in 'care deserts'? If so, which ones?
26. Can you name an organization in the Netherlands that, in your opinion, should be specifically concerned with solving problems in 'care deserts'? Can you explain this?

27. The AHEAD project explicitly looks at the influence of different individuals and parties on the problems of care deserts. How much influence do you think the parties or individuals below can exert on combating care desertification?

	Negligible	Limited	Average	Major	Don't know / No opinion	No answer
Patients	•	•	•	•	•	•
Patient organizations	•	•	•	•	•	•
Health care providers	•	•	•	•	•	•
Professional associations	•	•	•	•	•	•
Health care insurers	•	•	•	•	•	•
Local and/or citizen initiatives	•	•	•	•	•	•
Local political parties	•	•	•	•	•	•
National political parties	•	•	•	•	•	•
Local government	•	•	•	•	•	•
Central government	•	•	•	•	•	•
Own organization	•	•	•	•	•	•
Otherwise:	•	•	•	•	•	•

28. Do you know of any examples of healthcare desert solutions that are currently being applied (or implemented)? Fill in the solutions (max. 3) and state to what extent they are already being applied.

	Applied: no	Applied: slightly	Applied: yes	Don't know/ no opinion	No answer
Solutio	•	•	•	•	•

n 1					
Solution 2	•	•	•	•	•
Solution 3	•	•	•	•	•

28. The AHEAD project explicitly looks at the involvement of various individuals and parties in the problem of care deserts. How important do you think it is that these individuals and organizations are involved in solving the problem?

	Not important	Limited importance	Important	Very important	Don't know / No opinion	No answer
Patients	•	•	•	•	•	•
Patient organizations	•	•	•	•	•	•
Health care providers	•	•	•	•	•	•
Professional associations	•	•	•	•	•	•
Health care insurers	•	•	•	•	•	•
Local and/or citizen initiatives	•	•	•	•	•	•
Local political parties	•	•	•	•	•	•
National political parties	•	•	•	•	•	•
Local government	•	•	•	•	•	•
Central government	•	•	•	•	•	•
Own organization	•	•	•	•	•	•
Otherse:	•	•	•	•	•	•

29. Are you/your organization involved in solving problems in terms of access to care? If so, in what way?

30. In the project, 3 maps have been developed to visualize different aspects of care desertification. We are curious about what you think of the content and design.

Map 1: Number of GPs within 5km

	Not true	To a limited extent true	To a big extent true	True	Don't know / no opinion	No answer
This map fits well with what I know about the situation in the Netherlands	•	•	•	•	•	•
This map contains surprising new information for me	•	•	•	•	•	•
Additional comments or suggestions:	•	•	•	•	•	•

31. Map 2: Distance to the nearest GP practice in km

	Not true	To a limited extent true	To a big extent true	True	Don't know / no opinion	No answer
This map fits well with what I know about the situation in the Netherlands	•	•	•	•	•	•
This map contains surprising new information for me	•	•	•	•	•	•
Additional comments or suggestions:	•	•	•	•	•	•

32. Map 3: Number of hospitals within 20 km, including outpatient clinics

	Not true	To a limited extent true	To a big extent true	True	Don't know / no opinion	No answer
This map	•	•	•	•	•	•

fits well with what I know about the situation in the Netherlands						
This map contains surprising new information for me	•	•	•	•	•	•
Additional comments or suggestions:	•	•	•	•	•	•

33. The statements below are about the design and added value of the cards.

	Totally disagree	Disagree	Agree	Totally agree	Don't know / no opinion	No answer
The maps are easy to interpret.	•	•	•	•	•	•
The legends for these maps are clear and intuitive.	•	•	•	•	•	•
The descriptions for these maps are clear and enlightening.	•	•	•	•	•	•
These maps are a useful tool when studying the problem.	•	•	•	•	•	•
I find these cards innovative.	•	•	•	•	•	•

These 3 maps together give a good picture of the existence of 'care deserts' in the Netherlands.	•	•	•	•	•	•

34. What other indicators would you like to see displayed on a map to gain a good/better insight into care deserts in the Netherlands?

35. Do you have any suggestions for the design or content of these cards?

36. Do you have suggestions for another word for 'care desert' and/or 'care desertification'?

37. What kind of organization do you work for?
    - Working in healthcare
    - Working at a patient organization / organization that defends the interests of insured persons / citizens / specific population groups
    - Working at a (national) professional or branch organization
    - Working at health insurer
    - Working at a scientific or knowledge institution
    - Working at national political party
    - Working in local government
    - Working in central government
    - Otherwise, namely...

38. How long have you been working in this field?
    - 0-5 years
    - 5-15 years
    - More than 15 years

39. Do you work at local, regional, provincial or national level?
    - Local
    - Regional
    - Provincial
    - National

40. In which municipality do you work?

41. In which region do you work?

42. In which province do you work?

43. Year of birth

44. Finally, if you have any suggestions or comments for us, you can share them with us below.

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