Putting care in place

Exploring the impact of regional differences on the general practitioner practice: a comparative analysis of a rural and urban region in the Netherlands

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ABSTRACT

Background – Dutch health care practice is constantly changing. What is the effect of regional characteristics on the shaping of the general practitioner practice? This research will focus on different socio-demographic, physical and organizational aspects of the health care demand and supply in the GGD regions of Amsterdam and Groningen and evaluated from a general practitioner perspective. The question to be answered is: "What is the impact of regional differences in the development of general practitioner practice?"

Aim – to conduct a comparative analysis of a rural and urban region in the Netherlands, in order to find characteristics that could potentially benefit or hinder certain aspects of general practitioner housing.

Design and setting – Information obtained from statistical data and interviews with health care organizations.

Method – The research will follow a mixed methods design: an explanatory sequential mixed method. Firstly, statistical data of the demand side (demographics, geographic and income) will be collected. Then, an analysis will be made on the supply side. Finally, follow-up interviews will be conducted with several general practitioners to gain a deeper understanding of their experiences and motivations.

Results – People seek and need care more often in Amsterdam. People in Groningen are more independent, thus often taking care of each other rather than seeking professional care. Urban patient issues are more often connected to socio-economic issues, asking for a more holistic picture of the patient. Merging GP practices is inevitable for feasibility: it provides more robust structures in terms of financial business case and availability of staff. The potential of combining practices is larger in urban regions like Amsterdam due to overall closer proximity and the overlap of service areas. Collaboration with fellow health care professionals is viewed as crucial for all GPs regardless of the regions in order to provide effective care. Local structures serve twofold functions: the sharing of staff and more frequent and personal consultations. Regional structures can take a lead role in the distribution and effective organization of care. National organizations coordinate nation-wide policy that needs regional alignment and finetuning. In both financial and legal matters, there are improvements to be made. Future plans and organizations are set up nation-wide, a regional coordination approach is more effective in tackling local issues while still having the impact of a larger collaboration.

Conclusion – The impact of regional differences on general practitioner practice is significant. It has many elements and they should be addressed in order to effectively cope with current challenges in the sector.

Practical implications – This research provides actionable insights for involved actors to understand and to account for regional differences in the shaping of the general practitioner care practice and system.

KEYWORDS – health care, general practitioner, region, organization, housing

Management summary

English
This thesis explores how regional characteristics shape general practitioner (GP) practices in the Netherlands, through a comparative analysis of the urban region of Amsterdam and the rural region of Groningen. Using a mixed-methods approach, the study examines both healthcare demand (demographics, income, health behavior) and supply (practice types, proximity, collaboration, and organizational structures).

Key results reveal that:

- Amsterdam shows higher healthcare demand, driven by a culturally more diverse, and socio-economically challenged population. GPs here often face non-medical issues and benefit from integrated, collaborative health centers.
- Groningen residents are more self-reliant, leading to fewer GP visits but potentially more complex cases. GPs in rural areas take on broader responsibilities due to limited access to secondary care and greater distances.
- Collaboration is universally valued, but more feasible in urban areas due to higher GP density and overlapping service areas. In rural areas, collaboration is hindered by distance but remains essential.
- Merging practices is increasingly necessary for financial and staffing sustainability, especially in urban areas.
- Regional organizations (RHOs) and municipalities play a crucial role in coordinating care, sharing staff, and supporting new developments.
- National policy must better align with regional realities, particularly regarding GP financing and legal status.

The study concludes that regional tailoring is essential for effective GP care delivery. Real estate strategies should support adaptable, collaborative, and region-directed healthcare environments.

Nederlands
Deze scriptie onderzoekt hoe regionale kenmerken de organisatie van huisartsenpraktijken beïnvloeden, aan de hand van een vergelijking tussen de stedelijke regio Amsterdam en de landelijke regio Groningen. Via een mixed-methods aanpak worden zowel de zorgvraag (demografie, inkomen, gezondheid) als het zorgaanbod (praktijkvormen, nabijheid, samenwerking en organisatie) geanalyseerd.

Belangrijkste resultaten tonen aan dat:

- In Amsterdam de zorgvraag hoger is, mede door een cultureel diverse en sociaaleconomisch kwetsbare bevolking. Huisartsen behandelen hier vaker niet-medische problemen en werken in geïntegreerde zorgcentra.
- In Groningen zijn inwoners zelfstandiger, wat leidt tot minder huisartsbezoeken maar complexere casussen. Huisartsen nemen hier meer taken op zich vanwege grotere afstanden en beperkte toegang tot vervolgzorg.
- Samenwerking is cruciaal in beide regio's, maar in stedelijke gebieden makkelijker te realiseren door hogere dichtheid en overlappende werkgebieden.
- Fusies van praktijken zijn noodzakelijk voor financiële en personele continuïteit, vooral in stedelijke gebieden.
- Regionale organisaties (RHO's) en gemeenten spelen een sleutelrol in het coördineren van zorg, delen van personeel en ondersteunen van nieuwe ontwikkelingen.
- Nationaal beleid moet beter aansluiten op regionale verschillen, met name op het gebied van financiering en juridische status van huisartsen.

De studie benadrukt dat regionale afstemming essentieel is voor toekomstbestendige huisartsenzorg. Vastgoedstrategieën moeten gericht zijn op flexibele, samenwerkingsgerichte en door de regio gestuurde zorgomgevingen.

1 INTRODUCTION

1.1 Research context

There are very few humans that have never seen the inside of a hospital. One could consider these people the lucky few, but it could also mean the opposite: although we have become stronger as a species over time, the need for care and healing has nonetheless always been around the corner.

The Netherlands ranks among the top countries when it comes to health care organizations. For instance, in the Euro Health Consumer Index (EHCI), where European countries are evaluated in six categories: Patient Rights & Information, Accessibility, Outcomes, Range and reach of services provided, Prevention and Pharmaceuticals, the Netherlands is the only country that has, since the first EHCI publication in 2005, scored a top 4 position in all categories. In 2024, it was the highest ranked country in the European Union (EHCI by Country, 2024), only trailing non-EU country Switzerland. What's more, is that the average length of hospital stay is the shortest in Europe (Eurostat, 2021) and has continued to go down over the years (De Staat van Volksgezondheid en Zorg, 2022).

1.2 Research problem

Despite the fact that the Netherlands scores so extraordinarily well across all domains and in comparison to other countries, there are quite a few problems that have occurred and continue to emerge. Financial feasibility problems (Skipr, 2024), demographic changes (Colliers, 2023), sustainability ambitions (Achmea, 2021) and fluctuations in available labor forces (FMT Gezondheidszorg, 2024), among others, have all forced the health care systems to reconsider and possibly alternate its course.

Another development is that our care system has become more complex over time. Figure 1.1 shows the amount of 'care activities' that each of 2750 official and registered diagnoses incorporates. The

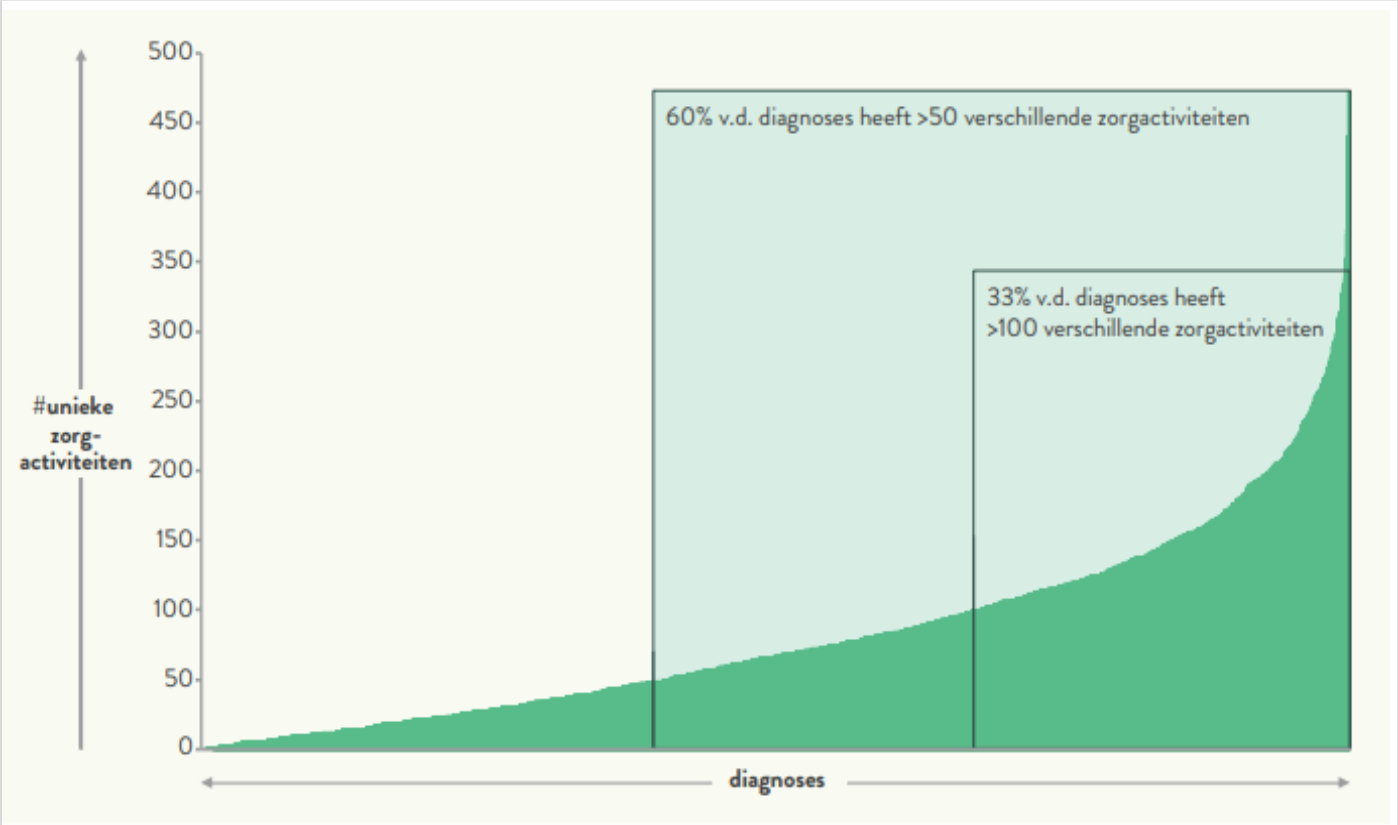

Figure 1.1 - Care activities required for each of 2750 registered diagnoses. Retrieved from Gupta Strategists (2023).

small box at the right-hand side shows that one third of the diagnoses require more than 100 care activities. Over time, increasing quantities of specialties have appeared, resulting in a very complex care system. As Gupta Strategists (2023) states it:

"Due to the growth in treatment options and super-specialization, the 'map of hospital care in the Netherlands' has become very extensive. There are now many 'care stations,' each with its own facilities and specialized healthcare professionals. Where a patient 150 years ago would typically visit just one station (the general practitioner) on their journey... today, they often can't see the full range of options available to them."

This increased complexity, in combination with the problems mentioned above, puts increasing pressure on the system. The Dutch government has started programs and coalitions to help the health care practice transition in a couple of ways. A report from non-profit research organization TNO (2020) states two future changes to keep the health sector future proof and vital:

- *A shift from "Illness and Care" to "Health and Behavior," focusing on self-reliance and individuals taking control of their own health (client-centered approach).*
- *The extramuralization of care, where care and support will increasingly be provided at citizens' homes and other locations outside traditional care institutions.*

That is also what a report from Ministerie van Volksgezondheid, Welzijn en Sport (Ministry of Health, Wellbeing and Sports) concludes in their strategy for primary care institutions:

"Our goal is that by 2030, primary care professionals will collaborate in close-knit community networks. [...] These networks will include, at a minimum, general practitioners, community nursing, pharmacists, and social domain professionals. [...] Depending on the needs within the community, a broader composition may be chosen, such as including physical therapists, dietitians, geriatric specialists, intellectual disability physicians, and, in specific cases, possibly dental care professionals or midwives." (Ministerie van Volksgezondheid, Welzijn en Sport, 2024)

In more general terms, there is a shift in mentality that will continue to take place in the coming future. This change is depicted in Table 1.1 and portrayed on four different levels, going from conceptual to practical implications.

On a real estate level, there will be a shift in focus from the (inter)national (tertiary care) and regional (secondary care) facilities towards a local care system that focuses on specific city districts or neighborhoods, where "residents can find a healthcare facility and enjoy standardized medical and healthcare services within 15 minutes' walk near home." (Peng, 2022). This is why, in order to keep the health system performing exceptionally, the Netherlands needs to focus on keeping people healthy rather than healing them when they are sick.

Table 1.1 - Changes in care. Source: author.

Change in	From	Towards
Concept	Cure and care	Prevention and promotion
Goal	Treating sickness	Remaining healthy
Practice	Regular checkups	Continuous monitoring
Real estate	The regional hospital	Our homes and local facilities

One of the issues that comes up – among others – when looking at Table 1.1 and all the changes in care mentioned before, is whether the spreading or decentralizing of facilities can be fully accounted for by digitalization and information sharing within that 'close-knit community network' of different care disciplines that the Dutch government promotes, or whether there are benefits of being physically close to fellow care professionals that are being overlooked. In other words: what is the effect of the fragmentation, or vice versa: the integration of health care providers on the interdisciplinary collaboration, consultation and cooperation? Nivel, one of the lead organizations for health care organization monitoring, makes that comment as well, by stating in their paper on organization forms for general practitioners: "The comparative study between practices that are part of a chain and those that are not, provides the opportunity to investigate the effect of chain formation on the quality of general practitioner care. This can further enrich the societal debate on this topic." (Jansen et al., 2023).

1.3 Research question

The research question that comes from the challenges and questions addressed in the previous sections is as follows:

"What is the impact of regional differences in the development of general practitioner practice?"

The goal is to explore the impact of regional differences on the structure and development of general practitioner practices and it will be a comparative analysis of rural and urban regions in the Netherlands. The approach is to investigate the different regions on socio-geographical aspects and on general practitioner situations and to analyze the differences. The structure will be an explanatory sequential mixed method, trying to grasp the reasoning behind certain phenomena. The findings will inform strategies for optimizing healthcare delivery and incorporating regional differences in developments. The following sub questions build an answer towards the main question:

SQ1: What are the demographics, health and wealth characteristics of the different regions?

The first sub question focuses on the demand side of the health care practice. The analyses of the regions of choice aim to get a view on the health care needs of an area and to understand the differences in demographic composition, the status of wealth and of wellbeing in the region. The method that will be followed is a quantitative analysis of the regions. The demand aspects of the health care will be looked at. The proof of concept will be publicly available national and regional datasets such as, but not limited to, CBS, RIVM, and Eurostat.

SQ2: How is the health care supply structured in the different regions?

The second sub question focuses on the supply side of the health care practice. The aim is to gain insight into what the physical and professional situation of general practitioners is. An insight will be gained in terms of accommodation and proximity to other health care services, and the professional network. The method will be a quantitative analysis of the regions, focusing on the health care supply side. The proof of concept will be quantitative data on practices and collaboration of general practitioners.

SQ3: What is the role of these variations in the differences in general practitioner practice?

The last sub question aims to interpret the results of the first two questions and to gain a deeper understanding of the possible relationship between the two. It is in fact a gap analysis between the practice demand and supply side of the health care system. The method will be to conduct interviews with GPs and other actors in the region, in order to find reasoning behind the quantitative aspects. The proof of concept will be qualitative data such as firsthand deeper insights from general practitioners regarding their experiences.

2 LITERATURE REVIEW

In the following section, an in-depth review of the concepts within the research questions will be done, as well as making a connection to existing literature. This section places the research topic within the broader scientific literature. It shows what is already known about the research questions, both empirically and theoretically.

2.1 Identifying concepts

In order to explore the existing literature about the subjects at hand, the concepts that appear in the research questions must be identified. This section extensively discusses each research question and identifies the main concepts. It is crucial that all the concepts that are part of the research questions are addressed and defined in the literature study.

2.1.1 RQ1 concepts

What are the demographics, health and wealth characteristics of the different regions?

Sub question 1 has four main concepts which should be defined. First of all, a definition must be made for the regions. This is important, because it strongly influences the scope of this research, and it partly coincides with the case selection in 0. The two regions of choice for the case study can represent many cases within the Netherlands.

The concepts of demographics, health and wealth must also be explained. Demographics can involve many aspects, but only those relevant for this research should be identified. Health and wealth are important factors in order to be able to determine the demand for health care within this region, but what exactly is meant by this is to be determined.

Concepts: *region, demographics*

2.1.2 RQ2 concepts

How is the health care practice structured in the different regions?

Research question 2 focuses on the health care supply side of this study. There are several ideas that must be clarified before continuing to operationalization.

It was mentioned before that there is a transition going on in the care practice, going from a centralized health care system with regional and academic hospitals to a decentralized care system where care – or more precisely: the *prevention* of care – predominantly takes place beyond the scope of the hospital and closer to the realm of our personal lives. This transition must be explained more thoroughly as aspects like the scope and impact of the transition on user, care practice and business case are important to define before continuing to the impact on the practice and proximity. Because the care is 'taken out of' the hospital and GP practice, the question also raises to what extent the practice will stay as it currently is, or whether the future will move towards a more hybrid focus and, for instance, an increased sharing of spaces. These different levels of hybridity and sharing must be examined in order to make a statement about its potential in different regions.

The topic of the patient journey is closely connected to this transitioning care practice. As is depicted in, the average patient's journey has become increasingly complex over time. A closer look will be taken at what is exactly meant by the term, and what influences it the most. Is a complex patient journey problematic or inevitable due to more (complex) treatments becoming available? Here, digitalization and the sharing of spaces is also a topic, as this possibly is a part of that transitioning health care practice.

It also must become clear what is meant by both primary and secondary care, because this research takes place at the overlap between the two. To define these two care domains is to define the (possible) intersection.

Concepts: *primary care, secondary care, patient journey, transitioning care practice, sharing of spaces*

2.1.3 RQ3 concepts

What is the role of regions as a cause for the differences in gp care?

The third question builds on the results of the first and second sub questions. The differences in terms of demand and supply (like the collaboration and the proximity) in the regions are cross-checked as possible influences in different general practitioner practices.

Concepts: *collaboration, proximity*

2.2 Defining concepts

The concepts identified in paragraph 2.1 will be defined using existing literature and further discussed. A preliminary step will be taken towards the operationalization and sensitization of these concepts. A large part of the definitions will be derived from official government plans and/or documents. More specifically, the Nederlandse Zorgautoriteit (NZA, Dutch health care authority) is a government organization which sets the rules for healthcare providers and health insurers and monitors compliance with them. It publishes a report on the status of Dutch health care every year. The basis for this monitoring is the 'Integraal Zorgakkoord' (IZA, Integral care agreement) which was published by Ministerie van Volksgezondheid, Welzijn en Sport (VWS, Ministery of public health, wellbeing and sports) and a wide range of market parties in 2022, including all hospitals and insurance companies. The goal of this IZA is to align the challenges and more importantly, the goals for the health care reorganizations for the coming years. Because this agreement is regarded as a basis for all developments and transitions in the coming years, this research paper will base its definition of, for instance, the transitioning health care system on the Integraal Zorgakkoord, from now on referred to as IZA (ActiZ et al., 2022). It provides a road map for the near future, which is partly already in motion.

2.2.1 Region

There are many ways to subdivide any country, even when solely regarding the subject of health care. There are many instances that form a network, each

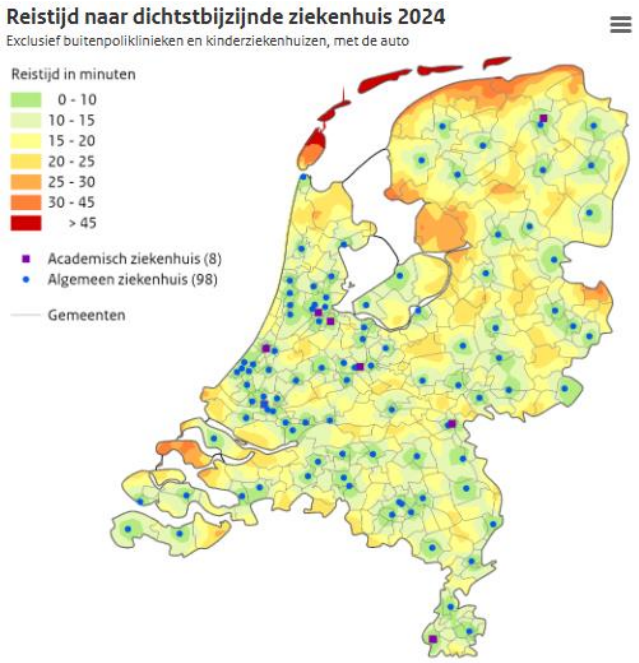

Figure 2.1 - Map of hospitals and their travel time zones. Source: Ziekenhuiszorg | Regionaal | Locaties (2024).

in their own area. One way to do that is to view the area around a hospital as a 'region'. This would subdivide the Netherlands in 106 regions, depicted in Figure 2.1 (Ziekenhuiszorg | Regionaal | Locaties, 2024).

As the map shows, the distribution of hospitals is not geographically equally distributed, but most likely according to population size. It does show clearly that the northern part of the Netherlands has a longer travel time compared to the Randstad region in the middle eastern region. A different way of

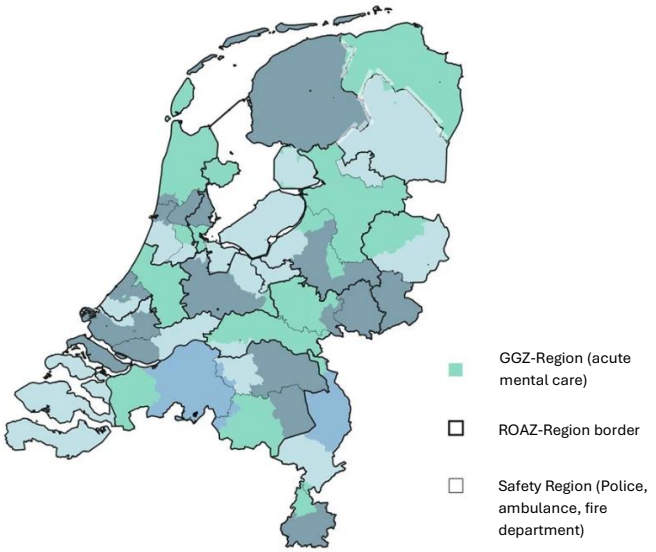

Figure 2.2 - GGZ, ROAZ and Safety regions. Source: Verschillende Regio-indelingen in De Zorg (2020).

splitting up the country is to look at the ROAZ regions (Regionaal Overleg Acute Zorg; Regional acute care consultation), which are based on the reachability of hospitals. The Netherlands hosts 10 of these regions, but they focus however on the critical care domain rather than the primary care domain. Interestingly enough, there are multiple ways that the country could be subdivided when it comes to acute care. This is shown in Figure 2.2, where three different ways overlap: the critical mental care (GGZ) regions, ROAZ regions and so-called safety regions which is based on first responder cooperation (police, ambulance and fire brigade). Although the organizations depicted should work together closely in acute care within the same region, there is a slight discrepancy in how these regions are actually demarcated.

The IZA (ActiZ et al., 2022) defines regions according to the 'zorgkantoorregio' (care office region), which divides the country in 31 sections according to which health insurance company is the most dominant in that region (Regiobeelden en Regioplannen | Zorgkantoorregio's, n.d.). This is a different approach, but a logical one for this agreement, since the health insurance company, unlike the hospital, has the 'duty to care' (Ministerie van Volksgezondheid, Welzijn en Sport, 2025) so they are the stakeholder that can be held accountable for the quality of care in the Netherlands.

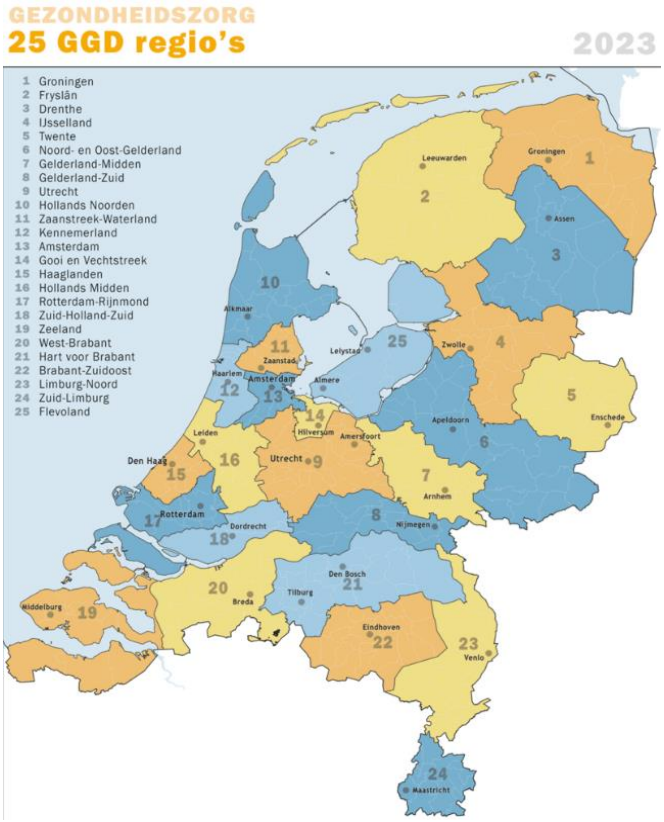

Figure 2.3 - GGD regions in the Netherlands. Source: Van Aalst (2024).

Another way to present the Netherlands is according to the RegioPlus association logic, which is an umbrella organization for all the employers' organizations (1.500) that represent all care professionals (1.500.000) within the country (RegioPlus, 2024). Officially there are 12 regions but notably not according to the 12 provinces and thus 12 organizations. So rather than a focus on the patient, this definition of region is focused on the care professionals. The statistics website CBS will frequently offer data on health and health care based on the GGD regions (Gemeentelijke Gezondheids Dienst, municipal health service). This division came to exist in 1990, and the 25 regions are composed of municipalities that closely cooperate in terms of health care services (De GGD in Jouw Regio, n.d.). The GGD and 'zorgkantoorregio' approach of partitioning the Netherlands have a large degree of overlap and provide the most accurate and practical data and other information, so this research paper will follow the GGD definition of a region where possible.

2.2.2 Demographics

In terms of demographics, there are many things a researcher could consider. For this research the goal is to find potential differences in care practice in different regions. To get a distinct view on how these regions are composed, the goal is to gather information on the inhabitant health and wealth. Exact data gathering will become clear in the operationalization, but examples would be income, age, (primary and secondary) care visits, perceived wealth and household status. These data are mostly publicly available on the CBS website (CBS Statline, 2024).

2.2.3 Patient journey

According to Gualandi et al. (2019) the patient journey is a 'cross-functional business process in

the hospital context.' It is described as a pathway in which patients and healthcare providers share action and information flows across multiple moments involving people and systems. The authors emphasize, among other things but most importantly, that the patient journey includes the entire patient experience, from the initial appointment to discharge and the follow-up care that comes after that. It is the only actor (unlike the doctors) that connects every stage of the process, integrating all the interactions and touchpoints which a patient encounters. These touchpoints include engagement with hospital staff, organizational processes, institutional policies and the physical environment of the hospital.

Joseph et al. (2023) investigate in their literature review the relationship between patient journey mapping and so-called Learning Health Systems (LHS). They define the patient journey as follows: "*in a health care context, journey maps can illustrate complex service delivery bottlenecks and describe the user experience across the continuum of care*." They list five patient journey mapping methods, shown in Table 2.1. Each technique provides a different perspective on the patient's experience.

They also define the so-called LHS as being a system that can "*harness the power of data and analytics to learn from every patient and feed the knowledge of 'what works best' back to clinicians, public health, and other stakeholders to create cycles of continuous improvement.*" In a broader perspective, the authors reviewed 8 different papers and came up with two main overarching findings: (1) the need to evolve service delivery models in health care and (2) the potential value of using patient journey data in an LHS. This stresses the importance of using the patient journey mapping in alterations in care practice, including the current ongoing transition in Dutch health care.

Peng (2022) defines the patient journey as '*all the matters around patient cure and care that comprise both the procedures and patients' experiences during their stay in a healthcare facility or in the healthcare system',* and he takes a follow-up step by formulating three elements in very concise language how the patient journey could be improved, which is to minimize the distances patients need to travel, the time they must wait, and the number of visits required. The goal would be to boost patient satisfaction and improve care efficiency and continuity from both medical and financial perspectives. An example of this is that personal continuity between a specific patient and GP has been linked to appropriate medicine prescribing (Winkel et al., 2023) and survival in elderly people (Maarsingh et al., 2016). The emphasis is on a patient-centered approach, placing the patient's experiences at the core of care design, improving the outcomes for them, ultimately making the care more effective.

Table 2.1 - Mapping techniques. Source: Joseph et al. (2023)

Mapping technique	Description
Mental Model	Visual analysis of the cognitive processes an individual may experience in their interactions with an activity, organization, or service
Experience	Overall human experience of an individual's activities not specific to an organization, product, or service
Customer Journey	Shows consumer interactions using a specific service, organization, or product
Service Blueprint	Experiences from a systems view and relationships between organizational processes, individuals, and service delivery
Spatial Map	Broad view of relationships between processes, service delivery, and individuals

2.2.4 Primary, secondary, tertiary and paramedical care

There is a distinction between different care organizations. This distinction is important, as this research will take place at the interface of multiple (para)medical care disciplines, between care and cure, and both inside and outside of the hospital. To define the types of care is to define the scope of the research. A second reason for defining these concepts is in order to describe the transition that's taking place, the subjects of transition must be described first. This starts with making a distinction between formal and informal care, where formal care is seeking the help of a professional and informal care is for instance the sharing of experiences by fellow patients or interest groups without professional knowledge. Primary, secondary and tertiary care all involve someone in a professional role, therefore the overarching category for these disciplines will be formal care. This is depicted in Figure 2.4. Primary care in essence is regarded as all care that a patient can make use of without a referral from a general practitioner, including paramedical care. The IZA (Actiz et al., 2022) mentions the following practices: care provided by general practitioners, pharmacists, paramedics, community nursing, geriatric specialists, physicians for individuals with intellectual disabilities, primary care residential facilities, and geriatric rehabilitation services. Maternity care and oral health care are also regarded as primary care, but these are not in the scope of the IZA. The common denominator of all these practices is that they can be approached by the patient themselves and are limited in terms of health insurance coverage. The patient often has the choice to include insurance for a particular type of primary care service, but this is always voluntary.

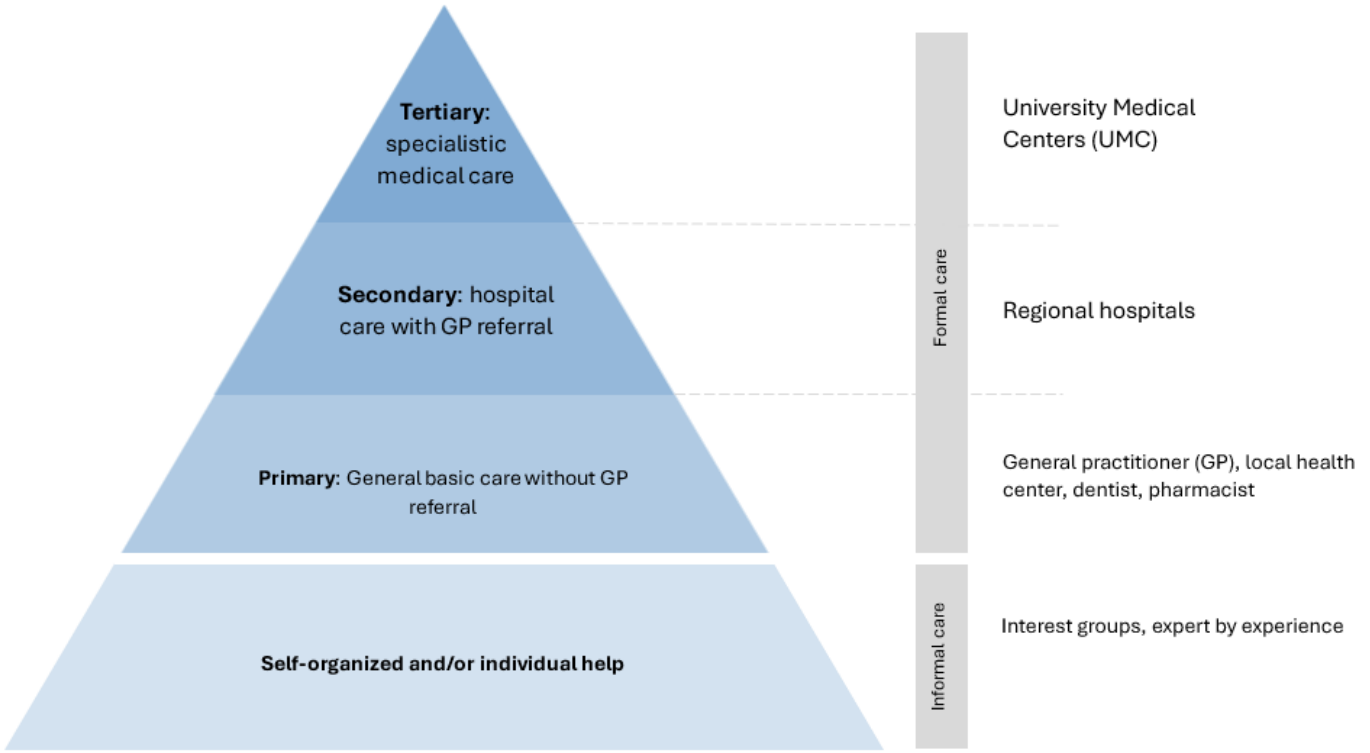

Figure 2.4 - Dutch care pyramid structure. Source: author.

In secondary care everything is included that falls under medical hospital care but is limited to non-specialistic treatments. This boils down to all care in general hospitals.

The difference between secondary and tertiary care – which also entails hospital care – is that the latter involves all top-notch front line and sometimes experimental care, which takes place in the academic hospitals. As the Dutch Federation of University Medical Centers states it: '*The embedding*

of research and education within the most complex care distinguishes university medical centers (UMCs) from top clinical and general hospitals (Over De Umc's, 2024). The Netherlands hosts eight UMCs, spread out all over the country. The vision of the IZA is that these academic hospitals should focus on specialization rather than spreading knowledge equally among the different locations and regions.

Interestingly enough there is a fine line between primary and secondary care, despite the prerequisite to have a GP referral to be eligible for secondary caregivers. There have been small scale experiments for the 'interconnecting of services', one of which took place in Appingedam in the Dutch province of Groningen. Spoo et al. (2019) present results of this three-year study on joint consultations between dermatologists (secondary care) and general practitioners (primary care), concluding that this collaboration improves the quality of care and reduces unnecessary referrals to secondary care. The study reveals that 80% of the 572 diagnoses made could be treated within primary care.

Another initiative was started in The Hague, in which a social cost-benefit analysis for a new so-called Integrale Gezinspoli (IGP, integral family policlinic) was done. The aim of this IGP is to create a place outside of the hospital where (expectant) families with medical and social vulnerabilities are supported by professionals from both the medical and social domains. The analysis report by Andersson Elffers Felix (2022) lists multiple possible positive outcomes, similar to the case in Groningen: firstly, the close collaboration between professionals enabled by the use of a dedicated multidisciplinary team. Secondly, professionals being able to focus more on their core responsibilities due to the involvement of family counselors addressing social vulnerabilities, and thirdly: improved information exchange and established working agreements. The costs and benefits are expected to be positive for the hospital (up to € 1.1 million), the municipality (up to € 500.000), and the health insurance company (up to € 350.000).

Similar results have been achieved in Germany in 2023, where Amberger et al. (2023) experimentally created an alternative program for treatment of people with chronic heart faillure (CHF). They gave the general practitioners a larger voice in the procedure and also focused on better coordinating the collaboration between primary and cardiology care. The result was that patients that had followed the program had significantly lower hospitalization rates than those receiving standard cardiology care. They conclude that 'reforming medical care and compensation at the interface between general practice and specialist care can lead to fewer hospital admissions in patients with CHF'.

The three pilot cases presented above show two common things: firstly, the 'hard line' between the different care disciplines is a very commonly accepted one and it requires out-of-the-box thinking to notice the benefits. And secondly, it shows that the potential for the integration of disciplines – or increased collaboration at the least – is substantial and thus could be a more common practice to a wider range of care disciplines that currently are separated.

There are also examples of the merging of secondary and tertiary care, in the so-called top clinical hospitals (Zorgregister | STZ, n.d.). This entails all regional hospitals that excel in a specific area or policlinic. For example, the Reinier de Graaf Gasthuis in Delft is a regional hospital which has a total of 8 topclinical functions: among others, multiple types of cancer treatments and child and youth treatments (Reinier De Graaf, n.d.). Applying for a topclinical status means that a hospital has to meet several requirements and once the title is granted, there is a continuous and strong focus on education, research and innovation within that specific domain, to remain a leading voice in the nationwide care conversation.

2.2.5 Transition in Dutch health care

This is a matter of two things: what exactly transitions, and how it transitions. The concept of transition partly overlaps with the previous concept, specifically the two Dutch cases of integration between care disciplines. The IZA (ActiZ et al., 2022)

addresses several problems, comparable to the issues mentioned in paragraph 1.2. It proposes many solutions to tackle them, however the overarching idea of all of these is to approach people's health problems in a more integral way by looking at a broader scope of their lives – so that the problems can be solved at the root of it – and by tackling the problems at an early stage – so that they can be acknowledged and treated before they escalate into a wider set of problems. It is often mentioned that many health problems are not the core explanation for the malfunctioning of a human being, but often merely a result of underlying (social or mental) issues (RIVM, 2022). To develop this more integral approach towards an improved health care system, the IZA maps out several changes that should result in an organizational arrangement as in Figure 2.5. This answers the question of *what* exactly transitions. The 8 changes concern a focus on (1) value-based (individually fitting) care; (2) regional cooperation; (3) strengthening the primary care providers; (4) cooperation between social domain, general practitioner and mental care facilitators (ggz); (5) promotion of healthy living and prevention; (6) relieving the pressure in the labor market; (7) digitalization and data sharing and lastly (8) contracting between health insurance companies and care providers. It goes too far to discuss all in detail because the elements of each focus point are extensive, and some are less relevant for this thesis. It is, however, important to know how professionals will cooperate more closely and how that could have an impact on real estate. Therefore, to answer the question *how* health care transitions (in light of this thesis), a closer look will be taken at part D, E and F of the IZA, which elaborate on change (2), (3) and (4) respectively.

Part D discusses the regional cooperation (change (2)) through concentration and spreading. It states that "*for the concentration of care, the initial focus is on services within the domain of comprehensive oncological care (including diagnostics and palliative care), care related to cardiovascular diseases, and certain types of acute care. [...] In*

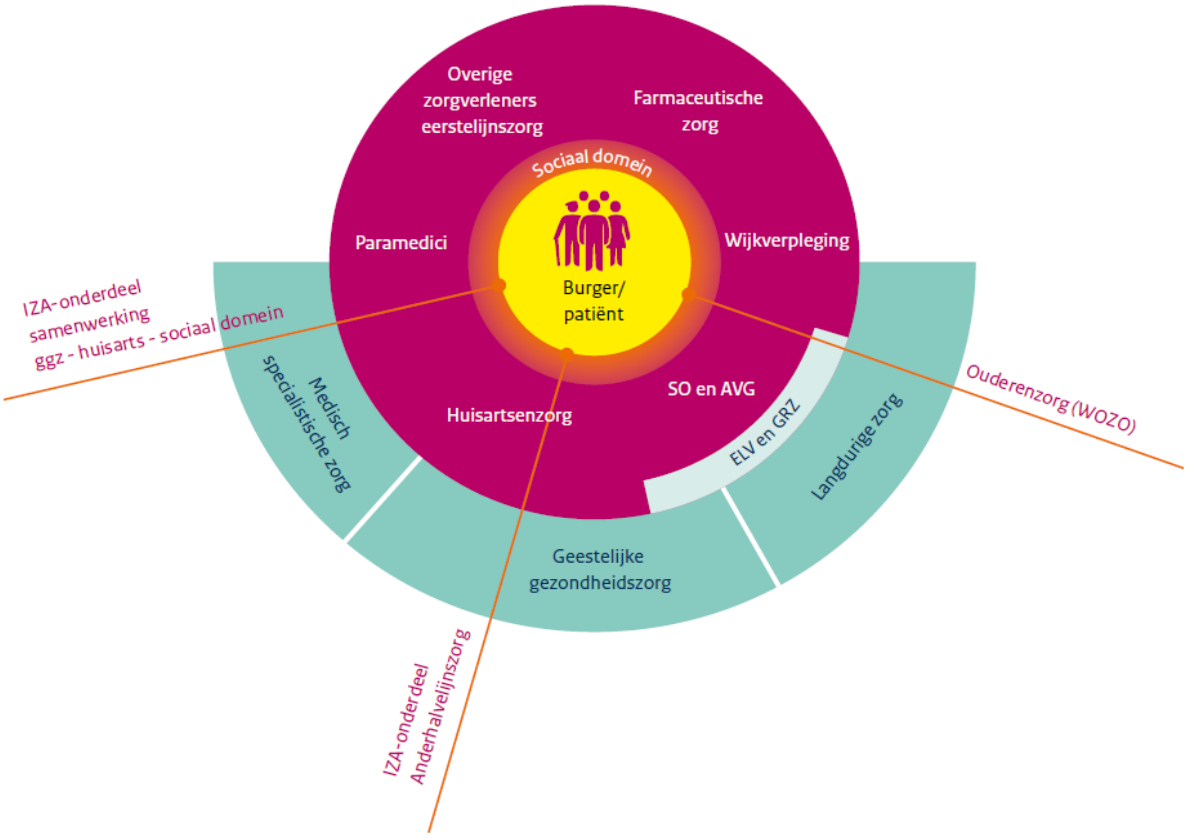

Figure 2.5 - Conceptual framework of the transitioning care system in the Netherlands. Source: Actiz et al., 2022.

contrast to the concentration of highly complex care, university medical centers (UMCs) and top clinical hospitals are focusing less on basic medical specialist care (low-complexity care/non-top-referent care). [...] Simultaneously, it also concerns the distribution of care: services that are frequently needed and low in complexity should be accessible closer to everyone. The guiding principle is: "nearby, when possible, distant when necessary." To state it differently: complex care will be concentrated where the expertise is evident, and non-complex care should be 'around the corner' for everyone. This is not a new phenomenon, which the IZA states as well: "*The interconnected dynamics of concentration on the one hand and distribution on the other are not new and are already underway; however, they require acceleration in light of the previously outlined [societal and market] developments.*"

Part E, focusing on change (3), elaborates on the strengthening of the organization of the primary care system. The vision is as follows: "*General practitioners and other primary care providers present in every neighborhood are collectively equipped to understand their population and address a significant portion of common healthcare needs. When necessary, the additional expertise of a geriatric specialist, a physician specializing in intellectual disabilities (VG physician), mental health professionals, or medical specialists should be easily and readily accessible. For vulnerable older adults who cannot temporarily remain at home, a bed for short-term admission for recovery or rehabilitation must be quickly and easily available*." So, primary care providers should at all times have the space, time, means and colleagues available to treat individual patients effectively with a tailored approach.

Lastly, part F of the IZA focuses on (4) cooperation between the general practitioner (GP), mental care facilitators (GGZ) and the social domain. There are long waiting lists for both GP and GGZ, the aim is to shorten these by taking an integral approach for treating patients. As mentioned before, often there is a mix of problems beyond just the health that causes sickness, which suggests that prescribing medicine or medical treatment is only focusing on a fraction of the problem solution. The IZA states: "*Through improved collaboration between general practitioners, mental health services, and the social domain, clients experience their needs being addressed more promptly and appropriately, thereby preventing unnecessary admissions to mental health care services. [...] The establishment of 'mental health centers' (working title) will provide a solid foundation for these changes and is essential for achieving acceptable waiting times in mental health care (GGZ).*" Van Balen et al. (2024), mention that recent developments have shown that this shortage in other domains currently puts increased pressure on general practitioners due to their low-threshold nature in terms of accessibility, as they often serve as the entry point to follow-up care and other support services. So, the effects of shortages in other sectors become particularly evident within general practices.

2.2.6 Sharing of space

The sharing of spaces between different domains is traditionally not very common in the health care field; originally, most general practitioners had their practice connected to their home and operated very locally (Goossens, 1988). However, as the domain has professionalized and practices have grown, the gap between the personal and professional life of the GP has increased, resulting in a distinct and more integrated health care practice. In the current year 2025 this has resulted in a close knit professional network of health care professionals. The current development of health care practices focuses a lot on collaboration and the sharing of spaces between different health care professionals, and even beyond

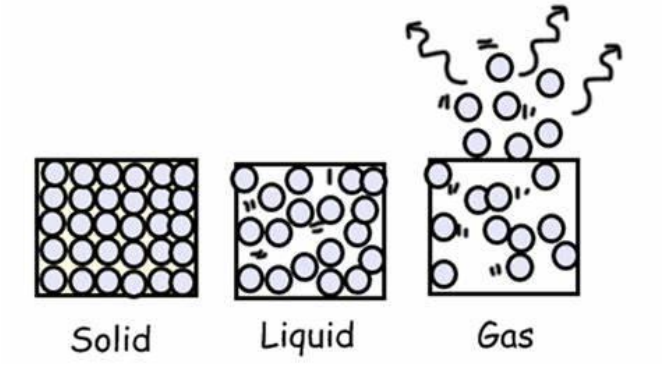

Figure 2.6 – Three different states of being. Source: Von (2023).

Table 2.2 – Three different campus models. Source: Den Heijer (2021).

Type	Structure	Description
Solid	Traditional	fixed structures, hierarchy, exclusiveness, and the need for territory
Liquid	Network	flexible structures, multidisciplinary, and open and interconnected shared campus spaces
Gas	Virtual	individual autonomy, mobility, and freedom to work and study anytime and anywhere, online and off-campus

the medical field towards, for instance, the social domain, as already seen in 2.2.5. Other fields go through similar processes. Take, for example, the academic world and the university campus, where research has focused on 'enriching the campus with non-academic functions' (Genel et al., 2024). In fact, Den Heijer (2021) distinguishes three types of models, summarizing the development and diversification of university campuses, distinguishing territorial, shared, and off-campus space use and the degree of mobility and cohesion of campus users. The three types are defined in Table 2.2 and depicted Figure 2.6: where the solid has a defined structure and boundaries resulting in the ultimate 'sturdiness', the liquid has a defined boundary but rather flexible structure. The gas has no boundary or structure, giving the ultimate flexibility. The specifics are different compared to the medical domain, but in a broad sense the same distinction can be made and the trend of going from solid to liquid, and starting initiatives of more gas-like models is taking place at the moment of writing.

2.2.7 Proximity

Proximity can be interpreted in many ways. The most obvious one is probably geographical proximity, which is defined by Boschma (2005) as 'nearness between partners in terms of territory, space and physical distance'. Nilsson (2019) presents 5 definitions of proximity: cognitive, social, institutional, cultural and geographical proximity. Their definitions are shown in Table 2.3. Most papers on the topic of proximity in health care discuss the distance between the patients and the care providers and its effects. Kostov (2023) writes that proximity in healthcare has been identified as a potential barrier, especially in rural areas where the population density is low. She continues to state that 'patients at risk of illnesses who reside in a metro city are much more likely to request attention' and that 'rural individuals are less likely than urban residents to receive particular preventative health care'. A study in the Philippines shows similar results, stating that 'Delays in seeking OP care [OP = outpatient: staying at the hospital for at least one night] are shorter in the National Capital Region [the country's political, economic and educational center] than in other regions' (Capuno et al., 2019): hence their similar conclusion that people tend to ask for care quicker in more developed regions of the country.

These cases show the effect of proximity on the patient experience of their patient journey. The focus in this research will not solely be on the patient, but also on proximity between care providers among each other. This relationship has not been widely covered in literature therefore the concepts of proximity that are held on to in this paper will follow

Table 2.3 - 5 different types of proximity. Source: Nilsson (2019).

Type of proximity	Description
Geographical	Physical distance between actors (lies at the heart of studies of regions and clusters)
Institutional	Existence of a common institutional framework at the macro level. This entails both formal institutions, i.e. the 'rules of the game' and informal, i.e. conventions and codes of behaviour
Cognitive	How actors perceive, interpret and evaluate the world according to mental models and categories
Social	The degree to which actors' share personal relationships, often by means of past collaboration
Cultural	Shared language, codes and norms of communication and exchange between actors

the definitions of Nilsson (2019). For the professional relationships, this could be a cross-over between geographical, institutional and cultural proximity. Between patient and doctor, this could be social, cultural and geographical proximity. The reason for these multiple definitions is to see whether the different positions of actors would impact the housing of general practitioners in different ways and whether one type of proximity is considered more important than another.

Although the concept of proximity between different types of care providers is not widely covered, there have been studies on collaboration between the disciplines. Janssen et al. (2020) discuss in their literature review the competencies that promote collaboration between doctors, specifically between primary and secondary care domains. They list six commonly named issues, depicted in Table 2.4. They conclude that 'the information gathered in this review can support doctors to further enhance and learn the various aspects of collaboration in daily practice', but it would be interesting to know if these competences are more obviously present for practices that are in a close range of each other. Take, for example, mutual knowledge and understanding: a proposition would be that it increases when there is a better understanding of the workplace and/or resources of the other party through a shared facility (institutional proximity). And communication 'at the right moment' could possibly be enhanced by physical nearness instead of online communications and consultations (cultural proximity). The paper does not draw a conclusion about this, but it calls for further research on this topic.

2.2.8 Collaboration

Firstly, it must be examined what collaboration in a health care context means. Wiedermann et al. (2024) stress 'the important role of RC [relational coordination] in promoting quality communication and relationships in health care settings, especially under conditions of interdependence and complexity. Teams with strong RC are better able to provide integrated, adaptive, and effective care.' The researchers use a relational coordination survey (RCS) to assess the status of RC among physicians, nurses, and administrators in a South Tyrol (Italy) public health service. They split collaboration into seven dimensions, partly overlapping with the competences in Table 2.4: frequency, timeliness, accuracy, a problem-solving aim, shared goals, shared knowledge and mutual respect. They find that 'the overall weighted score indicates a general trend towards weak external coordination between professional groups. This finding is consistent across most dimensions. The dimension of 'Frequency of communication' reveals particularly low scores across all groups, with the lowest reported by administrative staff, followed by hospital

Table 2.4 - Essential competences for collaboration between the primary and secondary care domain. Source: Jansen et al. (2020).

Competence	Description
Patient-centred care: a common concern	Being able to work together with the same patient-centred goals
Collaborative attitude and respect	Being able and willing to work together with respect for partners in collaboration
Roles and responsibilities	Being able to know, make arrangements about, work in and follow up on a clear division of tasks, roles and responsibilities
Mutual knowledge and understanding	Being able to identify, know about and understand partners in collaboration
Communication	Being able to communicate well in the right way on the right moment
Leadership	Being able to show leadership to facilitate collaboration

physicians, and GPs'. The results prove that external (and interdisciplinary) communications are weaker than internal communication in health care.
It is also relevant to combine concept 2.2.7 proximity with 2.2.8 collaboration and look at examples of how proximity influences collaboration. Miranda and Claudel (2021) studied the effect of moving researchers from an American university together in order to study the effect on collaboration. They report that 'moving researchers into the same building increases their propensity to collaborate' and conclude that spatial proximity is an important tool to support cross-disciplinary collaborative science. That is for the educational system. Golra et al. (2023) report a similar result when studying the effect of proximity on both process and product innovation networks within the textile industry in Lahore, Pakistan. They find that the impact of multiple forms of proximities is relatively stronger in the *process* innovations network than the *product* innovations network. One of the reasons they give for this difference is that cluster firms share the same language, culture and values, which is more beneficial for transferring implicit (process) knowledge. In other words: interactions can raise knowledge transfer in businesses (Laursen et al., 2015).

Proof of this can also be found in the medical field: a study in Switzerland conducted a survey among GPs and spinal cord injury specialists about their collaboration. One of their findings was that GPs agreed that they gain better insight into each other's work and that contacts become easier and more accessible when getting to know a specialist personally (Tomaschek et al., 2022). Interestingly enough, this did not show equally evidently among the specialists, which could show that there are differences in perception about collaboration within the different care domains.

2.3 Conceptual model

Figure 2.7 shows the conceptual model that depicts the structure laid out in the previous sections. The arrangement is set up in such a way that the demand side is looked at first, followed by the supply side. In the final part the relation between the regions and the general practitioner care practice will be examined, thereby 'closing the loop' in terms of main research question. The concept of proximity will both appear in demand and supply. Aspects of collaboration and the different care domains will be accounted for in the analysis of the professional structure.

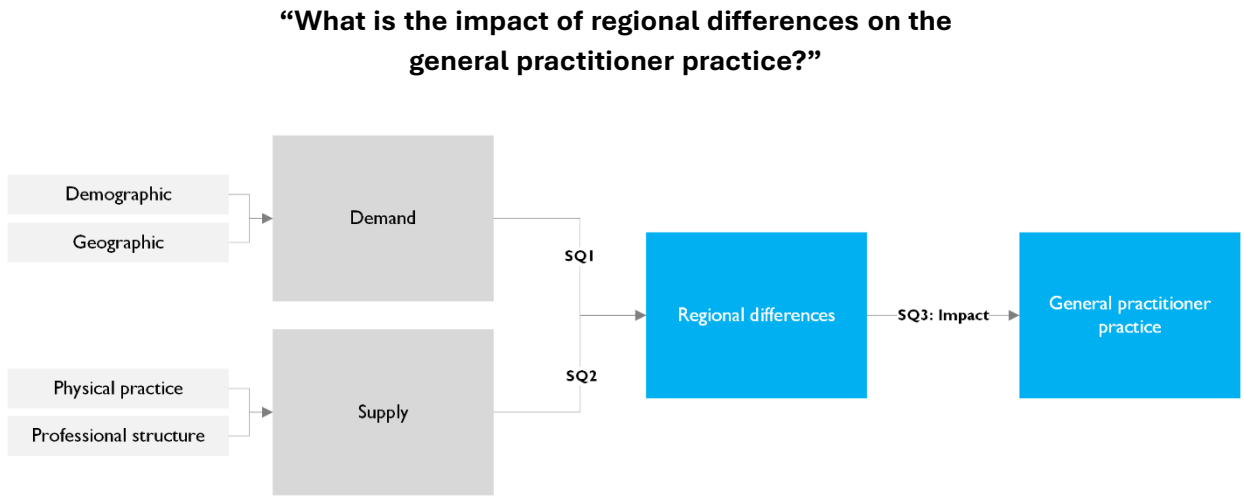

Figure 2.7 - Conceptual model following research question. Source: author.

3 METHODOLOGY

To find an answer to the sub questions and the main research question presented in paragraph 1.3, a mixed method research design will be followed: it employs an explanatory sequential mixed methods design to investigate the impact of regional characteristics on healthcare providers and care practices across two distinct regions of the Netherlands. The approach is to integrate quantitative and qualitative methods, allowing for a comprehensive examination of regional healthcare systems and the contextual distinctions of demographic, geographic, physical and professional factors among general practitioner practices.

3.1 Research design

The study is structured into three sections, each addressing a specific sub-question:

- Quantitative analysis of regional demographic characteristics (demand side).
- Quantitative analysis on healthcare practices (supply side).
- Qualitative interpretation through interviews with general practitioners.

The findings from each phase will build on the preceding phase to answer the overarching research question.

3.1.1 SQ1: Quantitative analysis of demand and regional characteristics

The objective is to identify the demographic, health, and wealth characteristics of selected urban and rural regions in the Netherlands, providing insight into healthcare needs and regional differences.

Methodology
Data sources: national and regional datasets, including the Central Bureau of Statistics (CBS), the National Institute for Public Health and the Environment (RIVM), and Eurostat.
Analysis: descriptive statistics to profile demographics, health indicators, and wealth distribution. Comparative analysis between urban and rural areas to identify patterns and regional differences.
Output: A regional healthcare demand profile that sets the foundation for the following analysis of healthcare practices.

3.1.2 SQ2: Quantitative analysis on the supply side and healthcare practices

The objective is to explore the structural and professional characteristics of healthcare practices, focusing on the physical and professional (organizational) aspects of general practitioners in the different regions.

Methodology
Data collection: structured survey distributed to GPs in selected urban and rural regions. Questions include asking about physical proximity to secondary care providers (distance in kilometers), collaboration networks (frequency of interaction, shared patient care practices) and characteristics of GP accommodations (size, shared facilities). Furthermore, an actor-network analysis will be executed in order to place the involved actors in relationship to each other.
Sampling: spreaded sampling to ensure representation of diverse regions and practice types.

Output:
Quantitative data on the physical forms and organization of healthcare practices, informing the relationships between a region and the supply of care.

3.1.3 SQ3: Qualitative exploration of proximity's role

The objective is to interpret the differences between regional healthcare practices and to gain deeper insights into the influence of these differences on the shaping of general practitioner practices

Methodology:
Data collection: semi-structured interviews with GPs who participated in the questionnaire. Interview focus areas could include but are not limited to: success and limitations of current practices, ideal future image of care organization, reflections on the influence of proximity on collaboration and patient outcomes, challenges and opportunities related to physical proximity and perceptions of differences between urban and rural settings.
Sampling: the samples will represent two areas: one urban and one rural area. Within these areas, two GPs will be chosen: one in close proximity to medical experts, one not within close proximity to medical experts.
Analysis: Thematic analysis using coding to identify recurring patterns and unique insights.

Output:
Qualitative data offers a nuanced understanding of the reasons behind observed differences and the role of proximity in care provider collaboration.

3.2 Research output

In terms of data, there are two quantitative outputs and one qualitative output. The quantitative data will explain the demand side: regional demographic profiles, including health and wealth indicators from CBS, RIVM, and Eurostat datasets. For the supply side, it will be general practitioners' responses on their practice characteristics, analysis of practices and distribution of care providers, and collaboration. This comes from the questionnaire and further available data on these topics. The qualitative data will be thematic insights from GPs, capturing their experiences and perceptions of how regional characteristics impact their practice.
The results of the quantitative phases (SQ1 and SQ2) will inform the design and focus of the qualitative phase (SQ3), hence the choice of an explanatory sequential mixed method. The final analysis will bring together findings from all phases, enabling a complete understanding of what impacts care practices and regional healthcare systems. This will result in two types of final deliverables: a comprehensive research report answering the main research question, and secondly it will be a set of evidence-based recommendations for healthcare providers, advisory/collaborative groups and authority/governmental actors.

4 CASE SELECTION

Part 3 has explained the structure and methodology of the research. This section will discuss the selection of data sources and research subjects.

4.1 General case study selection

It has been mentioned before that this research will take place in specific areas to be able to compare different regions of the Netherlands. It is relevant to determine these areas first, because it impacts the population and selecting in all the sub questions. In the discussion of the concept of region in section 2.2, it became clear that this research will follow the GGD region subdivision of the country. A prerequisite for the two regions will be that one is rural, and one is urban, because this has the largest potential difference in proximity of care providers. The choice is to take GGD Amsterdam and GGD Groningen as cases, because they are very different in terms of proximity, reachability and absolute numbers of care locations. For instance, Batenburg et al. (2022) report that the density of GPs in Groningen is 6,7 per 10.000 inhabitants (equal to the national average) compared to 7,5 per 10.000 inhabitants in Amsterdam, see also **Error! Reference source not found.**. Furthermore, CBS (2023) reports data on contacts with general

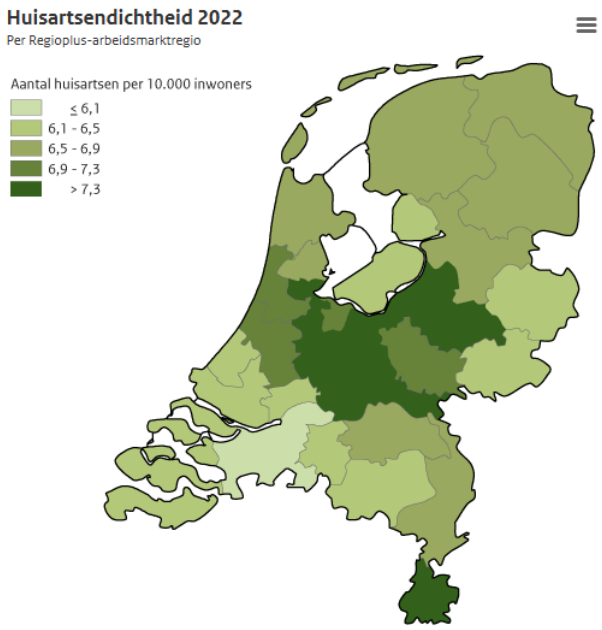

Figure 1.1 – Density of GPs. Source: Nivel, in RIVM (2023).

practitioners and medical specialists (defined as a percentage of people in a GGD-region with at least 1 contact in the past 12 months, corrected for gender and age) and reports a number of 68,6% for Amsterdam and 60,8% for Groningen (7,6% difference) for general practitioners, while this statistic for medical specialists is at an equal level of 40% for both regions.

When looking at the percentages of GPs that operate in group accommodations, the Amsterdam region

Table 4.1 - Statistical data on care organizations in Amsterdam and Groningen GGD region. Source: CBS, RIVM.

Statistic	GGD Groningen	GGD Amsterdam	National average
% of people with at least 1 contact with general practitioner in the past 12 months	60,8	68,6	64,1
% of people with at least 1 contact with medical specialist in the past 12 months	40,1	40,0	37,4
# of GPs per 10000 inhabitants	6,7	7,5	6,7
% of GPs in solo practice	20	15	
% of GPs in dual practice	52,4	37,6	
% of GPs in group accomodation	27,6	47,4	
Average distance to a general practitioner (in km)	1,47	0,91	1,0
Number of GP within a 3 km range	3,25	10,25	7,8

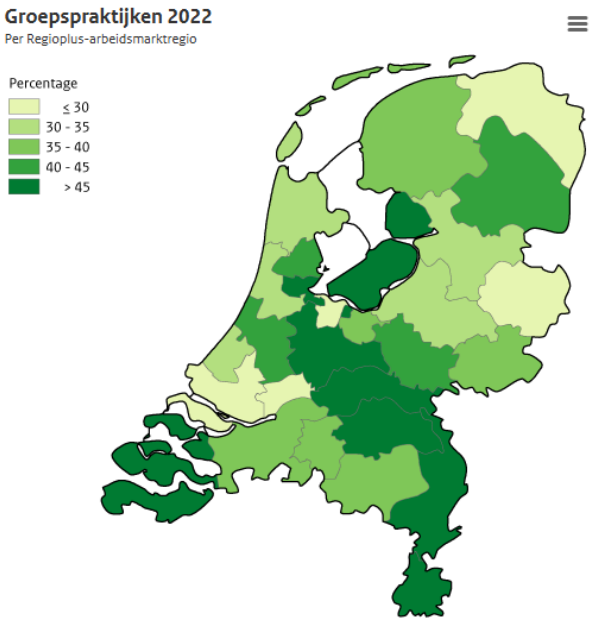

Figure 4.2 - Percentage of GPs in shared accommodation. Source: Nivel, in RIVM (2023).

scores higher compared to the Groningen region: 47,4% in Amsterdam and 27,6% in Groningen, see Table 4.1 and Figure 4.2. It should be noted that these statistics are according to the Regioplus-arbeidsregio, which is slightly different from the GGD regio but still comparable. The data provided does not show the national numbers on the solo, dual and group practices.

The overview of the numbers is shown in Table 4.1 which forms a starting point for the comparison between the two regions. When available, the averages of each number are included as well, in order to display the deviation for the regions that are being compared.

4.2 Quantitative analysis of regional characteristics

The first research question will focus on the comparison of GGD Amsterdam (containing the municipalities of Amsterdam, Diemen, Amstelveen, Aalsmeer, Ouder-Amstel, Uithoorn and Weesp) and GGD Groningen (containing the municipalities of Groningen, Veendam, Pekela, Het Hogeland, Midden-Groningen, Stadskanaal, Westerkwartier, Eemsdelta, Oldambt and Westerwolde) on the topics of health care demand and supply. Demand is looked at through terms of health, wealth and demographics. Several sources will be conducted to make a comparison:

CBS is the Dutch national statistics website, reporting on a wide range of topics among which: perceived health, mental health, chronic disorders, drug use, and medical contacts for the health (care) topics. In a demographic and wealth sense the statistics presented are about gender, age, country of birth, education levels, income, wealth, net worth and welfare, among others. Some data is on municipal level, others on GGD-region level and other types of data sets are on a different level.

Secondly, the analysis will be done on the supply side of the health care. For instance, Nivel is a public, non-profit knowledge organization that conducts research on healthcare. The focus spans the broad field of primary as well as secondary care. The data comes from various databases and panels and the organization publishes several yearly reports on the status of health care in the Netherlands.

In the IZA (Actiz et al., 2022) the agreement was made to make regional profiles (demand) and regional plans (supply) for each care office region and ROAZ-region. The challenges identified in the regional or ROAZ profile are elaborated upon in the corresponding regional plan. Regional stakeholders make agreements within the plan to address these challenges. Both these documents provide a solid basis for the present issues and solutions and will therefore be a sound source for this part of the research.

Furthermore, this question will build on information provided by the corresponding provinces and municipalities, which could provide a more detailed and governmental image of the area or region.

4.3 Quantitative data collection on healthcare practices

[This part about the questionnaire was intentionally left in to show the development of the research design, even though it did not have the role as intended in the initial plans. The reasons for this are laid out in paragraph 10.2.] The quantitative analysis in research question 2 will be done by distributing a questionnaire among general practitioners in the

regions at topic. Distribution will either be done through the regional GGD office or a different umbrella organization that has contacts with all general practitioners in the region.
The population sizes are, according to Zorgkaart Nederland (n.d.), as follows: 271 GPs in GGD region Groningen (of which 93 are in the municipality of Groningen and 178 in the surrounding municipalities) and as many as 549 GPs in GGD region Amsterdam (of which 448 are in the municipality of Amsterdam and 101 in the surrounding municipalities). This makes a total of 820 GPs. According to the sample size calculator checkmarket.com, with a target group of 820 GPs, a margin of error of 5% and a confidence level of 95%, the required sample size would be 262 respondents. With a response rate of 20% (average for online surveys), the sample size would need to be as large as 1310 GPs, which is higher than the population size. In fact, if the response rate drops below 35%, the sample size would be larger than the population size. There are two ways to solve this: to aim for a response rate of at least 35%, which is between the average 20% with online surveys and the excellent 50% mark. This possibly is a challenge, as the survey will be distributed online and there is no personal relation with the target group. A second option would be to enlarge the area of research, for instance to include GGD Friesland to the GGD Groningen part and GGD Hollands Midden to GGD Amsterdam. These regions neighbor the original regions and could be similar in terms of demographics, and the GP visits in the areas are similar as well. Distribution could also be taken to a national level, to ensure enough responses.

4.4 Qualitative exploration of the role of regional differences in general practitioner housing

The qualitative exploration of the differences in care organization and numbers will be done following the results of the questionnaire. A question in that list will be included about whether responding general practitioners can be contacted for a follow up talk. The goal is to have four interviews, two in each region. One in each region will be with a GP that has a solo practice, one will be with a GP whose practice is included in a larger structure with other care professionals in the primary and/or secondary care domain. The sample size therefore will be 2. This is quite low compared to the population size, but since this is the ‘in-depth’ qualitative component of the research, the goal of a minimum number of responses is not as relevant as in sub question 2. The selection of the GPs to be interviewed will be done based on the survey results since they will provide information on their practice (whether it is a solo or larger group practice) but could, if there is a lack of responses, be selected manually based on geographic selection in combination with the information provided on zorkaartnederland.nl.

5 RESEARCH INSTRUMENTS

This research design will follow the explanatory sequential mixed method because it will use two research instruments: firstly, a questionnaire will be deployed and it is followed by in-depth semi structured interviews that elaborate on the answers from the survey.

5.1 Questionnaire

The questionnaire is included in APPENDIX AAPPENDIX A. It will be spread digitally and in the Dutch language, through email. It will include mostly multiple-choice questions, in order to be able to analyze the quantitative data easily, and some Likert scales to value certain aspects. There will be several open questions in the last part which can serve as an opening for shaping the elaborative interviews that will be explained in more detail in paragraph 5.2.

In order to be able to find an answer to the main question, some aspects of the practice must become clear first to be able to compare. This is done in the first two parts, in which general questions are asked about background information such as the size of the practice and number and type of employees. It will also have a question on the proximity to other care providers. Following this part will be sections 3 and 4, which elaborate on the collaboration of the practice, in specific with the secondary care providers. The last part, 5, deals with some open questions in order to get a first idea of where lies the current success in interdisciplinary collaboration and where are the challenges. This is a first step to be able to ask follow-up questions in the interviews.

5.2 Interviews

The interviews will be the last part of this research and are meant to explain the survey results. A rough outline of this is included in APPENDIX CAPPENDIX A. The goal is to explore why certain patterns might appear, or why certain expected things do not appear. The topics will follow from the results of the questionnaire but will at least cover their practice and issues related to the regional characteristics that impact their work the most. It will be semi-structured interviews so that each interview subject can state their issues based on their situation. Additional probing questions might be necessary, such as ‘What was the thought process behind that reasoning?’ or ‘Please tell me more about that situation.’

The researcher will travel to the practice to conduct the interview, not in the last part because this also provides the opportunity to get an image of what the GP practice of the interview subject looks like. The conversation will be audio recorded and processed in Atlas.ti, after which the audio recordings will be destroyed. The total length of each interview will be approximately 45 minutes.

6 ETHICS/DATA MANAGEMENT

6.1 Research ethics

Participants should beforehand know very well that participation is voluntary, and they should very well be aware what the informed consent form incorporates that they have to sign. This means that the researcher has the obligation to explain to them in a very clear way what exactly this research asks of them. The consent forms make clear that a participant can withdraw from participating at any time during the research. Once they have given their opinions in the questionnaire or interviews, there is always a risk of data being lost or stolen. This risk is minimalized by encrypting the data (in case of the interviews) and storing them in the TU Delft Project Storage drive (:U) (DMPonline, n.d.). with very limited access. Furthermore, the data is anonymized and pseudonymized so a researcher that wants to use the data for future research will not be able to retrace the person that gave their opinion. The audio recording that is made during the interviews will be destroyed once a transcript of it is made.

In order to meet the commonly expected scientific standards, the researcher has made use of the lectures and services offered by Delft University of Technology, such as a lecture (Strandberg, 2024) by Janine Strandberg, the Data Steward of the Faculty of Architecture & the Built Environment, the policy of the TU Delft Research Data Framework, the 4TU.ResearchData secured and restricted storage and archiving method (Tu.ResearchData, n.d.) and the Data Management Plan provided by Delft University of Technology (DMPonline, n.d.). These methods and standards follow the internationally accepted standards and are required for instance for publications in scientific papers.

6.2 Data management

In order to legally make use of the data of the group that is being researched, a consent form is specifically tailored to both the questionnaire and the interview participants. Especially for the interviews, where an audio recording is made of each session, it's essential that the researcher has full consent and that they have a plan for the retrieved data. The data that is collected must be anonymized as much as possible by removing data such as participant name, exact working location and other things that are identified as personally identifiable information (PII) or personally identifiable research data (PIRD).

The research data will be shared in the TU Delft Project Storage repository and stored during a maximum period 10 years, as defined by the TU Delft Research Data Framework Policy (DMPonline, n.d.). Another way to ensure the correct use and storage of the retrieved data is by applying the FAIR principles (findable, accessible, interoperable and reusable) (Strandberg, n.d.). This will also help in possible re-evaluation of the data by other research studies following up on this research. In a way, the correct management of the data sets is directly connected to the ethics of the conducted research: is the data managed well, then that almost automatically that (part of) the ethical standards are met as well. It means security for all the research stakeholders, and correct storage of (sensitive) data.

7 RESULTS

7.1 SQ1 Demand: socio-demographical characteristics

The comparison is done between urban and rural areas, more specifically between Amsterdam and Groningen GGD or Zorgkantoor regions. The reasoning behind the choice for the two regions is briefly laid out in paragraph 4.1.

The evaluation will be done on several areas. In the broadest sense the comparison will be on the demand and supply side. Within the demand side, a wide perspective will be developed, ranging from overall demographic character of an area to a more detailed view on the health demand. More specifically, 3 topics will be covered: demographics, income, and geographics.

7.1.1 Demographic

The Amsterdam GGD region (from now on referred to as Amsterdam) consists of the municipalities of Amsterdam, Diemen, Amstelveen, Aalsmeer, Ouder-Amstel, Uithoorn and Weesp. GGD

Table 7.1 – Statistics on area, population and municipalities. Source: CBS Statline 1, 2024.

Statistic	GGD Groningen	GGD Amsterdam	National
Area in hectares (% of total NL area)	295518 (7,1%)	35510 (0,9%)	4154337
Inhabitants (% of total NL population)	590170 (3,4%)	1084468 (6,2%)	17590672
Municipalities	10 (2,9%)	6 (1,8%)	342

Groningen (from now on referred to as Groningen) contains the municipalities of Groningen, Veendam, Pekela, Het Hogeland, Midden-Groningen, Stadskanaal, Westerkwartier, Eemsdelta, Oldambt and Westerwold. Although Groningen is larger both in amount of municipalities as well as hectares, it is quite smaller in terms of population. Differences are shown in Table 7.1. Although Amsterdam only accounts for 0,9% of the total area of the Netherlands, it holds as much as 6,2% of the total number of citizens (so a factor 6,8). For Groningen the numbers are 7,1% and 3,4% respectively, giving a factor of 0,5. In other words: Amsterdam is home to a much larger part of the population relative to its

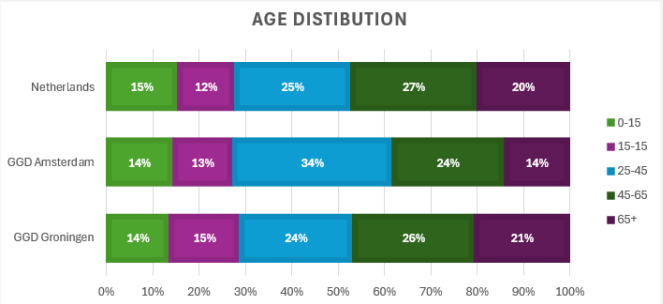

Figure 7.1 – Age distribution in Amsterdam, Groningen and the Netherlands. Source: CBS Statline, 2024.

area size, Groningen takes about half of its population when linked to its geographical size.

Not only is the (relative) population size different, the regions also have a different age distribution. Figure 7.1 shows the age distributions of Groningen, Amsterdam and the Netherlands. Ages groups 0-15 and 15-25 have a small difference, but from 25 up there are larger differences. Groningen overall represents the Netherlands in a quite average manner, while Amsterdam has a 10% larger amount of 25-45 year olds and 7% smaller amount of 65+ residents. In terms of average age, Amsterdam is younger than Groningen and the Netherlands (39,6 years vs. 42,5 and 42,4 respectively). Data (CBS Statline 2, 2024) and Figure 7.2 show that the optimum of good health perception is at the age of 4-12 years (97,3% reports good health), decreasing with 21 percent point when reaching the age of 40 and as much as 39 percent point when people are 75+ years old. At that age, 58,9% reports good health. This however seems to also be related to income and welfare status, as will become clear in section 7.1.3 Income.

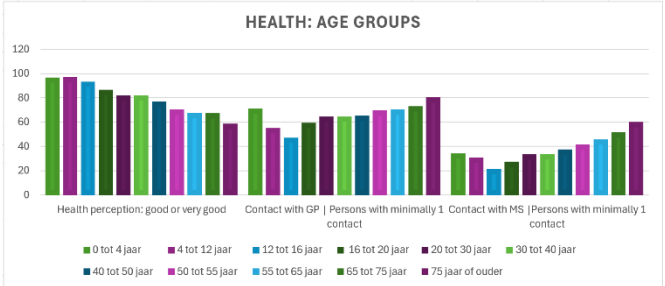

Figure 7.2 – Health perception and medical contacts per age group in the Netherlands. Source: CBS Statline, 2024.

In terms of marital status, the regions present quite different mutual numbers. Amsterdam, compared to Groningen (and the Netherlands) has 9% (12%) fewer married people and 10% (14%) more non-married people, while divorce numbers are roughly equal across all three groups.

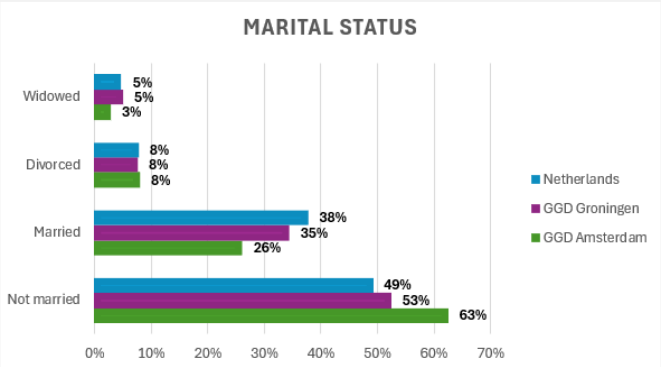

Figure 7.3 – Marital status in Amsterdam, Groningen and the Netherlands. Source: CBS Statline, 2024.

For household types, as much as 52% of Amsterdam is a single person household, compared to 39% on average in the Netherlands. As shown in Figure 7.4, both Amsterdam and Groningen have a larger than average amount of single person households, and a lower amount of households with children.

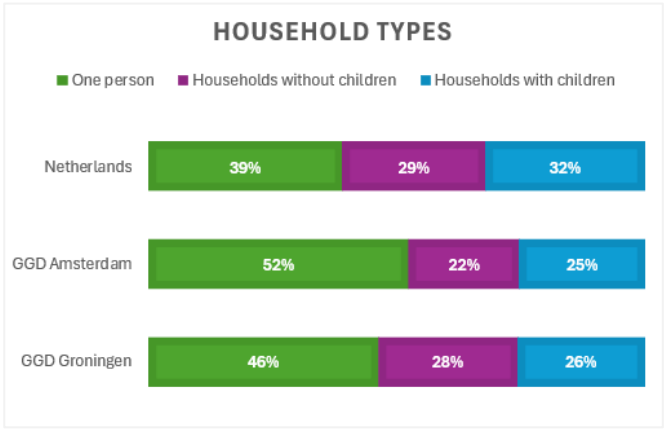

Figure 7.4 – Household types in Amsterdam, Groningen and the Netherlands. Source: CBS Statline, 2024.

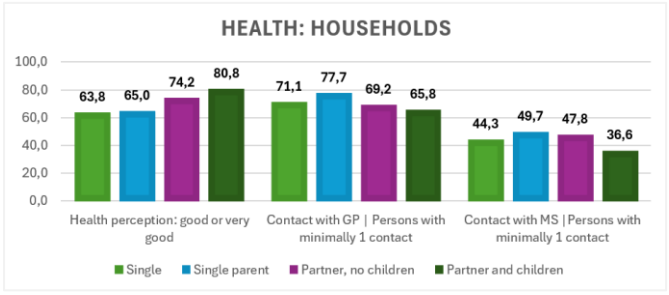

Figure 7.7 – Health perception and medical contacts per household type in the Netherlands. Source: CBS Statline 1, 2024.

Given the age differences in the two regions, this is likely due to different reasons. When comparing this to the health numbers in Figure 7.7 it shows that single person households have the lowest percentage of 'good health perception', and that families with children are at the other end of that spectrum. This is inversely proportional with the GP and MS contacts.

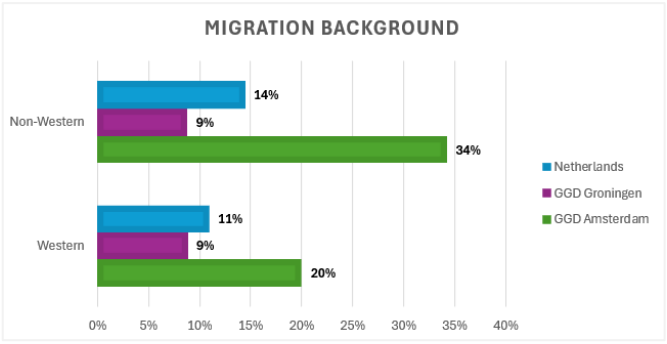

Figure 7.5 – Migration background in Amsterdam, Groningen and the Netherlands. Source: CBS.

Another number to look at is migration backgrounds. Statistics show that the health care demand and use differs for different backgrounds (CBS Statline 2, 2024). For instance, people born outside of Europe report the lowest perceived health, but also have low contacts with GP (general practitioner) and MS (medical specialist), indicating that they either do not choose to visit a doctor or cannot find their way to the doctor. This is shown in Figure 7.6 below.
Figure 7.6 shows that in Amsterdam, 54% has a migration background, compared to 18% in Groningen and on average, 25% of the total population of the Netherlands has a migration background.

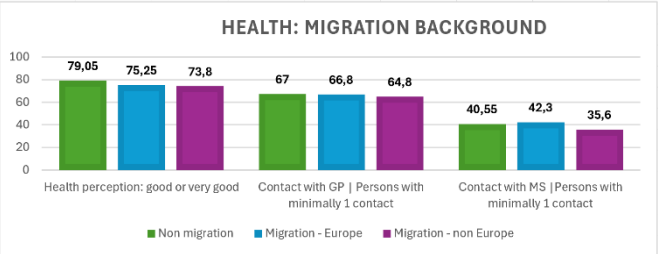

Figure 7.6 – Migration background in Amsterdam, Groningen and the Netherlands. Source: CBS.

7.1.2 Geographic

The first part of chapter 7 already covered a geographic topic: the total size of the area at hand. Combining that statistic with population size as shown in Table 7.2, the population density for Groningen is 308 people/km^2, while this number is 2361 people/km^2 for Amsterdam. The average population density of the country is 523 people/km^2, giving a ratio of 4,5x for Amsterdam and 0,5x for Groningen compared to the country average. Address density is 935 and 2547 addresses per km^2 for Groningen and Amsterdam respectively, with a national average of 2039 addresses per km^2. This means that both GGD regions are below average when it comes to the number of people on one address, Amsterdam being 72% lower and Groningen 22% lower than the average. Interestingly enough, both regions have an 'odd one out' that brings the total closer to the average. When looking at the degree of urbanization, 3 out of 6 municipalities in GGD Amsterdam have a score of 1 or 2: the most urbanized score. Only Aalsmeer has a score of 4. For GGD Groningen, this is the other way around: 7 out of 10 municipalities have a score of 4 or 5 being the least urbanized typologies, with Groningen city being distinct with a score of 1. Not just the density of both areas is different, there is quite a distinct setup when it comes to health care services in the two GGD regions. Figure 7.8 evidently shows that, with distances to emergency GP, the poli (a dependance of a hospital for low complexity issues that do require a specialist) and the hospital all being at least twice as large for Groningen compared to Amsterdam. When contrasted to the Netherlands as a country, Groningen is farther from the average than Amsterdam, although the latter is below average for all service distances of topic. Interestingly enough the distance to the GP is not quite as far apart as the other amenities (1,5 km for Gro and 1,0 km for Ams, 1,1 km for nat. avg.), suggesting that the GP presence is not as far from the national average as compared to the other services. That confirms the role of GP as the 'gatekeeper' of the Dutch health care system: a GP nearby is a basic health care need, further referrals can be quite literally further away.

Table 7.2 – Statistics on population, density and urbanization. Source: CBS Statline, 2024.

Statistic	GGD Groningen	GGD Amsterdam	National
Inhabitants (#)	590170	1084468	17590672
Population density (ppl/km2)	308	2361	523
Address density (#/km2)	934,6	2546,8	2039
Degree of urbanization (1= urban 5= rural)	3,9/5	2,2/5	2/5

7.1.3 Income

Statistical data shows that differences in several financial factors indicate a varying health perception and use. For instance in Figure 7.9, the perceived health goes up as the income goes up, but the use of care does not go down. The numbers for fortune and

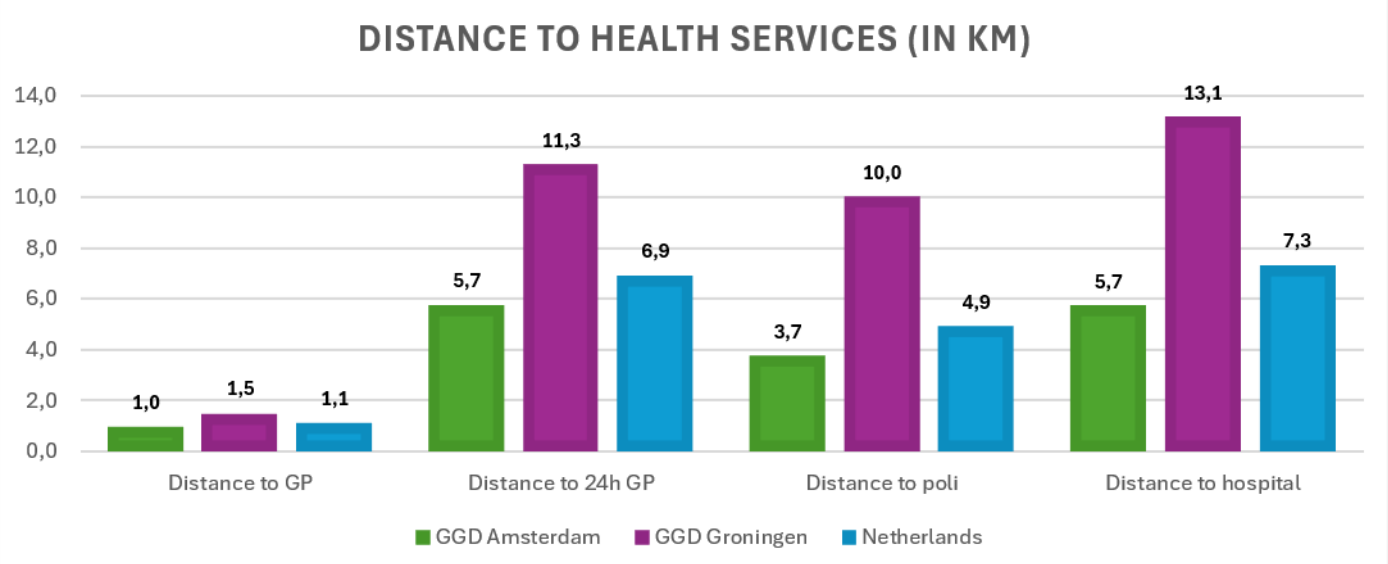

Figure 7.8 – Distance to health services in Amsterdam, Groningen and the Netherlands. Source: allecijfers.nl.

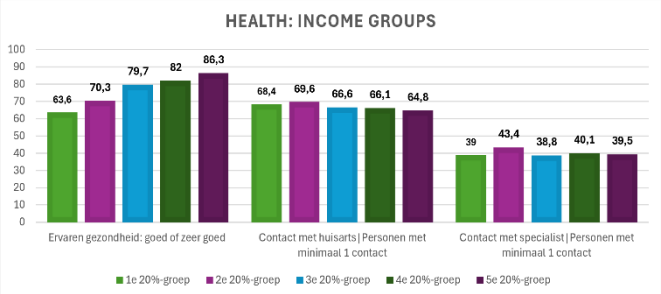

Figure 7.10 – Health perception and medical contacts per income group in the Netherlands. Source: CBS.

prosperity show similar trends. A reason for this could be that higher income groups are composed predominantly of older people and that older people have more health problems, which compensates for a lower use of care facilities. This does not explain the difference between the two statistics, however. A reason for this inconsistency could be that people with higher income have a decreased health but the problems they have in terms of health are not as severe as younger people, therefore they don't need to visit the doctors as often as other groups, and in relative comparison to their health perception.

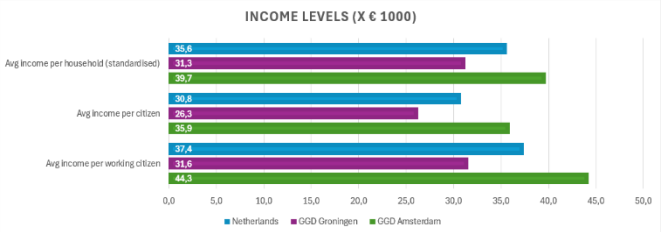

Figure 7.11 – Income levels in Amsterdam, Groningen and the Netherlands. Source: CBS Statline, 2024.

When it comes to income levels in Amsterdam and Groningen, the first scores higher than the national average and Groningen scores below average, with the difference per working citizen between the two regions being as large as € 12700 euros per year which is a 40% difference 'in favor' of the Amsterdam region. So Amsterdam, on average, is younger and has a higher income than Groningen. This might be correlated to the education levels in both regions. Figure 7.12 shows that Amsterdam has a smaller part of lower educated people and a way higher portion of higher educated people compared to both Groningen and the Netherlands. Groningen, on the other hand, is closer to the average but has a significantly larger portion of middle educated citizens. When projecting that on health perception and medical contacts in Figure 7.9, the expectation purely based on this statistic is that the average health perception in Amsterdam is higher and the number of people with yearly medical contacts is lower. This in fact is consistent with the information about the regions in Table 4.1 on page 22. However, as mentioned before in chapter 7, there are multiple factors that influence the health perception and use of care, and although there seems to be a correlation between them, a specific causation is not quite evident.

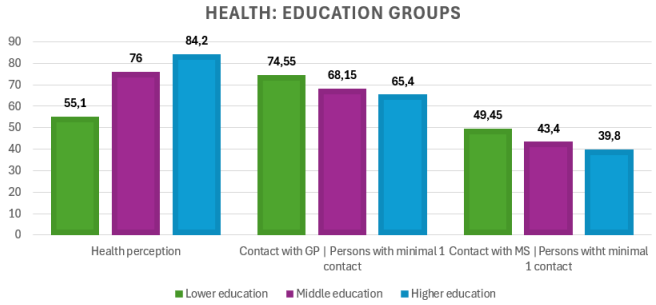

Figure 7.9 – Health perception and medical contacts per education level. Source: CBS Statline 1, 2024.

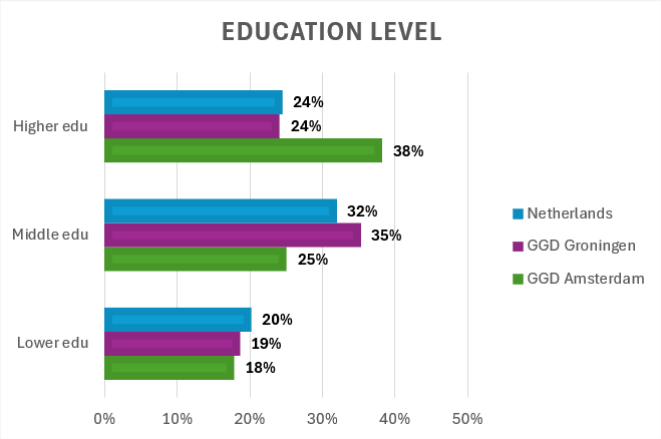

Figure 7.12 – Education levels in Amsterdam, Groningen and the Netherlands. Source: CBS Statline, 2024.

7.1.4 Conclusion

This chapter has focused on unraveling differences between GGD Amsterdam and GGD Groningen at the demand side of the health care side; in terms of geographics, demographics, income and health. This was done so that the results of the next two research questions can be placed in their extended context.

Overall, we see that Amsterdam is farther from the average national numbers than Groningen. Amsterdam has a higher amount of young people and higher average income levels, which, according to statistics, positively impacts health perception and lowers health care use. On the other hand it can be noticed that more than half of the population in the area has a migration background, and there is a higher degree of single person households, which both affects health factors in the opposite direction. When observing Groningen, the region is slightly closer to the national average in some numbers, for instance in amount of single households. In terms of income, it is both below Amsterdam and the Netherlands, indicating that this affects the health perception of the region in a negative way. The percentage of migration backgrounds is also lower than Amsterdam and the national number, but that seems to have a positive impact on health perception. The overall outcomes are depicted in Table 7.3. There is no connection between the average distance to a GP and the health perception, however from qualitative data in next chapters there seems to be an indication of the fact that increased distance tends to lower the incentive to visit a GP. This has a correlational connection but it is not proven to be have a causational association.

In general, even though data in Table 4.1 already indicated that GGD Amsterdam has an overall larger use of care compared to GGD Groningen, no single conclusion can be drawn from the statistics about what factors affect increased or decreased health care use. The impact of certain factors has become evident, but there are factors that impact the health in different (opposite) ways and they can be analyzed for both regions, but this is not a matter of simply 'adding up' or evening out certain factors. That is why it is relevant to not only get a quantitative grip on the GGD regions at view, but also to talk to general practitioners about their experiences, so that these numbers are explained or enriched with qualitative statements.

Table 7.3 – Summary of socio-demographic statistics in GGD Amsterdam and Groningen and their effects on health perception and use of care. Arrows indicate the effect on the use of care. Source: Author.

Statistic	GGD Groningen		GGD Amsterdam		Effect on use of care	Effect on health perception
Age distribution	Average	=	Below average	↓	High age increases use	Higher age lowers health perception
Migration background	Below average	↓	Above average	↑	No clear trend	Migration background lowers health perception
Household type	More single person	↑	More single person	↑	Family decreases use	Single household lowers health perception
Income	Lower	↑	Higher	↓	Lower income increases use	Lower income lowers health perception
Marital status	More married	↓	More single	↑	Being single increases use	Being single lowers health perception
Average distance to a general practitioner	1,47 km		0,91 km		-	-

7.2 SQ3 Supply: physical and organizational characteristics

Supply and scenarios

The objective is to explore the physical and organizational characteristics of healthcare practices and related organizations, focusing on the type and distribution of general practitioners and the involvement of overarching organizations and instances. Furthermore, a future vision will be explored, in order to identify potential changes in organizational structures. By creating scenarios, actors can be identified that can, and could in the future, play a crucial role in the shaping of general practitioner care.

7.2.1 Physical forms of practices

Before the two regions of Amsterdam and Groningen will be viewed in more detail, it must first become clear what types of health care practices are common in the Netherlands as a whole. There has been research on this by Nivel, the scientific agency for all types of health care research. They publish a report on the state of general practitioners every couple of years and conduct additional research on several more in-depth topics. A recent study by Jansen et al. (2023) has analyzed organization forms for general practitioners, depicted in Figure 7.13. According to this graph from the report, seven distinct organizational forms are identified within Dutch general practice care. Five of these are considered long-established, institutionalized forms, while two represent more recent developments. The following are distinguished among the roughly 4800 general practitioners in the Netherlands:

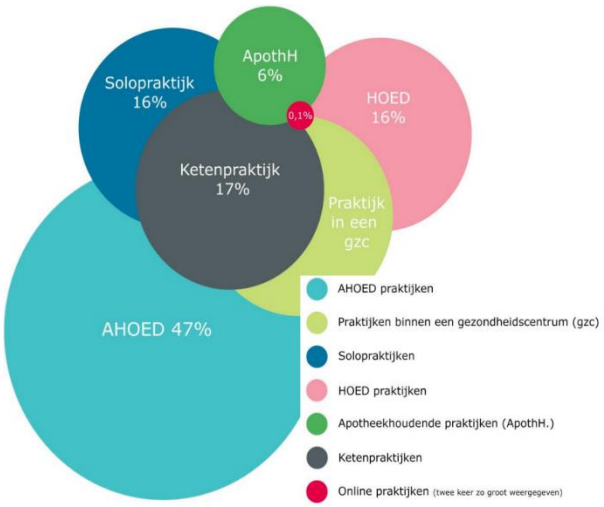

Figure 7.13 – Organizational forms of general practitioners in the Netherlands. Source: Jansen et al., 2023.

1. Solo practice (1): 789 practices, accounting for 16.3%. However, it is noted that only 6% of the total number of practices are actually established alone and can be considered true solo practices. The difference comes from the fact that a solo practice can also be within another form, like the number 5 from this list, a practice within a health center.

2. Pharmacy-holding practice (2): 285 practices, or 5.9%. A general practice with an integrated pharmacy: This is a single legal business entity.

3. HOED (General practitioners under one roof) (3): 758 practices, which is 15.6%. These are two or more general practices located in one building without a pharmacy in the same building. They are separate legal entities.

4. AHOED (Pharmacy and general practitioner under one roof) (3): 2,291 practices, or 47.3%. This involves a pharmacy and at least one general practice located in one building, but which are separate legal entities.

5. Practice within a health center (3): 799 practices, which is 16.5%. This is a location within one building of at least two healthcare disciplines, including at least one general practice, and more than just a pharmacy and general practice (otherwise an AHOED).

6. Chain practice (4): There are 842 chain practices, which is 17.4% of the total number of general practices. This is an organizational form that is rapidly developing. A chain is defined as two or more general practices linked to an overarching organization.

7. Online general practice: The report mentions that this organizational form is rapidly developing, but only a few organizations were found to operate in this manner. Two variations are distinguished: with and without their own practice location. No exact numbers or percentages are provided for this category in the overview of the seven organizational forms.

Number 6 and 7 of this list, the chain practice and online general practice, are relatively new in the care domain, but are increasing in numbers. New forms have always emerged, and they were often a response to increased regulations and the necessity for collaboration due to changing views on the content of general practice care. Especially the formation of chains of general practices has introduced a new form of scaling up in Dutch general practice care.

Table 7.4 – Four types of GP organizations. Source: author.

Type	Practice	Legal entity	Care providers	Building
1	Solo practice	Single	Only GP	Single
2	Group practice	Single	Multiple	Single
3	Group practice	Multiple	Multiple	Single
4	Group practice	Single	Multiple	Multiple

In a general sense, four types of organizations can be characterized (signaled by the number that follows the definitions in the list), also shown in Table 7.4: (1) solo practices which are one legal entity and have one building. Contrary to what the name implies, they can have multiple GP's but only one owner, the other staff are employed by the owner. The next is (2) practices with multiple GP's in one building being one legal entity, which often entails multiple primary care suppliers that are run by one organization. Number (3) is multiple GP's which are separate legal entities but in one building, often referred to as HOED or AHOED and called a 'health center'. Notice that this is not the same as a medical center, which would include medical specialist elements. The last form (4) is wider than just one building: multiple GP's that are in one legal entity (or organization) but are in multiple locations. This is characterized as a chain, which often means administrative and real estate matters are dealt with from a central perspective. The term 'multiple GP's' used here is in fact more broad than just a general practitioner and can also include other services such as (but not limited to) a pharmacy or physiotherapist. The four types are relevant to take into account in further analyses, as this could have impact on what the possibilities are for practice organization in terms of organizational feasibility, staff and finance. In the survey, the 9 responses were 2 solo practices, 1 dual practice and 7 group practices.

7.2.2 Distribution of practices

The concept of health perceptibly runs through all the statistical data as presented in previous parts of this chapter – specifically because of the perceived health and medical contacts that are connected to every topic discussed in paragraph 7.1. The choice of a health topic within the organizational chapter is still relevant as this section will look at the supply side of the health organizations. The two regions are quite different in terms of health care supply services. Perhaps this is because the regions have large demographic differences and are geographically composed quite differently. Table 7.5 shows the numbers in more detail for general practitioners, showing that the average distance to the closest GP is larger and the number of GP's within a certain range is lower in Groningen.

Table 7.5 – Statistics on population, density and urbanization. Source: Ziekenhuiszorg | Regionaal | Locaties (2024).

Statistic	GGD Groningen	GGD Amsterdam	National average
# of GPs per 10000 inhabitants	6,7	7,5	6,7
% of GPs in solo practice	20	15	16,3
% of GPs in dual practice	52,4	37,6	
% of GPs in group accommodation	27,6	47,4	
Average distance to a general practitioner (in km)	1,47	0,91	1,0
Number of GP within a 3 km range	3,25	10,25	7,8

This, however, is partly consistent with the lower population density and therefore would be according to what is expected. What is more interesting though, is that the relative number of GP's per 10.000 inhabitants for Amsterdam is higher (compared to both Groningen and the national average), but there are fewer solo practices and more group accommodations in GGD Amsterdam. Research indicates that there is a correlation between a lower GP density and a higher degree of patient stops for practices (Van Schaaijk et al., 2025). Another research conducted on GP accommodations indicates that solo practices have slightly more physical capacity problems than grouped practices, but also that practices in high address density areas (higher urbanization) experience more problems with physical capacity compared to low density (less urbanized) areas

Table 7.6 – Distribution of health care facilities in Amsterdam and Groningen. Source: Ziekenhuiszorg | Regionaal | Locaties (2024).

Statistic	GGD Groningen	GGD Amsterdam	National
Academic hospitals	1	2	8
General hospital	3	5	98
External policlinic	3	3	148
Children's hospital	0	1	7
General practitioner	128	224	4726

(Van Schaaijk et al., 2024), although the reasons seem to be diverse for the different areas. Two main reasons are 'no physical possibilities to expand' and 'no budget', with the first appearing more often in high density areas and the latter in less urbanized areas. The results of the survey in this research, (APPENDIX E) more specifically question 17, report similar limitations on the current housing: 4 of 6 responses concern a lack of space. Referencing back to the Nivel research paper (Jansen et al., 2023) mentioned in paragraph 1.2 on page 8, this could possibly indicate a difference in work practices and/or quality of GP care.

Next, it is interesting to get a more in-depth view of the spatial distribution of (the type of) practices in Amsterdam and Groningen. The distribution of hospitals and external policlinics is graphically depicted on the map in Figure 7.14 – Distribution of hospitals and external policlinics in the Netherlands. Source: Ziekenhuiszorg | Regionaal | Locaties, 2024.. Table 7.6 shows the numbers behind these health care facilities for Amsterdam and Groningen regions, revealing that Amsterdam has an absolute higher number for each different health care service except for external policlinics, in which case the numbers are equal at three for both regions. For general practitioners no publicly available, complete and up to date dataset existed, therefore a Power BI model was made to create the map and to analyze it on certain aspects, see Figure 7.18. The main difference at first sight is that there is quite a different setup. While Groningen has one GP in each village it appears, Amsterdam has a very high density in the city itself and farther away from Amsterdam there are fewer general practitioners (note that the scale of the maps is different: the actual scale of Amsterdam is depicted in the bottom left of the Groningen map, which sets the real distances in perspective). This differentiation is directly linked to the population

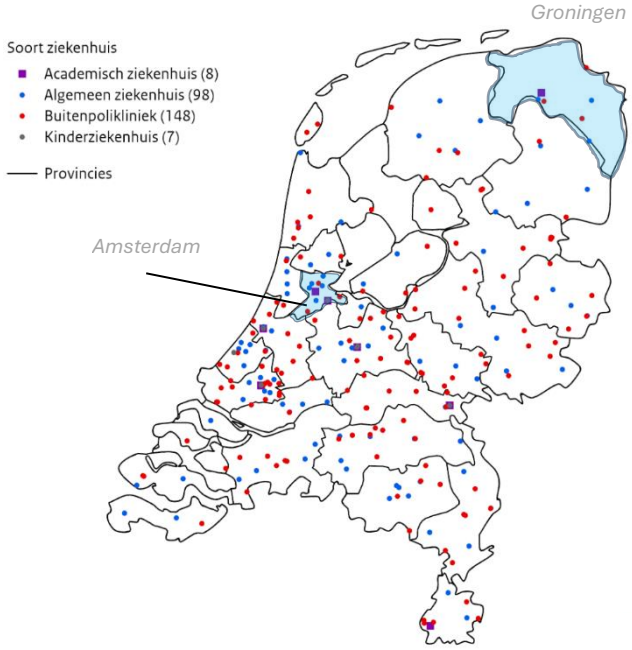

Figure 7.14 – Distribution of hospitals and external policlinics in the Netherlands. Source: Ziekenhuiszorg | Regionaal | Locaties, 2024.

density. This is depicted in Figure 7.18a, in which can be seen that the densely populated Groningen city area hosts more GPs than its rural surroundings. A similar observation can be done for the Amsterdam area, where the city (center) of Amsterdam hosts more GP's compared to one of its rural counterparts, Aalsmeer. Accordingly, as shown in Figure 7.18b, a 10 minute travel time by car shows more options to choose from in Amsterdam than in Groningen, where there are 6 GP's in a 10 minute travel distance,

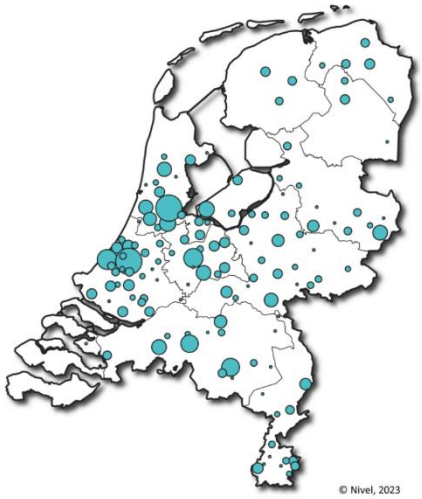

Figure 7.15 – Number of GP's in health centers. Higher number is a larger bubble. Source: Jansen et al., 2023.

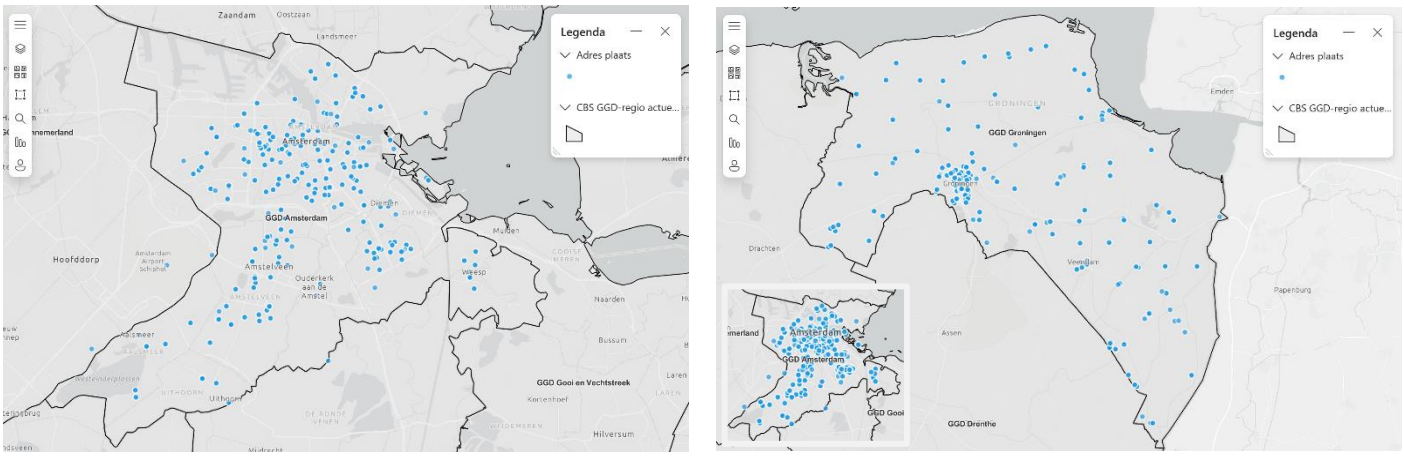

Figure 7.18a – Distribution of general practitioners in GGD Amsterdam and Groningen regions. Small image shows real Amsterdam size. Source: author.

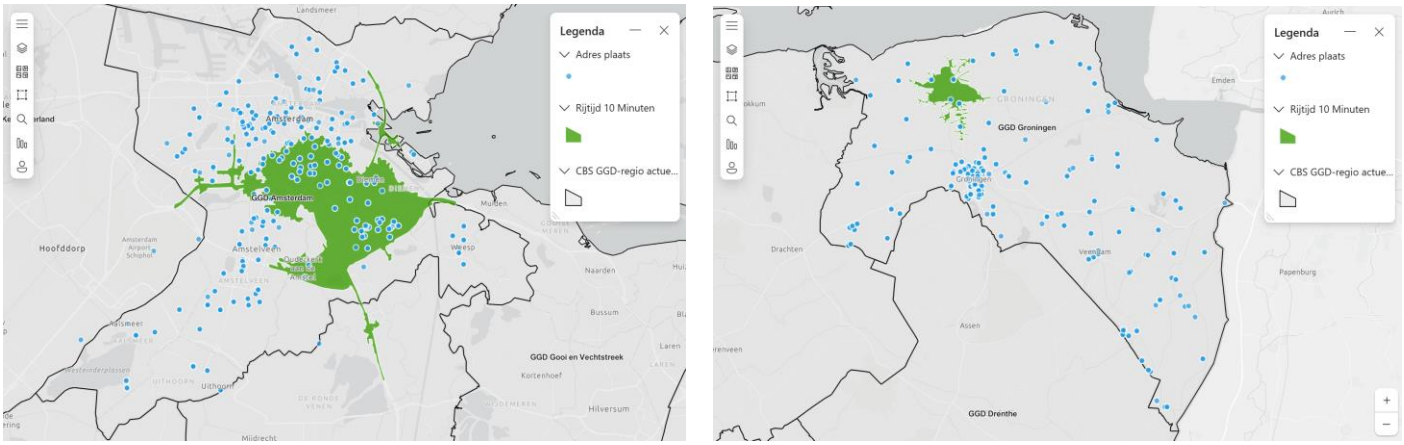

Figure 7.18b – 10 minutes of travel time: area of coverage for Rivierenbuurt, Amsterdam and Winsum, Groningen. Source: author.

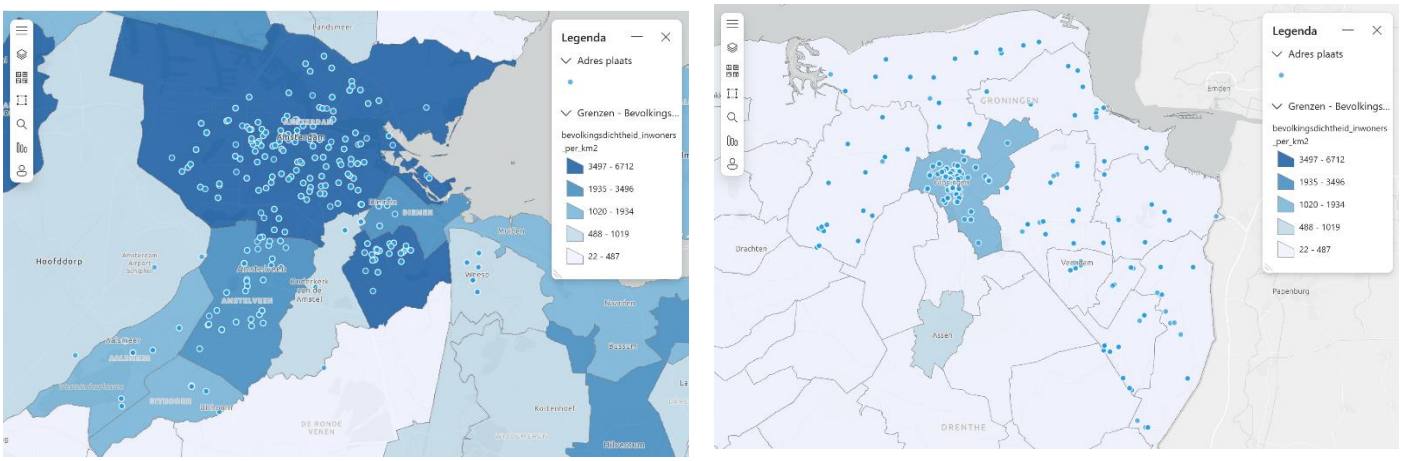

Figure 7.18c – Distribution of general practitioners relative to population density. Source: author.

compared to more than 80 in Amsterdam. Whether these spatial variations are the reason for a difference in the accommodation of general practitioners is a matter for the next sub questions, but Figure 7.15 already shows an indication of the fact that this might be the case; there are more GP's in health centers in densely populated areas and big cities compared to rural areas. Interestingly, in the distributed questionnaire (APPENDIX E), the two GPs in rural areas are in a solo and duo practice, supporting this idea. Furthermore, a lower population density such as Groningen, Friesland (North-East) or Zeeland (South-West) provinces, indicates a higher amount of GP's with an integrated

Figure 7.19 – GP's with an integrated pharmacy. Higher number is a larger bubble. Source: Jansen et al., 2023.

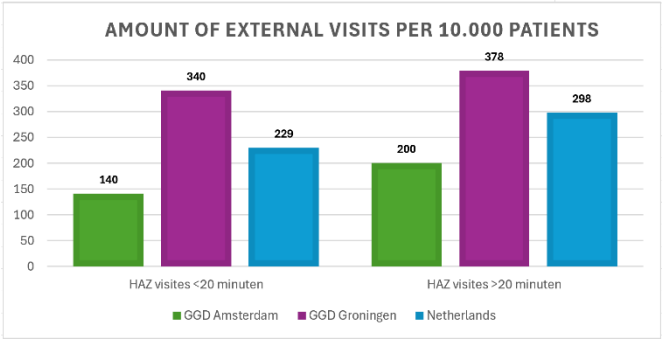

Figure 7.20 – External GP visits in Amsterdam and Groningen region. Source: Zorginstituut Nederland & Vektis, n.d.

7.2.3 Organizational aspects

The actors involved in the regions play an important role in the organization of care and the development of (new) accommodations. This does not just entail national organizations like the national general practitioner association (LHV) or national health care authority (NZa), but also includes the regional health care organizations.

For this research, three domains are distinguished: the care domain, the advisory domain and the authority domain. Note that this list is not exhaustive as there are many advisory and/or collaboration networks on all different levels, but the most significant actors are laid out here.

In the care domain, we evaluate the parties nearby, including the patient. Most have been reviewed in pharmacy. This has a direct link with proximity, as a GP only is eligible to have an integrated pharmacy if the distance from pharmacy to the closest home is at least 4,5 kilometers (Ministerie van Volksgezondheid Welzijn en Sport, 2025b).

Another difference to look at is the way the practices are operating and more specifically, the amount of external visits. According to Figure 7.20, general practitioners in GGD Groningen have a larger amount of external visits compared to both the average in the Netherlands and the Amsterdam GGD region. In fact, the number is twice as large compared to Amsterdam. The same source (Zorginstituut Nederland & Vektis, n.d.) reports that the average consult length is longer in Groningen than Amsterdam. So, this indicates that the average time spent per patient (either spent traveling or the consult itself) is longer in Groningen than in Amsterdam.

Figure 7.21 – Actors in the care domain. Source: author.

the literature, in 2.2.4 Primary, secondary, tertiary and paramedical care and 2.2.5 Transition in Dutch health care, hence these actors will be only briefly named here: The patient, fellow GP, primary care domain and secondary care domain.

Figure 7.22 – Actors in the authority domain. Source: author.

On the level of authorities there are the Ministry of wealth health and sports (Volksgezondheid, Welzijn en Sport, VWS) which sets out the legislative boundaries, the national care authority (Nationale Zorgautoriteit, NZa) which is the supervisory

authority for legal and financial issues, and the municipality which plays a crucial role in local governance and public administration.
On an advisory and collaborative level, there are all types of organizations that play a role and are different in each region. For instance, for Amsterdam, there are multiple levels of organizations that are linked to general practitioners. An interviewee in the Amsterdam region laid out from bottom to top: "We have the general practitioners' practices. Then we have the neighborhood groups where they consult with each other. And then we have the care groups, then we have the Amsterdam Alliance, and then we have the RESV (regional primary care facilities)." Another description of this structure was 'the tower of Babylon'; a fairly cumbersome structure. Most of these structures have emerged over time as a reaction to certain developments and are set up for closer collaboration. In this research, they will be indicated as the Regional organizations. Besides these local initiatives, there are important advisory parties, such as the national general practitioner association (Nederlands Huisartsen Genootschap, NHG) for advice on medical-specialistic issues, and the national general practitioner association (Landelijke Huisartsenvereniging, LHV), for all organizational issues beyond the medical level, including real estate.

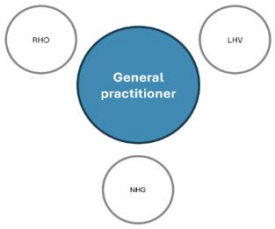

Figure 7.23 – Actors in the advisory and collaborative domain. Source: author.

A step to help clarify this complex system of actors is to create an actor-network map, following the Bruno Latour theory of explaining actors and objects in relation to their surroundings. The goal is to set the GP accommodation, its surroundings and the connected actors in their position towards each other, in order to understand the complex relationships between all involved instances. This map is depicted in Figure 7.24 on page 38 and shows a typical situation of a general practitioner in a health center. The purple actors represent medical actors, the advisory and collaborative domain is depicted in green, and the authoritative actors are shown in blue. Interestingly, when looking at the definitions of proximity as in Table 7.7, it can be noted that the blue category has the largest cognitive and cultural proximity towards general practitioners, as they do not share a common organization. They likely provide the framework such as described in the institutional proximity definition. So, even there is larger social, cultural and cognitive proximity, by making the 'rules of the game' for finance or quite literally the legislation, the institutional proximity is defined and monitored by these actors. Meanwhile, the purple category – with the exception of the medical-specialist domain, the secondary care providers – are connected to a health center. This means great geographical, social and cultural proximity: short lines and personal relationships boost the collaboration. The green – or advisory actors and networks – are in between the blue and purple in terms of proximity. The degree of geographical proximity differs, as RHO's are typically shaped for the needs of a region, and an LHV advisory department acts nationally, such as the practice development advice committee. Some 'green' actors advise direct to the general practitioner, such as the NHG for new medical updates, others act more in a regional manner. This category can also be viewed as the 'connecting' set of actors, linking national governments, authorities, financial parties, regional and local parties together.

Table 7.7 - 5 different types of proximity. Source: Nilsson (2019).

Type of proximity	Description
Geographical	Physical distance between actors (lies at the heart of studies of regions and clusters)
Institutional	Existence of a common institutional framework at the macro level. This entails both formal institutions, i.e. the 'rules of the game' and informal, i.e. conventions and codes of behaviour
Cognitive	How actors perceive, interpret and evaluate the world according to mental models and categories
Social	The degree to which actors' share personal relationships, often by means of past collaboration
Cultural	Shared language, codes and norms of communication and exchange between actors

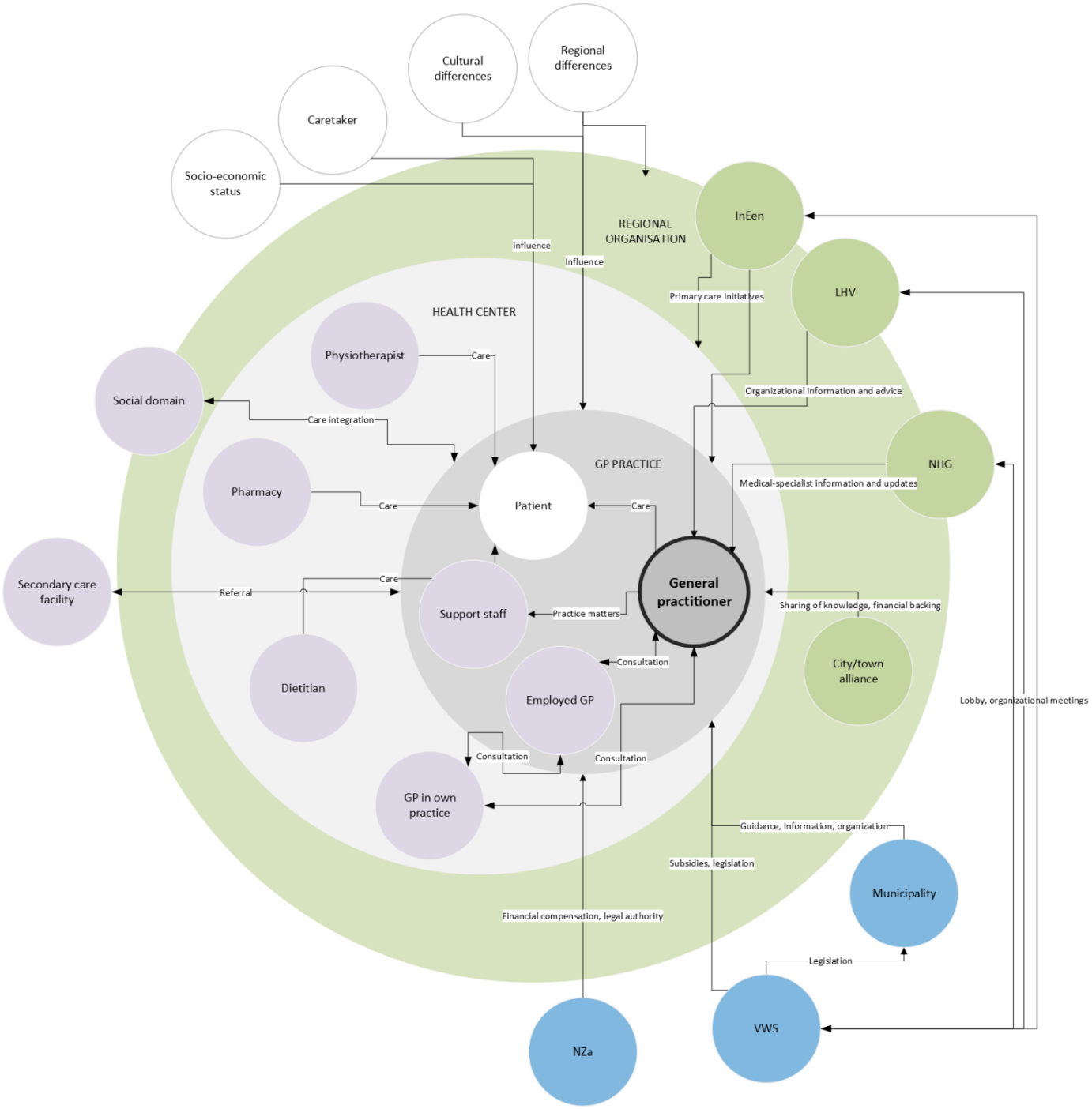

Figure 7.24 – Actor-Network analysis of a GP practice in a health center. Source: author.

7.2.4 Future scenarios

A next step in the research is to make a prediction – to a certain extent – of how the health care system as described in previous sections could develop. This is done in the form of two extremes, of which one should notice that both scenarios are partly happening in their own ways, and it is therefore quite likely that the real future will hold somewhere in the middle. In order to be able to compare the current structure with the two scenarios, a similar actor-network graph as Figure 7.24 is created. Resulting visualizations are depicted on the following pages. Note that these scenarios focus primarily on the supply side.

Scenario 1: stronger emphasis on digitalization: a decreased need for physical space

In 2030 and beyond, the Netherlands will undergo a significant transformation in its primary healthcare system, characterized by a quite strong integration of digital health technologies, currently already partly taking place (Centraal Bureau voor de Statistiek, 2023). This shift is primarily driven by the general adoption of elements such as telemedicine, which will become the basis of healthcare delivery. Virtual consultations will most often replace traditional in-person visits, giving patients the chance to engage with healthcare providers through video call platforms, at their own place and time. This transition will significantly reduce waiting times and travel-related inconveniences, thus improving accessibility, particularly for citizens living in rural areas or those that have limited mobility.

What's more, is that the adoption of wearable technologies will further revolutionize healthcare delivery. Advanced devices will continuously monitor all kinds of vital signs, including heart rate, blood pressure, and glucose levels for people that need it. They will be upgraded with, or adapted to, advanced AI tools and algorithms and will provide real-time health insights and alerts, so that they can facilitate early detection of potential health issues. The close integration of these devices with

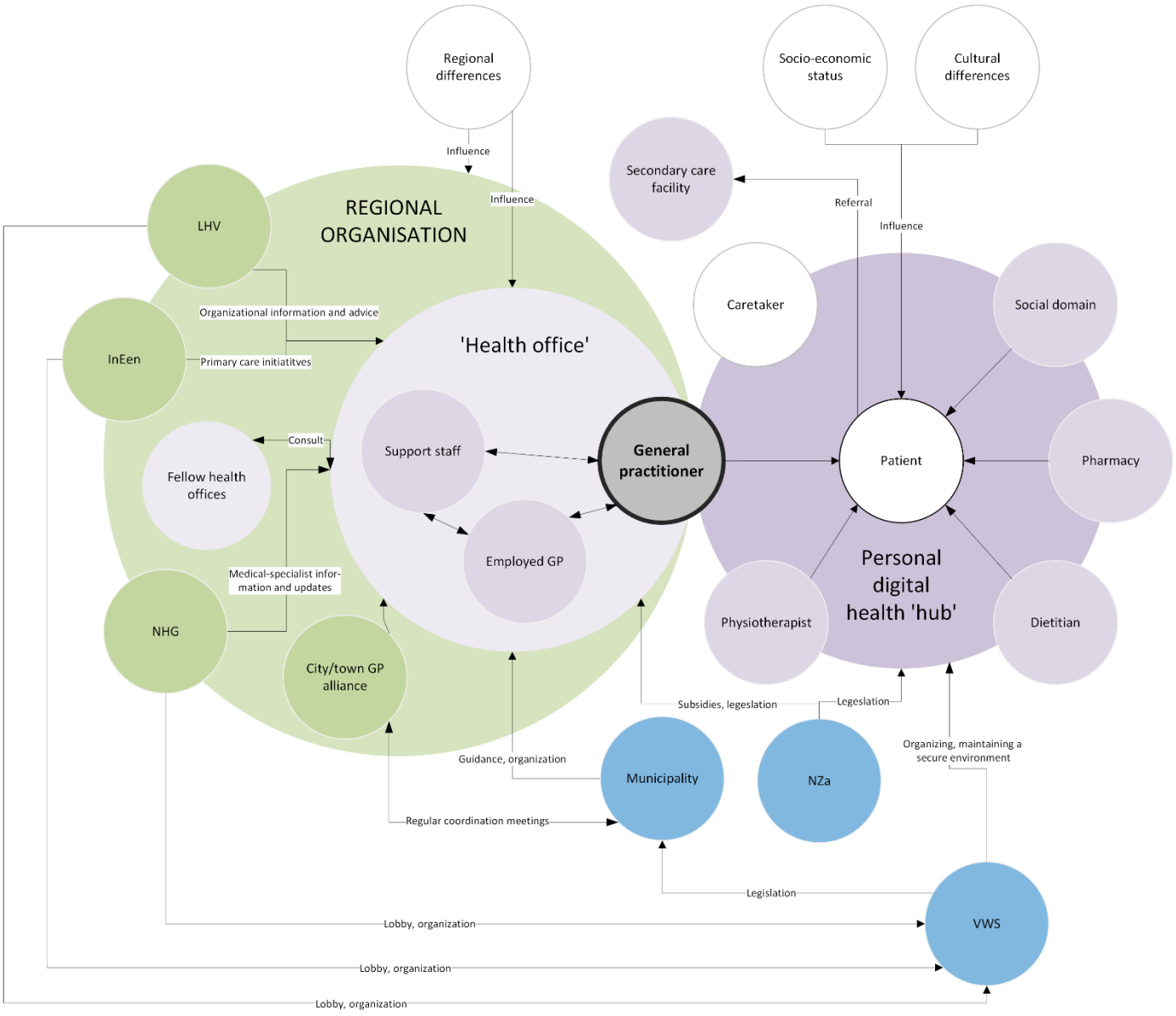

Figure 7.25 – Scenario 1: Actor-Network analysis of a general practitioner in a predominantly digital future. Source: author.

healthcare provider systems allows for timely and precise interventions, thereby improving patient outcomes. Health applications will become widespread, and their function will be to manage chronic conditions, track fitness, and to receive personalized health advice. These applications are interconnected to a central health database, making sure there's continuous communication between patients and healthcare providers. The use of AI and Big Data analysis will further strengthen this system by enabling the analysis of vast amounts of health data to predict and prevent health issues before they escalate. This proactive approach will lead to early diagnosis and the development of personalized treatment plans, significantly changing overall health outcomes.

An important aspect of this 'digital health model' is that the role of the patient becomes more independent, and therefore more important. This is shown as the large purple circle in Figure 7.25. Individuals will gain greater control over their health data and are actively involved in the decision-making processes concerning their health. They can access their medical records, schedule appointments, and communicate with healthcare providers through a central platform that is specifically designed by a national actor like ministry of VWS to accommodate this. The increased engagement will create a sense of ownership and responsibility for their health, leading to better following of treatment plans and the adoption of healthier lifestyles.

In this scenario, the role of general practitioners evolves significantly. Many GPs operate from smaller offices that focus on virtual aspects such as data and technique or even from home, reducing the need for a large quantity of larger physical clinics. The decreased need for tailored space means they could often be located anywhere and shared by anyone: a rather gas-like structure following the types of Den Heijer (2021) in section 2.2.6. It could, for instance, mean an increased sharing of space with municipal buildings where square meter prices are lower and the connection with local residents is evident. These digital practices are equipped with the necessary technology to conduct virtual consultations and monitor patient data remotely. This change not only reduces operating costs of practices, but also allows GPs to offer more flexible and accessible services to their patients, making the care they give in-person of higher quality.

Scenario 2: a continued focus on in-person health care: optimalization of physical space

In this alternative – and quite opposite – scenario, our national system continues to prioritize in-person healthcare, mainly by stressing the value of direct interaction between patients and healthcare providers. This 'moving back to the physical' is already happening in other sectors, for example Google has made it mandatory since 2025 for employees to work at the office more often (BusinessAM, 2025), and the expectations are that this trend will continue in the future: in their research among CEO's, KPMG concluded that '83 percent [of the CEO's] expect a full return to the office within the next three years — a notable increase from 64 percent in 2023' (KPMG 2024 CEO Outlook, 2024). Although health care and GP practices have not quite moved away from the physical yet, it could mean upgrades for practices, see Figure 7.26. The scheme does not look much different from the

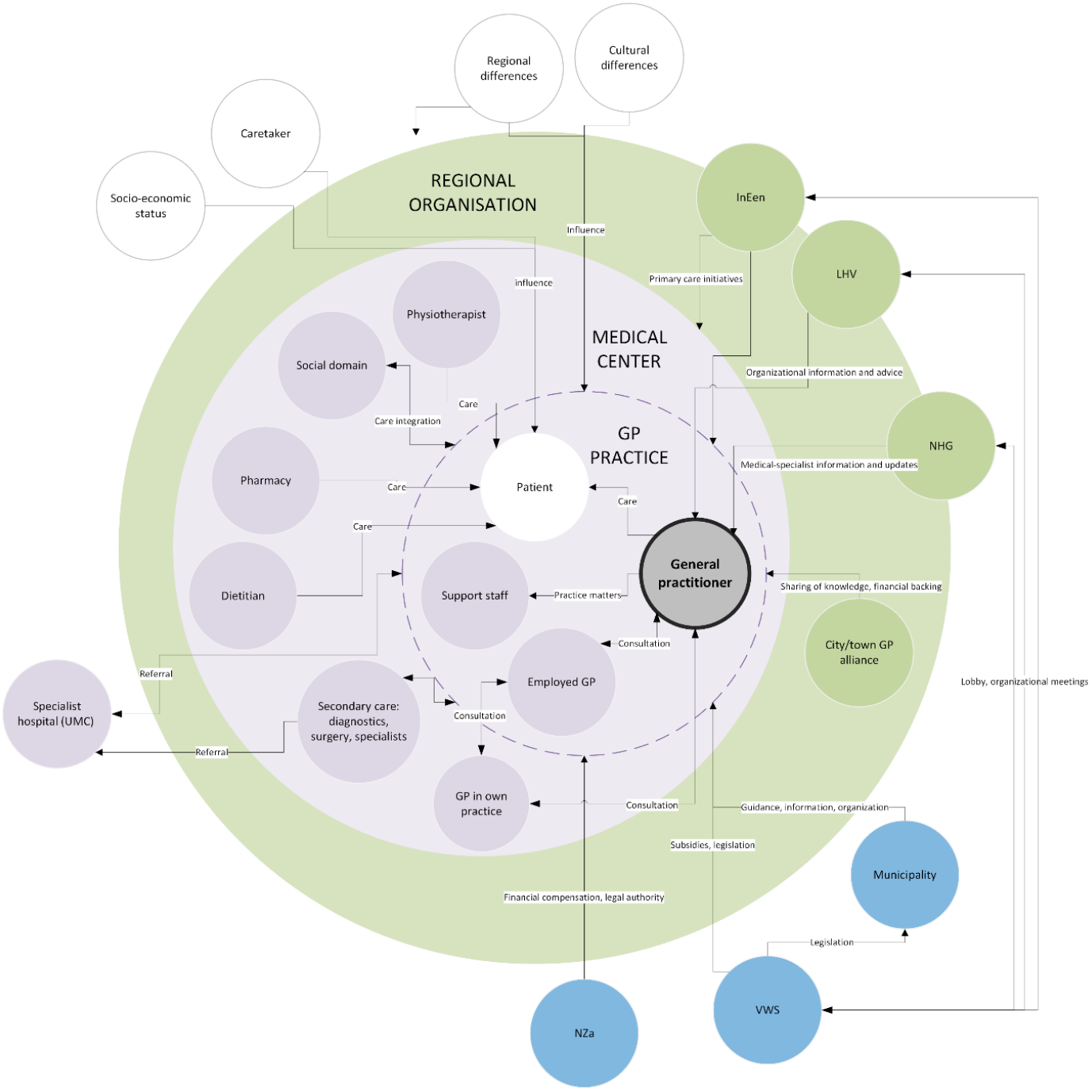

Figure 7.26 – Scenario 2: Actor-Network analysis of a general practitioner in a continued and upgraded physical future. Source: author.

model of the current observation in Figure 7.24 in first glance, but there are some fundamental differences. For instance, it implies that health centers are more often going to be transformed to medical centers (as explained in 7.2.1): they will become the standard and significantly upgraded, featuring the newest facilities that offer full services, including diagnostics, minor surgeries, and specialist consultations that are integrated from secondary care facilities. This would make the clear separation of primary and secondary care providers less recognizable, and it would decrease the need to seek care outside the medical center. These centers would function as easy and integrated places for all basic healthcare needs, making sure that patients receive their care efficiently and on time. Community health initiatives play a crucial role in this model. Regular health events, workshops, and screenings are organized to promote preventive care and healthy lifestyles. These initiatives engage the community and raise awareness about common health issues, encouraging proactive health management. The aim of this approach is to focus on personalized care which ensures a strong doctor-patient relationship. That personalized attention ensures that patients feel heard and understood, leading to improved health outcomes. Integrated care teams, consisting of doctors, nurses, physiotherapists, mental health professionals and social (and financial) workers, collaborate to provide care that goes beyond the medical field and views a patient as part of its socio-economical world. This multidisciplinary approach should address all aspects that could influence a patient's health. Home visits will become the norm for patients who are unable to visit clinics. Healthcare professionals provide care in the comfort of patients' homes, ensuring that vulnerable populations, such as the elderly and those with mobility issues, receive the necessary attention. With the ageing population, there are GPs who have a so-called home base, but predominantly do visits to the patient home. This approach promotes a sense of community and support, making healthcare more accessible and inclusive. In this scenario, general practitioners continue to play a central role in the healthcare system. They are housed in well-equipped primary care hearts that serve as the hub for all patient interactions. These centers are designed to facilitate ‘the complete package’ of care, with GPs working closely with other healthcare professionals to provide coordinated and complete services. This could be characterized as a liquid state as defined by Den Heijer (2021): the boundaries are clear, but within these boundaries, the health care professionals are connecting in quite a loose manner, so that practice structures are less visible and professionals avoid making rigid distinctions between care domains. The physical presence of GPs in these centers does however ensure that patients receive personalized and continuous care, reinforcing the importance of the doctor-patient relationship.

Digital – physical

Both scenarios present their own advantages and challenges: the digital health approach offers convenience and efficiency, while the in-person care model focuses more on personal connection and comprehensive care. As mentioned in the start of this paragraph, a choice between these models will significantly impact the future of primary healthcare in the Netherlands and the future will likely hold aspects of both scenarios. For instance, in their 2035 vision which is connected to the IZA, the branch organizations LHV, NHG and InEen together mention in goal 4 of the 7 ‘future enablers’: "We provide patients with digital (medical) information about possible self-care so they know if and when it is necessary to contact the (emergency) general practitioner care." (Raymond Wetzels et al., 2035). In the same document, they mention ‘AI-assisted triage’ and that ‘patient ownership in their own dossier can play an important role in self-autonomy’. Meanwhile, the physical aspect is also of continued importance: "As general practitioners and professionals of the general practitioner team, we commit ourselves long-term to a fixed patient population. This guarantees that we know patients well, can build a trusting relationship, and maintain enjoyment in our work."

When these scenarios are projected on the regions, it can be noted that Amsterdam has quite a young (and therefore likely a digitally literate) population, it experiences physical space scarcity resulting in high m2 prices, and it has an overall more individualistic society. Taking these factors into account, it could mean that the digital scenario has a lot of potential in this region. Regional organizations can focus on the organization of the health offices, which could be on every street corner due to their flexible nature and low demand for specific space characteristics such as easy reachability or high privacy.

This can also be said about the Groningen region, but only to a certain extent. The region is independent, but not individualistic. A digital scenario could significantly increase the accessibility to care for many people in the Groningen region, but the question is whether people are willing to adapt to this. Almost all prospects indicate that the adaption of new technologies will take a more dominant place, even in human-centered sectors as (GP) health care, but it could differ per region. The health offices could imply that there still is 'a doctor nearby', but for actual visits one would have to travel a little further. This could actually be the case in the physical future scenario as well. Due to a (most likely) increasing health care demand, pressure will increase on the general practitioner. The most efficient way to deal with this would be to make larger GP practices or health centers so that there is close collaboration and staff shortages or absence can be more easily managed (De Huisarts Oude Stijl Is Passé, 2025). This would mean a larger proximity between patient and GP, but it would keep the health care manageable. To keep the local GP in each village or town would probably require increasing work force on the health care professional, which likely is not feasible due to the reported existing pressure. Finding solutions to relieve some of that pressure on the health care system is crucial, whether that is a digital or physical solution, or both.

Impact on the built environment

The general practitioner care in the Netherlands likely evolves toward a hybrid model by balancing digital innovations with the continued value of in-person care. There's a probability that the built environment will undergo considerable transformation in the near future. The way healthcare is spatially organized, accessed, and experienced will probably shift in response to both technological advancements and the specific regional characteristics, while keeping an eye on (financial) feasibility. Several points are made in terms of the built environment.

As the demand for traditional GP buildings changes, existing buildings may be repurposed to serve new healthcare functions. Former clinics could become digital health centers, community wellness hubs, or hybrid spaces (and therefore optimizing the use of public buildings, for instance) that blend medical, social, and digital services. This approach promotes sustainable and adaptive use of both urban and rural real estate.

In urban centers like Amsterdam, where digital literacy is high and physical space is limited, the rise of care models that focus on digital aid could reduce the need for large, traditional GP practices as they exist today. Instead, cities may see the emergence of decentralized, compact, modular health care points; small, consultation hubs enabled by technique and data, situated within neighborhoods. These spaces would require lower specific spatial features, such as high privacy or accessibility, and could be even more easily integrated into existing urban infrastructure than current GP practices.

In contrast, rural regions such as Groningen may benefit from larger, consolidated health centers that serve broader populations. These facilities would support collaborative care teams and accommodate both digital and physical services. While patients might travel farther for in-person visits, these centers would be designed for efficiency, continuity of the care provided and shared staffing, therefore helping to manage workforce shortages and rising and more complex health care demands.

Even as digital tools become more widespread, physical healthcare spaces should continue to focus on personal connection. Design strategies will need to balance technological efficiency with human-centered values, making sure that spaces remain welcoming and supportive, especially for vulnerable

or digitally hesitant populations like the elderly or migrants.

7.2.5 Conclusion

This chapter has provided a comprehensive examination of the structural and professional characteristics of general practices and related organizations. The analysis focused on the type and distribution of general practitioners and the involvement of overarching organizations and agencies, with a particular emphasis on the regions of GGD Amsterdam and GGD Groningen as a model to account for the differences between an urban and rural area.

The findings reveal that Amsterdam has a higher relative number of general practitioners per 10,000 inhabitants compared to Groningen and the national average. Amsterdam also features fewer solo practices and more group practices or practices in collective housing than Groningen. The distribution of general practitioners is notably different between the two regions, with Amsterdam exhibiting a high density of practitioners within the city, while Groningen practitioners are more evenly distributed across villages, with a higher concentration in the city of Groningen than in rural areas. This is correlated to population density. Travel time analysis indicates that Amsterdam residents have significantly greater access to general practices within a 10-minute car journey compared to Groningen residents. Additionally, urban areas with higher population density (in this research focused towards Amsterdam) tend to have more general practitioners in health centers, whereas lower-density areas like Groningen have more practitioners with integrated pharmacies, the latter being influenced by distance regulations. General practitioners in Groningen conduct significantly more external visits than their counterparts in Amsterdam and the national average, and the average consultation duration is longer in Groningen, suggesting more time spent per patient.

The chapter has not only looked at the geographical aspect of the supply, but has also identified and analyzed the roles and relationships of various actors in the care, advisory, and authority domains, thus analyzing the organizational structure. This was done using actor-network analyses to map the most important connections to general practitioners. In an attempt to elaborate on that network in the future, the paper explored potential upcoming developments in the organization of primary care, considering two contrasting scenarios: digitalization, which reduces the need for physical space, and a continued focus on personal care, which likely will result in optimized or increased physical space. It was noted that the future organization of primary care will likely incorporate elements of both scenarios, but that consolidation – or concentration – of care has a higher probability of being successful in rural areas such as Groningen due to the spread-out nature of these areas, and that decentralization is more likely to be beneficial for urban areas such as Amsterdam, due to the type of inhabitants and the very dense urban character.

Overall, this chapter has provided a detailed analysis of the supply side of general practitioner care, highlighting organizational types, regional differences in supply and distribution between Amsterdam and Groningen, the roles of relevant actors, and potential future pathways for the organization of care. This was done on a quantitative basis and should therefore be coupled with a qualitative substantiation.

7.3 SQ4 impact of regional differences on general practitioner practice

7.3.1 Overview of interviews

The differences are set out in previous paragraphs and are categorized according to the structures identified, and will be reviewed according to their impact in the same way. 51 general practitioners were approached to participate in an interview, mostly by calling the practice assistant. Three agreed to have a conversation, the other GPs either did not respond to follow-up emails or did not have time to participate. 6 other parties were emailed, of which 2 agreed to have a conversation. The information in this section therefore comes from five different interviews with multiple general practitioners, a regional department and a national advisor, which are depicted in Table 7.8.

Table 7.8 – Interview participants. Source: Author.

Type	Area	Description
GP1	Urban	GP in health center, in city of 100.000+ inhabitants. Closest hospital at 1,5 km.
GP2	Rural	GP in health center in small town of 7.000 inhabitants. Closest hospital at 15 km.
GP3	Rural	Solo GP in small town of 2.500 inhabitants, closest hospital at 30 km.
RHO	Regional	Department of national organization, in urban area
LHV	National	Advisory body for all GPs

Figure 7.27 – Code cloud of interview codes according to frequency. Source: ATLAS.ti.

The interviews were transcribed and coded in ATLAS.Ti. Figure 7.27 shows a code cloud of most occurring codes, arranged according to their frequency. A set of code groups was made in order to make a clear connection between certain codes. The code groups are depicted in Figure 7.28, in relationship to the documents and indicating the amount of codes that belongs to that particular group. On the right and in the bottom it also shows the total amounts of quotes and codes per code group and per interview transcript.

The following paragraphs are the detailed explanation of the subjects, and connects the interviews together per theme, both on a physical and organizational level.

	1: GP3 68	2: GP2 46	3: RHO 37	10: GP1 39	11: LHV 42	Totals
Financieel 4 55	10	3	15	6	21	55
Fysieke praktijk 4 79	17	18	15	13	16	79
Organisatievorm 8 33	10	6	2	9	6	33
Patientgericht 3 39	15	14	1	7	2	39
Professionele ondersteuning 7 83	15	15	22	8	23	83
Regionale verschillen 3 57	20	9	9	14	5	57
Samenwerking 3 61	18	10	12	17	4	61
Sentiment 4 139	35	27	25	22	30	139
Toekomst 2 38	5	8	14	3	8	38
Totals	145	110	115	99	115	584

Figure 7.28 – Frequency of quotes per code group and per interview transcript. Source: ATLAS.ti.

7.3.2 Physical level

A) Physical – geographical characteristics

The analysis in 0 already indicated that there are interesting geographic differences in general practitioner distribution. One of the interviewed general practitioners indicated that the culture is an important aspect of how the general practitioner is positioned:

"I say: the doctor should be between the school and the butcher." (GP2)

This indicates a certain degree of cultural integration, a feeling of 'knowing what's going on'. This close distance is not only relevant for the GP, but also for the patient. One GP mentioned that specifically elderly people have a hard time getting to the doctor: *"people have to walk 800 meters to reach the provincial road. On the provincial road, there is a bus stop, but all the elderly people living there can't manage that" (GP2)*. Although these aspects were mentioned by rural general practitioners, the RHO organization mentioned that this is a nationwide problem that is currently emerging: *"What is being strongly focused on and invested in now is the enormous aging population expected by 2040." (RHO).* Meanwhile, for urban GPs that have a relatively younger population, this is not so much the case: *"We have a relatively young population, so we think, yeah, make an effort to come to us. People don't live far away, because they live in our neighborhood, so they can come relatively easily." (GP1)*

Not just the general practitioner or the patient is affected by the geographical characteristics, this also concerns the secondary care domain. One rural GP mentioned that due to a large distance to a hospital, low-complex medical-specialistic interventions are being executed by the GP practice:

"Because we are in a small village, we handle a lot of the care ourselves,

including minor surgery, gynecology, spirometry, blood sampling—basically as much as possible ourselves." (GP3), indicating a strong independent character and a slight move towards scenario 2 in 7.2.4. The other rural participant pointed out the local outpatient clinics to compensate for the distance to the hospital: *"The hospital now also has outpatient clinics, like here in [small town], which include gynecology, dermatology, orthopedics, and internal medicine. These are the clinics with the most questions in this region." (GP2).* Again, it seems that rural practices have a stronger incentive to take an active role in the more complex care matters.

B) Physical – socio-demographical characteristics

The analysis in paragraph 7.1 and paragraph 7.2 already indicated that there are large demographic differences in general practitioner distribution. This is not just a factual difference, but it's also a cultural difference which is noticed by general practitioners. One rural GP who had also worked in urbanized areas mentioned this:

"In the village, I notice that there are more caregivers. There's more awareness."

Like when someone says, 'Hey, I haven't seen the neighbor's curtains open all day,' that wouldn't happen in [large city]". (GP3)

Interesting to notice is that apparently people tend to take closer care of each other in rural areas but that the same people can actually be fairly reluctant to visit a doctor. One rural GP gives an example: *"A farmer who actually says: I fell off the small ladder. When I get there, it turns out to be a 3-meter-high*

ladder because he was working on the roof. And I'm like, wait a minute,

"if I had known this, I would have called the ambulance right away"

because this is a much higher ladder." (GP3). In general, the same rural GP says the following about her patients: *"People here who ask for a visit; then I go because I think, that's strange. These people would have definitely come otherwise. So what's going on here?" (GP3).* Strikingly enough, the urban GP experiences this exactly the opposite way: *"We're trying not to make [external visits] too easy now. Because*

"if you go to people once, they will want you to come to them again next time."

"For us, it's more like:

"Let's make sure they can read the website thuisarts.nl in Turkish, so they don't have to call for every little thing." (GP1)

This GP said it's often out of fear that they contact a doctor: *"people come to us more often with non-medical problems, right? So, people who literally come with mosquito bites just out of fear. A lot of fear, I think." (GP1).*

C) Physical – practice characteristics

All GP's mention the fact that proximity to their colleagues is key in efficient care organization. One rural GP, working on a new health center, described it in summary in the following quote: *"I am working on building a health center 200 meters away in the village, where [health organization], dietitians, physiotherapy, etc., will be added.*

"It simply doesn't fit at this location anymore, and these times call for shorter lines." (GP3)

Meaning that close collaboration, to this doctor, is one of the most important aspects of todays practice. Another doctor confirms this: *"Just drop by the midwife, the dietitian, or the lab for a blood test in the morning, say good morning, and if I need to, I can ask, 'Hey, do you have time to do a home visit for Mr. Jansen?' That works well and is pleasant." (GP2)* Another states it similarly: *"The way I work is with short lines, so you need to see each other in the hallway. Just a quick, 'Hey, about Mrs. Jansen this, and Mrs. Pietersen that.'" (GP1).* An interesting difference for urban areas is that there is more emphasis on collaboration beyond the medical field: *"A lot of the problems people come to us with are related to [the social domain]. So, we're very happy that we can easily refer them within the center and have many partners." (GP1)* The statement was made even stronger later:

"I wouldn't even want to be without those other disciplines, because I can't imagine having to solve all those things on my own"

or just telling a patient: 'yeah, go find a physiotherapist somewhere.' " (GP1).

Not only is space increase needed for closer collaboration, also because more doctors work parttime and support staff is needed to take care of the support tasks. The regional urban organization mentioned that when talking about space problems:

“Additionally, the continuous increase in staff means that more practice space is simply needed." "Many practices have been in the same location in [city] for quite a while. However, these locations often no longer meet their needs due to the changing landscape. For example, more staff are needed." (RHO).

7.3.3 Organizational level

D) Care organizations – fellow general practitioners

What became apparent in the interviews, is the fact that it is not just the easier practical daily (inter)collegiate contacts mentioned in section C) that incentivizes the creation of shared accommodation. Other aspects that were named were financial and human resource motivations. As the regional organization states: *“I have the idea that*

“[Merging practices] is about opportunities in terms of finances, and not so much in the organization because it often does not become one practice.”

So they often remain separate practices." (RHO). This is consistent with what the general practitioners said.

Then there is the aspect of finding/and or sharing staff. When being close to one another, *"You can be closer to finding a replacement, instead of being stuck without being able to find a substitute or a locum." (GP2).* In fact, the regional organization mentioned the scenario where sharing staff is beneficial for both employer (the GP practice) and staff (employee):

"Perhaps it would indeed be smarter to make better arrangements regarding the sharing of staff.”

Not every staff member is needed for 40 hours a week. One practice might need someone for two days, and another for one day. Maybe you can support each other and offer a full-time contract collectively. And, well, when you look at the job market, that often makes you an attractive employer." (RHO)

Although physical proximity is thus a way to improve both inter- and intradisciplinary collaboration and tackle financial and staff challenges, there are regional differences in the feasibility of merging, depending on the size of the practice and the distance between care providers. Two examples by rural GPs were given why this is the case:

“If I enter into a partnership (maatschap) for my practice size, it's actually too small. It could work, but I don't find it ideal. If it grows larger, I certainly wouldn't rule it out.” (GP3). Feasibility of merging is apparently considered dependent on practice size. One could reason that putting multiple doctors together could solve this problem of size. Although another rural GP states that merging has the benefit of gaining impact, there are, however, also practical difficulties: *“Because with [merging] two [GP’s], you can do things together. But for that, it's just a bit too far apart.” (GP2).* The context of this quote is the operating area: while in Amsterdam the GP density is so large that their operating areas have a great degree of overlap (see the map in Figure 7.18), which makes sharing of staff naturally easier: *"If it doesn't work for the whole region with us, then we have [informal] contact with a number of practices nearby, so you can try to arrange it with practices who have similar patient populations." (GP1).* This is not so much the case in Groningen area, making merging more difficult in terms of health care supply coverage. This shows that possibly the same strategy in Amsterdam would not work as well in Groningen and vice versa.

E) Collaborative/advisory organizations – RHO

The regional organization mentioned the long-going trend in terms of regional health organizations (RHO). *"I think that if you look at the big picture:*

"There is simply a movement towards large-scale operations." (RHO)

A general practitioner recognized this as well, and talked about the potential benefits. *"Maybe [chains are good for] how you can establish [accommodation] and what you can ask for it. So in terms of knowledge, I think so, because the same trick you pull in [city] should, in principle, also work in [province] or [province] or [city]. So in that respect, yes, but in other ways? No, I don't think specifically." (GP2).* Interestingly enough, this development has been going on since 2006 (when health organizations started procuring health care in a chain structure rather than from the individual GPs): *"It was organized by the general practitioners: 'We are going to purchase chain care.' Because if it has to go through the [individual] practice, then we need to set up an organization with a small management team above it." (RHO).* This development of local initiatives did not have nationwide coordination and resulted in many different forms and organizations. *"[Formation of regional organizations] all developed independently. There wasn't a plan like, 'If you do this, then we'll do that.' The general practitioners themselves looked at what they needed." (RHO).*

This means that each region has broadly speaking similar but in detail different organizations and structures, making national coordination harder. However, as will become evident in next paragraphs, the role of national agencies would not need to be to organize collaboration. That would be the role of the RHO and regional organizations. Both GP's and regional organizations in the different regions agree on this:

"How it is ultimately integrated and executed should be left to the municipalities and regional general practitioners."

They know where the needs are, where adjustments can be made, and who fits together." (GP3). A GP in another area said the same thing in different words: *"Working from the LHV board is quite distant; you should bring it back to the care groups, for example. [name] in our region, operating in [city] and its surroundings. And that is being done, but not every care group does that." (GP2).*

Interestingly enough, it was mentioned by the LHV interviewee that even though the benefits of RHO's are evident, the shaping of practices should be left to the individual GP in consultation with an actual real estate advisor. *"You need someone who really understands it. People within a RHO don't necessarily have expertise in real estate. That is truly its own discipline." (LHV)*

The benefits of regional organizations are partly overlapping those of local collaborations, but have subtle yet important differences. One example is the sharing of staff. While local practices could share a contract with a single person, a region could set up a poule of people that can be called in flexibly when needed: *"For example, a poule where you can create a shared agreement for medical assistants. Imagine if one gets sick and can't work, assistants from different practices could easily fill in.*

"Staffing is difficult and scarce in healthcare." (GP2)

The character of this poule is that of emergency and flexibility, while that of local parties is of optimal human resource allocation for the long term. The 'volume' of all the GPs together ensures that flexible work forces have enough work. This could especially be a solution for the rural area of Groningen, where twice as many practices (43% compared to 21% in

Amsterdam) report that they have a hard time finding new GPs (Flinterman et al., 2024).
The regional organization reportedly could also have a financial function. One GP states: *"This building became available, and then [...] the regional GP organization collectively financially guaranteed the plan for that building to establish one or a few new GP practices there." (GP2).* This provides security and increases potential for success.

F) Collaborative/advisory organizations – LHV
The LHV has an interesting position. Although it acts as a national party, focusing on "Advocacy, service provision and tailored advice" towards general practitioners, (LHV, 2025) it also has 19 regional departments which all have a board of representatives. Its structure is described as 'by and for general practitioners'. The benefits of local coordination have been laid out, but the national level is equally important. The association started in 1946 and has since increased its scope to a broad range of topics, including housing. Especially in the lobby domain, it seems to have a crucial role. On the aspect of advocacy: *"The LHV should [give national direction], and then you have guidance and the idea that it leads somewhere. So, the LHV could certainly play a good role in this. Absolutely." (GP1).* This underscores the importance of a nation-wide direction. Others accentuated the benefits of the service and advice providing character of LHV: *"[Person] indeed advises on sustainability as well. How can I make my building more sustainable? They have a construction book, which is now somewhat of a manual, detailing the requirements for a general practice." (GP3).*
On the area of practice management, there's a gap to fill for some general practitioners. Some GPs mention that they'd rather treat patients full-time and leave the management to a separate person or even outsource it. An urban GP put it quite sharply: *"I don't want to have to deal with finances and personnel matters every day." (GP3).* They mention that they lack a proper basis to take on that task of managing, besides their core task of treating patients:

"Being a practice owner is really something: it's somewhat covered in the training, but not enough."

Well, we did a two-day course with LHV. But you still don't really understand it, of course." (GP1). The LHV interview participant had an interesting take on this: *"There are two types of general practitioners. You have those who say, 'I became a doctor because I want to see patients, and that's what I want to focus on.' But you also have the more entrepreneurial GP who says, 'I enjoy [seeing patients], but I also really like setting up a business and dealing with things like property and establishing it.'" (LHV).* As the same participant said: after all, *"It is simply part of being a general practitioner. You don't work in a hospital; you work in a GP practice of which you are the owner." (LHV).* Helping these general practitioners manage their practice could be a task to be taken up by, for example, the LHV. The benefits were stated: *"Those who are entrepreneurial often fare much better financially because they have their revenue in order." (LHV).* A bit of business feeling – something that does not come naturally for some GPs – can apparently help quite a bit.
There are regional initiatives trying to achieve this: *"The regional organization of [city] is now also coaching and guiding more practice managers. Well, I think that's a good idea because then you don't have to figure out everything on your own or address the same issues repeatedly." (GP2).* It seems that the 'side-tasks' – beyond the care domain – are becoming more complex and more important to such a degree that it might be inevitable to make it a separate task: *"Now it has piled up with additional tasks to such an extent that people say: it is just under enormous pressure." (LHV).*

G) Authority organizations – municipality
The municipality was the actor that was mentioned most frequently throughout the interviews. Their role is quite diverse among various regions and areas. For

example, one major task of the municipality is to ensure sufficient health care supply within the boundaries of the town at subject. They have a responsibility to include (primary) care facilities in their housing development plans, as other actors likely will not do it:

“You really need to ensure that there is a facility close to the patient, and the municipality should pay attention to this.”

The builder or developer, of course, prefers just houses [for maximal revenue].” (GP2). It became clear that this is dealt with in different ways. For a smaller village, the GP said that they have to proactively reach out to the municipality for updates on developments: *“I keep telling the municipality to keep me informed because I don't want to fall into the same trap here in [town]. If you build something, make sure there's space for health care facilities. 500 [new people] is just manageable, but if it becomes more than 500, then let's see if I can handle it.” (GP2).* In Amsterdam, however, the municipality has been taking a rather active role in this for quite some time, according to a regional organization: *"In Amsterdam, they've been doing that since 2018. So, in new construction, especially large-scale new construction, they look at how many residents are expected to live here. What does that mean for general practitioner care in this neighborhood?" (RHO).* Simultaneously, the same interviewee mentioned the upcoming budget cuts as a reason why this might become less common in the future: *"When municipalities plan, you can simply include general practitioners in your planning, and you have a role in that. The difficulty in assigning a task to municipalities is that the municipal budget isn't looking great for next year, as we all know." (RHO).* A possible solution for this was mentioned by a regional organization, which is to integrate (GP) health care in municipal real estate. By doing so, their (essential) role in society becomes more central and they could benefit from funding. The comparison was made with schools: *"People receive funding for schools, etc. Shouldn't that also apply to general practitioners? And not just for general practice care, but for health centers in a broader sense, including municipal facilities and everything that comes with it. I think there are opportunities there." (RHO).* This could particularly be a solution for urban areas, because of the very high square meter prices for buildings and the absence of profit targets: *"If it isn’t a commercial party renting out the space, that's always nice because then*

“The profit motive is removed, right? So no gross initial yield of 5, 7, 10%”

something like that. Well, that does make a difference." (LHV). This brings issues along as well: one is a legal issue, one is an authority issue. *"The problem is that the municipality is not allowed to procure it privately to a party." (LHV).* On the authority matter of who decides about what: *“You are dealing with a municipality that allows you to use the space and listens to your wishes, but they are also the ones who decide: this is how it will be." (LHV).* This gives potential discrepancies and accompanying struggles between the preferences of the GP versus the municipal preferences.

The regional organization mentioned that financially tight margins are an issue that holds back an increasing number of starting GPs to develop their own practice: *"What I see is that the somewhat*

“younger general practitioners are at least trying to start a new practice. It doesn't always succeed.”

But there are more inquiries about it than a year or two ago." (RHO). Later on in the conversation, it was

revealed that this is because of the financial difficulty that comes with it: *“Q: Do you often see general practitioners encountering situations where they want to [start a new practice], but it's not possible?” “Yes, it's mainly a financial issue." (RHO).* The LHV put this issue sharply, by stating that the finance often kills the developments: *"If you can't afford it, you can say you want it, but then you won't get a loan, or you simply don't have that money in the bank. Then that’s the end of it." (LHV)* It is therefore crucial for municipalities to closely collaborate with general practitioners. *"If a municipality can think along the lines of land expenses, then you can save quite a bit of money or defer costs that you spend later for example, thus making it feasible for a GP to establish a practice somewhere." (LHV).*

H) Authority organizations – NZa

The topic of finance connects inherently to the role of the NZa. They are part of the ministry of Health, Welfare and Sports (*VWS*) and an authority by nature, meaning that they have a monitoring role in terms of finance and legislation. The NZa sets performance descriptions and maximum rates for various general practitioner activities. They also monitor whether healthcare providers and insurers comply with laws and regulations. In the interviews, the NZa was consistently addressed by all interviewees in quite an unfavorable manner regardless of the region or role of the interviewee. They specifically talked about the fact that the reimbursements are supposedly low, and that it makes the business hard to manage: *“Extremely difficult. Again, the reimbursement is not available through the NZa for this. What you get reimbursed for, you can't even pay for a student room with, so to speak.” (GP3).* This specific quote was stated by a doctor in a rural area, but the feasibility problems could actually be more precarious in urban areas: *"There isn't much money, it comes from different sources. When you add it all up,*

“You get about € 160 to € 180 per square meter for a standard practice. Well, those aren't prices you pay for 1 m² in Amsterdam." (RHO).

The same interviewee mentioned that prices could be 4 times as high, up to € 750 per square meter. And it was mentioned that this is a prevalent problem: *“The prices have really skyrocketed. Yes, even outside the [urbanized areas], so it's a widespread issue." (RHO).* This was addressed similarly by the LHV: *"If you have a budget of € 170 per square meter per year, but your actual costs are twice as high, which is not unusual for a new situation, then there must be room for that." (LHV).* When these problems were in fact addressed to the NZa by a GP, they did not get a satisfactory answer: *“The NZa is in charge of the money, and*

“They say there is no financial problem, so they can't help if they don't see a problem.” (GP3)

The prices were revised this year because the previous benchmark was from 2015. But the new pricing did not provide clarity: *"They conducted a study last year, a new cost analysis, and they ratified it on January 1st. But it is still difficult for us to determine: what exactly has been reserved for housing costs?" (LHV).* It seems there is at least some mutual understanding and clarity to win with this specific actor.

I) Authority organizations – VWS:

The ministry of Health, Welfare and Sports (VWS) is probably the actor that has the largest institutional and cognitive proximity towards the general practitioner practice. Although it works to maintain high-quality healthcare and ensures that patients can easily access GP services, its primary focus is towards improving and maintaining the public health rather than the organization of (GP) health care. An interesting issue that came up in the interviews was

the fact that the legal position of general practitioners in society is quite unique as it's both considered a basic facility and a commercial entity: *"If you say [a GP] is a basic provision, then the government should act accordingly. But now,*

"they say it's a basic provision, yet it's still commercial." *(RHO)*

This gives an awkward position for practice holders, because they are given restrictions on the one hand but are simultaneously asked to compensate shortcomings themselves. *"General practitioners are formally considered a commercial entity by law. I think that should change because I don't believe that's the case. If you look at the finances of general practice care,*

"a large portion of the money a GP can earn is set in fixed rates." *(RHO)*

Changing the legal position would give a government institution more responsibility in the provision of GP care: *"Well, that's what I think should happen nationwide. Then the Ministry of Health, Welfare and Sport (VWS) gives municipalities the task of including this, making it a social provision." (GP1).* It would not only benefit the patient, but also the general practitioner, by making public buildings available to be used by care providers such as the general practitioner. This could potentially strengthen their position in society 'between the school and the doctor', as mentioned before. So a different legal status would mean to

"allow for more use of social facilities, where the price per square meter is generally lower." *(RHO)*

This, again, is especially relevant for urban areas where the prices are very high. It was mentioned that VWS should therefore change the legal position of general practitioners, but this is actually not likely to happen: *"I think the Ministry of Health, Welfare and Sport (VWS) has a role in recognizing that general practice care is a basic provision and not a commercial entity. Yes, that would mean a change in the law, which won't happen quickly. But I think it's an important task." (GP2).*

Not only would it require a change in legislation, it would also shift (financial) responsibility from the GPs towards the government. This would likely give problems as well: *"That is, of course, very complicated and sensitive because*

"the moment the Ministry of Health, Welfare and Sport (VWS) becomes the actual client, they also need to provide funding."

and that is of course a problem." (GP3). So it seems that even though the position is awkward, a straight-forward or easy solution is not at hand.

Another – less surprising – financial and organizational challenge with this actor – which probably is not only an issue for general practitioners – is the fact that applying for subsidies requires a lot of effort. The GP who was developing a health center said: *"Just applying for subsidies is already a challenge. There are various subsidy booklets, but none specifically for healthcare. My husband has been very frustrated on my behalf. Where can you apply for subsidies? There are plenty of subsidy funds, but which ones are for healthcare?" (GP3).*

There is room for improvement here, but providing clarity or support could also be done by advisory actors that already do a lot of assistance, such as LHV or an RHO.

7.3.4 Conclusion

This chapter has delved deeper into the differences between several general practitioner practices in different areas. The conclusions are presented per category, listed from A to I. First, a concise description is given, followed by an explanation in brief bullet points.

A) Geographical characteristics

GPs indicate that a larger geographical proximity results in a more independent patient as well as GP. Rural GPs take up more tasks which in an urban area would be passed on to a fellow care professional.

- Significant geographical differences in the practice area of general practitioners affect cultural integration and community awareness.
- Distance to the general practitioner is a growing issue, particularly for the elderly, and this concern is emerging nationwide, not just in rural areas.
- Urban general practitioners with younger populations expect patients to easily visit the practice due to proximity within the neighborhood. The patients on their behalf want the doctor to visit them. This is the opposite for rural areas.
- Rural general practitioners often perform low-complexity medical-specialist procedures themselves due to the considerable distance to hospitals, indicating a strong independent character and a shift towards scenario 2 (from section 7.2.5).
- Local outpatient clinics in rural areas compensate for the distance to hospitals and address the most common issues in the region. Rural practices appear to have a stronger incentive to play an active role in more complex care.

B) Socio-demographic characteristics

Correlated to point A), patients in rural areas tend to look after themselves and each other more. Although this is considered positive, it could also mean a more complex case once they do visit a doctor. Urban GPs see more non-medical issues in their practice, often related to socio-economic matters.

- Significant demographic differences result in perceived cultural differences between urban and rural areas, such as greater social care among neighbors in rural areas.
- In rural areas, people seem to be more caring towards each other but may also be reluctant to visit a doctor or downplay problems. Rural general practitioners do more visits.
- Urban general practitioners experience the opposite; they try to avoid making home visits too easy to prevent dependency and encourage the use of online resources, such as thuisarts.nl. They often see patients coming with non-medical issues or out of fear.

C) Practice characteristics

Both urban and rural GPs stress the need for physical expansion due to financial and staffing reasons, and the benefits of physical proximity towards colleagues. Urban GPs connect more with the social domain due to the socio-economic character of many patient issues.

- Proximity to colleagues (general practitioners and other disciplines) is essential for efficient care organization and shorter communication lines.
- Collective housing in health centers facilitates collaboration with other disciplines such as dietitians and physiotherapists.
- In urban areas, there is more emphasis on collaboration outside the medical domain, such as with the social domain, as many issues are related to it. Urban GPs do not want to miss the consultation of other disciplines.
- An increase in staff requires more practice space. Many existing practice locations, especially in cities, no longer meet the requirements due to changing needs (more staff).

D) Colleague general practitioners

Merging practices enhances collaboration but its potential relies on the physical distance between two practices and their size; urban areas have more potential for joining together. Merging most often has financial and staffing motivations.

- Shared housing and collaboration among general practitioners are strongly encouraged by financial considerations and staffing needs, alongside daily contacts. Mergers often focus on financial benefits rather than becoming a single practice.
- Physical proximity facilitates finding and sharing staff and replacements. Sharing staff can be beneficial by offering flexibility and making practices more attractive as employers (e.g., collectively offering full-time contracts).
- The feasibility of mergers and collaboration depends on practice size and the distance between practices. Overlapping work areas in high-density regions (such as Amsterdam) make sharing staff easier than in less dense areas like Groningen. Different regional strategies may be necessary.

E) Regional organizations (RHO)

RHOs have an increasingly important role. Three reasons were mentioned: effective care distribution with local knowledge, enabling the sharing of staff and financial backing in new developments. This seems prevalent in all regions.

- There is a long-standing trend towards large-scale operations at regional health organizations (RHOs). These organizations can assist with housing arrangements and knowledge sharing.
- The development of regional organizations originated from local initiatives by general practitioners themselves to, for example, purchase chain care, but this occurred without national coordination, leading to many different structures.
- General practitioners and regional organizations agree that ultimate integration and implementation of care supply should lie with municipalities and regional general practitioners ("they know where the needs are").
- Regional organizations offer benefits such as setting up staff pools for flexibility and emergencies, supplementing local collaboration. Staff is scarce in healthcare. Staff pools are particularly a solution for areas where finding new general practitioners is difficult, such as Groningen.
- RHOs can also have a financial function, for example, by providing financial guarantees for setting up new practices.

F) LHV

The LHV, the organization 'by and for GPs', plays an indispensable role in the GP domain. It could strengthen its role by focusing more on practice management.

- The LHV holds a unique position as a national organization with regional branches, focusing on advocacy, service, and advice, playing a crucial role in national direction and lobbying.
- It provides practical advice on issues such as building sustainability and practice requirements.
- There is a clear need for more knowledge and support in practice management among general practitioners, who prefer to focus on patient care. Training in practice management is marginal, and regional initiatives are starting to coach practice holders and/or managers.
- Non-clinical tasks are becoming more complex and important, potentially requiring a dedicated role.

G) Municipality

Not all municipalities consider health care supply in the development of new housing, this seems to be the case more often in rural areas. They could think about incorporating GPs in municipal facilities, making it a basic provision and giving it a central position.

- Municipalities are frequently mentioned and have various roles, including ensuring adequate healthcare provision within their boundaries. They must include healthcare facilities in housing plans, as developers aim to maximize profits. Facilities should be close to patients.
- General practitioners sometimes need to proactively inform municipalities about healthcare needs in new developments. Amsterdam has been active in this since 2018, due to the impact on general practitioner care in large-scale new constructions.
- Potential municipal budget cuts could reduce this proactive role in the future.
- Integrating healthcare into municipal real estate could provide funding and centralize the role of general practitioners, similar to schools. This could help with high square meter prices, especially in urban areas, which pose a financial barrier for new general practitioners. Starting new practices is financially challenging.

H) NZa

There appears to be a lack of mutual understanding between general practitioners and the NZa regarding financial realities: GPs report a lack of sufficient funding, NZa has for a long time not acknowledged problems. Tariffs are revised this year. Financial problems supposedly appear more in urban areas.

- The NZa (Dutch Healthcare Authority) is a regulator under the Ministry of Health, Welfare, and Sport (VWS), focusing on finance and legislation, setting tariffs.
- Interviewees consistently expressed unfavorable views about the NZa, particularly regarding perceived low reimbursements.
- The reimbursement for practice space is considered too low to cover costs, especially in expensive urban areas like Amsterdam, where prices can be much higher than the reimbursement. This is a widespread issue.
- When general practitioners raised these financial issues with the NZa, they were told there was no financial problem. There appears to be a lack of mutual understanding between general practitioners and the NZa regarding financial realities.

I) VWS

The ministry, as the largest actor, is addressed for the fact that it puts the general practitioner in a remarkable (legal) position: in the Netherlands, a GP is a basic need but also a commercial entity. VWS could provide clarity by making a choice in this.

- The Ministry of Health, Welfare, and Sport (VWS) primarily focuses on guaranteed access to public health care, less on the organization and execution of (general practitioner) care.
- The legal position of general practitioners is awkward: they are seen as both a basic provision but operate as a commercial entity, leading to limitations and the expectation that practice holders compensate for shortcomings themselves. A significant portion of income is set in fixed tariffs.
- Changing the legal status to a social provision would shift responsibility to the government (VWS) and municipalities, allowing the use of social facilities at lower costs, particularly relevant in urban areas.
- Changing the legal status requires a legislative amendment, which is unlikely to happen quickly. Such a change would also shift financial responsibility to VWS, seen as problematic.
- Applying for subsidies for healthcare facilities is presumably difficult due to the lack of specific subsidy schemes for healthcare. Advisory organizations like LHV or RHO could assist with this.

Overall, it can be noted that all factors influence general practitioner housing to a certain extent. A broader sentiment that was discovered in the interviews (but – ironically – also by the lack thereof; read also the reflection on this in 10.2), is the fact that a GP often does not quite prioritize the organization of housing in their daily activities. This supposedly has to do with the fact that there are two

types of general practitioners: some 'just want to be a doctor' while others enjoy the entrepreneurial side of their job equally much. As one interview participant indicated, the second group often is financially better off than the first group. So although general practitioners don't primarily focus on it, gaining a better understanding of their finance, real estate and associated legislation can actually benefit their business.

Some factors, such as the proximity to fellow GPs, is generally regarded as an important aspect of the housing situation in all regions. The (geographically determined) potential for close proximity, however, is different for urban and rural regions. Other factors could have a distinctly different impact in either urban or rural regions. For instance, the demographic differences indicate a strong (in)dependence in rural areas, resulting in a less frequent claim on health care. Not only is the frequency different, but also the type of issues. Even though a strong primary care collaboration affects any GP positively, the potential in rural areas is larger due to the nature of the demand of care.

Organization wise, there are several groups that influence the housing equally in both rural and urban areas. This especially can be noted for financial and legislative matters. Regional and municipal initiatives are welcomed to improve the collaboration, both in terms of effective care supply distribution and the sharing of knowledge and staff.

Impact on built environment

Relating the conclusions of this section back to section 7.2.4, it can be determined whether the future scenarios actually connect to the views of the care providers.

The proximity to patients is an important factor, especially for elderly populations and those in rural areas. The quote of a GP to be embedded within neighborhoods "between the school and the butcher" highlights the importance of centrally located and close-by facilities. In urban areas, where populations are denser and more diverse, accessibility is less about distance and more about navigability and inclusivity, for example multilingual resources and easy digital access.

The shift toward better integrated care models where GPs collaborate with dietitians, physiotherapists, social workers, and mental health professionals, asks for larger, more accommodating buildings. These centers require shared spaces that support informal interactions (this can be as simple as mutual hallways or lounges) and formal collaboration (spaces like meeting rooms and consultation areas), influencing architectural design and zoning requirements. This is consistent with what was stated in paragraph 7.2.4.

In cities like Amsterdam, high real estate prices and limited space constrain the development of new practices. This has led to calls for municipal involvement in providing or subsidizing space, in the same way as how schools are treated as essential infrastructure. The reuse of municipal buildings or integration of GP practices into mixed-use developments is emerging as a potential solution, reducing the commercial pressure on healthcare providers. Using public buildings could mean an alternative scenario compared to paragraph 7.2.4; these outcomes actually hint towards a more consolidated rather than a decentralized system.

Rural GPs often perform a broader range of medical tasks due to the distance from hospitals, necessitating more comprehensive facilities within smaller communities. This decentralization of care puts new demands on infrastructure, and it could mean creating more buildings that can accommodate minor surgeries, diagnostics, and outpatient services. More extensive services per location could simultaneously mean a lower location density, so a concentration of services. That is consistent with what was mentioned before in the scenarios.

The roles of municipalities and regional health organizations (RHOs) are crucial in aligning healthcare needs with spatial planning. However, coordination varies widely across regions. A lack of nationally standardized planning frameworks for GP accommodation leads to fragmented development, underscoring the need for integrated health and spatial policy.

8 DISCUSSION

8.1 Key findings

This study has focused on exploring the impact of regional differences on the structure and development of general practitioner practices. Two regions, the GGD region of Amsterdam and the GGD region of Groningen were examined, serving as a model for urban and rural regions.

8.1.1 Demand: socio-demographic

On the demand side, it was found that people in Amsterdam – compared to the national average – are younger and have a higher income, lowering demand for care. Meanwhile, there are more single households and a higher amount of citizens with a migration background in this urban area, increasing the demand for health care. Groningen has a roughly equally high share of single households as Amsterdam, but an averagely older population. Both income and migration backgrounds are lower compared to the national average and Amsterdam. Social awareness – looking after one another as neighbors, family or friends – and citizen independence is more evident in Groningen than in Amsterdam. This lowers demand for GP care but cases could be more complex once people do decide to visit a doctor. Complexity in Amsterdam partly comes from the fact that health care needs more often are related to socio-economic issues, thus moving possible treatments beyond the medical domain. This is not so much prevalent for Groningen.

8.1.2 Supply: physical

On the supply side of care, general practitioners in Amsterdam are physically closer to the patient, closer to one another and closer to secondary and tertiary care organizations compared to Groningen. This is directly correlated to population density. The city of Amsterdam has a very high density of GPs, with a high degree of overlap in operating area, increasing the potential for a joint practice. In Groningen, the locations of GPs are farther apart but simultaneously quite evenly distributed, with a general practitioner in roughly every town or village, thus balancing the supply well. Even though general practitioners in both urban and rural regions have stressed the benefits of being close to colleagues, the potential for this is lower in Groningen due to the naturally larger distances towards fellow GPs. The implementation of IZA goals could therefore be different. General practitioners indicate that a larger geographical proximity results in a more independent patient as well as GP: rural general practitioners take up a broader range of tasks which in an urban area would be passed on to a fellow care professional. Patients in rural areas tend to look after themselves and each other more. Although this is considered positive, it could also mean a more complex case once they do visit a doctor. Urban GPs see more non-medical issues in their practice, often related to socio-economic matters. Both urban and rural GPs stress the need for physical expansion due to financial and staffing reasons, and the benefits of physical proximity towards colleagues. Urban GPs connect more with the social domain due to the socio-economic character of many patient issues. Merging practices enhances collaboration but its potential relies on the physical distance between two practices and their size; urban areas have more potential for joining together. Merging most often has financial and staffing motivations. Although there are multiple factors that affect the general practitioner practice, a significant part of GP's does not intentionally or proactively engage in real estate matters when it's not needed.

8.1.3 Supply: organizational

In terms of organizations, there are local, regional and national organizations connected to the structure of general practitioners. Local initiatives entail (often informal) contacts between general practitioners to share staff and mutual consultations. Regional directions are needed to create joint initiatives to coordinate the care supply

and improve efficiency of care. National organizations focus on the coordination and regulation of certain aspects, mostly financial and legislative affairs. Regional GP organizations (RHOs) have an increasingly important role. Three reasons were frequently mentioned: effective care distribution with local knowledge, enabling the sharing of staff and financial backing in new developments. This seems prevalent in all regions. The LHV, the organization 'by and for GPs', plays an indispensable role in the GP domain, both regionally and nationally. It could strengthen its role by focusing more on the development of practice management knowledge and skills. For the municipalities, not all of them consider health care supply in the development of new housing, this seems to be the case more often in rural areas. They could think about incorporating GPs in municipal facilities, making it a basic provision and giving it a central position. There appears to be a lack of mutual understanding between general practitioners and the NZa regarding financial realities: GPs report a lack of sufficient funding, NZa has for a long time not acknowledged problems. Tariffs are likely revised this year. Financial problems supposedly appear more in urban areas. The ministry, as the largest actor, is addressed for the fact that it puts the general practitioner in a remarkable (legal) position: in the Netherlands, a GP is a basic need but also a commercial entity. VWS could provide clarity by making a choice in this, although that brings difficulty in itself. A clear direction could provide the general practitioner with the freedom to choose an organizational form that fits the local needs best.

8.2 Interpretation of results

This research paper has made an attempt to understand the factors that affect the housing of general practitioners. It has covered a wide range of factors, ranging from geographic and socio-demographic aspects of different regions, to organizational aspects on different levels. This section relates that to the existing knowledge and literature.

8.2.1 Demand: socio-demographical

As seen in the previous section, there are multiple factors that influence the need for types of GP housing and/or organization. Part E of the Integraal Zorgakkoord (ActiZ et al., 2022) states that GPs and other primary care providers 'understand their population and address a significant portion of common healthcare needs'. This seems the right approach to effective treatment of (a growing amount and complexity of) issues, but GPs in this research have reported more elaborate and complex treatment options in, for instance, a rather 'low-complex' issue like diabetes, creating an increased workload for GPs. The expertise of other domains should be 'easily and readily accessible', but this is not always the case. The call for closer collaboration in the primary care domain is unanimous, but the implementation thus far has ranged in different regions.

Part F focuses on collaboration between GP, mental health workers and the social domain. The general practitioner supposedly endorses that idea, creating a more holistic view of patient problems. This seems more relevant for urban than rural areas, as the demographics are quite different and problems seem more focused on socio-economic status for urban areas. In rural areas, the culture is that people are more dependent on family and less dependent on GP care compared to urban areas, in some cases even resulting in a reluctancy to ask for GP help. In other words, it seems that the informal care as the base level in Figure 2.4 is more prevalent in Groningen than in Amsterdam.

Although the topic of patient journey is not explicitly covered in the results of this study, the goal of patient journey mapping is, according to Peng (2022), 'to minimize the distances patients need to travel, the time they must wait, and the number of visits required', quite a matter for healthcare demand. This goal is complimentary to what is written in the IZA but is quite patient-oriented. In some cases, the interests of patient and GP can be in fact contradicting. For instance, to minimize the distance a patient needs to travel, it means that the GP has to be close to the patient. But GPs in this research report the importance of close (informal

and real life) professional contacts with fellow care practitioners, which means exactly the opposite of spreading care: it implies that medical professionals prefer to be concentrated. An interesting topic to elaborate on this would be to study the effects of close proximity towards patients vs. close proximity towards colleagues on the effectiveness of treatments or outcomes. As noted in section 2.2.5, Winkel et al. (2023) have found a connection between personal doctor-patient relationships and effective medicine prescription, but perhaps colleague consultation could also positively impact care outcomes in a similar manner. Finding a balance is key here, and this balance could look differently in diverse regions.

8.2.2 Supply: physical

Looking back at the Integraal Zorgakkoord (IZA) in 2.2.5, it can be noted that the 'concentration and spreading' of care in part D likely has different meanings in urban and rural areas. For instance, the concentrating of specialistic care in Amsterdam means that it is still close by a patient due to overall smaller distances. For Groningen (and other rural areas) on the other hand, it can be noted that external policlinics have a more important role in order to decrease the distance to the patient without affecting the 'GP nearby' indicated in multiple parts of the IZA. So the degree to which the care is concentrated or spread could differ in different areas, as well as the type of care providers that are included in this 'concentration'.

In terms of space use, it can be observed in Figure 7.18 and Figure 7.19 that there are distinct differences in the regions. In urban areas, the shared space, the liquid model following the definition of Den Heijer (2021), has become more evident in the form of health centers. In Groningen, a relatively larger share of solo practices means a rather 'solid' way of space use: each GP has their own distinct space.

The topic of proximity is widely covered in this research paper. The definitions in Table 2.3 showed that there are multiple levels to proximity. Different geographical proximity indicates a different dependence on a general practitioner and different possibilities for organizing the distribution of GPs in a region. For GPs among each other, the social proximity is important and beneficial in daily business. The institutional proximity is mostly found in the authoritative actors, and could be improved through mutual understanding, mainly by providing clarity on legal and financial matters. This research has pointed out that there are problems in these fields, making it hard to reach the goals that are stated in, among others, the IZA agreement. The fact that general practitioners often are not actively engaged in organizing their real estate adds to that idea. Gaining knowledge in this field is beneficial because after all, a GP, besides being a doctor, also is considered a business owner.

8.2.3 Supply: organizational

Although the organizational aspects of the GP health care can be seen as part of the supply, they are still considered and discussed as a separate category. This is because some organizations go beyond the actual supply or only have a marginal role in it. It has been found that there are distinct types of actors: the care domain, advisory and/or collaborative networks and authority parties. The results of this research paper have articulated the benefits of each actor, while also pointing out critical elements. As stated in paragraph 2.2.7 and 2.2.8, other sectors such as education or the industry benefit from close physical proximity, having better relationships and collaboration. General practitioners have affirmed that they notice the benefits as well, specifically when contacts are informal. The advisory and/or collaborative networks have an increasingly important role, because GP's report increased complexity and scope of their tasks that require extra knowledge or skills. The authority actors reportedly should project policy more on the regions, creating a more tailored approach. In this discussion, a fourth group of actors is suggested; that of the private market. There have been initiatives on this, but it so far proved not to be a very stable concept. A company that took an initiative on this tried commercializing GP practices by running the practices both in terms of organization and staff. It lead, however, to practices closing because of a lack

of staffing (NOS nieuws, 2024) and therefore a decline in quality and availability of care. This company ended up going bankrupt, but the authority actors could set up quality guidelines for such initiatives, so that a balance and a form of collaboration can be found between public and private parties; between earning money and providing basic care to patients. In that way, pressure is taken away from GP's so that they can focus on treating patients, and a commercial entity can focus on running the practice.

Not only has the current state been analyzed, a glimpse of the future is given as well by developing two scenarios. By looking at future scenarios, chapter 7.2.4 has partly incorporated the change in care, looking at back at Table 1.1. For instance, for the 'change in care practice: treating illness to staying healthy', the future scenario of digitalization offers a more robust guidance for this. Monitoring can be largely done by the patient themselves, having the medical people only checking in when needed. It would give the patient more autonomy and care-on-demand possibilities. Simultaneously the Visie Huisartszorg 2035 (Raymond Wetzels et al., 2025) stresses the continued importance of in-person contacts between doctor and patient and close collaboration networks between health care professionals.

8.3 Strengths and limitations

The strength of the research lies in the fact that it compares demand and supply with each other instead of focusing on either one. Besides, most research is done either from a patient perspective, aiming to improve the accessibility for instance, or tries to aim for an increased efficiency for the GP for instance. Another strength lies in the fact that it tries to understand the regional differences rather than take a nation-wide stance, so that trying to solve regional or even local issues with national policy of implementations is avoided. This would likely not be most effective due to the scale difference and lack of a close perspective.

There are several limitations in this research, they will be discussed from here. The most evident limitation is the fact that the initial scope of the research was quite limited and could have caused the researcher to conclude about the research question without acknowledging the fact that there could be other reasons why the results came out the way they do. This was partly accounted for by including factors that came up in the qualitative part of the research.

For instance, the organizational aspects of the supply side, depicted in the bottom left in Figure 8.1, at first was not included in the research design, but

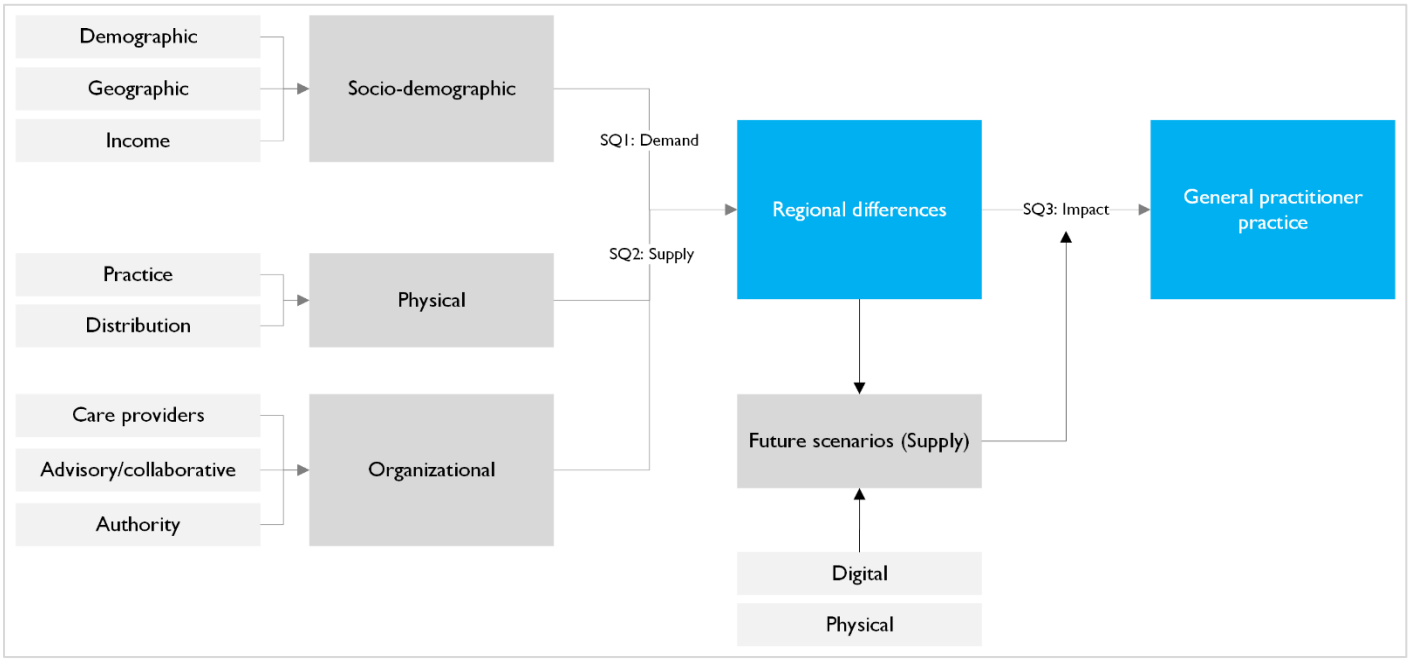

Figure 8.1 – Updated conceptual model according to how the research evolved. Source: Author.

due to these actors being frequently mentioned in the interviews, it was decided to include them as a separate part. This also resulted in the actor-network analysis which was used to visualize the organizational structure. Furthermore, the scenarios were added to the research to enrich the regional differences with a future outlook. This was not necessarily part of the demand or supply, but rather served as possible solutions for the current problems that were already indicated in chapter 1.2. Here, again, the actor-network analysis was a strong tool to demonstrate the change in structure. Overall, the conceptual model was updated (Figure 8.1) by adding the several outcomes that were not incorporated in the original model.

8.3.1 Research response

The research population and response is not very large. This has several limitations, one of which was already shown in paragraph 4.3: the questionnaire should have had a response rate of at least 35% to be scientifically sound. With a limited amount of 20 responses (of which 10 are complete), this was not nearly achieved and it could therefore not serve as a statistical representative of the whole 'GP population'. Another limitation that comes with this population is that the focus only entails a small proportion of the Netherlands (Amsterdam and Groningen). For a more comprehensive view of the issues, the questionnaire was supposed to be conducted in the whole country. That was not initially chosen in this research however, to narrow the scope down to just two GGD regions.

For the interviews the same could be said, even though this is a qualitative method so the statistical significance is not applicable. Three GPs were interviewed and even though they operate in different practice forms and in different areas, an increased number of interview participants could have broadened the scope of the findings and strengthened the interpretation of the results.

8.3.2 Comparative analysis limitations

The factors that are included in this research paper cover a multitude of subjects, but other aspects could potentially have been missed. Although literature has shown that there is a connection between location and practice in other domains such as education and businesses, there are probably a dozen other elements that could influence the collaboration (e.g. organizational culture, funding, or digital tools, which were only briefly touched upon in this research.). Again, in order to narrow the scope down the researcher chose the themes that evolved out of the data and the interviews, but other topics could provide a broader understanding of what the organization of general practitioners influences. For instance, there are aspects that were not addressed at all: macro-economic factors were not taken into account, neither were the age or experience of general practitioners, or the duration of a current GP housing situation. These could potentially deepen the understanding of why certain developments happen, and why others do not take place. These could be subjects of future research.

8.3.3 Limited insights from other care domains

A third limitation of this research is that the focus is on the health care organization from a general practitioner perspective. This is relevant because the pressure among GPs is a hot topic in the Netherlands nowadays, but this could lead to a fairly biased or single-minded conclusion about the topic of GP housing, especially when it involves multiple care domains. For a more elaborate result, interviews could have been done with physiotherapists, pharmacists, dietarians and other common primary care providers that could be in the same situation as the general practitioner. Beyond that point, even secondary care providers or the patients in the different regions could be interviewed, in order to gain a deeper understanding of their views on GP organization. Similar to the point made in earlier paragraphs, this could be an interesting focus of follow-up research.

8.3.4 Contemporary character

As stated in other parts of this thesis, health care practice is constantly changing. The results of this research could be outdated soon, as the so-called transition is currently taking place. Conditions might change as well, like the financial situation or politically different opinions. This could influence the demand as well as the supply: both general practitioner and patient could be influenced by this.

8.4 Research recommendations

There are several ways to take a next step to enrich this research. They are laid out below.

An interesting research subject would be to look at the potential difference in proximity between patient and general practitioner on the one hand, and general practitioners with other health care professionals on the other hand. Stated differently: Is there an optimal solution for closeness? Is concentrating care more effective for treatments due to closer collaboration and more frequent mutual consultations, or is a personal and local GP more effective for treatments due to a better understanding of patient problems? Outcomes could further enrich the future shaping of general practitioners.

A second recommendation that is done based on this research is to look in more detail at the general practitioner willingness to run a practice. Interviews have indicated that there are two types of GPs; one that only wants to provide care, and the other that enjoys the entrepreneurial side of the job (including real estate matters) equally much. As mentioned before in section 8.3.2, a more detailed profile of the general practitioner (age, experience, location) could show if for instance older GPs have a tendency to prefer the status quo and younger doctors like to challenge it. Lastly, it could investigate what is already happening in terms of educating or coaching general practitioners how to run a practice, and what can be done in addition to it.

The third option is to create a more holistic view of the primary care domain, because this research has focused almost solely on general practitioners. To talk to other (para)medical actors is to deepen the understanding of the potential of the health center or medical center. Perhaps they have different wishes for a building, or they prefer different organizational structures. Interviewing a physiotherapist, pharmacist or ophthalmologist could be beneficial for shaping (collaboration in) integrated health care buildings.

9 CONCLUSION

9.1 Answer to main question

The goal of this research, called *"Putting care in place – Exploring the impact of regional differences on general practitioner practice"* has been to conduct a comparative analysis of a rural and urban region in the Netherlands, in order to find characteristics that could potentially benefit or hinder certain aspects of general practitioner housing. The main question is as follows:

"What is the impact of regional differences on the general practitioner practice?"

The main findings provide the following conclusion:
The impact of regional differences on general practitioner practice is substantial, both in demand and supply characteristics. Although nation-wide policy, vision and organization is needed, the implementation should be left to regional and local parties so that demand and supply are tailored to fit the needs of a region.
Geographically and demographically, the regions of Amsterdam and Groningen are quite different. This leads to somewhat alternative types of health care demand as well as supply.
In terms of demand: socio-demographically, the regions are composed differently. People seek and need care more often in Amsterdam. People in Groningen are more independent, thus often taking care of each other rather than seeking professional care. Urban patient issues are more often connected to socio-economic issues than those of people in rural areas asking for a more holistic picture of the patient.
In terms of supply: Merging GP practices is inevitable for feasibility: it provides more robust structures in terms of financial business case and availability of staff, which is essential for the current increasing challenges regarding these topics. The potential of combining practices is larger in urban regions like Amsterdam due to overall closer proximity and the overlap of service areas. Rural regions are more independent in character, both in demand and supply. Collaboration with fellow health care professionals is viewed as crucial for all GPs regardless of the regions in order to provide effective care. Local structures can serve twofold functions: the sharing of staff and more frequent and personal consultations. Being in the same location means similar patients and similar medical issues and treatments, thus increasing mutual knowledge. Regional structures can take a lead role in the distribution and effective organization of care. National organizations coordinate nation-wide policy that could use some regional alignment and finetuning: Amsterdam has more financial issues, Groningen has more staffing issues. In both financial and legal matters, there are improvements to be made. Even though future plans and organizations are set up nation-wide, a regional coordination approach is likely more effective in tackling local issues while still having the impact of a larger collaboration. The future scenarios of increased digitalization on the one hand and continued physical focus on the other hand likely have different interpretations in the two regions. In Amsterdam there is more potential for merging physical practices, in Groningen the benefits of digitalization could overcome the larger geographical proximity.

9.2 Implications

The significance of the findings for the health care practice, the health care policy, and the built environment are discussed in this section.

9.2.1 Practice

In general, GP practices and their locations have to be rethought. A possible implication of this is that practices will be in traditionally unusual buildings or areas, for example in city centers where vacancy is high, or industrial parks where prices are lower. The GP 'between the school and the butcher' could be of the past, but it would likely ensure long-term feasibility.

For urban regions, the merging of practices would benefit both the care professional as well as the patient. It means closer collaboration and a larger range of health care services, thus improving the care supply.
For rural regions, the merging of practices would mean a larger geographical proximity towards the patient, but the care would likely be of higher quality. So, in rural areas, the implication is that quality would be prioritized over quantity. Local GPs in every village could possibly stay, but they would likely be transformed to an office-like type of practice in a smaller scale. For further examination of an illness, a patient could be requested to travel a bit further.
Lastly, it is interesting to note that GP health care is a topic that receives a lot of attention nowadays, but that the general practitioners themselves feel somewhat like they are under disproportionate pressure. This research – conducted from a GP perspective – can help relieve this pressure because it addresses bottlenecks and possible corresponding solutions from their perspective rather than from a patient perspective.

9.2.2 Policy

The most important implication for policy is that the public character of the general practitioner while being in a market-oriented context is something that should be reconsidered. Current financial, space and workforce challenges are putting the general practitioner in a tough position that demands either more financial compensation or more freedom on the entrepreneurial aspect of running a practice.
Furthermore, the results have been related to the Integraal Zorgakkoord, the major policy document for the near-future development of the Dutch care system. A lot of it is already focused on the aspect of collaboration and optimalization, but it does not fully take into account the limitations of the current system. In short, the IZA sets a lot of ambitious goals, but they might be unachievable if they are to be obtained all at once. Again, making a choice, and choosing a focus is key. Stating that GP care should be close to the patient, close to fellow care providers, financially viable, cost-effective, adapted to the digitalizing world and also focused on personal relationships lacks a realistic view on the situation. Policy should rather prioritize some of these aspects over the other, and the choice of which aspects are prioritized should be left to the regional and local levels. In that way, the regional differences are accounted for and it gives a higher chance of addressing the different challenges successfully, while maintaining the high quality of general practitioner practice in the Netherlands.

9.2.3 Real estate

This research has predominantly focused on the user and policy maker (care, authority and collaboration actors in paragraph 7.2.3). In order to connect the results with the built environment, this section aims to connect the results with real estate actors: the implications for developers, builders and financiers/ investors will be discussed.
Firstly the developers: their role is to translate health care needs into viable real estate projects. For them, regional tailoring is essential: urban areas like Amsterdam benefit from compact, flexible, and shared-use facilities, while rural areas like Groningen could require multi-functional hubs with broader service scopes. Furthermore, the developers should focus on collaboration in new developments: this research shows that close proximity between care professionals increases the collaboration, no matter the region or degree of urbanization, and that collaboration is generally increasingly important. Developers should therefore prioritize integrated health centers that co-locate GPs, social workers, and paramedics. Lastly, developers could look into creating new typologies: There's potential in non-traditional locations (for instance retail spaces or municipal buildings) for GP practices, especially in urban areas with high real estate costs.
Next, the financiers/investors are reviewed. Their role is to provide capital and manage financial risk. Similar to the point being made for the developers, investment in flexibility will likely pay off: buildings that can adapt to changing healthcare delivery models (for instance digital-first or collaborative hubs) are more resilient and future-proof. Next, they should ensure that models reflect regional

feasibility. Urban areas may offer higher returns through density, while rural areas may require public-private partnerships or blended finance models. Aligning the (government) policy is crucial in this, since this research has highlighted the tension between the GP public role and their simultaneously commercial status. Financiers should therefore monitor policy shifts (like changes in NZa tariffs or VWS regulations) that could affect rentability and return of investment. Lastly but certainly not least, investors can develop more supportive ownership models, which focus on leasing structures or co-investment models (of multiple care domains) that reduce the burden on GPs, especially younger ones who may lack capital but want to start a practice.

Lastly, we will look into the implications for builders and contractors. Their role is to execute the physical realization of health care spaces. A major takeaway for this category, similar to the former two, is that they should aim to build for adaptability. Construction could for instance allow for modular upgrades, such as converting consultation rooms into telehealth booths or shared workspaces. An important finding from the interviews is that builders should be aware that GPs value informal contact with colleagues. Designing for short lines of communication through shared corridors and open lounges supports this, while keeping in mind a patient privacy. The task in terms of construction will likely be diverse in the different areas. Especially in urban areas, where space is scarce and expensive, builders should be prepared to redesign existing buildings or work within tight spatial constraints. For rural areas, the challenge could lie in the fact that a building should meet the needs of a wide range of users, due to the proposed rather consolidative character of health care organization.

9.3 Recommendations

The following recommendations are made, following this research:

1. GP's in both urban and rural regions have stressed the benefits of close collaboration with fellow health care professionals. In new developments or the remodeling of practices, this should be a primary objective.
2. Merging practices is both inevitable and beneficial for the general practitioner. Involved actors should focus on enabling this.
3. Real estate actors should prioritize adaptable, regionally tailored and combined healthcare spaces by investing in flexible designs, integrated 'care hubs' and supportive financial models that align with the evolving healthcare needs and policies.
4. Regional GP organizations (RHOs) and collaborative networks should have a lead role in the coordination of GP health care. Key points of attention are the effective distribution of care with local knowledge, easier sharing of staff and financial backing of new developments.
5. The increased complexity of 'side-tasks' beyond taking care of patients for GPs could mean that a separate governmental or private organization specifically for these tasks might be of added value. Close monitoring is needed, however, as recent examples show mixed results.
6. Organizations like LHV have a crucial role in the GP domain, but they could take up a leading role to help GPs in practice management. Currently, some GPs experience a lack of guidance or a 'know-how'.
7. Municipalities should by default include health care in new real estate development plans. Including GP and other primary care facilities in public real estate should at least be considered as an option.
8. NZa will have to work on clarifying its financial plans and adjusting them more regularly to economic and/or market developments.
9. The ministry of VWS should re-evaluate the legal status of GPs. The twofold nature of being a basic need yet simultaneously being a commercial entity causes GPs to operate in a virtual vacuum.

10 REFLECTION

10.1 Personal learning experience

Overall, this research topic was quite enjoyable to work on. The topic of health care housing was an uncharted area for me as the researcher, and the learning curve therefore was quite steep. Knowledge was acquired about the actors involved in general practitioner housing. There are different categories of parties that have considerably distinct impacts on GP housing, one being more literal and another being more political. This is the case in most sectors, of course, but to scrutinize them in the health care practice was a scope broadening activity.

In terms of academic research, conducting interviews was a new territory as well. It was quite interesting to talk to professionals in their own fields, as it either strengthened or debunked assumptions I had about the general practitioner. I enjoyed the conversations and would have liked to conduct more interviews, as I experienced that they are very passionate about their profession and are keen to elaborate on the different aspects – both the successes and challenges – of their daily work. The reciprocal enthusiasm was experienced many times. For example, on one occasion at the start of an interview, I started asking questions about the GP practice right away when the interviewee suggested we could introduce ourselves first. That was an amusing moment.

10.2 Challenges and solutions

The fact that the health care domain was new for me, also meant that the challenges encountered were fairly unknown and required flexibility to adapt to these unforeseen research changes. There were several challenges to this research which are discussed below.

Firstly, the original research design did not quite work out as anticipated: the plan was to spread a survey among general practitioners and conduct interviews based on the outcomes of that survey.

Figure 10.1 – Post for the spreading of the questionnaire. Source: LinkedIn.

The struggle had to do with a limited reach of the questionnaire. The intention was to ask LHV, NHG or Nivel to spread the survey, so that it would reach GPs in the whole country. These groups were approached

and they appeared mostly interested in the research (e.g. Nivel agreed on meeting to discuss the survey before distribution to help me review it and make some improvements), but they did not want to assist in spreading the survey. Understandable, as I learned later, due to the fact that there are many similar requests by all types of researchers. This is why, instead of using an official channel, a LinkedIn post was created and people working at the organizations did share that post on a personal title. The post is depicted in Figure 10.1.

The LinkedIn post had a large reach: more than 10.000 impressions and 11 reposts, of which a large share was in the medical domain. It did attract multiple critical comments (see Figure 10.2) about the fact that the GP was described as 'gatekeeper', which supposedly is not quite a correct description according to the GPs that commented. I changed the unfortunate phrasing in the post so that my intention came across more accurately. The commotion did mean promotion, as it increased the reach by a large portion in a few days. Unfortunately it did not result in more survey answers.

Figure 10.2 – Critical general practitioner comments, suggesting the inaccuracy of formulations in the post. Source: LinkedIn.

The large gap between the views of the LinkedIn post and actual survey answers could have two reasons: the post did not sufficiently persuade GPs to fill in the survey, or GPs (whether deliberately or not) choose not to prioritize matters on housing, due to more important matters. The first reason is a matter of effective communication by me as the researcher, the second reason is quite an interesting addition to the findings of this research: it underscores the fact that maybe general practitioners often want to focus on giving care rather than on the 'side matters' such as their housing.

The lack of survey responses meant that the survey was altered from separate research instrument to being an addition to the other instruments and findings; it did not have the quantitative weight to be statistically significant, but it still did provide the research with additional information.

The suggested nonpriority for housing matters among GPs resonated in the research instrument of the interviews as well. I approached more than 50 GPs (either by directly calling or emailing), but almost all declined the interview request, stating that they either did not have time or simply did not want to participate. It was experienced as 'walking into a figurative wall of non-response'. It was unexpected mostly because the topic of GP housing is socially quite relevant but the direct object of that topic was not willing to participate. One explanation could be that there are several national research bureaus (LHV, Nivel) that conduct regular research on this topic, and that a master's thesis is simply not compelling enough to participate in, due to its limited scope and timeframe.

The research originally started out with a focus on proximity. Although the current findings have a strong scent of that concept, it is not the main issue at hand anymore. That has to do with the fact that during the execution, I experienced that it was too narrow to be the single concept to focus on in this master's thesis. It could, for instance, be interesting as part of a PhD research where time and resources are not as limited so that it can be fully defined and scrutinized. Due to a relatively short amount of time, I opted to reevaluate the scope of the design and came to the conclusion that broadening the view to all types of aspects would likely give a more comprehensive and applicable result.

That scope change did require some time and thought. I had to review my production up to that point: what can stay, what has to leave, what can be reformulated so that it can be used in an alternative way? It firstly resulted in a messy process of writing new parts while also changing previous parts, but I believe it did improve the overall structure and outcomes of the research.

10.3 Professional growth

In terms of professional development, this research has contributed to an increased understanding of how housing developments for general practitioners take place and the several (often nationally operating) players that have an impact on it. What makes this sector interesting is that the financial margins are quite small compared to actual commercial real estate developments. In the masters track of Management in the Built Environment (MBE), most projects and subjects focus on either commercial development or public housing developments. To understand this niche of general practitioner housing (development) is to increase the knowledge outside of the realm of the master track of MBE. It provides me with a tool box for potential future jobs in the sector.

It was also quite interesting to be introduced to the political influence on the health care sector. Not only did the LinkedIn post illustrate that, but multiple actors were mentioned in the interviews that had smaller or larger disagreements with each other on what the organization of general practitioners should look like. Even among GPs there are different perceptions of how certain things should addressed.

10.4 Feedback and adjustments

Interestingly, my initial graduation direction started out with a focus on digitalization. Then later on, it changed to fitting primary care practices into inner city vacant buildings. This was then changed from looking at solutions to analyzing the status quo first. That ultimately lead to the current research design and outcomes: what the effect is of regional differences on general practitioner structures and organization. During this trajectory, several points of feedback were given and incorporated.

A first starting point is the change of research from a focus on so-called inner city possibilities to a zoomed out view on health care. My mentors made me aware that jumping directly to solutions might actually not first address the problem coherently, which meant that finding a solution would not actually solve the problem rightly. That made me zoom out to look at the ‘problem’ first, and to focus on regional differences.

Besides, several additions were made for my literature basis. For instance, my second mentor suggested that I could focus on the type of space, the solid, liquid and gas states. This added a dimension to the research, as it connected several fields together (education and health care) and it provided a clear way to present the sharing and therefore use of space, especially for the future scenarios in paragraph 7.2.4.

As indicated in paragraph 8.3, the potential scenarios were a helpful way to project the regional differences on the future, something that was mentioned multiple times by my mentors. This helped my research become a document that could help actors anticipate on the changes that could happen to the health care and specifically the general practitioner sector.

My mentors also helped me in redirecting my research when the anticipated reactions to my survey and interview requests did not quite show. They changed my perspective on the research design and scope, in such a way that it did not require a lot of rethinking in the end.

Lastly, the concept of proximity was explained in literature quite extensively but only discussed in the results very briefly, and quite focused on the geographical way of looking at proximity. Both my mentors and the interviewees stressed the relevance of the other aspects of proximity as well. This was therefore more explicitly incorporated in the research, which helped to take it to a next level.

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12 APPENDIX A

Questionnaire

Vragenlijst voor huisartsen: fysieke en professionele praktijk en samenwerking

Introductie

Beste huisarts,
hartelijk dank voor uw deelname aan deze vragenlijst. Dit onderzoek richt zich op de fysieke en professionele kenmerken van huisartspraktijken en hun samenwerking met zorgverleners in de tweede lijn, en uw bijdrage daarin is van groot belang om te begrijpen hoe nabijheid en samenwerking van invloed zijn op de zorgverlening. Het invullen van de vragenlijst duurt ongeveer 10–15 minuten. Alle antwoorden worden anoniem verwerkt, beveiligd opgeslagen op de daarvoor bedoelde opslagschijf van de TU Delft en uitsluitend gebruikt voor onderzoeksdoeleinden.

Deel 1: algemene informatie

1. **Wat is de omvang van uw praktijk?**
    - Solo-praktijk
    - Kleine groepspraktijk (2–3 huisartsen)
    - Grote groepspraktijk (4 of meer huisartsen)
2. **Wat voor type gemeenschap bedient uw praktijk?**
    - Stedelijk
    - Suburbaan
    - Landelijk
3. **Hoeveel patiënten staan ingeschreven bij uw praktijk?**
    - Minder dan 1.000
    - 1.000–2.500
    - 2.500–5.000
    - Meer dan 5.000

Deel 2: fysieke kenmerken van de praktijk

4. **Is uw praktijk gevestigd samen met andere zorgverleners?**
    - Ja, met specialisten of zorgverleners uit de tweede lijn
    - Ja, met andere eerstelijnszorgverleners (bijv. Fysiotherapeuten, apothekers)
    - Nee, mijn praktijk opereert zelfstandig

5. **Hoe ver is uw praktijk van de dichtstbijzijnde tweedelijnszorgvoorziening (bijv. ziekenhuis, specialistische kliniek)?**
    - Minder dan 1 km
    - 1–5 km
    - 5–10 km
    - Meer dan 10 km
6. **In hoeverre denkt u dat de fysieke afstand tot tweedelijnszorgverleners invloed heeft op uw praktijkvoering?**
    - Helemaal mee eens
    - Mee eens
    - Neutraal
    - Oneens
    - Helemaal oneens

Deel 3: professionele samenwerking

7. **Op welke manieren werkt u momenteel samen met zorgverleners uit de tweede lijn?** (meerdere antwoorden mogelijk.)
    - Reguliere verwijsprocedures
    - Gezamenlijke patiëntenzorg (bijv. Multidisciplinaire zorgplannen)
    - Gezamenlijke consulten of vergaderingen
    - Digitale communicatie (bijv. Teleconsulten, gedeelde systemen)
    - Anders (gelieve te specificeren): _____
8. **Hoe vaak heeft u contact met zorgverleners uit de tweede lijn?**
    - Dagelijks
    - Wekelijks
    - Maandelijks
    - Zelden

9. **Hoe beoordeelt u de effectiviteit van uw samenwerking met zorgverleners uit de tweede lijn?**
    - Uitstekend
    - Goed
    - Voldoende
    - Matig
10. **Hoe belangrijk vindt u de volgende competenties in de samenwerking met tweedelijnszorg?**

Bewustzijn van patiëntgerichte zorg: een gemeenschappelijke opdracht

Niet belangrijk 1 o o o o o 5 Heel belangrijk

Open staan voor samenwerking en wederzijds respect

Niet belangrijk 1 o o o o o 5 Heel belangrijk

Duidelijkheid in taken en verantwoordelijkheden

Niet belangrijk 1 o o o o o 5 Heel belangrijk

Gedeelde kennis en verstandhouding

Niet belangrijk 1 o o o o o 5 Heel belangrijk

Tijdige en voldoende communicatie

Niet belangrijk 1 o o o o o 5 Heel belangrijk

Deel 4: verwijzingen en coördinatie

10. **Hoeveel verwijzingen naar de tweede lijn maakt u gemiddeld per maand?**

- Minder dan 10
- 10–30
- 30–50
- Meer dan 50

11. **Welke uitdagingen ervaart u bij het coördineren van verwijzingen?**

- Vertraagde terugkoppeling van specialisten
- Beperkte beschikbaarheid van specialisten
- Gebrek aan digitale hulpmiddelen voor gestroomlijnde communicatie
- Patiënt-gerelateerde barrières (bijv. Reistijd, planning)
- Anders (gelieve te specificeren): _____

12. **Vindt u dat het verwijzingsproces in uw regio verbeterd kan worden?**

- Ja, significant
- Ja, enigszins
- Nee, het proces werkt naar behoren

Deel 5: successen en verbeterpunten

13. **Welke aspecten van uw samenwerking met zorgverleners uit de tweede lijn beschouwt u als het meest succesvol?**
(open vraag)

14. **Waar ziet u de meeste ruimte voor verbetering in uw samenwerking met zorgverleners uit de tweede lijn?**
(open vraag)

15. **Welke innovatieve praktijken of oplossingen heeft u eventueel geïmplementeerd om de samenwerking met zorgverleners uit de tweede lijn te verbeteren?**
(open vraag)

16. **Hoe zou u de werkdruk in uw praktijk beschrijven?**

- Zeer hoog
- Hoog
- Gemiddeld
- Laag
- Zeer laag

Afsluiting

Hartelijk dank voor uw tijd en waardevolle inzichten. Uw antwoorden dragen bij aan een beter begrip van hoe fysieke nabijheid en professionele samenwerking de zorgverlening in nederland beïnvloeden. Indien u verdere opmerkingen of suggesties heeft, kunt u deze hieronder toevoegen:

- Opmerkingen: _____

Contactgegevens (optioneel):
als u bereid bent deel te nemen aan een vervolginterview, zou u dan uw contactgegevens hier achter willen laten:

- Naam: _____
- E-mail/telefoonnummer: _____

13 APPENDIX B

Informed consent form questionnaire

Vragenlijst toestemmingsformulier – deelnemersinformatie en openingsstatement

U wordt uitgenodigd om deel te nemen aan een onderzoek genaamd *Care in place*. Dit onderzoek wordt uitgevoerd door Manasse Heijkoop onder begeleiding van de TU Delft en adviesbureau Aestate.

Het doel van dit onderzoek is het onderzoeken van de rol van fysieke nabijheid van eerste- en tweedelijnszorg op interdisciplinaire samenwerking en zal ongeveer 10 minuten in beslag nemen. De data zal gebruikt worden voor een thesis die gepubliceerd zal worden en als input kan dienen om samenwerking te verbeteren. U wordt gevraagd om een vragenlijst in te vullen over uw praktijk, nabijheid tot andere zorgverleners en de samenwerking.

Zoals bij elke online activiteit is het risico van een databreuk aanwezig. Wij doen ons best om uw antwoorden vertrouwelijk te houden. We minimaliseren de risico's door deze data anoniem te verzamelen. De verkregen data wordt opgeslagen in de afgeschermde Repository van de TU Delft.

Uw deelname aan dit onderzoek is volledig vrijwillig, en u kunt zich elk moment terugtrekken zonder reden op te geven. U bent vrij om vragen niet te beantwoorden. Omdat dit een volledig annonieme vragenlijst is kunnen wij na ontvangst geen informatie verwijderen.

Voor vragen over de procedure of klachten kunt u terecht bij de uitvoerende onderzoeker (Manasse Heijkoop, m.heijkoop@student.tudelft.nl) of de verantwoordelijke onderzoeker (Paul Chan, P.W.C.Chan@tudelft.nl)

Door door te gaan naar de vragenlijst stemt u in met dit Opening Statement.

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
A: GENERAL AGREEMENT – RESEARCH GOALS, PARTICPANT TASKS AND VOLUNTARY PARTICIPATION		
1. Ik heb de informatie over het onderzoek gedateerd 17-02-2025 gelezen en begrepen, of deze is aan mij voorgelezen. Ik heb de mogelijkheid gehad om vragen te stellen over het onderzoek en mijn vragen zijn naar tevredenheid beantwoord.	☐	☐
2. Ik doe vrijwillig mee aan dit onderzoek, en ik begrijp dat ik kan weigeren vragen te beantwoorden en mij op elk moment kan terugtrekken uit de studie, zonder een reden op te hoeven geven.	☐	☐
3. Ik begrijp dat mijn deelname aan het onderzoek betekent dat ik een vragenlijst invul.	☐	☐
5. Ik begrijp dat de studie uiterlijk op 30-06-2025 eindigt.		
B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)		
7. Ik begrijp dat mijn deelname betekent dat er persoonlijke identificeerbare informatie en onderzoeksdata worden verzameld, met het risico dat ik hieruit geïdentificeerd kan worden met betrekking tot mijn professionele positie.	☐	☐
9. Ik begrijp dat de volgende stappen worden ondernomen om het risico van een databreuk te minimaliseren, en dat mijn identiteit op de volgende manieren wordt beschermd in het geval van een databreuk: anonieme gegevensverzameling, (pseudo-)anonimisering of aggregatie en veilige gegevensopslag met beperkte toegang.	☐	☐
10. Ik begrijp dat de persoonlijke informatie die over mij verzameld wordt en mij kan identificeren, zoals naam en emailadres niet gedeeld worden buiten het studieteam.	☐	☐
11. Ik begrijp dat de persoonlijke data die over mij verzameld wordt, vernietigd wordt wanneer het onderzoek afgerond is.	☐	☐
C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION		

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
12. Ik begrijp dat na het onderzoek de geanonimiseerde informatie verwerkt wordt in een onderzoeksverslag en mogelijk gebruikt zal worden voor verbeteren van de samenwerking tussen eerste- en tweedelijnszorgaanbieders.	☐	☐
13. Ik geef toestemming om mijn antwoorden, ideeën of andere bijdrages anoniem te quoten in resulterende producten.	☐	☐
D: (LONGTERM) DATA STORAGE, ACCESS AND REUSE		
16. Ik geef toestemming om de geanonimiseerde data in de vragenlijst die over mij verzameld worden, gearchiveerd worden als dataset in TU Delft Project Storage repository (:U) opdat deze gebruikt kunnen worden voor toekomstig onderzoek en onderwijs.	☐	☐
17. Ik begrijp dat de toegang tot deze repository open is voor academici van de TU Delft en na 10 jaar verwijderd zal worden.	☐	☐

Handtekening

_____	_____	_____
Naam deelnemer	Handtekening	Datum

Ik, **de onderzoeker**, verklaar dat ik de informatie en het instemmingsformulier correct aan de potentiële deelnemer heb voorgelezen en, naar het beste van mijn vermogen, heb verzekerd dat de deelnemer begrijpt waar hij/zij vrijwillig mee instemt.

_____	_____	_____
Naam onderzoeker	Handtekening	Datum

Contactgegevens van de onderzoeker voor verdere informatie: Manasse Heijkoop (m.heijkoop@student.tudelft.nl)

14 APPENDIX C

Semi-structured interview protocol

Het doel van deze interviews is het verkrijgen van diepgaande inzichten in hoe huisartsen hun fysieke praktijkinrichting, professionele werkzaamheden en samenwerking met zorgverleners in de tweedelijn ervaren. Dit protocol bouwt voort op de gegevens uit een eerder verspreide vragenlijst en kan dus volgens die resultaten nog worden aangepast. De interviews hebben als doel de achterliggende redenen, ervaringen en uitdagingen rondom onderwerpen uit de enquête beter te begrijpen.

Interviewstructuur

1. **Introductie (5 minuten)**
    - Deelnemer bedanken voor zijn/haar deelname.
    - Korte uitleg van het interview: dit interview bouwt voort op de vragenlijst die u eerder heeft ingevuld. We willen een beter begrip krijgen van de fysieke inrichting en professionele praktijk van huisartsen, evenals de factoren die samenwerking met zorgverleners in de tweedelijn beïnvloeden.
    - Vragen om toestemming om het gesprek op te nemen. Deelnemer benadrukken dat de vertrouwelijkheid en anonimiteit van de antwoorden gegarandeerd zijn doordat de opname na verwerking vernietigd zal worden.

2. **Warming-up vragen (5 minuten)**
    - Kunt u kort iets vertellen over uw praktijk?
    - Wat heeft u geïnspireerd om huisarts te worden en in deze regio te werken?
    - Hoe zou u de algemene zorgbehoeften van de populatie die u bedient beschrijven?

3. **Hoofdthema's en vragen (30–40 minuten)**

A. Fysieke praktijk

- Heeft u bewust voor deze praktijkstructuur gekozen?
- Hoe beïnvloedt de nabijheid (of afstand) van zorgverleners in de tweedelijn (bijv. Ziekenhuizen, specialisten) uw zorgverlening?
- Zijn er fysieke uitdagingen of beperkingen die u in uw praktijk ervaart?

B. Professionele werkzaamheden

- Wat zijn de belangrijkste onderdelen van uw dagelijkse werkzaamheden als huisarts?
- Welke hulpmiddelen, systemen of middelen zijn essentieel voor een effectieve praktijkvoering?

C. Samenwerking met zorgverleners in de tweedelijn

- Hoe vaak heeft u contact met zorgverleners in de tweedelijn?
- Kunt u de meest voorkomende methoden beschrijven die u gebruikt om samen te werken (bijv. Verwijzingen, gezamenlijke consulten, telemedicine)?
- Wat was uw meest positieve ervaring met zorgverleners in de tweedelijn?
- Heeft u uitdagingen ervaren in de samenwerking met zorgverleners in de tweedelijn? Zo ja, hoe bent u hiermee omgegaan?

D. Successen en verbeterpunten

- Welke aspecten van de samenwerking met zorgverleners in de tweedelijn werken volgens u bijzonder goed?
- Waar ziet u de meeste ruimte voor verbetering in deze samenwerkingen?
- Denkt u dat een kleinere fysieke afstand tot zorgverleners in de tweedelijn uw zorgverlening zou verbeteren? Waarom wel of niet?

4. **Afsluitende vragen (5–10 minuten)**

- Als u de zorgverlening in uw regio opnieuw zou kunnen ontwerpen, wat zou u dan als prioriteit stellen?
- Is er iets wat we niet hebben besproken, maar wat u belangrijk vindt om te delen?

15 APPENDIX D

Informed consent form interviews

Vraaggesprek toestemmingsformulier – deelnemersinformatie en openingsstatement

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Het doel van dit onderzoek is het onderzoeken van de rol van nabijheid op interdisciplinaire samenwerking en zal ongeveer 10 minuten in beslag nemen. De data zal gebruikt worden voor een thesis die gepubliceerd zal worden en als input kan dienen om samenwerking te verbeteren. U wordt gevraagd om in verdiepend gesprek te gaan met de interviewer over uw praktijk, nabijheid tot andere zorgverleners en de samenwerking.

Wij doen ons best om uw antwoorden vertrouwelijk te houden. We minimaliseren de risico's door de interview transcripts te anonymiseren waar mogelijk en pseudonymiseren waar nodig. De audioopname wordt na transcriberen vernietigd. De verkregen en verwerkte data wordt opgeslagen in de afgeschermde Repository van de TU Delft.

Uw deelname aan dit onderzoek is volledig vrijwillig, en u kunt zich elk moment terugtrekken zonder reden op te geven. U bent vrij om vragen niet te beantwoorden. U kunt ook naderhand een verzoek indienen om zich te laten verwijderen uit de verzamelde data.

Voor vragen over de procedure of klachten kunt u terecht bij de uitvoerende onderzoeker (Manasse Heijkoop, m.heijkoop@student.tudelft.nl) of de verantwoordelijke onderzoeker (Paul Chan, P.W.C.Chan@tudelft.nl)

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2. Ik doe vrijwillig mee aan dit onderzoek, en ik begrijp dat ik kan weigeren vragen te beantwoorden en mij op elk moment kan terugtrekken uit de studie, zonder een reden op te hoeven geven.	☐	☐
3. Ik begrijp dat mijn deelname aan het onderzoek betekent dat ik in een 1-op-1 vraaggesprek betrokken word, en dat daar een audio-opname van gemaakt wordt. Deze opnamen zal na transcribering naar tekst vernietigd worden.	☐	☐
5. Ik begrijp dat de studie uiterlijk op 30-06-2025 eindigt.		
B: POTENTIAL RISKS OF PARTICIPATING (INCLUDING DATA PROTECTION)		
7. Ik begrijp dat mijn deelname betekent dat er persoonlijke identificeerbare informatie en onderzoeksdata worden verzameld, met het risico dat ik hieruit geïdentificeerd kan worden met betrekking tot mijn professionele positie.	☐	☐
9. Ik begrijp dat de volgende stappen worden ondernomen om het risico van een databreuk te minimaliseren, en dat mijn identiteit op de volgende manieren wordt beschermd in het geval van een databreuk: anonieme gegevensverzameling, (pseudo-)anonimisering of aggregatie en veilige gegevensopslag met beperkte toegang.	☐	☐
10. Ik begrijp dat de persoonlijke informatie die over mij verzameld wordt en mij kan identificeren, zoals naam, emailadres en praktijkinformatie niet gedeeld worden buiten het studieteam.	☐	☐
11. Ik begrijp dat de persoonlijke data die over mij verzameld wordt, vernietigd wordt wanneer het onderzoek afgerond is.	☐	☐
C: RESEARCH PUBLICATION, DISSEMINATION AND APPLICATION		

PLEASE TICK THE APPROPRIATE BOXES	Yes	No
12. Ik begrijp dat na het onderzoek de geanonimiseerde informatie verwerkt wordt in een onderzoeksverslag en mogelijk gebruikt zal worden voor verbeteren van de samenwerking tussen eerste- en tweedelijnszorgaanbieders.	☐	☐
13.Ik geef toestemming om mijn antwoorden, ideeën of andere bijdrages anoniem te quoten in resulterende producten.	☐	☐
D: (LONGTERM) DATA STORAGE, ACCESS AND REUSE		
16. Ik geef toestemming om de getranscribeerde en gepseudonymiseerde data in de vragenlijst die over mij verzameld worden, gearchiveerd worden als dataset in TU Delft Project Storage repository (:U) opdat deze gebruikt kunnen worden voor toekomstig onderzoek en onderwijs.	☐	☐
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Handtekeningen

_____ _____ _____

Naam deelnemer Handtekening Datum

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_____ _____ _____

Naam onderzoeker Handtekening Datum

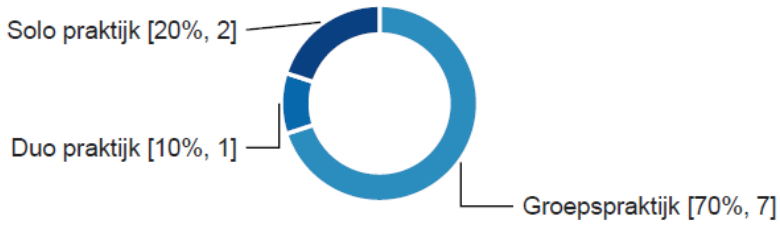
Contactgegevens van de onderzoeker voor verdere informatie: Manasse Heijkoop (m.heijkoop@student.tudelft.nl)

16 APPENDIX E

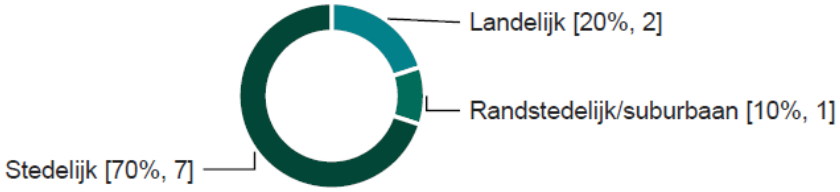
Raw survey data

1

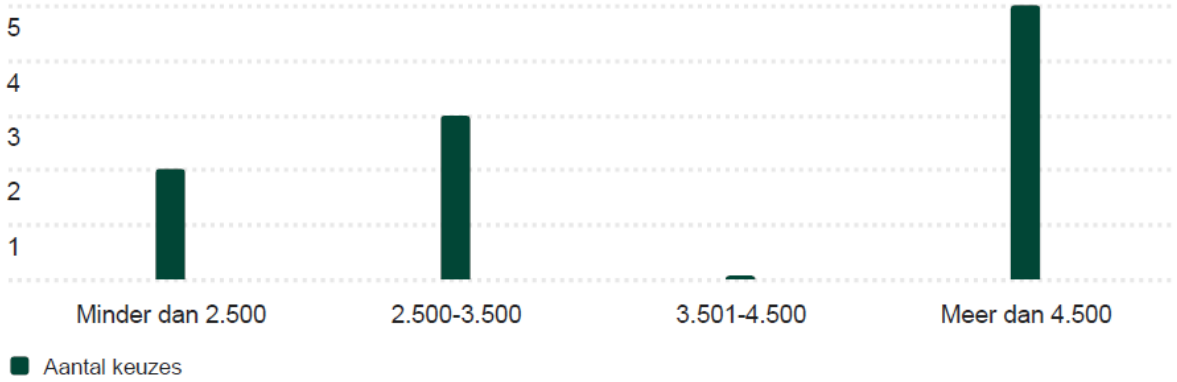
Q1 - Wat is de omvang van uw praktijk?



Q2 - Wat voor type gemeenschap bedient uw praktijk?



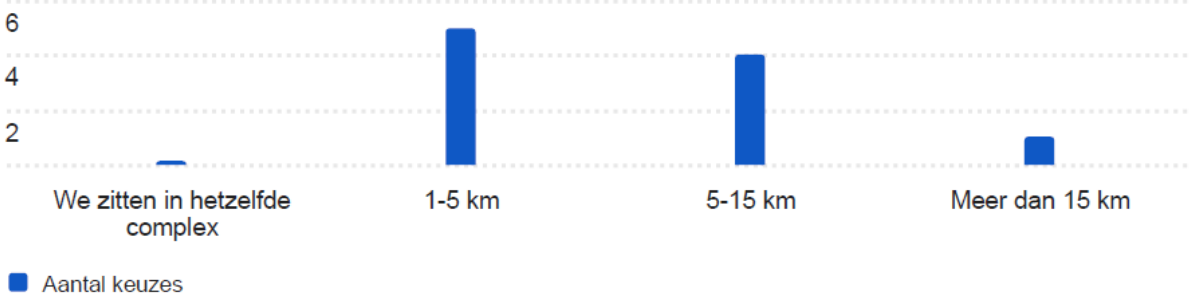
Q3 - Hoeveel patiënten staan ingeschreven bij uw praktijk?



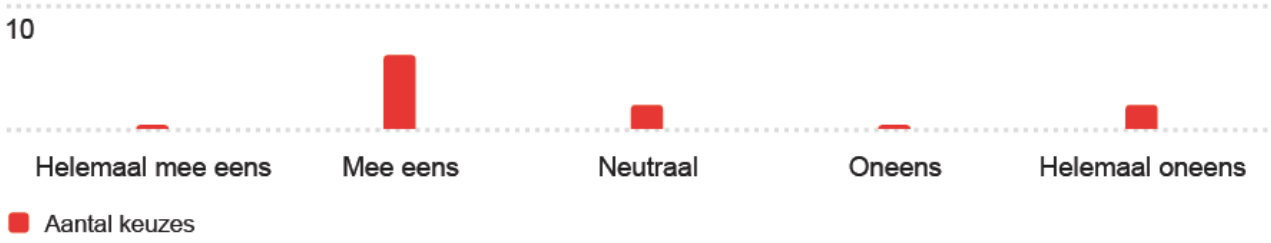
Q4_6 - Mijn praktijk is in de gemeente

Q5 - Is uw praktijk gevestigd samen met andere zorgverleners?

Q6 - Wat is de geschatte afstand van uw praktijk naar de dichtstbijzijnde tweedelijnszorgvoorziening (bijvoorbeeld ziekenhuis, specialistische kliniek)?



Q7 - Stelling: De fysieke afstand tot tweedelijnszorgverleners heeft invloed op mijn praktijkvoering.



Q8 - Wie is eigenaar van faciliteiten die u nodig heeft voor uw werk (bijvoorbeeld spreek- en behandelkamers)? - Selected Choice

Q9_1 - Deel van de consulten dat resulteert in een doorverwijzing

Deel van de consulten dat resulteert in een doorverwijzing

8,00

35,00

9,00

20,00

6,00

29,00

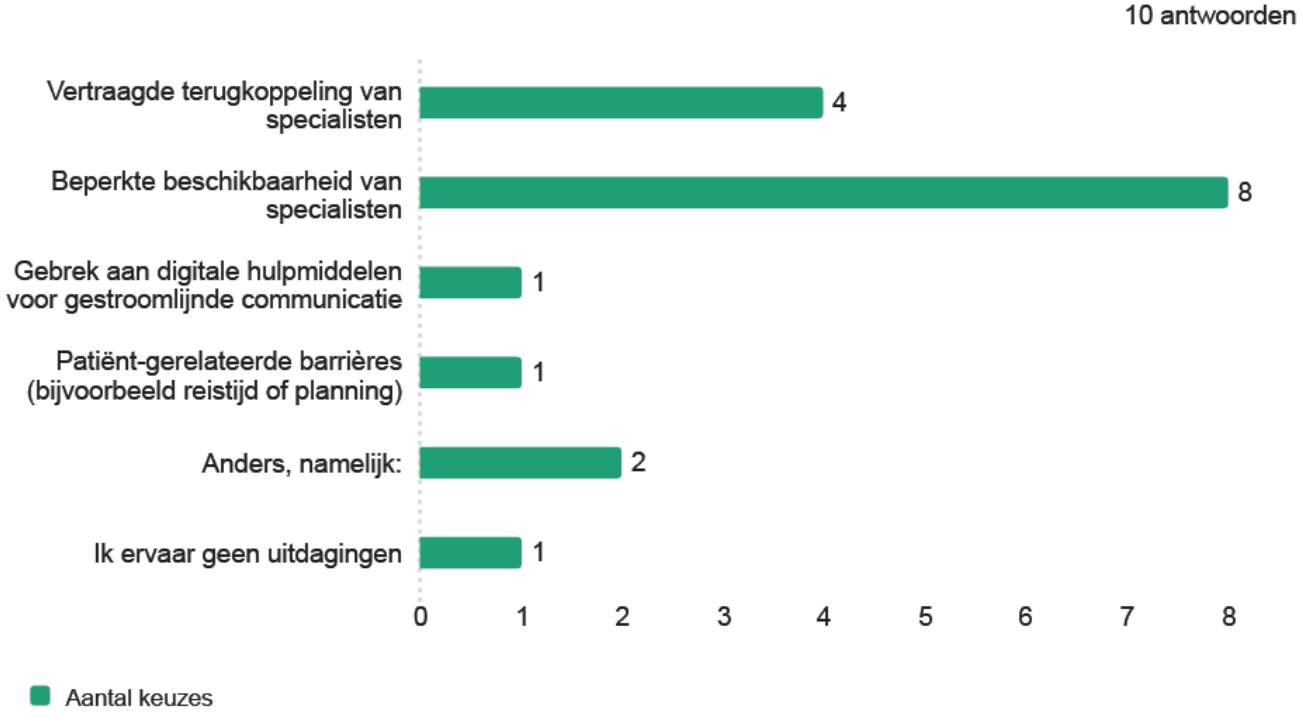
15,00

22,00

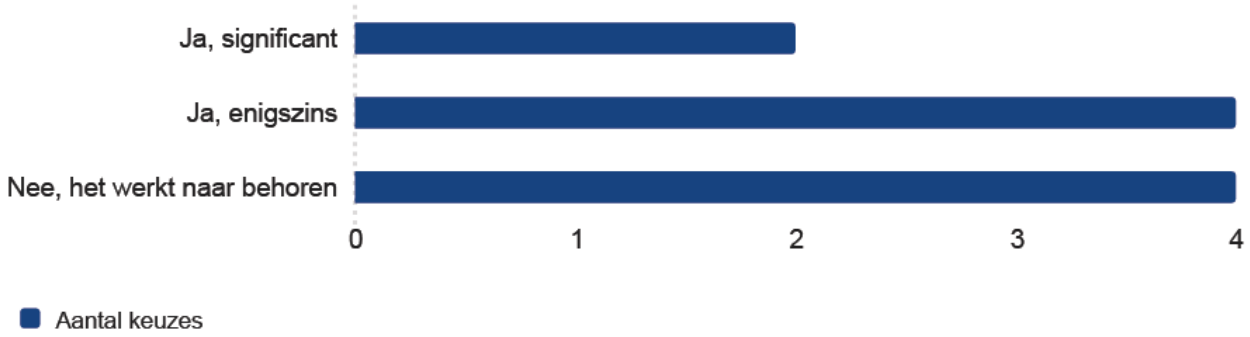
5,00

25,00

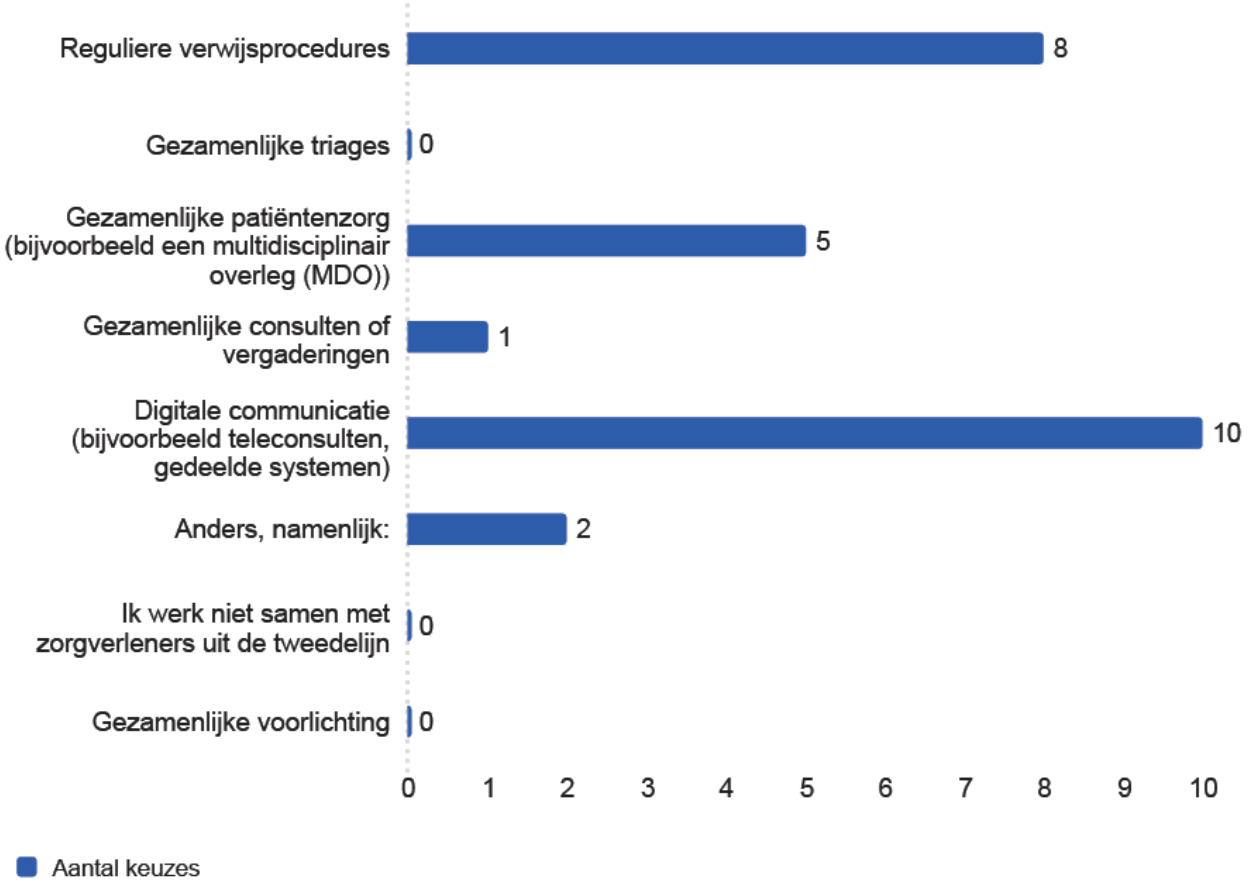
Q10 - Wat zijn de uitdagingen bij het coördineren van verwijzingen? - Selected Choice



Q11 - Vindt u dat het verwijzingsproces in uw regio verbeterd kan worden?



Q12 - Op welke manieren werkt u momenteel samen met zorgverleners uit de tweede lijn? - Selected Choice



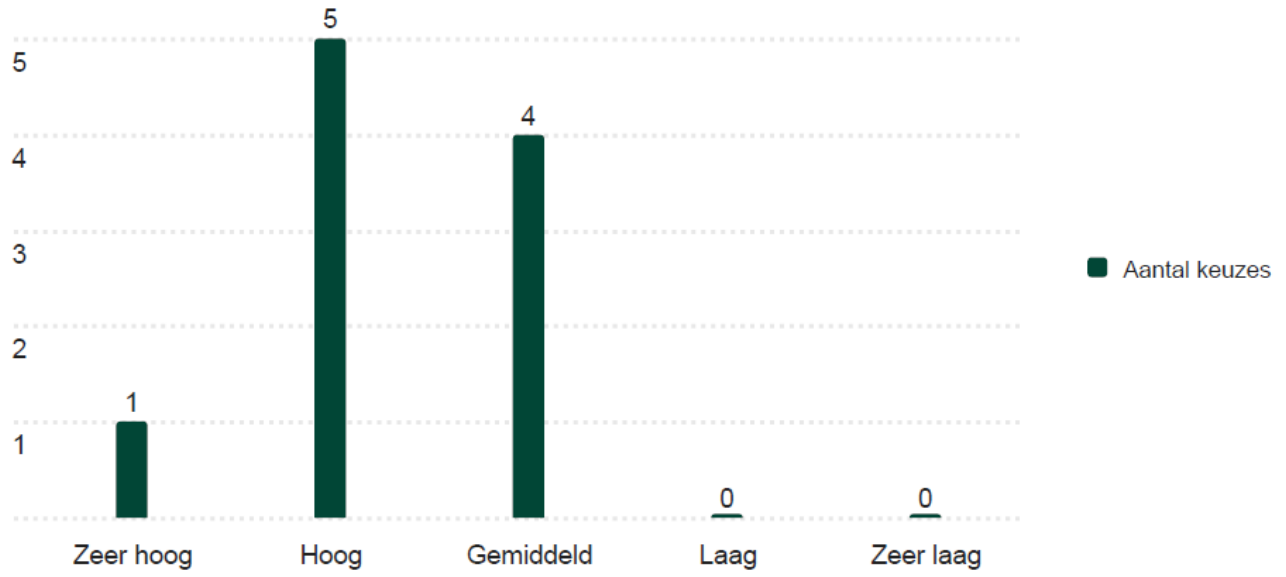
Q13 - Hoe vaak heeft u contact met zorgverleners uit de tweede lijn?

Q14 - Hoe beoordeelt u de effectiviteit van de samenwerking met de zorgverleners uit de tweede lijn?

Q15 - Hoe belangrijk vindt u de volgende aspecten in de samenwerking met andere z...

Veld	5	4	3	2	1	0
Bewustzijn van patiëntgerichte zorg: een gemeenschappelijke opdracht	5	5	0	0	0	0
Wederzijds respect	8	2	0	0	0	0
Duidelijkheid in taken en verantwoordelijkheden	4	5	1	0	0	0
Gedeelde kennis en verstandhouding	3	4	3	0	0	0
Tijdige en voldoende communicatie	4	5	1	0	0	0
Gedeelde faciliteiten	0	1	2	3	2	0
Gedeeld personeel	0	0	1	1	3	1

Q16 - Hoe ervaart u de werkdruk in uw praktijk?



Q17 - Zijn er aspecten die u mist in de manier waarop u nu gehuisvest bent?

Zijn er aspecten die u mist in de manier waarop u nu gehuisvest bent?
Het is gehorig.
Geen mogelijkheid tot uitbreiding
Tekort aan ruimte

genoeg ruimte
Meer (goedkope) ruimte
Nee

Q18 - Waar ziet u ruimte voor verbetering in de samenwerking met andere zorgverleners?

Waar ziet u ruimte voor verbetering in de samenwerking met andere zorgverleners?
Directe huisarts nummers voor intercollegiaal contact, ook buiten de ziekenhuizen
Sneller overleg mogelijk als verwijzen moeilijk is
Door dat eerstelijn dicht bij Elkaar zit, zou 2e lijn ook erbij kunnen
Bepaalde specialisten reageren vrij traag op digitale consultaties.

Praktijksituatie - ingedeeld naar mate van stedelijkheid

Wat voor type gemeenschap bedient uw praktijk?	Wat is de omvang van uw praktijk?	Hoeveel patiënten staan ingeschreven bij uw praktijk?	Wat is de geschatte afstand van uw praktijk naar de dichtstbijzijnde tweedelijnszorgvoorziening (bijvoorbeeld ziekenhuis, specialistische kliniek)?	Wie is eigenaar van faciliteiten die u nodig heeft voor uw werk (bijvoorbeeld spreek- en behandelkamers)? - Selected Choice	Is uw praktijk gevestigd samen met andere zorgverleners?
Stedelijk	Groepspraktijk	Meer dan 4.500	1-5 km	Anders, namelijk:	Nee, mijn praktijk is zelfstandig gevestigd
Stedelijk	Groepspraktijk	2.500-3.500	5-15 km	De faciliteiten worden gehuurd	Ja, met andere eerstelijnszorg verleners (bijv. fysiotherapeuten, apothekers)
Stedelijk	Groepspraktijk	Minder dan 2.500	1-5 km	De faciliteiten worden gehuurd	Ja, met andere eerstelijnszorg verleners (bijv. fysiotherapeuten, apothekers)
Stedelijk	Groepspraktijk	Meer dan 4.500	Meer dan 15 km	De faciliteiten zijn mijn eigendom	Ja, met andere eerstelijnszorg verleners (bijv. fysiotherapeuten, apothekers)
Stedelijk	Groepspraktijk	Meer dan 4.500	1-5 km	Anders, namelijk:	Nee, mijn praktijk is zelfstandig gevestigd
Stedelijk	Solo praktijk	Minder dan 2.500	1-5 km	De faciliteiten worden gehuurd	Nee, mijn praktijk is zelfstandig gevestigd

Stedelijk	Groepspraktijk	Meer dan 4.500	1-5 km	De faciliteiten worden gehuurd	Ja, met andere eerstelijnszorg verleners (bijv. fysiotherapeuten, apothekers)
Randstedelijk/suburbaan	Groepspraktijk	Meer dan 4.500	5-15 km	De faciliteiten worden gehuurd	Ja, met andere eerstelijnszorg verleners (bijv. fysiotherapeuten, apothekers)
Landelijk	Solo praktijk	2.500-3.500	5-15 km	Anders, namelijk:	Nee, mijn praktijk is zelfstandig gevestigd
Landelijk	Duo praktijk	2.500-3.500	5-15 km	De faciliteiten zijn mijn eigendom	Nee, mijn praktijk is zelfstandig gevestigd

Samenwerking - ingedeeld naar mate van stedelijkheid

Wat voor type gemeenschap bedient uw praktijk?	Stelling: De fysieke afstand tot tweedelijnszorgverleners heeft invloed op mijn praktijkvoering.	Deel van de consulten dat resulteert in een doorverwijzing	Vindt u dat het verwijzingsproces in uw regio verbeterd kan worden?	Hoe ervaart u de werkdruk in uw praktijk?	Hoe beoordeelt u de effectiviteit van de samenwerking met de zorgverleners uit de tweede lijn?
Stedelijk	Mee eens	25,00	Nee, het werkt naar behoren	Gemiddeld	Goed
Stedelijk	Mee eens	20,00	Ja, enigszins	Hoog	Goed
Stedelijk	Mee eens	15,00	Nee, het werkt naar behoren	Hoog	Goed
Stedelijk	Neutraal	29,00	Ja, significant	Zeer hoog	Voldoende
Stedelijk	Helemaal oneens	9,00	Ja, enigszins	Hoog	Goed
Stedelijk	Mee eens	8,00	Nee, het werkt naar behoren	Gemiddeld	Uitstekend
Stedelijk	Helemaal oneens	22,00	Ja, enigszins	Hoog	Voldoende

Randstedelijk/suburbaan	Neutraal	5,00	Nee, het werkt naar behoren	Gemiddeld	Uitstekend
Landelijk	Mee eens	35,00	Ja, enigszins	Hoog	Goed
Landelijk	Mee eens	6,00	Ja, significant	Gemiddeld	Goed

– End of document –

"Trust in the LORD with all your heart, and do not lean on your own understanding.
In all your ways acknowledge Him, and He will make straight your paths."

Proverbs 3:5-6

Document: Masters graduation thesis
Author: M. Heijkoop
Degree: TU Delft Architecture, Management in the Built Environment (MBE) track
Period: February 2025 – June 2025